THE 2003 CALIFORNIA ALMANAC OF EMISSIONS AND AIR QUALITY

This almanac was prepared and published by the staff of the

Planning and Technical Support Division
California Air Resources Board

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A Note from the Chairman ....

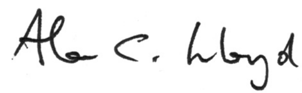
Welcome to the California Air Resources Board's 2003 Almanac of Emissions & Air Quality. This document gives the reader an excellent overview of the levels of air pollutants in different areas of our State, the sources of these pollutants, and the progress being made in reducing them. Air pollution is one of our state's most serious problems.

There are several reasons for this. California's population now numbers around 35 million and grows with each passing day. As the human population grows, so do the number of motor vehicles and the number of miles these vehicles are driven. This growth is important because motor vehicles contribute about 65% of our air pollution.

A second factor contributing to our air pollution problems is California's geography. The most heavily populated areas of our state are valleys or basins hemmed in by mountains. This geography works with a summer climate of hot, stagnant air to trap pollutants in the most heavily populated areas. In addition, the phenomena of global warming may also be adding to our air pollution problems. This is because higher temperatures can speed up the photochemical processes that produce ozone, one of the most health-damaging constituents of smog.

Though amazing progress has been made in reducing our state's air pollution (today's passenger car produces about 98% less air pollution than similar vehicles from the early 1970s), it remains a persistent public health problem. The ARB greatly appreciates the support California's citizens have given in the fight against air pollution.

I hope you find this Almanac informative and helpful. The Preface lists e-mail and telephone contacts for your questions or comments. For more information about air pollution, ways to combat it, or the Air Resources Board, visit our web site at *www.arb.ca.gov*.



CHAIRMAN,
CALIFORNIA AIR RESOURCES BOARD

Preface

This almanac was prepared and published by the Air Resources Board staff to aid air quality professionals and the public in evaluating air quality in California. The Air Resources Board, as part of the California Environmental Protection Agency, is the State board responsible for achieving and maintaining healthful air quality in California. This responsibility is shared with local air districts and the United States Environmental Protection Agency.

The following staff contributed to the production of this almanac: Vincent Agusiegbe, Jeff Austin, Edith Chang, Cynthia Garcia, Anna Komorniczak, Vivian Lerch, Michael Redgrave, Jon Taylor, and Dr. Patricia Velasco. The project was managed by Robert Fletcher, Chief of the Planning and Technical Support Division, Dr. Linda Murchison, Assistant Division Chief of the Planning and Technical Support Division, Bob Effa, Chief of the Air Quality Data Branch, Dr. Randy Pasek, Chief of the Emission Inventory Branch, Dr. Michael Benjamin, Manager of the Emission Inventory Systems Section, Gayle Sweigert, Manager of the Air Quality Analysis Section, and Karen Magliano, Manager of the Particulate Matter Analysis Section.

This is the fourth edition of this almanac which is updated annually as additional air quality and emission inventory data become available. If you find errors or have suggestions for improvements, please let us know. For general issues or issues related to air quality data, contact Marcella Nystrom at (916) 323-8543 or *mnystrom@arb.ca.gov*. For issues related to emissions data, contact Andy Alexis at (916) 323-1085 or *aalexis@arb.ca.gov*.

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The 2003 California Almanac of Emissions and Air Quality

Chapter 1: ***Introduction***

Chapter 2: ***Current Emissions and Air Quality -- Criteria Pollutants***

Chapter 3: ***Statewide Trends and Forecasts -- Criteria Pollutants***

Chapter 5: *Toxic Air Contaminant Emissions, Air Quality, and Health Risk*

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Chapter 1

Introduction

Organization

This almanac contains information about current and historical emissions and air quality in California. In addition, forecasts of projected emissions for the years 2005 and 2010 are presented. The document provides a reference for anyone interested in air quality as it relates to State and national ambient air quality standards (State standards and national standards) and to toxic air contaminants (TACs). When using this information, please remember that the emission and air quality values represent a snapshot of the data at a particular point in time. This edition of the almanac is a year 2002 snapshot of the emission inventory and air quality databases. Historical and projected emission and air quality data can change over time. For example, emission data may be revised to reflect improved estimation methods, and air quality data may be changed because of corrections or additions.

The Air Resources Board's (ARB's) emission and air quality data are available on the World Wide Web, and they can be viewed directly from the ARB's emission inventory and air quality databases. The emission inventory data can be found at *www.arb.ca.gov/emisinv/emsmain/emsmain.htm*. The emission database contains data for more than 17,000 individual facilities, such as power plants and refineries. It also includes over 400 area-wide source categories (such as consumer products and architectural coatings), and it provides data for on-road and off-road vehicles, including cars, trucks, trains, ships, aircraft, and farm equipment. In addition, data are available for natural emissions which include wildfires and petroleum seeps.

Emission inventory trends make use of historical emission inventory data and projections based on expectations of future economic and population growth and emission controls. The historical emission inventory data in this almanac were updated to reflect improvements in emission inventory methodologies. The future year projections for stationary sources are developed using the California Emission Forecasting System (CEFS) model. The future year projections are based on the 2002 emission inventory, California economic projections prepared by the air pollution control and air quality management districts and E.H. Pechan and Associates, stationary source emission control measures reported to September 2002, the EMFAC 2002 version 2.2 of the mobile source emission model, and the ARB OFFROAD model. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/sip/siprev1.htm*.

Historical air quality data can be accessed on the web at *www.arb.ca.gov/aqd/aqd.htm*. The most current air quality data can be accessed directly from the ARB's air quality database using the "Air Quality Data Summaries & Statistics" option. Using this option, the user may select the desired information, knowing that it reflects what is currently in the database. Because of the time required for sample collection, analysis, and subsequent review of the data for general use, the air quality data on the web lags behind the current date. However, the database is updated periodically, as information becomes available.

In addition to the air quality data on the web, a compact disk (CD) containing air quality data is available from the Air Resources Board. The CD contains multiple years of California air quality data: 1980 through 2001 criteria pollutant data and 1990 through 2001 toxic air contaminant data. The data are stored in ASCII files and other forms that analysts can use. The CD is available free upon request from the ARB's Planning and Technical Support Division by calling (916) 322-6076.

The emission and air quality information in the remainder of this document are based on data maintained in the ARB's emission and air quality databases. The document is divided into five chapters and four appendices, described below, which include descriptive information, graphics, and tabular data. In addition to this information, Appendix E provides lists of the Figures and Tables included in Chapters 1 through 5.

Chapter 1 contains introductory material that describes the information necessary to understand the remaining chapters. It includes information about data interpretation, emission estimating, air quality monitoring, the State and national standards, area designations for the State and national standards, and toxic air contaminants. It also includes a discussion of air quality regulation in California, a list of air pollution contacts, and a timeline of important milestones in California's emissions control programs.

Chapters 2 through 4 and Appendices A and B provide information on several of the criteria pollutants. Criteria pollutants are those pollutants for which the State and federal governments have established health-based ambient air quality standards. The pollutants described are ozone, particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead.

Chapter 2 contains information about current criteria pollutant emissions and air quality at the statewide level, including lists of the State's highest emitting facilities. It is organized by pollutant for the three criteria pollutants that still pose major air quality problems: ozone, particulate matter, and carbon monoxide. In addition to data for 2001, the most current year with complete data, preliminary ozone data for the year 2002 are also included. Chapter 2 also contains information about how air quality in California compares to other parts of the nation.

Chapters 3 and 4 include information about historical criteria pollutant emission trends and forecasts and air quality trends. Chapter 3 provides statewide information for ozone, PM_{10}, $PM_{2.5}$, CO, lead, NO_2, and SO_2. Chapter 4 gives similar information for the State's five most populated air basins: the South Coast, San Francisco Bay Area, San Joaquin Valley, San Diego, and Sacramento Valley Air Basins. The chapter focuses on ozone, PM, and CO. However, Chapter 4 also includes information on NO_2 for the South Coast and San Diego Air Basins since these two areas had NO_2 problems in the past.

Appendix A includes more detailed emission and air quality data for the criteria pollutants: ozone, PM, CO, NO_2, and SO_2. The emission trends and forecasts are given at 5-year increments from 1975 through 2010, while the air quality data cover the period 1982 through 2001 (1988 through 2001 for PM_{10}). Data are provided for all of California's 15 air basins and all counties (or county portions) within these air basins. The data are summarized in tabular format and are organized alphabetically, by air basin. ($PM_{2.5}$ air quality data are not included in Appendix A because the data are limited and not yet adequate for developing trends. However, available $PM_{2.5}$ air quality data are summarized by air basin in Chapter 2.) Appendix A also includes lists of the highest emitting facilities in each air basin. Appendix B provides air quality information similar to that found in Appendix A, but arranged by pollutant.

Chapter 5 and Appendix C provide information on toxic air contaminants (TACs). In contrast to the criteria pollutants, the control of TACs is based on a risk assessment and risk management approach. The State and federal governments have identified close to 200 TACs. This document includes information on the ten TACs that pose the greatest risk in California: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), formaldehyde, methylene chloride, *para*-dichlorobenzene, perchloroethylene, and diesel particulate matter (diesel PM). The determination of risk for the first nine TACs was based on ambient montoring data while risk for diesel PM was based on estimates of ambient concentrations.

Chapter 5 provides historical TAC emission, air quality, and health risk information for the State as a whole, and for each of California's five most populated air basins. The emission data reflect the year 2002. In contrast, the air quality and health risk trends are based on ambient data collected during 1990 through 2001. Appendix C provides more detailed information on the ten TACs, including information on the emissions in each county and the air quality and health risk information for the individual sites where TAC concentrations are routinely measured.

It is important to note that the TAC information presented in this almanac reflects only those compounds for which data are available. There may be other compounds that pose a substantial risk, but have not been identified as a concern, or do not have data available. One example is dioxins, which may pose a substantial risk, but for which ambient air quality data are not available. Furthermore, the air quality and health risk information represents general population exposures. Therefore, the data may not provide information on localized impacts, often referred to as near-source exposures. The ARB is currently participating in several studies to address localized impacts and community health issues. Information from these studies may be included in subsequent editions of this almanac.

Finally, Appendix D provides tabulated information on surface area, population, and vehicle miles traveled (VMT) for the State, for each air basin, and for each county (or county portion) within the air basins. The population and VMT trend data reflect estimates for the years 1982 through 2001.

This almanac focuses on air emissions and air quality. In April 2002, the California Environmental Protection Agency (Cal/EPA) released a set of indicators to measure California's overall environmental health. The indicators cover all media, not just air, and help us understand the causes of environmental problems, the status of the environment, and the effectiveness of our environmental strategies. The data in this almanac are good detailed indicators of the State's air quality health, and in conjunction with Cal/EPA's indicators, provide a continuum of information from detailed air quality trends to California's overall environmental health.

Interpreting the Emission and Air Quality Statistics

Interpreting the Criteria Pollutant Statistics. A number of air quality statistics or indicators are used in this document, representing both measured values and statistically derived values. In general, the 1-hour, 8-hour, and 24-hour average concentrations and the number of days above the State and national standards are measured values. In contrast, the peak indicator values and the annual averages, as well as the calculated number of days above the State and national PM_{10} standards, are statistically derived from the measured data.

The peak indicator represents the maximum concentration expected to occur once per year, on average. This site-specific indicator is based on a statistical calculation using three years of ambient data collected at a particular monitoring site. Because it is based on a robust statistical calculation, it is relatively stable, thereby providing a trend indicator that is not highly influenced by year-to-year changes in meteorology.

The annual averages are also calculated values and are based on all the data collected during a single year. In several cases, the annual average may be missing, even though other statistics, such as the maximum concentration, are listed. Because the annual average reflects concentrations measured over an entire year, the data used to calculate this average must be complete and representative for the entire *year*. In contrast, a maximum concentration is valid if the data are complete and representative for the *season* during which the highest concentrations occur. Finally, the calculated number of days above the State and national PM_{10} standards are also derived values. PM_{10} concentrations are generally measured only once every six days. Using a simple count of days above the standard tends to underestimate the actual number of exceedance days. The method for determining "calculated days" accounts for the limited data, giving a more reliable estimate of the actual number of exceedance days.

Compared with last year's almanac, this edition contains several changes to the air quality statistics for ozone and PM_{10}. For PM_{10}, the calculated number of days above the State and national PM_{10} standards in the air basin tables (Chapter 4 and Appendix B) now represent composite basinwide values. Last year these values were simply one worst-case site. In the county tables (Appendix A), the two "calculated days" statistics represent the value for the worst-case site rather than a composite countywide value, this is unchanged from last year. The PM_{10} statistics also reflect changes made to the PM_{10} standard by the Board in 2003 that require data be reported in “local” rather than “standard” conditions. For sites located at elevations above 1,000 feet, this change can result in PM_{10} concentrations that are lower than would be reported under standard conditions. This may potentially impact PM_{10} trends, which will reflect a combination of standard conditions in earlier years, and local conditions in more recent years.

In addition, the National 1-Hour Design Value and National 8-Hour Design Value ozone statistics have been renamed as the 4th High 1-Hour in 3-Years and the Average of the 4th High 8-Hour in 3 Years, respectively. These names more accurately reflect the basis for the statistics. In some cases, they may be the same as the national design value, but because they do not consider missing data, the new names are more appropriate. In addition, the maximum average of quarters for PM_{10} replaces the maximum annual geometric mean statistic. The average of quarters statistic is consistent with the revised State annual PM_{10} standard the ARB adopted in June 2002.

In general, the criteria pollutant air quality trends in this almanac represent data that have been summarized from a network of monitoring sites to characterize the air quality in a particular region (for example, a county or air basin). Whenever data are summarized, the resulting statistics may be influenced by a number of factors, including the number of monitoring sites in operation and the completeness of the data. To help in interpreting the air quality trends, the ARB has included information on the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico in its publication titled: *“California State and Local Air Monitoring Network Plan - 2002”* (June 2002). This report is available on the web: *www.arb.ca.gov/aqd/namslams/namslams.htm,* or from the ARB’s Planning and Technical Support Division by calling (916) 322-6076.

Interpreting the Criteria Pollutant Emission and Air Quality Trends. A number of criteria pollutant trends are presented in this almanac. Emission and air quality trends for the same pollutant are usually highly correlated. In some cases, however, the two trends may differ, at least in terms of the rate of increase or decrease. The comparison of emission trends to air quality trends is complex, and a number of confounding factors can affect the resulting trends, such as the impacts of transported ozone and particulate matter from one area to another. An area can show a stable (or flat) emission trend because local emission growth offsets the reductions achieved through technology, but this same area may show an improvement in air quality because ambient concentrations reflect the impact of transport from a region that has improved. Other factors that can affect air quality are meteorology and changes in monitoring sites (both site closures and the establishment of new sites). In addition, the emission data and some air quality statistics are based on estimates. These estimates use the best available methods, however, they embody some degree of uncertainty. All of these factors should be kept in mind when using and interpreting the trends.

The air quality trends in this almanac are for the period 1982 to 2001 for all the criteria pollutants except PM_{10} which is shown from 1988 to 2001. In addition, preliminary air quality data for the year 2002 are included for ozone. The emission estimates are presented at five year intervals from 1975 to 2010, the period for which we have the greatest confidence in the estimates. Generally, air quality trends are based on data which have been consistently measured over the period presented. Because of these factors, care should be taken in the use of these data either absolutely or in trend analyses.

Interpreting the Toxic Air Contaminant Statistics. This almanac includes a number of statistics for ten toxic air contaminants. These statistics are based on data collected by the ARB. (TAC air quality data are also collected by the local air districts and for special studies. However, for consistency, only data collected by the ARB are included here.) In general, TAC concentrations are sampled once every twelve days, for an average of two to three samples per month. Currently, the TAC sampling network comprises 18 sites located throughout California. The ARB originally established the network to measure the presence of TACs in the ambient air. The measured concentrations are generally used to represent average statewide concentrations and health risk. It is important to remember that concentrations can vary from one location to another. As a result, local concentrations and risks may be either higher or lower than the average values.

Chapter 5 and Appendix C contain air quality data for the ten TACs that pose the greatest health risk, based on the available ambient air quality data. The data are summarized for the State as a whole, for each of the five major air basins, and for each individual site within these air basins. As mentioned earlier, historically, the ARB staff used data from the TAC sampling network to characterize statewide average concentrations and health risks. However, this document also presents summary information for air basins and for individual sites. This information should be used with caution because the summary statistics are based on limited data. The ARB is currently involved in efforts to better characterize local or communitywide exposures, and more refined data will be included in future editions of this almanac.

Interpreting the Toxic Air Contaminant Emission and Air Quality Trends. A number of TAC emission and air quality trends are presented in this almanac. Numerous factors influence the ambient measurements, and a number of assumptions are embodied in the summary statistics. Therefore, the resulting trends should be used with caution. The most important factors are summarized below. Chapter 5 and Appendix C include both emission data and ambient concentrations and health risk estimates for the ten TACs that pose the greatest risk statewide.

The toxics emission inventory for 2002 is the most current inventory compiled by the ARB staff. The toxics emissions for stationary sources include emissions data associated with the air toxics "Hot Spots" program. For all source categories associated with diesel fuel combustion, all particulate matter or "PM" emitted from these sources was considered "diesel PM." The area-wide source emission estimates were made by either the local air pollution control districts or the ARB staff. These estimates have been speciated for toxics. Emission estimates for the other mobile source category are primarily from ARB's OFFROAD model, speciated for toxics. For the categories not currently included in the model, the emission estimates have been developed by either local districts or ARB staff. Districts may also provide estimates for categories usually developed by ARB staff. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC 2002, version 2.2 Again, the emission estimates have been speciated for toxics.

With respect to the air quality and health risk estimates, there are varying degrees of uncertainty in both the concentrations and the health risk estimates. Bear in mind that the health risk estimates reflect the estimated number of excess cancer cases per million people exposed over a 70-year period only for the ten compounds considered. In addition, the risk estimates are uncertain and actual health risk may be higher or lower than reported here. A number of factors add to the uncertainty, including the assumptions of the underlying risk factors, the assumption of a constant 70-year exposure, measurement biases and uncertainties, and the absence of ambient air quality data for diesel particulate matter, dioxins, and other TACs that may pose a substantial health risk. However, the data are very useful for comparing relative health risks (e.g., comparing the level of health risk for one compound or area relative to another).

The downward concentration trends for the TACs are real, as there have been many control measures implemented to reduce emissions. However, the overall downward trend for some compounds may be different than shown here, for several reasons. First, low concentrations are under-reported for some compounds using the U.S. EPA-approved calibration method. For example, prior to 1996, ambient formaldehyde and acetaldehyde concentrations were under-reported. A method change in 1996 corrected the bias. Because the earlier data as reported in this almanac have not been corrected, the trends appear discontinuous. This may hold true for other gaseous compounds, as well. In contrast, benzene and 1,3-butadiene concentrations during previous years were also likely under-reported, especially at low concentrations. The ARB staff resolved this problem beginning in 1999. Furthermore, the ARB staff developed correction factors for these two TACs, and the pre-1999 data presented in this almanac reflect the correction. Finally, the TAC data lack any meteorological adjustment, and variations in meteorology may affect the trends. For example, the latter years of the trend period tend to have more rain than the earlier drought years (1990-1992), and the presence of rainfall tends to lower the ambient concentrations. This may further affect the downward trends.

While most of the TACs have some missing data during the trend period caused by sampling or analysis problems, several TACs show substantial gaps in their data record. Furthermore, because of the limited sampling schedule, only two or three samples are collected at each site during any particular month. In order to calculate a valid annual average (a mean of the monthly means), data must be available for at least seventy-five percent of the potential sampling days during all twelve months of the year. As a result, only a few missing data points may determine whether a valid annual average can be calculated. If a valid annual average cannot be calculated, data for the year will appear to be missing, even though some data are available.

In addition to missing data, there have been several site changes since the TAC network began operating. In several cases, the site change occurred during the middle of a year. Because the site-by-site statistics presented in this almanac do not combine concentrations measured at different sites, an annual average for the year during which the site change occurred will be missing. Furthermore, sites with incomplete annual data are not included in either the air basin or statewide annual average for that year. This may lead to some variation in the year-to-year statistics. In particular, the average health risk estimates may include a varying number of compounds and therefore, may not be directly comparable from one year to the next. Site changes in each of the five major air basins are described in Chapter 5. A summary of the data record for all the monitoring sites and toxic air contaminants is available on the ARB's web site at: *www.arb.ca.gov/aqd/toxics/toxics.html*. In addition, information about specific gaps in the TAC data is available from the ARB Monitoring and Laboratory Division at (916) 445-3742.

Finally, it is important to note that the concentrations and health risk estimates presented in this almanac are based on ambient outdoor measurements. They do not account for any indoor exposure to TACs. However, the indoor exposures can contribute significantly to individual health risk.

California Facts and Figures

California is truly a "Land of Contrasts." The State offers a variety of physical features, including mountains, valleys, oceans, and deserts. In terms of size, California ranks third in the United States, after Alaska and Texas. California covers a total area of close to 160,000 square miles and is larger than many nations in the world today, including Great Britain, Japan, Italy, and Norway. Of California's total area, about 152,000 square miles are land, and almost 8,000 square miles are water. The Pacific Ocean forms the western boundary of California, with a coastline more than 1,200 miles long. This is nearly equal to the combined Atlantic coastlines of Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, and New Jersey.

California is blessed with a wide range of scenery and climates. The southern coastal areas enjoy a Mediterranean climate with the oak-studded hills and sunny beaches for which the State is famous. The northern coast is covered by fog-shrouded redwood forests. Inland lies the vast Central Valley with its millions of acres of cropland. The Sierra Nevada in the eastern half of California runs nearly two-thirds the length of the State. The Sierra includes the highest mountain in the continental United States, Mount Whitney, as well as the southernmost glacier in North America. Most of the southeastern portion of the State is desert, with sun-baked Death Valley, the lowest point in North America, lying only 60 miles from Mount Whitney. Further south are the scenic mountain ranges of the Mojave Desert.

To a large degree, California's pleasant climate and abundance of relatively level land are the major features that have drawn people to the State. Since 1975, California's population has increased about 61 percent, from about 21.5 million to nearly 34.8 million in the year 2001. The increase in the average number of vehicle miles traveled (VMT) each day on our roadways has been even more dramatic. VMT has increased 118 percent, from about 372 million miles per day in 1975 to over 810 million miles per day in 2001. With these dramatic increases in population and VMT have come tremendous challenges in controlling emissions to improve air quality.

Sources of Emissions in California

California is a diverse state with many sources of air pollution. To estimate the sources and quantities of pollution, the Air Resources Board, in cooperation with local air pollution control districts and industry, maintains an inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. The tables in Chapter 2 provide some examples of the types of emission sources included in each of these categories.

Stationary source emissions are based on estimates made by facility operators and local air pollution control districts. Emissions from specific facilities can be identified by name and location. Area-wide emissions are estimated by ARB and district staffs. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. Mobile source emissions are estimated by ARB staff with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. Natural sources are also estimated by the ARB staff and the air districts. These sources include geogenic hydrocarbons, natural wind-blown dust, and wildfires. Biogenic hydrocarbon emission estimates are not included in this document.

For the inventoried emission sources, the ARB compiles emission estimates for both the criteria pollutants and toxic air contaminants. Chapters 2 through 4 and Appendices A and B focus on five criteria pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide. Emissions related to these criteria pollutants include total organic gases (TOG), reactive organic gases (ROG), oxides of nitrogen (NO_x), carbon monoxide (CO), oxides of sulfur (SO_x), particulate matter with an aerodynamic diameter of 10 microns or smaller (PM_{10}), and particulate matter with an aerodynamic diameter of 2.5 microns or smaller ($PM_{2.5}$).

While some pollutants, such as CO, are directly emitted, others are formed in the atmosphere from *precursor emissions*. Such is the case with ozone, which is formed in the atmosphere when hydrocarbon and NO_x precursor emissions react in the presence of sunlight. Particulate matter (PM), which includes PM_{10} and $PM_{2.5}$, is a complex pollutant that can either be directly emitted or formed in the atmosphere from precursor emissions. PM can form in the atmosphere from the reaction of gaseous precursors such as NO_x, ROG, SO_x, and ammonia. Examples of directly emitted PM include dust and soot.

Hydrocarbon is a general term used to describe compounds comprised of hydrogen and carbon atoms. Hydrocarbons are classified as to how photochemically reactive they are: relatively reactive or relatively non-reactive. Non-reactive hydrocarbons consist mostly of methane, which in turn consists of a single carbon atom and four hydrogen atoms. Emissions of *Total Organic Gases* and *Reactive Organic Gases* are two classes of hydrocarbons measured for California's emissions inventory. TOG includes all hydrocarbons, both reactive and non-reactive. In contrast, ROG includes only the reactive hydrocarbons. For emissions inventory purposes, TOG is measured because non-reactive hydrocarbons, although relatively non-reactive, nonetheless have enough reactivity to play an important role in photochemistry that needs to be quantified for modeling purposes.

In addition to the information about the criteria pollutants, Chapter 5 and Appendix C focus on the ten toxic air contaminants that pose the greatest potential health risk, primarily based on statewide ambient air quality data. These ten TACs are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter. Excluding diesel particulate matter, the remaining nine TACs represent over 95 percent of the potential health risk as measured through the statewide TAC air monitoring network. Although diesel particulate matter is not currently monitored, emissions and modeled ambient concentrations indicate that diesel particulate matter has a higher health risk than the other nine compounds combined.

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Air Quality Monitoring

Meteorology acts on the emissions released into the atmosphere to produce pollutant concentrations. These airborne pollutant concentrations are measured throughout California at air quality monitoring sites. The Air Resources Board operates a statewide network of monitors. Data from this network are supplemented with data collected by local air districts, other public agencies, and private contractors. As shown in Figure 1-1, there are more than 250 criteria pollutant monitoring sites in California. Currently, the ARB also monitors ambient concentrations of toxic air contaminants (TACs) at 18 of these sites. In addition to the California sites, a few monitoring sites are located in Baja California, Mexico. These sites were established in cooperation with the United States Environmental Protection Agency (U.S. EPA) and the Mexican government to monitor the cross-border transport of pollutants and pollutant precursors. Each year, more than ten million air quality measurements from all of these sites are collected and stored in a comprehensive air quality database maintained by the ARB. To ensure the integrity of the data, the ARB routinely conducts audits and reviews of the monitoring instruments and the resulting data.

Figure 1-1

California Air Basins

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To better manage common air quality problems, California is divided into 15 air basins, as shown in Figure 1-2 and Table 1-1. The Air Resources Board established the initial air basin boundaries during 1968.

An air basin generally has similar meteorological and geographical conditions throughout. To the extent possible, the air basin boundaries follow along political boundary lines and are defined to include both the source area and the receptor area. However, air masses can move freely from basin to basin. As a result, pollutants such as ozone and particulate matter can be transported across air basin boundaries, and interbasin transport is a reality that must be dealt with in air quality programs. Although established in 1968, the air basin boundaries have been changed several times over the years, to provide for better air quality management.

Figure 1-2

List of Counties in Each Air Basin

Great Basin Valleys Air Basin
- Alpine County
- Inyo County
- Mono County

Lake County Air Basin
- Lake County

Lake Tahoe Air Basin
- El Dorado County (portion)
- Placer County (portion)

Mojave Desert Air Basin
- Kern County (portion)
- Los Angeles County (portion)
- Riverside County (portion)
- San Bernardino County (portion)

Mountain Counties Air Basin
- Amador County
- Calaveras County
- El Dorado County (portion)
- Mariposa County
- Nevada County
- Placer County (portion)
- Plumas County
- Sierra County
- Tuolumne County

Table 1-1

List of Counties in Each Air Basin

North Central Coast Air Basin
- Monterey County
- San Benito County
- Santa Cruz County

North Coast Air Basin
- Del Norte County
- Humboldt County
- Mendocino County
- Sonoma County (portion)
- Trinity County

Northeast Plateau Air Basin
- Lassen County
- Modoc County
- Siskiyou County

Sacramento Valley Air Basin
- Butte County
- Colusa County
- Glenn County
- Placer County (portion)
- Sacramento County
- Shasta County
- Solano County (portion)
- Sutter County
- Tehama County
- Yolo County
- Yuba County

Table 1-1 (continued)

List of Counties in Each Air Basin

Salton Sea Air Basin

- Imperial County
- Riverside County (portion)

San Diego Air Basin

- San Diego County

San Francisco Bay Area Air Basin

- Alameda County
- Contra Costa County
- Marin County
- Napa County
- San Francisco County
- San Mateo County
- Santa Clara County
- Solano County (portion)
- Sonoma County (portion)

San Joaquin Valley Air Basin

- Fresno County
- Kern County (portion)
- Kings County
- Madera County
- Merced County
- San Joaquin County
- Stanislaus County
- Tulare County

South Central Coast Air Basin

- San Luis Obispo County
- Santa Barbara County
- Ventura County

Table 1-1 (continued)

List of Counties in Each Air Basin

South Coast Air Basin

- Los Angeles County (portion)
- Orange County
- Riverside County (portion)
- San Bernardino County (portion)

Table 1-1 (continued)

Criteria Air Pollutants

California and National Ambient Air Quality Standards

Very simply, an ambient air quality standard is the definition of "clean air." More specifically, a standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Both the California and federal governments have adopted health-based standards for the *criteria pollutants*, which include but are not limited to ozone, particulate matter (PM_{10} and $PM_{2.5}$), and carbon monoxide. For some pollutants, the California (State standards) and national standards are very similar. For other pollutants, the State standards are more stringent. The differences in the standards are generally explained by the different health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the State standards incorporate a margin of safety to protect sensitive individuals (a complete list of the State and national ambient air quality standards can be found on the ARB website at *www.arb.ca.gov/aqs/aqs.htm*). In general, the air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, the particulate matter standards are expressed as micrograms of particulate matter per cubic meter of air ($\mu g/m^3$).

Ozone

Ozone, a colorless gas which is odorless at ambient levels, is the chief component of urban smog. Ozone is not directly emitted as a pollutant, but is formed in the atmosphere when hydrocarbon and NO_x precursor emissions react in the presence of sunlight. Meteorology and terrain play major roles in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often impacts a large area.

Ozone impacts lung function by irritating and damaging the respiratory system. In addition, ozone causes damage to vegetation, buildings, rubber, and some plastics. Recognizing the impacts of day-long exposure, the U.S. EPA promulgated a new 8-hour standard for ozone in 1997. Because of delays due to legal activity, the transition to the national 8-hour standard is just beginning. At this time, the national 1-hour standard continues to apply in all areas.

In 2000, the Air Resources Board transmitted recommendations for nonattainment area designations for the national 8-hour ozone standard to U.S. EPA. We plan to revisit those recommendations to reflect expected changes to federal implementation policies and more current air quality data.

State Ozone Standard:
0.09 ppm for 1 hour,
not to be exceeded.

National Ozone Standards:
0.12 ppm for 1 hour,
not to be exceeded more
than once per year *and*
0.08 ppm for 8 hours,
not to be exceeded,
based on the fourth highest
concentration averaged
over three years.

Table 1-2

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Particulate Matter (PM_{10} and $PM_{2.5}$)

Exposure to particulate matter aggravates a number of respiratory illnesses and may even cause early death in people with existing heart and lung disease. Both long-term and short-term exposure can have adverse health impacts. All particles with a diameter of 10 microns or smaller (PM_{10}) are harmful. For comparison, the diameter of a human hair is about 50 to 100 microns. PM_{10} includes the subgroup of finer particles with an aerodynamic diameter of 2.5 microns or smaller ($PM_{2.5}$). These finer particles pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health.

PM_{10} is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, organic compounds, and sulfates; and complex mixtures such as diesel exhaust and soil. These substances may occur as solid particles or liquid droplets. Some particles are emitted directly into the atmosphere. Others, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere.

In 1982, the Air Resources Board adopted 24-hour average and annual average PM_{10} standards. National ambient air quality standards for PM_{10} have been in place since 1987. However, California's PM_{10} standards are more health-protective.

In June 2002, the ARB adopted recommendations to lower the level of the PM_{10} annual standard from 30 $\mu g/m^3$ to 20 $\mu g/m^3$ and establish a new annual $PM_{2.5}$ standard of 12 $\mu g/m^3$. The ARB will proceed with recommendations for State 24-hour PM standards when results of the reanalysis of short-term PM exposure studies become available. Additional information on the State PM standards is available on the ARB's website at the following address: *www.arb.ca.gov/research/aaqs/std-rs/std-rs.htm.*

The United States Environmental Protection Agency (U.S. EPA) promulgated new national ambient air quality standards for $PM_{2.5}$ to complement the national PM_{10} standards. Implementation is now beginning.

State PM_{10} Standards:

50 µg/m^3 for 24 hours
not to be exceeded *and*

20 µg/m^3 annual arithmetic mean,
not to be exceeded.

State $PM_{2.5}$ Standard:

12 µg/m^3 annual arithmetic mean,
not to be exceeded.

National PM_{10} Standards:

150 µg/m^3 for 24 hours, not to be exceeded,
more than once per year *and*

50 µg/m^3 annual arithmetic mean
averaged over 3 years.

National $PM_{2.5}$ Standards:

65 µg/m^3 for 24 hours, not to be exceeded,
based on the 98th percentile concentration
averaged over three years *and*

15 µg/m^3 annual arithmetic mean
averaged over 3 years.

Table 1-3

Carbon Monoxide

Carbon monoxide is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. In contrast to ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Carbon monoxide is harmful because it is readily absorbed through the lungs into the blood, where it binds with hemoglobin and reduces the ability of the blood to carry oxygen. As a result, insufficient oxygen reaches the heart, brain, and other tissues. The harm caused by CO can be critical for people with heart disease (angina), chronic lung disease, or anemia, as well as for unborn children. Even healthy people exposed to high levels of CO can experience headaches, fatigue, slow reflexes, and dizziness. Health damage caused by CO is of greater concern at high elevations where the air is less dense, aggravating the consequences of reduced oxygen supply. As a result, California has a more stringent CO standard for the Lake Tahoe Air Basin.

State CO Standards:
20 ppm for 1 hour *and*
9.0 ppm for 8 hours,
neither to be exceeded.

6 ppm for 8 hours
(Lake Tahoe Air Basin only),
not to be equaled or exceeded.

National CO Standards:
35 ppm for 1 hour *and*
9 ppm for 8 hours,
neither to be exceeded more than once per year.

Table 1-4

California and National Area Designations

Both the California and federal governments use monitoring data to designate areas according to their attainment status for most of the pollutants with ambient air quality standards. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts to make the air more healthful. There are three basic designation categories: nonattainment, attainment, and unclassified. In addition, the California (State) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are making progress and nearing attainment.

A *nonattainment designation* indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. For example, in two ozone nonattainment areas, the first area has a measured maximum concentration of 0.13 parts per million (ppm), while the second area has a measured maximum concentration of 0.23 ppm. While both areas are designated as nonattainment, it is obvious that the second area has a more severe ozone problem and will need a more stringent emission control strategy. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe).

In contrast to nonattainment, an *attainment designation* indicates that the air quality does not violate the established standard. Under the federal Clean Air Act, nonattainment areas that are redesignated as attainment must develop and implement maintenance plans designed to assure continued compliance with the standard. Finally, an *unclassified designation* indicates that there are insufficient data for determining attainment or nonattainment. More detailed information on the area designation categories can be found on the ARB's website at the following address: *www.arb.ca.gov/desig/desig.htm*.

Ozone - State Area Designations

Some rural and northern coastal areas of California are designated as attainment for the State ozone standard. However, most of the rest of the State, including all of the major urban areas, have ozone concentrations that violate the State standard, and therefore, are designated as nonattainment. Although few areas have made sufficient progress to be redesignated as attainment for the State ozone standard, ozone precursor emissions continue to decline throughout California. As a result, air quality is improving, and more areas should eventually qualify for attainment status.

Figure 1-3

Ozone - National 1-Hour Area Designations

Similar to the State designations, most of the major urban areas in California are designated as nonattainment for the national 1-hour ozone standard. Ozone air quality in Butte, northern Sutter, Yuba, Santa Barbara, San Diego, and eastern Kern counties now meets the national 1-hour ozone standard, but these areas have not yet been officially redesignated as attainment. All the remaining areas of California are designated as unclassified/attainment. Ambient ozone concentrations in these areas do not violate the national 1-hour standard. However, a number of these areas violate the new 8-hour national ozone standard.

Figure 1-4

PM_{10} - State Area Designations

The majority of California is designated as nonattainment for the State PM_{10} standards. Three counties in the northern half of the State remain unclassified, and only one area, the Lake County Air Basin, is designated as attainment.

PM_{10} remains a widespread problem, and its causes are very diverse. Because of the variety of sources and the size and chemical make-up of the particles, the PM_{10} problem can vary considerably from one area to the next. In addition, high PM_{10} concentrations are seasonal, and the high season varies from area to area. For example, in some areas, windblown dust may contribute to high PM_{10} concentrations in the summer and fall, while in other areas, high concentrations due to secondary particles may occur during the winter. As a result, two areas with similar PM_{10} concentrations may have very different PM_{10} problems, and multiple control strategies are needed to effectively deal with these problems.

Figure 1-5

PM_{10} - National Area Designations

In contrast to the State PM_{10} designations, there are only two designation categories for the national PM_{10} standards: nonattainment and unclassified. Areas designated as nonattainment for the national PM_{10} standards are required to develop and implement plans designed to meet the standards. Although they are designated as nonattainment, Sacramento, Indian Wells (northeastern Kern County), and Trona (northwestern San Bernardino County) now meet the national PM_{10} standards.

Recognizing the health impacts of fine particles (those equal to or less than 2.5 microns in diameter), the U.S. EPA promulgated national $PM_{2.5}$ standards in 1997. California began deploying a $PM_{2.5}$ monitoring network in late 1998. After three complete years of $PM_{2.5}$ data are available, California will recommend, and the U.S. EPA will promulgate, nonattainment designations for $PM_{2.5}$. Until then, the actions taken to reduce ozone and PM_{10} should also help in reducing $PM_{2.5}$.

Figure 1-6

Carbon Monoxide - State Area Designations

Currently, there are only two nonattainment areas for the State CO standards: Los Angeles County and the city of Calexico, in Imperial County. California has made tremendous progress in reducing CO concentrations in the last ten years, during which a number of areas have been redesignated as attainment. Much of the progress in reducing ambient CO is attributable to motor vehicle controls and the introduction of cleaner fuels.

With respect to the nonattainment areas, the outlook for further reducing CO concentrations in Los Angeles County is good, and continued emission reductions should assure attainment sometime in the future. In contrast, the problem in Calexico is unique in that this area is probably impacted by emissions from Mexico. Additional studies are needed to determine the most effective control strategy for the Calexico area.

Figure 1-7

Carbon Monoxide - National Area Designations

The U.S. EPA uses only two designation categories for CO: unclassified/attainment and nonattainment. All areas of California except the South Coast Air Basin are currently designated as unclassified/attainment for the national CO standards. Furthermore, the CO problem in the South Coast area is limited to only a small portion of Los Angeles County. Most CO is directly emitted by cars and trucks, and the Air Resources Board's motor vehicle controls should be sufficient to overcome the problem in the coming years. In addition to Los Angeles County, the city of Calexico, in Imperial County, also has carbon monoxide concentrations that violate the national standards. However, the U.S. EPA has not acted to change this area's designation from unclassified/attainment to nonattainment.

Figure 1-8

Toxic Air Contaminants

A toxic air contaminant or TAC is defined as an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk poses a threat to public health even at these very low concentrations. In general, there is no concentration at which a TAC is considered safe. In other words, there is no threshold below which adverse health impacts do not occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards.

The Air Resources Board's TAC program traces its beginning to the criteria pollutants program in the 1960s. For many years, the criteria pollutant control program has been effective at reducing TACs because many volatile organic compounds and particulate matter constituents are also TACs. During the 1980s, the public's concern over toxic chemicals heightened. As a result, citizens demanded protection and control over the release of toxic chemicals into the air. In response to public concerns, the California legislature enacted a 1983 law governing the release of TACs. This law charges the Air Resources Board with the responsibility of identifying substances as TACs, setting priorities for control, adopting control strategies, and promoting alternative processes. To date, the ARB has designated nearly 200 compounds as TACs. Additionally, the ARB has implemented control strategies for a number of compounds that pose high risk and show potential for effective control.

The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel particulate matter or diesel PM). Diesel particulate matter differs from other TACs in that it is not a single substance but rather, a complex mixture of hundreds of substances. Although diesel particulate matter is emitted by diesel-fueled internal combustion engines, the composition of the emissions will vary depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other toxic air contaminants, no ambient monitoring data are available for diesel particulate matter because no routine measurement method currently exists. However, the ARB made preliminary estimations of concentrations for the State and its fifteen air basins using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate outdoor concentrations of diesel particulate matter. Details on the method and the resulting estimates for individual air basins can be found in the ARB report entitled: *"Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant -- Appendix III Part A Exposure Assessment,"* (April 1998). Since that report was published, the ARB has updated the estimated statewide concentrations for diesel PM. These updated statewide concentrations are used in this almanac and are described in Appendix VI of the ARB report titled: *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,"* (October 2000). In addition to diesel particulate matter, benzene and 1,3-butadiene are also significant contributors to overall public health risk in California.

This almanac (Chapter 5 and Appendix C) includes information for ten TACs: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel PM. These ten compounds pose the greatest risk, statewide, based primarily on air quality data. (Note that other TACs, for example dioxins, may also pose a significant health risk. However, sufficient air quality data are not yet available.)

The TAC data in this almanac were obtained from monitors operated by the ARB. The majority of the information is presented on a pollutant-by-pollutant basis, with a focus on cancer risk. The data represent general, average population exposures and may not represent the health risk near local sources. Localized impacts may involve exposure to different toxic air contaminants or to higher concentrations than those represented by the ambient monitoring data. One future challenge is to better characterize community health risks by focusing on localized or near-source impacts. Future editions of this almanac may include this type of information, as it becomes available. In addition to the focus on general, average population exposure, this almanac includes only cancer risk. Future editions may include data for non-cancer risks, which may be more significant on a local basis than on a general, average basis.

The ARB has substantially increased its knowledge about TACs in the last fifteen years, and control efforts have been effective in reducing public exposures and associated health risks. The future gradual phase-in of control strategies will likely continue to result in lower exposures for California's citizens. In the interim, work continues on identifying toxic substances and developing a better understanding of the risks they pose. Health experts still have only a limited knowledge of the mechanisms by which many toxic substances harm the body, and there is still much work to be done in researching health effects and quantifying cancer risks. Cooperative strategies between the ARB, businesses, and other State, local, and federal agencies will be a major focus of future control efforts. Furthermore, we must look at community health issues and cumulative exposures to learn which communities are the most impacted and who in those communities are the most vulnerable. The ARB is currently participating in several studies to address localized impacts and community health issues. More information on these studies is available on the web at *www.arb.ca.gov/ch/ch.htm*.

Additional information on TACs may be found on the ARB website at *www.arb.ca.gov/toxics/toxics.htm*. Detailed information on the health effects of these pollutants, as well as many other toxic air contaminants, can be found in a report entitled: "*Toxic Air Contaminant Identification List-Summaries.*" This report, dated September 1997, is available from the ARB Public Information Office and on the web at *www.arb.ca.gov/toxics/tac/intro.htm.*

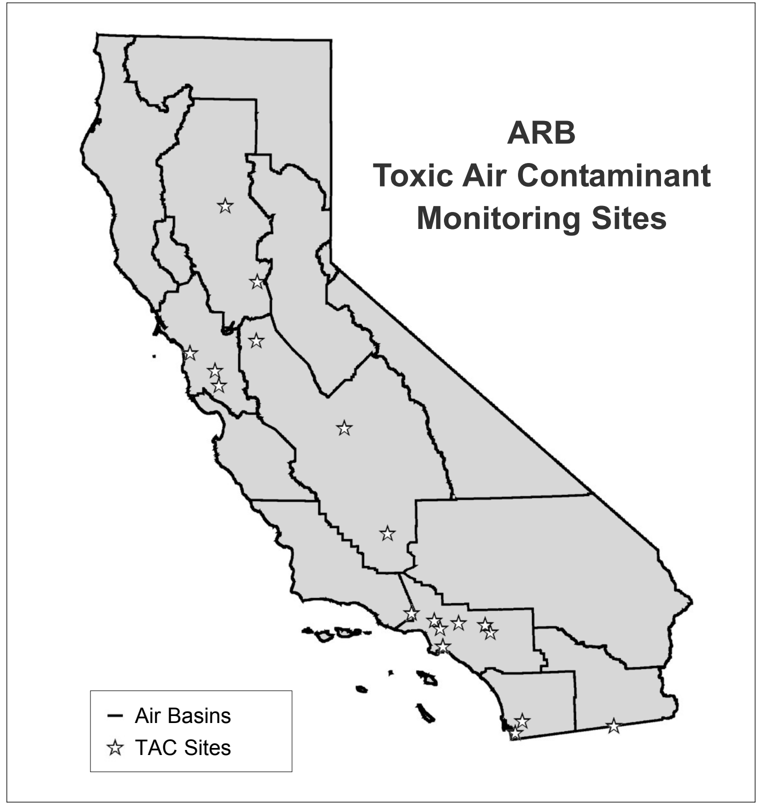

Figure 1-9

California Air Quality Regulation

The responsibility for controlling air pollution in California is shared between 35 local air pollution control and air quality management districts (districts), the Air Resources Board, and the United States Environmental Protection Agency. The basic responsibilities of each of these entities are outlined below.

District Responsibilities:

- Control and permit industrial pollution sources (such as power plants, refineries, and manufacturing operations) and widespread area-wide sources (such as bakeries, dry cleaners, service stations, and commercial paint applicators).
- Adopt local air quality plans and rules.

Air Resources Board Responsibilities:

- Establish State ambient air quality standards.
- Adopt and enforce emission standards for mobile sources (except where federal law preempts ARB's authority), fuels, consumer products, and toxic air contaminants.
- Provide technical support to the local districts.
- Oversee local district compliance with State and federal law.
- Approve local air quality plans and submit State Implementation Plans to U.S. EPA.

United States Environmental Protection Agency Responsibilities:

- Establish national ambient air quality standards.
- Set emission standards for mobile sources, including those sources under exclusive federal jurisdiction (like interstate trucks, aircraft, marine vessels, locomotives, and farm/construction equipment).
- Oversee State air programs as they relate to the Federal Clean Air Act.
- Approve State Implementation Plans.

List of Air Pollution Contacts

Amador County Air Pollution Control District
All of Amador County
(209) 257-0112
www.air-amador.org

Antelope Valley Air Pollution Control District
Northeast portion of Los Angeles County
(661) 723-8070
www.avaqmd.ca.gov

Bay Area Air Quality Management District
All of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, western portion of Solano County, and southern portion of Sonoma County
(415) 771-6000
www.baaqmd.gov

Butte County Air Quality Management District
All of Butte County
(530) 891-2882
www.bcaqmd.org

Calaveras County Air Pollution Control District
All of Calaveras County
(209) 754-6504
lgrewal@co.calaveras.ca.us

Colusa County Air Pollution Control District
All of Colusa County
(530) 458-0590
www.colusanet.com/apcd

El Dorado County Air Pollution Control District
All of El Dorado County
(530) 621-6662
www.co.el-dorado.ca.us/emd/apcd

Feather River Air Quality Management District
All of Sutter and Yuba counties
(530) 634-7659
www.fraqmd.org

Glenn County Air Pollution Control District
All of Glenn County
(530) 934-6500
www.countyofglenn.net/Air_Pollution_Control/home_page.asp

Great Basin Unified Air Pollution Control District
All of Alpine, Inyo, and Mono counties
(760) 872-8211
greatbasin@qnet.com

Imperial County Air Pollution Control District
All of Imperial County
(760) 482-4606
jeannettemonroy@imperialcounty.net

Kern County Air Pollution Control District
Eastern portion of Kern County
(661) 862-5250
www.kernair.org

Lake County Air Quality Management District
All of Lake County
(707) 263-7000
bobr@pacific.net

Lassen County Air Pollution Control District
All of Lassen County
(530) 251-8110
lassenag@psln.com

Mariposa County Air Pollution Control District
All of Mariposa County
(209) 966-2220
air@yosemite.net

Mendocino County Air Quality Management District
All of Mendocino County
(707) 463-4354
www.co.mendocino.ca.us/aqmd

Modoc County Air Pollution Control District
All of Modoc County
(530) 233-6419
modocag@hdo.net

Mojave Desert Air Quality Management District
Northern portion of San Bernardino County and eastern portion of Riverside County
(760) 245-1661
www.mdaqmd.ca.gov

Monterey Bay Unified Air Pollution Control District
All of Monterey, San Benito and Santa Cruz counties
(831) 647-9411
www.mbuapcd.org

North Coast Unified Air Quality Management District
All of Del Norte, Humboldt, and Trinity counties
(707) 443-3093
www.northcoast.com/~ncuaqmd

Northern Sierra Air Quality Management District
All of Nevada, Plumas, and Sierra counties
(530) 274-9360
www.nccn.net/~nsaqmd

No. Sonoma County Air Pollution Control District
Northern portion of Sonoma County
(707) 433-5911
nsc@sonic.net

Placer County Air Pollution Control District
All of Placer County
(530) 889-7130
www.placer.ca.gov/airpollution/airpolut.htm

Sacramento Metro Air Quality Management District
All of Sacramento County
(916) 874-4800
www.airquality.org **or** *www.sparetheair.com*

San Diego County Air Pollution Control District
All of San Diego County
(858) 650-4700
www.sdapcd.co.san-diego.ca.us

San Joaquin Valley Unified Air Pollution Control District
All of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and western portion of Kern County
(559) 230-6000
www.valleyair.org

San Luis Obispo County Air Pollution Control District
All of San Luis Obispo County
(805) 781-4AIR
www.slocleanair.org

Santa Barbara County Air Pollution Control District
All of Santa Barbara County
(805) 961-8800
www.sbcapcd.org

Shasta County Air Quality Management District
All of Shasta County
(530) 225-5674
www.co.shasta.ca.us/Departments/Resourcemgmt/drm/aqmain.htm

Siskiyou County Air Pollution Control District
All of Siskiyou County
(530) 841-4029
rakana@co.siskiyou.ca.us

South Coast Air Quality Management District
Los Angeles County except for portion covered by Antelope Valley APCD, all of Orange County, western portion of San Bernardino County, and western portion of Riverside County
(909) 396-2000
www.aqmd.gov

Tehama County Air Pollution Control District
All of Tehama County
(530) 527-3717
www.tehcoapcd.net

Tuolumne County Air Pollution Control District
All of Tuolumne County
(209) 533-5693
bsandman@co.tuolumne.ca.us

Ventura County Air Pollution Control District
All of Ventura County
(805) 645-1400
www.vcapcd.org

Yolo-Solano Air Quality Management District
All of Yolo County and eastern portion of Solano County
(530) 757-3650
www.ysaqmd.org

Milestones in California's Emission Control Programs

Historical Milestones:

1963: First vehicle emission control in the country – positive crankcase ventilation required to reduce evaporative emissions.

1966: First tailpipe emission standards for hydrocarbons (HC) and carbon monoxide (CO).

1971: First oxides of nitrogen (NO_x) standards for cars and light trucks.

1973: First heavy-duty diesel truck standards.

1975: Two-way catalytic converters first used to control HC and CO emissions from cars.

1976: "Unleaded" gasoline first offered for sale, with reduced lead levels.

Three-way catalyst first used to control NO_x, HC, and CO emissions from cars.

1984: California Smog Check program implemented to identify and repair ineffective emission control systems on cars and light-trucks.

1988: California Clean Air Act is enacted, setting forth the framework for meeting State ambient air quality standards.

1992: California's reformulated gasoline introduced – reducing evaporative emissions, phasing out lead in gasoline, and requiring wintertime oxygenates to reduce CO formation.

First consumer product regulations take effect, regulating HC emissions from aerosol antiperspirants and deodorants.

1993: Cleaner diesel fuel launched, reducing emissions of diesel particulate matter, sulfur dioxide, and NO_x.

Regulations to limit HC emissions from consumer products such as hairspray, windshield washer fluid, and air fresheners take effect.

1994: Low emission vehicle regulations to further reduce emissions from cars and light trucks take effect.

1996: Cleaner burning gasoline debuts with emission benefits equivalent to removing 3.5 million cars from California roads.

Regulations reducing HC emissions from spray paint take effect.

1998: Tighter standards for California diesel trucks and buses take effect.

Revamped Smog Check II program implemented.

1999: ARB acted to phaseout MTBE in gasoline.

2000: First standards for large spark ignition off-road engines such as forklifts and pumps take effect nationwide.

More stringent California standards for the small engines used in lawn and garden equipment take effect.

Diesel Risk Reduction Plan adopted.

2001: Tighter emission standards for off-road diesel equipment, such as tractors and generators, take effect nationwide.

More stringent standards for pleasure boats and personal watercraft sold in California begin.

Limits on HC emissions from products such as carpet and upholstery cleaners take effect.

2002: Emission standards for new heavy-duty diesel trucks are cut in half, nationwide.

Upcoming Milestones:

2003: New emission standards for inboard marine engines sold in California take effect.

2004: Regulations to further reduce emissions from cars (and require light-trucks and sport-utility vehicles to meet the same emission standards as cars) take effect in California.

MTBE in California gasoline is fully phased out.

Tighter standards for on-road motorcycles begin.

2005: Limits on HC emissions from paint removers take effect.

2006: Low sulfur diesel fuel required nationwide.

2007: Tighter emission standards for heavy-duty diesel trucks take effect nationwide.

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Chapter 2

Current Emissions and Air Quality -- Criteria Pollutants

Introduction

This chapter provides statewide information on current emissions and air quality, relative to the State and national ambient air quality standards (see Chapter 5 for information on toxic air contaminants). This section gives a national perspective on how California's air quality compares with that in other areas of the nation. The second section of this chapter includes a summary table of the Statewide Emission Inventory. The table shows emissions data by four major source categories: stationary sources, area-wide sources, mobile sources, and natural sources. The third section provides more detailed information for the four major source categories in a table of the Statewide Emission Inventory by sub-category. The remaining sections of this Chapter provide information on emissions (including the high emitting facilities) and air quality on a statewide basis. This information is organized by pollutant, for ozone (and ozone precursor emissions), particulate matter (PM_{10} and $PM_{2.5}$), and CO.

Emissions are reported as annual averages, in tons per day. For most sources and pollutants that are not seasonal, this describes emissions very well. However, for some pollutants such as PM_{10} and $PM_{2.5}$, annual averages do not give an accurate indication of the seasonal nature of emissions. Therefore, they may appear to be artificially low. Many sources of PM_{10} and $PM_{2.5}$ are seasonal, including wildfires, seasonal operations such as agricultural processes, or dust storms in the Owens Valley and Mono Lake areas. Many sources of PM_{10} and $PM_{2.5}$ can also be very localized, and basinwide annual averages do not give any information about these sources.

State and local agencies have implemented many control measures during the last three decades to improve air quality. As a result, there has been a steady decline in both emissions and pollutant concentrations. However, three criteria pollutants, ozone, particulate matter, and carbon monoxide, still pose air quality problems. Existing control programs have substantially reduced ambient CO concentrations. During 2001, CO concentrations were below the levels of the standards in all areas except Calexico. In contrast, it will be a significant challenge to reduce emissions sufficiently to attain the ozone and PM standards statewide.

Figure 2-1 shows the national 1-hour ozone design values for the top 15 urban areas in the nation, based on data for 1999 to 2001. The design values in all these areas exceed the national 1-hour standard of 0.12 ppm. Five of the top fifteen areas are located in California, with the Los Angeles South Coast Air Basin and Imperial County areas ranking second and third. Unlike previous years, the top spot is not held by a California area. However, the ranking of areas can change, depending on the ozone statistic used. For example, based on the average estimated exceedance rate during 1999 to 2001, the Los Angeles area would rank first (24.9 days) while the Houston-Galveston-Brazoria, Texas area would rank second (11.2 days). Overall, as ozone concentrations in California decline, our air quality continues to improve relative to other areas of the nation.

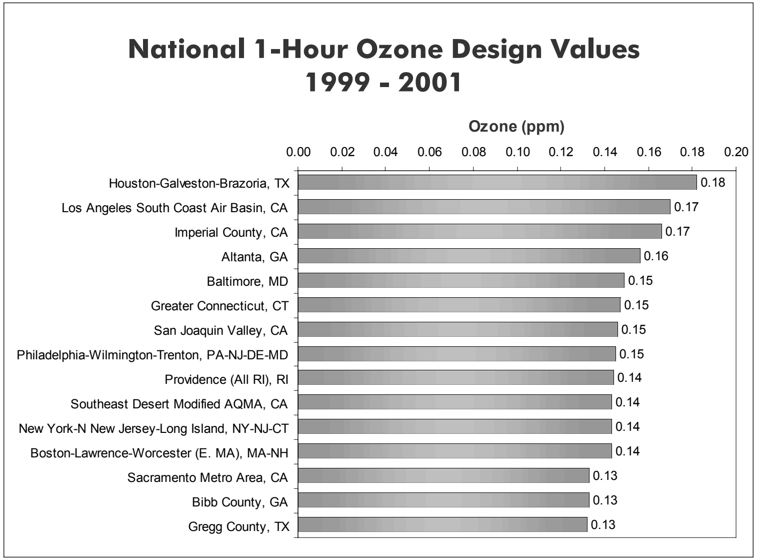
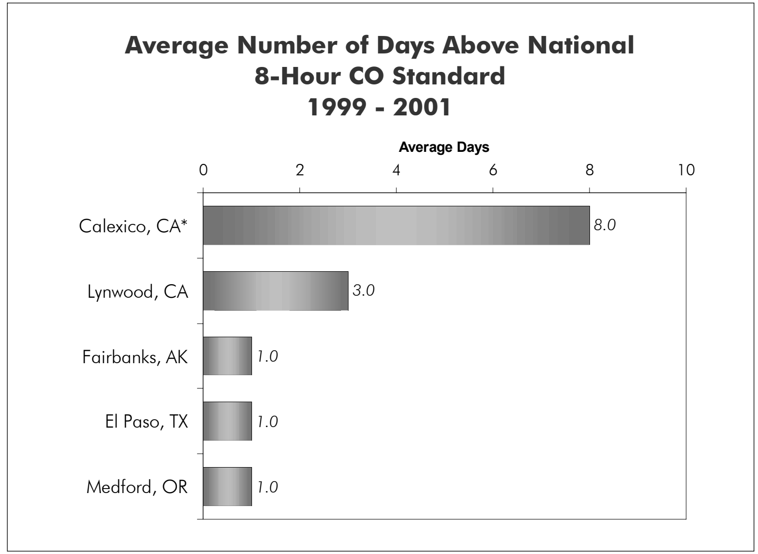


Figure 2-1

Attainment of the standards for particulate matter (PM_{10} and $PM_{2.5}$) is also a significant problem. The PM_{10} problem is most prevalent in the western United States. Eight western areas are classified as serious PM_{10} nonattainment areas. Half of these, the Coachella Valley, the Owens Valley, the San Joaquin Valley, and the South Coast Air Basin, are located in California. In contrast, the $PM_{2.5}$ problem is most prevalent in both the eastern United States and in California. Because of the complex nature of the particulate matter problem, it will be many years before the standards are attained.

Carbon monoxide (CO) poses much less of a problem. Figure 2-2 shows the five areas in the nation that averaged at least one day with CO concentrations above the level of the national standard during 1999 to 2001. The Calexico (Imperial County) and Lynwood (Los Angeles County) areas rank first and second. While these two areas are the only ones in California where the CO standards are still violated, the State's stringent motor vehicle emission standards and clean fuels programs continue to be effective in reducing ambient CO concentrations. Furthermore, as a result of these controls, CO concentrations in nine other California areas no longer violate the national standards, and these areas have been redesignated as attainment.



* Calexico does not include data for 2001

Figure 2-2

2002 Statewide Emission Inventory Summary

Division Major Category	TOG	ROG	CO	NOx	SOx	PM_{10}*	$PM_{2.5}$*
	Emissions (tons/day, annual average)						
Stationary Sources	2535	538	441	610	136	135	88
Fuel Combustion	215	49	361	501	50	42	37
Waste Disposal	1447	23	2	3	1	1	1
Cleaning And Surface Coatings	344	237	0	0	0	0	0
Petroleum Production And Marketing	450	164	13	13	53	3	2
Industrial Processes	79	65	65	94	32	89	48
Area-Wide Sources	2027	698	2085	93	5	1873	583
Solvent Evaporation	521	463	0	0	0	0	0
Miscellaneous Processes	1506	235	2085	93	5	1873	583
Mobile Sources	1530	1406	12101	2694	88	118	97
On-Road Motor Vehicles	1019	938	9372	1728	13	48	33
Other Mobile Sources	511	467	2730	966	75	70	64
Natural Sources**	106	38	409	18	0	80	71
Total Statewide - All Sources	***6198***	***2680***	***15036***	***3415***	***228***	***2206***	***839***

* Includes directly emitted particulate matter only.
** Does not include biogenic sources. These summaries do not include emissions from wind blown dust - exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 800 tons/day.

Table 2-1

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average)						
	TOG	ROG	CO	NOx	SOx	PM10*	PM2.5*
Stationary Sources (division total)	**2535**	**538**	**441**	**610**	**136**	**135**	**88**
Fuel Combustion (major category total)	215	49	361	501	50	42	37
- Electric Utilities	31	5	68	62	5	6	6
- Cogeneration	19	5	45	31	2	4	4
- Oil And Gas Production (Combustion)	41	9	24	35	9	2	2
- Petroleum Refining (Combustion)	2	1	17	43	14	3	3
- Manufacturing And Industrial	59	8	69	131	13	7	7
- Food And Agricultural Processing	5	4	53	41	3	4	4
- Service And Commercial	47	9	48	81	3	5	5
- Other (Fuel Combustion)	10	6	37	76	1	10	7
Waste Disposal (major category total)	1447	23	2	3	1	1	1
- Sewage Treatment	1	1	0	0	0	0	0
- Landfills	1416	18	1	0	0	0	0
- Incinerators	0	0	1	2	0	0	0
- Soil Remediation	0	0	0	0	0	0	0
- Other (Waste Disposal)	30	4	0	0	-	0	0
Cleaning And Surface Coatings (major category total)	344	237	0	0	0	0	0
- Laundering	7	1	0	0	-	-	-
- Degreasing	141	56	-	-	-	-	-
- Coatings And Related Process Solvents (sub-category total)	145	134	0	0	0	0	0
- Auto Marine, & Aircraft	*24*	*23*	*0*	*0*	*0*	*0*	*0*
- Paper & Fabric	*4*	*3*	*0*	*0*	*0*	*0*	*0*
- Metal, Wood, & Plastic	*44*	*42*	*0*	*0*	*0*	*0*	*0*
- Other	*73*	*66*	*0*	*0*	*0*	*0*	*0*

* Includes directly emitted particulate matter only.

Table 2-2

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM10*	PM2.5*
Stationary Sources (division total) (continued)							
Cleaning And Surface Coatings (major category) (continued)							
- Printing	19	19	0	0	-	0	0
- Adhesives And Sealants	25	22	-	-	-	0	-
- Other (Cleaning And Surface Coatings)	7	5	0	0	-	0	0
Petroleum Production And Marketing (major category total)	450	164	13	13	53	3	2
- Oil And Gas Production	116	54	1	3	0	0	0
- Petroleum Refining	32	25	11	10	52	2	2
- Petroleum Marketing (sub-category total)	301	84	1	0	-	0	0
- Fuel Distribution Losses	*219*	*4*	*1*	*0*	*0*	*0*	*0*
- Fuel Storage Losses	*5*	*5*	*0*	*0*	*0*	*0*	*0*
- Vehicle Refueling	*50*	*50*	*0*	*0*	*0*	*0*	*0*
- Other	*27*	*26*	*0*	*0*	*0*	*0*	*0*
- Other (Petroleum Production And Marketing)	0	0	-	-	-	-	-
Industrial Processes (major category total)	79	65	65	94	32	89	48
- Chemical	28	23	0	2	3	4	4
- Food And Agriculture	22	20	3	10	2	15	6
- Mineral Processes	6	5	49	60	20	47	22
- Metal Processes	2	1	2	1	0	1	1
- Wood And Paper	4	4	1	3	1	10	7
- Glass And Related Products	0	0	0	12	6	2	1
- Electronics	1	1	0	0	-	0	0
- Other (Industrial Processes)	16	11	10	7	1	9	6

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	TOG	ROG	CO	NOx	SOx	PM_{10}*	$PM_{2.5}$*
	Emissions (tons/day, annual average)						
Area-Wide Sources (division total)	**2027**	**698**	**2085**	**93**	**5**	**1873**	**583**
Solvent Evaporation (major category total)	521	463	0	0	0	0	0
- Consumer Products	320	267	-	-	-	-	-
- Architectural Coatings And Related Process Solvent (sub-category total)	118	114	-	-	-	-	-
- Architectural Coating	*101*	*98*	*0*	*0*	*0*	*0*	*0*
- Thinning & Cleanup Solvents	*17*	*16*	*0*	*0*	*0*	*0*	*0*
- Pesticides/Fertilizers (sub-category total)	52	52	-	-	-	-	-
- Farm Use	*49*	*49*	*0*	*0*	*0*	*0*	*0*
- Commercial Use	*3*	*3*	*0*	*0*	*0*	*0*	*0*
- Asphalt Paving / Roofing	31	31	-	-	-	0	0
Miscellaneous Processes (major category total)	1506	235	2085	93	5	1873	583
- Residential Fuel Combustion (sub-category total)	127	56	816	77	4	118	114
- Wood Combustion	*120*	*53*	*791*	*10*	*2*	*113*	*109*
- Cooking And Space Heating	*6*	*2*	*21*	*57*	*2*	*4*	*4*
- Other	*1*	*0*	*4*	*10*	*0*	*1*	*1*
- Farming Operations (sub-category total)	1236	99	-	-	-	161	34
- Tilling,Harvesting, & Growing	*0*	*0*	*0*	*0*	*0*	*142*	*32*
- Livestock	*1236*	*99*	*0*	*0*	*0*	*19*	*2*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	TOG	ROG	CO	NOx	SOx	PM_{10}*	$PM_{2.5}$*
	Emissions (tons/day, annual average)						
Area-Wide Sources (division total) (continued)							
Miscellaneous Processes (major category) (continued)							
- Construction And Demolition (sub-category total)	-	-	-	-	-	189	39
- Building	*0*	*0*	*0*	*0*	*0*	*109*	*23*
- Road Construction Dust	*0*	*0*	*0*	*0*	*0*	*80*	*17*
- Paved Road Dust	-	-	-	-	-	407	79
- Unpaved Road Dust	-	-	-	-	-	542	115
- Fugitive Windblown Dust (sub-category total)	-	-	-	-	-	305	66
- Farm Lands	*0*	*0*	*0*	*0*	*0*	*172*	*38*
- Pasture Lands	*0*	*0*	*0*	*0*	*0*	*19*	*4*
- Unpaved Roads	*0*	*0*	*0*	*0*	*0*	*114*	*24*
- Fires	1	1	10	0	-	1	1
- Waste Burning And Disposal (sub-category total)	134	74	1258	15	1	125	116
- Agricultural Burning	*33*	*19*	*210*	*5*	*0*	*25*	*24*
- Non-Agricultural Burning	*101*	*55*	*1048*	*10*	*0*	*100*	*92*
- Other	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Cooking	8	6	-	-	-	25	19
- Other (Miscellaneous Processes)	0	0	2	0	-	1	1

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM_{10}*	$PM_{2.5}$*
Mobile Sources (division total)	**1530**	**1406**	**12101**	**2694**	**88**	**118**	**97**
On-Road Motor Vehicles (major category total)	1019	938	9372	1728	13	48	33
- Light Duty Passenger (sub-category total)	490	453	4199	401	3	17	9
- Non-Evaporative	*295*	*259*	*4197*	*398*	*3*	*16*	*9*
- Evaporative	*194*	*194*	*0*	*0*	*0*	*0*	*0*
- Diesel	*1*	*1*	*2*	*3*	*0*	*0*	*0*
- Light Duty Trucks(<3750 lbs.) (sub-category total)	167	155	1745	161	1	5	3
- Non-Evaporative	*103*	*90*	*1743*	*156*	*1*	*4*	*2*
- Evaporative	*64*	*64*	*0*	*0*	*0*	*0*	*0*
- Diesel	*1*	*1*	*3*	*5*	*0*	*0*	*0*
- Light Duty Trucks (>3750 lbs) (sub-category total)	130	119	1378	179	1	6	4
- Non-Evaporative	*86*	*75*	*1377*	*177*	*1*	*6*	*4*
- Evaporative	*44*	*44*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*2*	*0*	*0*	*0*
- Medium Duty Trucks (sub-category total)	71	65	707	103	1	3	2
- Non-Evaporative	*49*	*43*	*706*	*101*	*1*	*3*	*2*
- Evaporative	*21*	*21*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*3*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs) (sub-category total)	28	26	177	17	0	0	0
- Non-Evaporative	*17*	*15*	*177*	*17*	*0*	*0*	*0*
- Evaporative	*11*	*11*	*0*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (>10000 lbs) (sub-category total)	5	5	40	6	0	0	0
- Non-Evaporative	*3*	*3*	*40*	*6*	*0*	*0*	*0*
- Evaporative	*2*	*2*	*0*	*0*	*0*	*0*	*0*
- Medium Heavy Duty Gas Trucks (sub-category total)	32	30	245	22	0	0	0
- Non-Evaporative	*23*	*21*	*245*	*22*	*0*	*0*	*0*
- Evaporative	*9*	*9*	*0*	*0*	*0*	*0*	*0*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average)						
	TOG	ROG	CO	NOx	SOx	PM10*	PM2.5*
Mobile Sources (division total) (continued)							
On-Road Motor Vehicles (major category) (continued)							
- Heavy Heavy Duty Gas Trucks (sub-category total)	23	21	307	47	0	0	0
- Non-Evaporative	*20*	*17*	*307*	*47*	*0*	*0*	*0*
- Evaporative	*4*	*4*	*0*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs)	1	1	2	17	0	0	0
- Light Heavy Duty Gas Trucks (>10000 lbs)	1	1	2	15	0	0	0
- Medium Heavy Duty Diesel Trucks	4	4	23	142	1	4	3
- Heavy Heavy Duty Diesel Trucks	25	22	96	527	5	12	10
- Motorcycles (Mcy) (sub-category total)	23	22	160	4	0	0	0
- Non-Evaporative	*15*	*14*	*160*	*4*	*0*	*0*	*0*
- Evaporative	*8*	*8*	*0*	*0*	*0*	*0*	*0*
- Heavy Duty Diesel Urban Buses	3	2	9	48	0	1	1
- Heavy Duty Gas Urban Buses (sub-category total)	7	6	73	8	0	0	0
- Non-Evaporative	*7*	*6*	*73*	*8*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- School Buses (sub-category total)	2	2	22	13	0	0	0
- Non-Evaporative	*1*	*1*	*19*	*1*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*3*	*12*	*0*	*0*	*0*
- Motor Homes (sub-category total)	7	6	185	17	0	0	0
- Non-Evaporative	*7*	*6*	*185*	*14*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*0*	*3*	*0*	*0*	*0*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2002 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average) TOG	ROG	CO	NOx	SOx	PM10*	PM2.5*
Mobile Sources (division total) (continued)							
Other Mobile Sources (major category total)	511	467	2730	966	75	70	64
- Aircraft	50	45	263	56	3	9	9
- Trains	7	7	23	132	7	3	3
- Ships And Commercial Boats	9	8	21	115	64	9	9
- Recreational Boats	134	124	676	25	1	7	6
- Off-Road Recreational Vehicles (sub-category total)	54	50	254	4	0	0	0
- Snowmobiles	*45*	*42*	*133*	*3*	*0*	*0*	*0*
- Motorcycles	*3*	*3*	*45*	*0*	*0*	*0*	*0*
- All-Terrain Vehicles	*3*	*3*	*42*	*0*	*0*	*0*	*0*
- Four-Wheel Drive Vehicles	*3*	*3*	*35*	*1*	*0*	*0*	*0*
- Off-Road Equipment (sub-category total)	153	134	1359	493	1	32	29
- Lawn And Garden Equipment	*56*	*53*	*419*	*10*	*0*	*1*	*1*
- Commercial & Industrial Equipment	*97*	*81*	*940*	*483*	*1*	*31*	*28*
- Farm Equipment	22	20	134	142	0	9	9
- Fuel Storage and Handling	80	80	-	-	-	-	-
Natural (Non-Anthropogenic) Sources (division total)	**106**	**38**	**409**	**18**	**0**	**80**	**71**
Natural Sources** (major category total)	106	38	409	18	0	80	71
- Geogenic Sources	79	23	-	-	-	-	-
- Wildfires	27	15	409	18	-	80	71
Total Statewide - All Sources	***6198***	***2680***	***15036***	***3415***	***228***	***2206***	***839***

* Includes directly emitted particulate matter only.
**Does not include biogenic sources. These summaries do not include emissions from wind blown dust - exposed lake beds from Owens and Mono Lakes. These emissions are estimated to be about 800 tons/day.

Table 2-2 (continued)

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Ozone

2002 Statewide Emission Inventory - Ozone Precursors by Category

NO_x Sources - Statewide

NO_x is a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone, PM_{10}, and $PM_{2.5}$. Most NO_x emissions are produced by the combustion of fuels. Industrial sources report NO_x emissions to local air districts and to the Air Resources Board. Other sources of NO_x emissions are estimated by the local air districts and the ARB. Mobile sources (including on-road and other) make up about 80 percent of the total statewide NO_x emissions. The category of other mobile sources includes emissions from aircraft, trains, ships, recreational boats, industrial and construction equipment, farm equipment, off-road recreational vehicles, and other equipment. Stationary sources of NO_x include both internal and external combustion processes in industries such as manufacturing, food processing, electric utilities, and petroleum refining. Area-wide sources, which include residential fuel combustion, waste burning, and fires, contribute only a small portion of the total NO_x emissions.

NO_x Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	610	18%
Area-wide Sources	93	3%
On-Road Mobile	1728	51%
Gasoline Vehicles	983	29%
Diesel Vehicles	745	22%
Other Mobile	966	28%
Total Statewide	*3397*	*100%*

Table 2-3

ROG Sources - Statewide

Reactive organic gases (ROG) are volatile organic compounds that are photochemically reactive and contribute to the formation of ozone, as well as PM_{10} and $PM_{2.5}$. These emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributors to statewide ROG emissions. This category includes emissions from cars, trucks, and motorcycles powered by gasoline and diesel fuels. Stationary sources of ROG emissions include processes that use solvents (such as dry cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining and marketing and oil and gas extraction). Area-wide ROG sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, and other evaporative emissions.

ROG Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	538	20%
Area-wide Sources	698	26%
On-Road Mobile	938	36%
Gasoline Vehicles	909	34%
Diesel Vehicles	30	1%
Other Mobile	467	18%
Total Statewide	*2642*	*100%*

Table 2-4

Largest Stationary Sources Statewide

Largest Stationary Sources of NO_x Statewide

Air Basin	Facility Name	City	Tons/Year
Mojave Desert	Cemex-California Cement	Apple Valley	4640
Mojave Desert	Riverside Cement Co.	Oro Grande	4315
Mojave Desert	Cal Portland Cement Co.	Mojave	3279
San Francisco Bay Area	Martinez Refining Company	Martinez	3187
San Francisco Bay Area	Exxon Mobil Refining And Supply	Benicia	2927
North Central Coast	Duke Energy	Moss Landing	2831
San Francisco Bay Area	Chevron Products Co.	Richmond	2312
Mojave Desert	Mitsubishi Cement	Lucerne Valley	2245
San Francisco Bay Area	Ultramar, Inc. Avon Refinery	Martinez	2239
Mojave Desert	IMC Chemicals, Inc.	Trona	1948

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-5

Largest Stationary Sources of ROG Statewide

Air Basin	Facility Name	City	Tons/Year
San Francisco Bay Area	Chevron Products Co.	Richmond	2143
San Francisco Bay Area	Ultramar, Inc. Avon Refinery	Martinez	1824
San Francisco Bay Area	Martinez Refining Company	Martinez	1633
San Joaquin Valley	Occidental Petroleum	Tupman	1233
South Coast	Chevron Products Co.	El Segundo	760
South Coast	Mobil Oil Corp.	Torrance	641
San Joaquin Valley	SC Johnson Home Storage Inc	Fresno	620
Sacramento Valley	Sierra Pacific Industries (Wood Products)	Red Bluff	597
San Francisco Bay Area	Phillips 66 Company	Rodeo	567
San Francisco Bay Area	New United Motor Manufacturing	Fremont	511

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-6

Ozone - 2001 Air Quality

Air quality, as it relates to ozone, has improved greatly in California over the last several decades, and 2001 was no exception. However, despite aggressive emission controls, maximum measured ozone concentrations are still above the level of the State standard in 12 of the 15 air basins. Maximum measured values exceed the national 1-hour standard in nine air basins. California's highest ozone concentrations occur in the South Coast Air Basin, where the peak 1-hour indicator is close to two times the level of the State standard.

Ozone concentrations are generally lower near the coast than they are inland, and rural areas tend to be cleaner than urban areas. This can be explained in part by the characteristics of ozone, including pollutant reactivity, transport, and deposition. Based on current ozone concentrations, substantial additional emission control measures will be needed to attain the standards throughout the State.

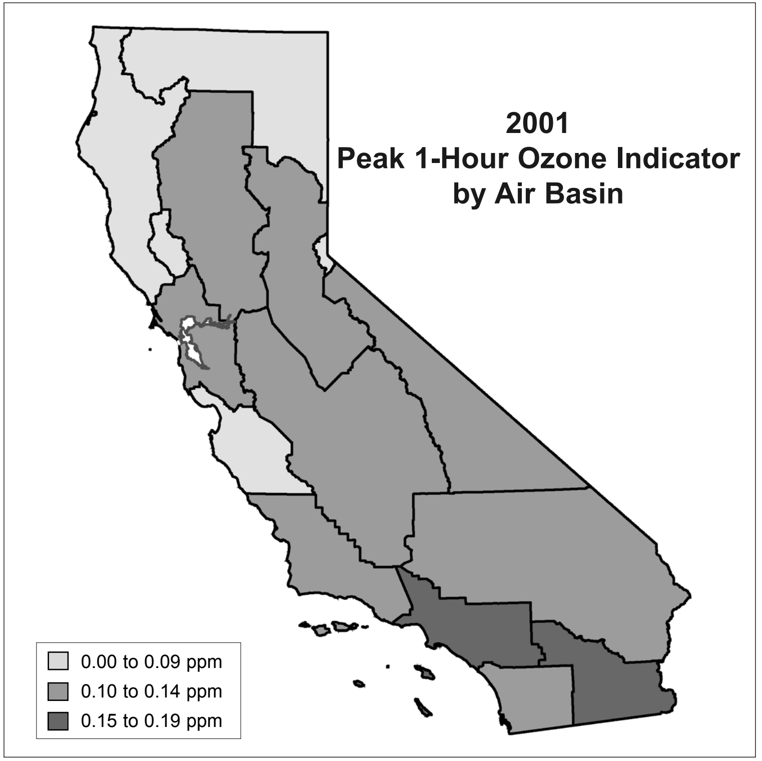

Figure 2-3

Ozone - 2001 Air Quality Tables

Maximum Peak 1-Hour Indicator by Air Basin

AIR BASIN	2001 Maximum Peak 1-Hour Indicator in parts per million	Number of Days in 2001 above State Standard	Number of Days in 2001 above National 1-Hour Standard
Great Basin Valleys Air Basin	0.11	4	0
Lake County Air Basin	0.08	0	0
Lake Tahoe Air Basin	0.09	1	0
Mojave Desert Air Basin	0.14	72	6
Mountain Counties Air Basin	0.14	49	1
North Central Coast Air Basin	0.10	3	0
North Coast Air Basin	0.09	0	0
Northeast Plateau Air Basin	0.09	0	0
Sacramento Valley Air Basin	0.14	46	2
Salton Sea Air Basin	0.16	81	15
San Diego Air Basin	0.12	29	2
San Francisco Bay Area Air Basin	0.12	15	1
San Joaquin Valley Air Basin	0.15	123	32
South Central Coast Air Basin	0.13	34	2
South Coast Air Basin	0.17	121	36

Table 2-7

Top Sites with Peak 1-Hour Indicator Values above the State Ozone Standard

Great Basin Valleys Air Basin
- Mammoth Lakes-Gateway HC

Mojave Desert Air Basin
- Hesperia-Olive Street.
- Phelan-Beekley Rd. & Phelan Rd.
- Lancaster-W Pondera Street
- Victorville-14306 Park Avenue
- Joshua Tree-National Monument

Mountain Counties Air Basin
- Cool-Highway 193
- Placerville-Gold Nugget Way
- San Andreas-Gold Strike Road
- Grass Valley-Litton Building
- Jackson-Clinton Road

North Central Coast Air Basin
- Pinnacles National Monument
- Hollister-Fairview Road

North Coast Air Basin
- Healdsburg-Municipal Airport

Sacramento Valley Air Basin
- Sloughhouse
- Folsom-Natoma Street
- Roseville-N Sunrise Blvd.
- Auburn-Dewitt C Avenue
- Rocklin-Rocklin Road

Salton Sea Air Basin
- Calexico-Ethel Street
- Calexico-Grant Street
- Palm Springs-Fire Station
- El Centro-9th Street
- Calexico-East

San Diego Air Basin
- Alpine-Victoria Drive
- San Diego-Overland Avenue
- Escondido-East Valley Parkway
- El Cajon-Redwood Avenue
- Chula Vista

San Francisco Bay Area Air Basin
- Livermore-793 Rincon Avenue
- San Martin-Murphy Avenue
- Concord-2975 Treat Blvd.
- Fairfield-Bay Area AQMD
- Hayward-La Mesa

San Joaquin Valley Air Basin
- Parlier
- Clovis-North Villa Avenue
- Arvin-Bear Mountain Blvd.
- Fresno-Sierra Parkway #2
- Fresno-1st Street

Table 2-8

Top Sites with Peak 1-Hour Indicator Values above the State Ozone Standard

South Central Coast Air Basin
- Simi Valley-Cochran Street
- Piru-3301 Pacific Avenue
- Ojai-Ojai Avenue
- Thousand Oaks-Moorpark Road
- Ventura County-W Casitas Pass Rd.

South Coast Air Basin
- Crestline
- Glendora-Laurel
- Upland
- Fontana-Arrow Highway
- Santa Clarita

Sites with 1-hour peak indicator values above the level of the State ozone standard during 2001. The top five sites in each air basin are listed in descending order of their peak indicator value. If an air basin is not listed, the peak indicator values at sites in that air basin were not above the State ozone standard.

Table 2-8 (continued)

2002 Preliminary Ozone Data

Although ozone concentrations are monitored continuously at the air quality monitoring sites, there is a delay between the time the concentrations are measured and the time they are quality assured and approved for final use. Because 2001 is the last year for which complete and approved data are available, that is the end year used for the air quality trends in this almanac. However, preliminary data for January through October 2002 are available and are summarized in Table 2-9.

Table 2-9 includes several statistics, including the maximum measured 1-hour ozone concentration, the number of days above the State ozone standard, and the number of days above both the national 1-hour and the national 8-hour ozone standards. These statistics are summarized for the five most populated areas of California: South Coast Air Basin, San Francisco Bay Area Air Basin, San Joaquin Valley Air Basin, San Diego Air Basin, and Sacramento Metro Area (the southern, urbanized portion of the Sacramento Valley Air Basin). Because data for all of 2002 were not complete at the time this almanac was published, no annual statistics are included. Furthermore, because the statistics are based on preliminary data, they are subject to change.

Several areas of the State had higher ozone values in 2002 as compared with 2001. Analyses show that meteorology played a substantial role in two of these areas: the South Coast area and the Sacramento Metro Area. The South Coast experienced stronger and longer lasting inversions, while the Sacramento Metro Area had temperatures that were much higher than normal. Both conditions are conducive to ozone formation.

Area	Maximum 1-Hour Concentration (ppm)	Days Exceeding the Standard		
		State 1-Hour	National 1-Hour	National 8-Hour
South Coast	0.17	119	47	98
San Francisco Bay Area	0.16	16	2	7
San Joaquin Valley	0.16	125	33	124
San Diego	0.12	15	0	13
Sacramento Metro Area	0.16	57	10	44

Table 2-9

The Nature of Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} is a mixture of particles and droplets that vary in size and chemical composition, depending on each particle's origin. PM_{10} includes the subsets of "coarse" particles, those between 2.5 microns and 10 microns in diameter ($PM_{2.5-10}$), and "fine" particles, those 2.5 microns or smaller ($PM_{2.5}$). Particulate matter can be directly emitted into the air in the form of dust and soot (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia (secondary PM). Primary particles are mostly coarse in size, but include some fine particles, while secondary particles are mostly fine.

Sources of ambient PM include: combustion sources such as trucks and passenger cars, off-road equipment, industrial processes, residential wood burning, and forest/agricultural burning; fugitive dust from paved and unpaved roads, construction, mining, and agricultural activities; and ammonia sources such as livestock operations, fertilizer application, and motor vehicles. In general, combustion processes emit and form fine particles, whereas particles from dust sources tend to fall in the coarse range.

The levels and chemical make-up of ambient PM vary widely from one area to another. In some areas, PM levels vary strongly by season. This is due to seasonal activity increase for some emissions sources and to weather conditions that are conducive to the build-up of PM. Seasonal sources of PM include wildfires, agricultural processes, dust storms, and residential wood burning. Stagnant conditions and cool temperatures during the winter contribute to the formation of secondary ammonium nitrate and ammonium sulfate, leading to higher ambient $PM_{2.5}$ concentrations. Dry weather and windy conditions cause higher coarse PM emissions, resulting in elevated PM_{10} concentrations.

The remainder of this chapter includes summary emission inventory data for directly emitted PM_{10} and $PM_{2.5}$, summary information on ambient PM_{10} and $PM_{2.5}$ concentrations, and description of the link between source emissions and ambient PM concentrations in selected regions of the State, highlighting two different seasonal scenarios in PM levels.

Directly Emitted Particulate Matter (PM_{10})

2002 Statewide Emission Inventory - Directly Emitted PM_{10} by Category

The PM_{10} emission inventory includes only directly emitted particulate emissions. However, particulate matter can also be formed in the atmosphere. This secondary PM_{10} is formed by reactions that are driven by emissions of ROG, NO_x, and SO_x. In urban areas (or on a seasonal basis), secondary particulate matter may be the dominant contributor to PM_{10} levels. As a result, PM_{10} control strategies need to account for the relative contribution of both secondary and directly emitted particles.

Area-wide sources account for about 88 percent of the statewide emissions of directly emitted PM_{10}. The major area-wide source of PM_{10} is fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Fugitive dust emissions from unpaved and paved roads are related to motor vehicle population levels due to vehicular travel on both types of roads. Other sources of PM_{10} emissions include brake and tire wear, residential wood burning, and industrial sources. Exhaust emissions from mobile sources contribute a relatively small portion of directly emitted PM_{10} emissions and are a major source of the ROG and NO_x that form secondary particles. The section titled *PM_{10} and $PM_{2.5}$ - Linking Emission Sources with Air Quality* describes how emissions from specific sources are linked to measured PM_{10} levels

Directly Emitted PM10 Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	135	6%
Area-wide Sources	1873	88%
On-Road Mobile	48	2%
Gasoline Vehicles	30	1%
Diesel Vehicles	18	1%
Other Mobile	70	3%
Total Statewide	*2126*	*100%*

Table 2-10

Largest Stationary Sources Statewide

Largest Stationary Sources of Directly Emitted PM_{10} Statewide

Air Basin	Facility Name	City	Tons/Year
Mojave Desert	National Cement Co	Lebec	756
Mojave Desert	Mitsubishi Cement	Lucerne Valley	553
Mojave Desert	Cemex-California Cement	Apple Valley	544
Mojave Desert	U.S. Borax	Boron	539
Mountain Counties	Sierrapine Ltd., Ampine Division (Wood Products)	Martell	482
Mojave Desert	Calaveras Cement Co.	Monolith	406
Mojave Desert	IMC Chemicals, Inc.	Trona	374
San Francisco Bay Area	Martinez Refining Company	Martinez	354
San Joaquin Valley	Texaco Inc.	Kern County	326
Mojave Desert	Riverside Cement Co.	Oro Grande	312

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-11

Directly Emitted Particulate Matter ($PM_{2.5}$)

2002 Statewide Emission Inventory - Directly Emitted $PM_{2.5}$ by Category

The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. However, particulate matter can also be formed in the atmosphere. This secondary $PM_{2.5}$ is formed by reactions that are driven by emissions of ROG, NO_x, and SO_x. In urban areas (or on a seasonal basis), secondary particulate matter may be the dominant contributor to $PM_{2.5}$ levels. As a result, $PM_{2.5}$ control strategies need to account for the relative contribution of both secondary and directly emitted particles.

Area-wide sources account for about 76 percent of the statewide emissions of directly emitted $PM_{2.5}$. The major area-wide source of $PM_{2.5}$ is fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Fugitive dust emissions from unpaved and paved roads are related to motor vehicle population levels due to vehicular travel on both types of roads. Other sources of $PM_{2.5}$ emissions include brake and tire wear, residential wood burning, and industrial sources. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted $PM_{2.5}$ emissions, but are a major source of the ROG and NO_x that form secondary particles. The section titled *PM_{10} and $PM_{2.5}$ - Linking Emission Sources with Air Quality* describes how emissions from specific sources are linked to measured $PM_{2.5}$ levels

Directly Emitted PM2.5 Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	88	11%
Area-wide Sources	583	76%
On-Road Mobile	33	4%
Gasoline Vehicles	18	2%
Diesel Vehicles	15	2%
Other Mobile	64	8%
Total Statewide	*768*	*100%*

Table 2-12

Largest Stationary Sources Statewide

Largest Stationary Sources of Directly Emitted $PM_{2.5}$ Statewide

Air Basin	Facility Name	City	Tons/Year
Mountain Counties	Sierrapine Ltd., Ampine Division (Wood Products)	Martell	385
Mojave Desert	Mitsubishi Cement	Lucerne Valley	377
Mojave Desert	Cemex-California Cement	Apple Valley	360
San Francisco Bay Area	Martinez Refining Company	Martinez	342
San Joaquin Valley	Texaco Inc.	Kern County	326
North Central Coast	Duke Energy	Moss Landing	292
Mojave Desert	National Cement Co	Lebec	241
South Coast	Chevron Products Co.	El Segundo	228
Sacramento Valley	Johns-Manville (Insulation)	Willows	220
San Diego	Cabrillo Power Inc.	Carlsbad	216

Facility totals are the most recent available data. Some facilities may have reduced or increased emissions since these data were collected. These changes will be reflected in subsequent almanacs.
The list of facilities does not include military bases, landfills, or airports.

Table 2-13

PM_{10} - 2001 Air Quality

Most areas of California have either 24-hour or annual PM_{10} concentrations that exceed the State standards. Some areas exceed both State standards. Several areas, both urban and rural, also exceed the national standards. The highest annual average values during 2001 occurred in the Salton Sea, Great Basin Valleys, and South Coast Air Basins. The highest 24-hour concentrations generally occurred in the desert areas where wind-blown dust contributes to local PM_{10} problems.

Particles resulting from combustion contribute to high PM_{10} in a number of urban areas. While many of the control programs implemented for ozone will also reduce PM_{10}, more controls specifically for PM_{10} will be needed to reach attainment.

PM_{10} - 2001 Air Quality Tables

Maximum 24-Hour and Annual PM_{10} Concentrations by Air Basin

AIR BASIN	2001 Maximum 24-Hour Concentration in micrograms/cubic meter	2001 Maximum Annual Average of Quarters in micrograms/cubic meter
Great Basin Valleys Air Basin	4482	69.8
Lake County Air Basin	21	7.6
Lake Tahoe Air Basin	58	19.8
Mojave Desert Air Basin	115	29.8
Mountain Counties Air Basin	312	33.3
North Central Coast Air Basin	72	29.4
North Coast Air Basin	73	24.1
Northeast Plateau Air Basin	105	25.1
Sacramento Valley Air Basin	105	30.2
Salton Sea Air Basin	647	86.2
San Diego Air Basin	107	49.1
San Francisco Bay Area Air Basin	109	28.9
San Joaquin Valley Air Basin	205	57.4
South Central Coast Air Basin	152	44.4
South Coast Air Basin	219	63.3

Table 2-14

Top Sites with 24-Hour Concentrations above the State PM_{10} Standard

Great Basin Valleys Air Basin
- Shell Cut-Highway 190
- Flat Rock-Highway 190
- Mammoth Lakes-Gateway HC
- Lee Vining-SMS
- Keeler-Cerro Gordo Road

Lake Tahoe Air Basin
- South Lake Tahoe-Sandy Way

Mojave Desert Air Basin
- China Lake-Powerline Road
- San Jacinto-San Jacinto Street
- Twentynine Palms-Adobe Rd. #2
- San Jacinto-Young Street
- Ridgecrest-100 W. California Ave.

Mountain Counties Air Basin
- Yosemite Village-Visitor Center
- Quincy-North Church Street
- Placerville-Gold Nugget Way

North Central Coast Air Basin
- Davenport
- Moss Landing-Sandholt Road
- King City-750 Metz Road

North Coast Air Basin
- Weaverville-Courthouse
- Eureka-Health Dept 6th & I Street
- Fort Bragg-North Franklin Street
- Guerneville-Church & 1st
- Cloverdale

Northeast Plateau Air Basin
- Susanville-Russell

Sacramento Valley Air Basin
- Chico-Manzanita Avenue
- West Sacramento-15th Street
- Sacramento-T Street
- Yuba City-Almond Street
- Vacaville-Merchant Street

Salton Sea Air Basin
- Westmoreland-West 1st Street
- Indio-Jackson Street
- Calexico-Grant Street
- Calexico-Ethel Street
- Palm Springs-Fire Station

San Diego Air Basin
- Otay Mesa-Paseo International
- El Cajon-Redwood Avenue
- Escondido-East Valley Parkway
- San Diego-12th Avenue
- Chula Vista

San Francisco Bay Area Air Basin
- Livermore-793 Rincon Avenue
- Concord-2975 Treat Blvd.
- Pittsburg-10th Street
- Napa-Jefferson Avenue
- Vallejo-304 Tuolumne Street

Table 2-15

Top Sites with 24-Hour Concentrations above the State PM_{10} Standard

San Joaquin Valley Air Basin

- Bakersfield-Golden State Highway
- Fresno-1st Street
- Bakersfield-5558 California Avenue
- Hanford-South Irwin Street
- Modesto-14th Street
- Oildale-3311 Manor Street

South Central Coast Air Basin

- Arroyo Grande-Ralcoa Way
- Nipomo-Guadalupe Road
- Simi Valley-Cochran Street
- Santa Maria-906 South Broadway
- Paso Robles-Santa Fe Avenue

South Coast Air Basin

- Banning Airport
- Ontario-1408 Francis Street
- Riverside-Rubidoux
- Norco-Norconian
- San Bernardino-4th Street
- Fontana-Arrow Highway
- Azusa

Sites with 24-hour PM_{10} concentrations above the level of the State PM_{10} standard during 2001. The top five sites in each air basin are listed in descending order of their maximum 24-hour concentration. If an air basin is not listed, the 24-hour PM_{10} concentrations at sites in that air basin were not above the State 24-hour PM_{10} standard. If more than 5 sites are listed, there were multiple sites with the same maximum concentration.

Table 2-15 (continued)

$PM_{2.5}$ Air Quality

As explained in the Introduction section of Chapter 1, the U.S. EPA promulgated new national standards (24-hour and annual average) for $PM_{2.5}$ in July 1997. In June 2002, the ARB established a new, more health-protective State annual average $PM_{2.5}$ standard. The installation of federally approved $PM_{2.5}$ mass monitors throughout California began in 1998 and is now complete, with monitors at 81 sites. Detailed information on California's $PM_{2.5}$ network can be found on the ARB website at: *www.arb.ca.gov/aqd/pm25/pmfnet01.htm*.

The majority of sites in California's $PM_{2.5}$ network began sampling in early 1999. The 1999, 2000, and 2001 data are summarized in Table 2-16. For each air basin and each year, Table 2-16 lists the highest 24-hour average $PM_{2.5}$ mass concentration, the maximum 98th percentile 24-hour concentration, an indication of the 98th percentile validity, the maximum annual average of quarters (annual average), and an indication of the annual average validity. Validity is based on the number of measurements available per quarter. Sites in the South Coast and San Joaquin Valley Air Basins recorded the highest 24-hour concentrations, valid 98th percentile 24-hour concentrations, and valid annual average concentrations in the State. The annual averages for these areas were about twice the level of the State annual $PM_{2.5}$ standard.

Three years of complete data are required to make comparisons to the national $PM_{2.5}$ standards. However, many areas do not yet have sufficient data to make these comparisons. Although three years of complete data are also required to determine if an area attains the new State $PM_{2.5}$ standard, data showing exceedances of the standard are sufficient to determine that an area does not attain the standard.

$PM_{2.5}$ Air Quality Data

Air Basin*	Year	Maximum 24-Hour Concentration (µg/m^3)	98th Percentile 24-Hour Concentration (µg/m3)**	98th Percentile Concentration Valid?**	Average of Quarters (µg/m^3)**	Average of Quarters Valid?**
Great Basin Valleys	1999	40.7	30.9	N	7.2	N
	2000	68.0	67.0	Y	18.0	N
	2001	76.0	41.0	N	10.3	N
Lake County	1999	14.5	14.5	N	4.3	N
	2000	9.4	9.4	N	4.0	N
	2001	15.1	11.3	Y	4.2	Y
Lake Tahoe	1999	21.0	21.0	Y	8.3	Y
	2000	23.0	21.0	Y	7.8	Y
	2001	31.0	26.0	Y	8.2	Y
Mojave Desert	1999	47.6	23.5	Y	11.9	Y
	2000	38.6	26.4	N	11.9	Y
	2001	35.0	29.0	N	11.5	Y
Mountain Counties	1999	92.0	84.0	Y	13.3	N
	2000	48.0	44.0	N	10.6	N
	2001	120.0	43.0	Y	15.6	Y
North Central Coast	1999	31.4	23.6	N	9.8	N
	2000	26.4	21.5	N	7.9	N
	2001	25.6	23.1	N	9.1	N

* The table lists the highest value for each statistic. Within an air basin, the highest value for each statistic may reflect a different site.
** These statistics and determination of their validity are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Validity is based on the number of measurements available per quarter and therefore, depends on data completeness. Both the 98th percentile concentration and the average of quarters concentration relate to the national $PM_{2.5}$ standards, while only the average of quarters concentration relates to the State $PM_{2.5}$ standard.

Table 2-16

$PM_{2.5}$ Air Quality Data

Air Basin*	Year	Maximum 24-Hour Concentration (µg/m³)	98th Percentile 24-Hour Concentration (µg/m³)**	98th Percentile Concentration Valid?**	Average of Quarters (µg/m³)**	Average of Quarters Valid?**
North Coast	1999	36.9	27.7	Y	9.1	Y
	2000	24.0	21.5	Y	9.1	Y
	2001	38.3	29.0	Y	9.4	Y
Northeast Plateau	1999	40.0	27.0	Y	7.9	Y
	2000	38.0	37.0	Y	8.5	Y
	2001	35.0	35.0	N	7.6	N
Sacramento Valley	1999	108.0	71.0	Y	23.7	N
	2000	98.0	70.0	Y	15.8	Y
	2001	72.0	56.0	Y	13.0	Y
Salton Sea	1999	52.5	43.2	N	15.2	Y
	2000	84.2	56.0	Y	16.9	Y
	2001	60.2	50.4	N	14.9	N
San Diego	1999	64.3	45.1	N	18.0	Y
	2000	66.3	48.7	N	15.8	Y
	2001	60.0	40.8	Y	17.7	Y
San Francisco Bay Area	1999	90.5	53.8	N	28.1	N
	2000	67.2	55.3	Y	13.6	Y
	2001	107.5	56.0	Y	12.5	Y

* The table lists the highest value for each statistic. Within an air basin, the highest value for each statistic may reflect a different site.
** These statistics and determination of their validity are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Validity is based on the number of measurements available per quarter and therefore, depends on data completeness. Both the 98th percentile concentration and the average of quarters concentration relate to the national $PM_{2.5}$ standards, while only the average of quarters concentration relates to the State $PM_{2.5}$ standard.

Table 2-16 (continued)

$PM_{2.5}$ Air Quality Data

Air Basin*	Year	Maximum 24-Hour Concentration (µg/m³)	98th Percentile 24-Hour Concentration (µg/m³)**	98th Percentile Concentration Valid?**	Average of Quarters (µg/m³)**	Average of Quarters Valid?**
San Joaquin Valley	**1999**	**136.0**	**120.0**	**Y**	**27.7**	**Y**
	2000	**160.0**	**108.0**	**Y**	**25.5**	**N**
	2001	**154.7**	**120.6**	**Y**	**22.5**	**Y**
South Central Coast	**1999**	**64.6**	**35.4**	**Y**	**13.8**	**Y**
	2000	**55.3**	**42.4**	**N**	**14.8**	**N**
	2001	**57.6**	**50.7**	**Y**	**14.9**	**Y**
South Coast	**1999**	**121.4**	**85.6**	**Y**	**31.0**	**Y**
	2000	**119.6**	**83.0**	**Y**	**28.3**	**Y**
	2001	**98.0**	**74.3**	**Y**	**31.0**	**Y**

* The table lists the highest value for each statistic. Within an air basin, the highest value for each statistic may reflect a different site.
** These statistics and determination of their validity are calculated according to the methods specified in 40 CFR Part 50, Appendix N. Validity is based on the number of measurements available per quarter and therefore, depends on data completeness. Both the 98th percentile concentration and the average of quarters concentration relate to the national $PM_{2.5}$ standards, while only the average of quarters concentration relates to the State $PM_{2.5}$ standard.

Table 2-16 (continued)

PM_{10} and $PM_{2.5}$ - Linking Emissions Sources with Air Quality

The size, concentration, and chemical composition of PM vary by region and by season. A number of areas exhibit strong seasonal patterns. Other areas have a much more uniform distribution with PM concentrations remaining high throughout the year. In yet other areas, isolated PM exceedances can occur at any time of the year.

In the San Joaquin Valley, the San Francisco Bay Area, and the Sacramento region, there is a strong seasonal variation in PM, with higher PM_{10} and $PM_{2.5}$ concentrations in the fall and winter months (refer to Figure 2-4). In the winter, PM_{10} and $PM_{2.5}$ concentrations remain elevated for extended periods. These higher concentrations are caused by increased activity for some emission sources and meteorological conditions that are conducive to the build-up of PM. During the winter, the $PM_{2.5}$ size fraction drives the PM concentrations, and the major contributor to high levels of ambient $PM_{2.5}$ is the secondary formation of PM caused by the reaction of NO_X and ammonium to form ammonium nitrate. The San Joaquin Valley also records high PM_{10} levels during the fall. During this season, the coarse fraction ($PM_{2.5-10}$) drives the PM concentrations.

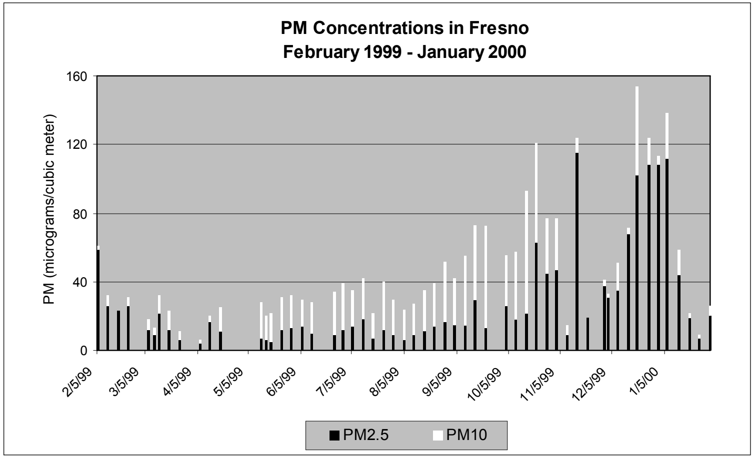

Figure 2-4

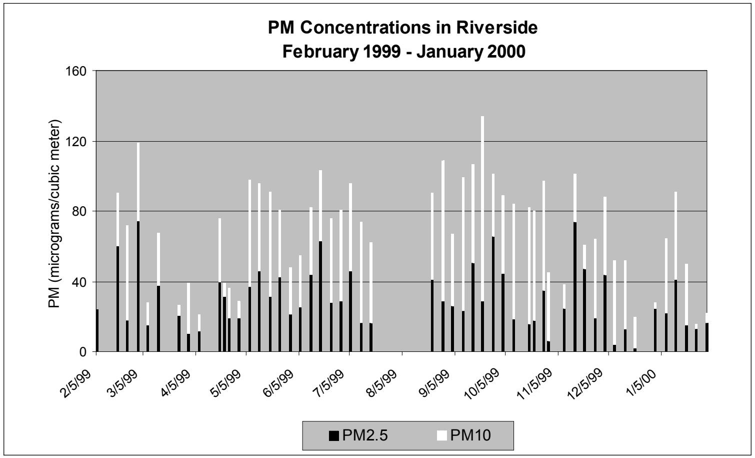

Figure 2-5

In the South Coast region, PM_{10} concentrations remain high throughout the year (refer to Figure 2-5). $PM_{2.5}$ concentrations can reach high levels in the spring, fall, and winter. The more uniform activity patterns of emission sources, as well as less variable weather patterns, leads to this more uniform concentration pattern. In other areas, high PM can be more episodic than seasonal. For example, in the Owens Lake area of the Great Basin Valleys Air Basin, episodic fugitive dust events lead to very high PM_{10} levels, with soil dust as the major contributor to ambient PM_{10}.

Chemical Mass Balance (CMB) models are used to establish which sources and how much of their emissions contribute to ambient PM concentrations. CMB models use chemical composition data from ambient PM samples and from emission sources. These data are often collected during special source attribution studies. The source attribution data presented in this section were derived from a variety of studies with differing degrees of chemical speciation. In general, however, the source categories can be interpreted in the following manner. The road and other dust, wood smoke, cooking, vehicle exhaust, and construction categories represent sources which directly emit particles. Road and other dust represents the combination of mechanically disturbed soil (paved and unpaved roads, agricultural activities) and wind-blown dust. Wood smoke generally represents residential wood combustion, but may also include combustion from other biomass burning such as agricultural or prescribed burning. The vehicle exhaust category represents direct motor vehicle exhaust particles from both gasoline and diesel vehicles. Construction reflects construction and demolition activities. Ammonium nitrate and ammonium sulfate represent secondary species (i.e., they form in the atmosphere from the emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), and ammonia). Combustion sources, such as motor vehicles and stationary sources, contribute to the NO_x that forms ammonium nitrate. Mobile sources such as diesel vehicles, locomotives, and ships and stationary combustion sources emit the SO_x that forms ammonium sulfate. Ammonia sources include animal feedlots, fertilizers, and motor vehicles. The other carbon sources category reflects organic sources not included in the source attribution models, such as natural gas combustion, as well as secondary organic carbon formation. The unidentified category represents the mass that cannot be accounted for by the identified source categories. It can include particle-bound water, as well as other unidentified sources.

The figures on the following pages present the best available source attribution data from CMB modeling for selected regions, which highlight two seasonal scenarios. These presentations are representative of typical days when the State PM_{10} standards are exceeded (refer to Chapter 1, for a review of the State standards). The fractions of the constituents shown can vary daily and from year to year, depending on factors such as meteorology.

San Joaquin Valley Air Basin

Figures 2-6 and 2-7 illustrate source contributions to ambient PM in the San Joaquin Valley during the fall and winter. These are the results from a detailed chemical analysis of samples collected during the 1995 Integrated Monitoring Study (Magliano et al., 1999).

In the fall, at Corcoran, elevated concentrations of PM_{10} were associated with high levels of road and agricultural dust. NO_x emissions from mobile and stationary combustion sources, combined with ammonium, led to significant secondary ammonium nitrate contributions to PM_{10}. During the winter, in Fresno, secondary ammonium nitrate was the major contributor to $PM_{2.5}$ and PM_{10}. Emissions from wood smoke, vehicle exhaust particles, and other carbon sources also contributed significantly to $PM_{2.5}$ levels.

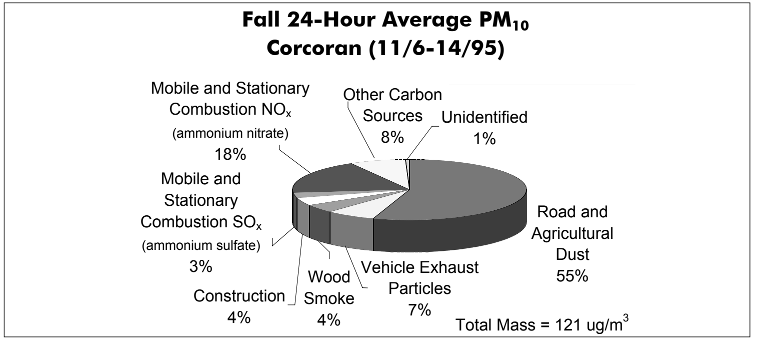

Figure 2-6

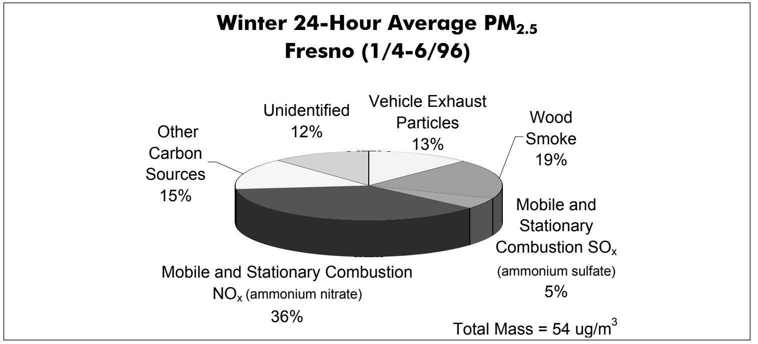

Figure 2-7

San Francisco Bay Area Air Basin

Figures 2-8 and 2-9 illustrate the sources of PM during the winter in the San Francisco Bay Area. The data are from the source apportionment analysis conducted by the Bay Area Air Quality Management District using samples collected during two special studies (Fairley, 1996, 2001).

During the winter, in San Jose, high PM concentrations are associated with high levels of wood smoke, primarily from residential wood combustion, and cooking. NO_x emitted from mobile and stationary combustion sources, in combination with ammonium, contributes about one-fourth of the PM levels. Particle emissions from mobile and stationary combustion sources are also a major contributor to $PM_{2.5}$. Road dust is a significant contributor to PM_{10}, but not $PM_{2.5}$.

Winter Peak* 24-Hour Average PM_{10}
San Jose (11/93-1/94)

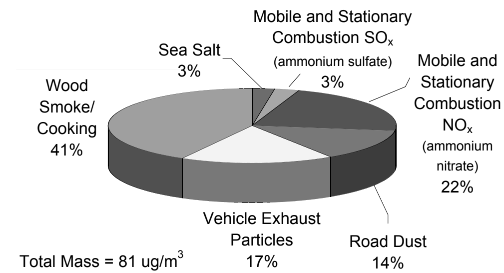

Figure 2-8 * Average of days with PM_{10} > 50 ug/m^3

Winter Peak* 24-Hour Average $PM_{2.5}$
San Jose (12/00-1/01)

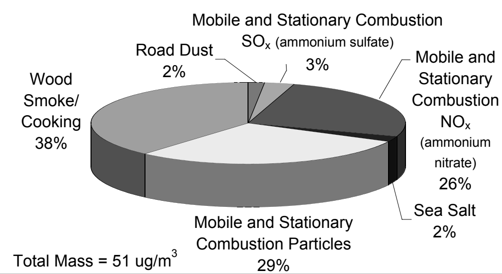

Figure 2-9 * Average of days with $PM_{2.5}$ > 40 ug/m^3

Sacramento Valley Air Basin

Figures 2-10 and 2-11 illustrate source contributions to ambient PM_{10} and $PM_{2.5}$ during the winter in Sacramento. The data are from the analysis of ambient air samples collected from November through January, during the six year period of 1991 through 1996 (Motallebi, 1999).

NO_x emissions from mobile and stationary combustion sources, combined with ammonium, contribute the most to ambient PM levels. Vehicle exhaust particle emissions and wood smoke from residential wood combustion also contribute significantly. While road and other dust is a significant component of ambient PM_{10}, its contribution to $PM_{2.5}$ is minor.

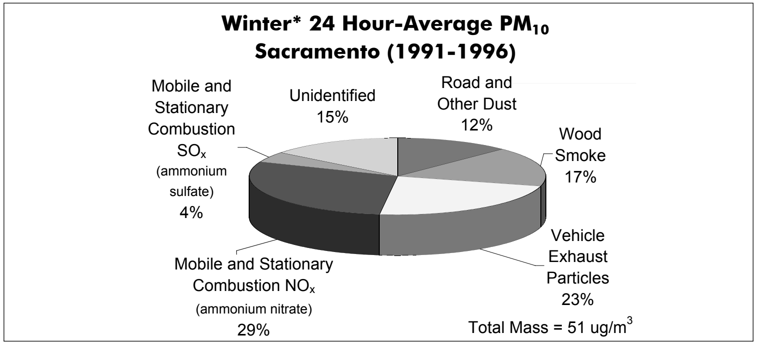

Figure 2-10 * Average of days with PM_{10} > 40 ug/m^3

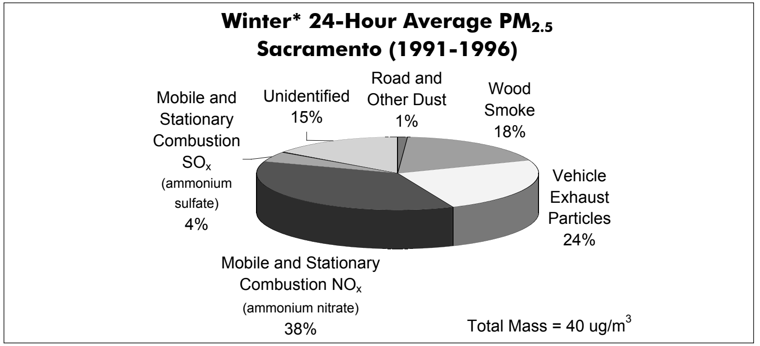

Figure 2-11 * Average of days with PM_{10} > 40 ug/m^3

South Coast Air Basin

Data for Figures 2-12, 2-13, 2-14, and 2-15 are from the source apportionment analysis that the South Coast Air Quality Management District (SCAQMD) performed for the 1997 Air Quality Management Plan. SCAQMD collected samples during a one-year special study from January 1995 to February 1996, as part of the PM_{10} Technical Enhancement Program (SCAQMD, 1996).

On an annual basis, in Central Los Angeles, dust from roads and construction is the major contributor to ambient PM_{10}. This is not the case for the episode on November 17, 1995. In both cases, NO_x and SO_x emitted from mobile and stationary combustion sources, combined with ammonium, contribute significantly. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient PM_{10} levels.

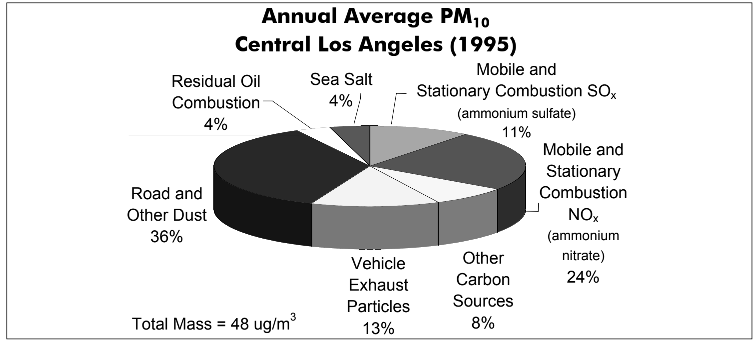

Figure 2-12

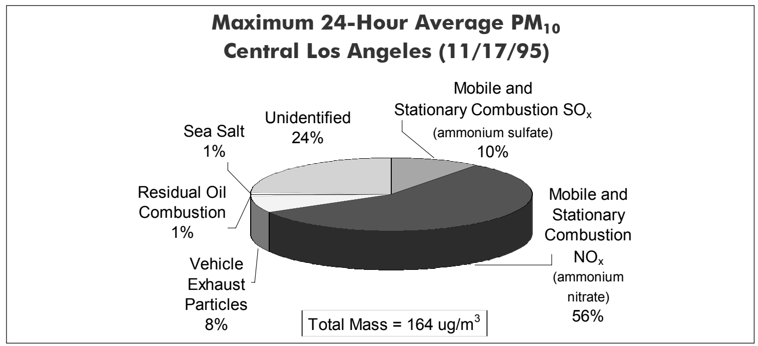

Figure 2-13

On an annual basis, in Rubidoux, dust from roads and construction is the major contributor to ambient PM_{10}. In contrast, dust was a minor contributor to the PM_{10} episode on November 17, 1995. In both cases, NO_x emitted from mobile and stationary combustion sources, combined with ammonium, contributes significantly. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient PM_{10} levels.

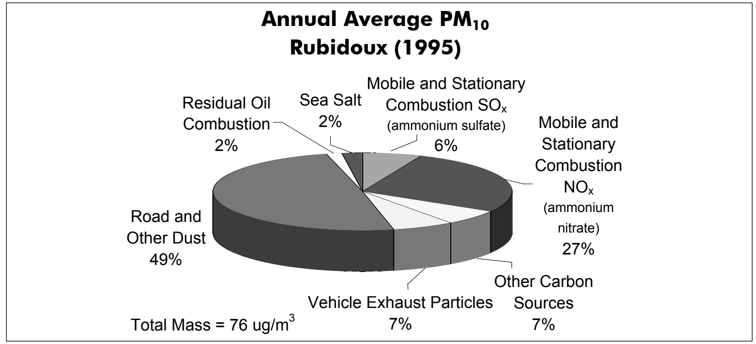

Figure 2-14

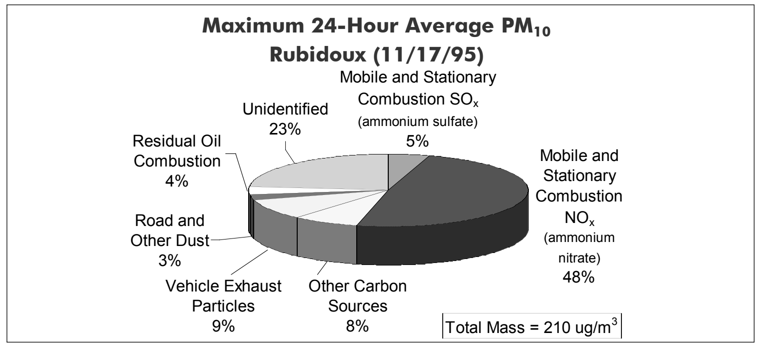

Figure 2-15

References:

Fairley, D. *Source Apportionment of Bay Area Particulates.* 1996; Personal communication.

Fairley, D. *$PM_{2.5}$ Source Apportionment for San Jose 4th Street.* 2001; Personal communication.

Magliano, K. L., Hughes, V. M., Chinkin, L. R., Coe, D. L., Haste, L. T., Kumar, N., Lurmann, F. W. *Spatial and Temporal Variations in PM_{10} and $PM_{2.5}$ Source Contributions and Comparison to Emissions During the 1995 Integrated Monitoring Study.* Atmospheric Environment 1999; 33:4757-4773.

Motallebi, N. *Wintertime PM_{10} and $PM_{2.5}$ Source Apportionment at Sacramento, California.* Journal of the Air & Waste Management Association 1999; 49:PM-25-34.

South Coast Air Quality Management District. "*Modeling and Attainment Demonstrations*" in 1997 Air Quality Management Plan, Diamond Bar, California. 1996.

Carbon Monoxide

2002 Statewide Emission Inventory - Carbon Monoxide by Category

Carbon monoxide (CO) gas is formed as the result of incomplete combustion of fuels and waste materials such as gasoline, diesel fuel, wood, and agricultural debris. Mobile sources generate about 83 percent of the statewide CO emissions. Diesel-powered, on-road vehicles are small CO contributors. Stationary and area-wide sources of CO are the same types of fuel combustion sources that also generate NO_x. The stationary source contribution to statewide CO is small, due in part to widespread use of natural gas as a fuel and the presence of combustion controls.

CO Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	441	3%
Area-wide Sources	2085	14%
On-Road Mobile	9372	64%
Gasoline Vehicles	9235	63%
Diesel Vehicles	137	1%
Other Mobile	2730	19%
Total Statewide	*14628*	*100%*

Table 2-17

Carbon Monoxide - 2001 Air Quality

The State and national carbon monoxide standards are now attained in most areas of California. The requirements for cleaner vehicles and fuels have been primarily responsible for the reductions in CO, despite significant increases in population and the number of vehicle miles traveled each day. However, there are still two problem areas: a limited portion of Los Angeles County and the city of Calexico in Imperial County. While CO concentrations continue to decrease throughout most of the State, the CO problem in Calexico is unique in that this area shares a border with Mexico. There is a high likelihood that cross-border traffic contributes to the local CO problem in this area, and more study is needed to determine the most effective control strategy.

Figure 2-16

Carbon Monoxide - 2001 Air Quality Tables

Maximum Peak 8-Hour Indicator by Air Basin

AIR BASIN	2001 Maximum Peak 8-Hour Indicator in parts per million	Number of Days in 2001 above State 8-Hour Standard	Number of Days in 2001 above National 8-Hour Standard
Great Basin Valleys Air Basin	2.5	0	0
Lake County Air Basin	Incomplete Data	Incomplete Data	Incomplete Data
Lake Tahoe Air Basin	2.0	0	0
Mojave Desert Air Basin	4.8	0	0
Mountain Counties Air Basin	2.4	0	0
North Central Coast Air Basin	1.6	0	0
North Coast Air Basin	3.2	0	0
Northeast Plateau Air Basin	Incomplete Data	Incomplete Data	Incomplete Data
Sacramento Valley Air Basin	7.3	0	0
Salton Sea Air Basin	14.3	6	6
San Diego Air Basin	5.4	0	0
San Francisco Bay Area Air Basin	6.9	0	0
San Joaquin Valley Air Basin	6.4	0	0
South Central Coast Air Basin	3.1	0	0
South Coast Air Basin	11.2	0	0

Table 2-18

Sites with Peak 8-Hour Indicator Values above the State CO Standard

Salton Sea Air Basin

- Calexico-Ethel Street

South Coast Air Basin

- Lynwood

Sites with peak 8-hour indicator values above the level of the State CO standard during 2001. Sites in each air basin are listed in descending order of their 8-hour peak indicator value. If an air basin is not listed, the peak indicator values at sites in that air basin were not above the State CO standards.

Table 2-19

Chapter 3

Statewide Trends and Forecasts -- Criteria Pollutants

Introduction
Emission Trends and Forecasts

The most current emissions data available are from 2002. Any data prior to this year are derived from historical emissions data. Future year data are forecasted from the 2002 base year and control measures reported through September 2002. Forecasts take into account emissions data, projected growth rates, and future control measures to calculate emissions in future years.

On a statewide basis, emissions of NO_x increased between 1975 and 1985, but are declining between 1985 and 2010. Emissions of ROG have decreased significantly between 1975 and 2010. In addition to being ozone precursors, both NO_x and ROG are secondary contributors to PM_{10} and $PM_{2.5}$. Direct PM_{10} emissions show a slight increase from 1975 to 1990, a slight decrease in 1995 and 2000, and then a slow increase after 2000. Directo $PM_{2.5}$ emissions show a slight decrease from 1975 to 2000 and a steady increase after 2000.

Statewide Emissions (tons/day, annual average)								
	1975	1980	1985	1990	1995	2000	2005	2010
NOx	4957	5130	5010	4971	4163	3595	3000	2496
ROG	6833	6467	5916	4512	3514	2857	2330	2096
PM_{10}	2175	2166	2210	2300	2141	2110	2141	2170
$PM_{2.5}$	875	848	831	853	772	761	773	780
CO	40729	37016	34929	29004	21626	16299	12786	10510

Table 3-1

Emissions of CO have decreased since 1985. The recent decrease in NO_x, ROG, and CO is occurring even with increases of VMT and population levels.

Statewide Population and VMT

Airborne pollutants result in large part from human activities, and growth generally has a negative impact on air quality. California is fortunate in that it boasts the world's most progressive emission controls. These controls have resulted in significant air quality improvements, despite substantial growth.

During 1982 through 2001, statewide peak 1-hour ozone values decreased 55 percent, and peak 8-hour carbon monoxide values dropped 54 percent. These air quality improvements occurred at the same time the State's population increased 40 percent and the average daily number of vehicle miles traveled (VMT) increased 97 percent. Ambient annual average PM_{10} values in the non-desert areas also show improvement: a 33 percent decrease from 1988 to 2001. While the air quality improvements are impressive, additional emission controls will be needed to offset future growth.

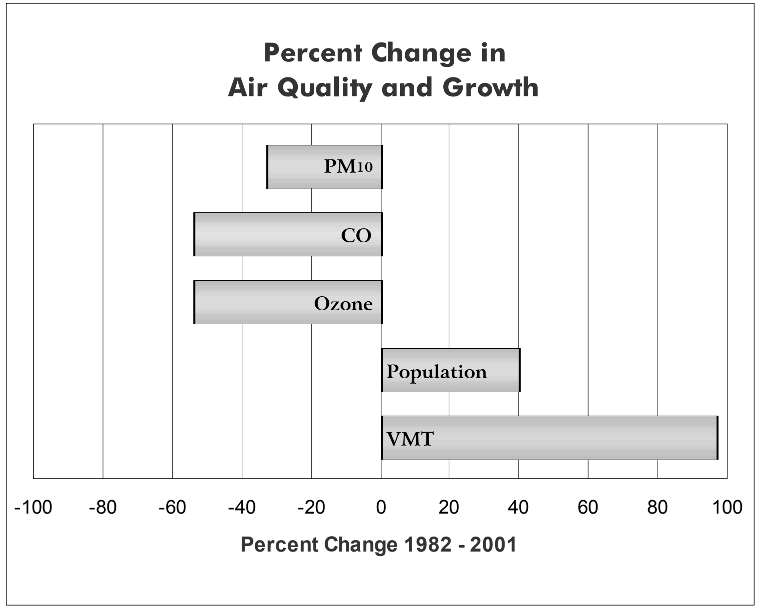

Figure 3-1

Ozone

Emission Trends and Forecasts - Ozone Precursors

NO_x Emission Trends and Forecasts

NO_x emission standards for on-road motor vehicles were introduced in 1971 and followed in later years by the implementation of more stringent standards and the introduction of three-way catalysts. NO_x emissions from on-road motor vehicles have declined by over 31 percent from 1990 to 2000, and NO_x emissions are projected to decrease by an additional 42 percent between 2000 and 2010. This has occurred as vehicles meeting more stringent emission standards enter the fleet, and all vehicles use cleaner burning gasoline and diesel fuel or alternative fuels. Stationary source NO_x emissions dropped by 40 percent between 1980 and 1995. This decrease has been largely due to a switch from fuel oil to natural gas, the implementation of combustion controls such as low-NO_x burners for boilers, and catalytic converters for both external and internal combustion stationary sources. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For additional information on these forecasts, please refer to the ARB SIP web page at *www.arb.ca.gov/planning/sip/sip.htm*.

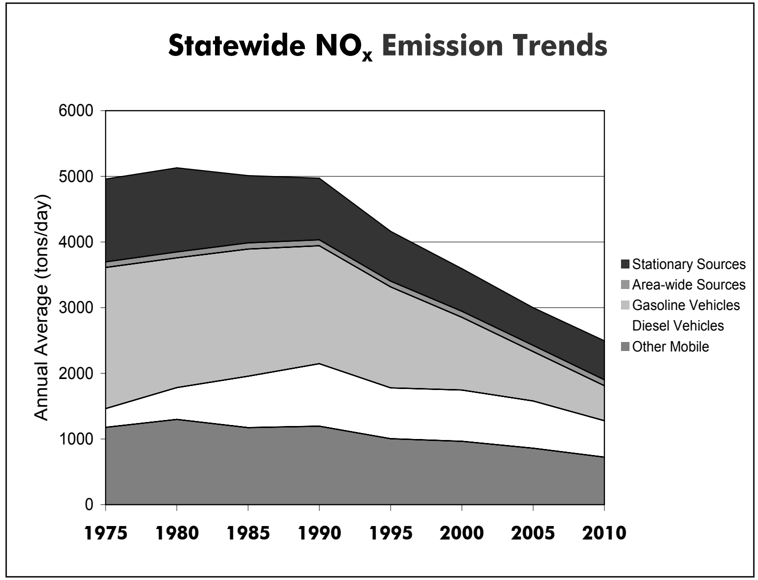

Figure 3-2

ROG Emission Trends and Forecasts

ROG emissions in California are projected to decrease by over 69 percent between 1975 and 2010, largely as a result of the State's on-road motor vehicle emission control program. This includes the use of improved evaporative emission control systems, computerized fuel injection, and engine management systems to meet increasingly stringent California emission standards, cleaner gasoline, and the Smog Check program. ROG emissions from other mobile sources are projected to decline between 1995 and 2010 as more stringent emission standards are adopted and implemented. Substantial reductions have also been obtained for area-wide sources through the vapor recovery program for service stations, bulk plants, and other fuel distribution operations. There are also on-going programs to reduce overall solvent ROG emissions from coatings, consumer products, cleaning and degreasing solvents, and other substances used within California. Again, State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For additional information on these forecasts, please refer to the ARB SIP web page at *www.arb.ca.gov/planning/sip/sip.htm*.

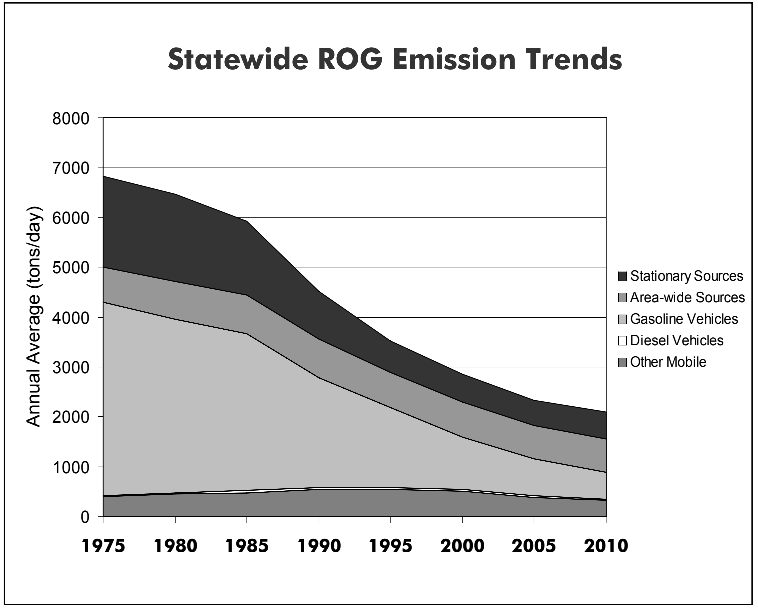

Figure 3-3

Emission Trends and Forecasts - Ozone Precursors

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***4957***	***5130***	***5010***	***4971***	***4163***	***3595***	***3000***	***2496***
Stationary Sources	1261	1282	1024	938	759	650	575	594
Area-wide Sources	85	90	93	90	89	92	94	90
On-Road Mobile	2435	2459	2721	2748	2311	1888	1470	1088
Gasoline Vehicles	2149	1975	1936	1797	1538	1108	753	533
Diesel Vehicles	286	484	784	951	774	780	717	555
Other Mobile	1177	1299	1173	1196	1004	966	860	724

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***6833***	***6467***	***5916***	***4512***	***3514***	***2857***	***2330***	***2096***
Stationary Sources	1833	1762	1480	954	631	556	514	546
Area-wide Sources	707	755	775	769	705	706	667	673
On-Road Mobile	3896	3506	3186	2254	1635	1092	767	553
Gasoline Vehicles	3880	3475	3138	2206	1598	1060	737	528
Diesel Vehicles	17	31	48	48	37	31	30	25
Other Mobile	396	445	475	534	543	503	382	324

Table 3-2

Statewide Air Quality - Ozone

Air quality, as it relates to ozone, has improved greatly in all areas of California over the last 20 years, despite significant growth. The statewide trend, which reflects values for the South Coast Air Basin, shows that the maximum peak 1-hour indicator declined 55 percent from 1982 to 2001. During this same time period, the statewide population grew by 40 percent and the number of vehicle miles traveled each day was up more than 97 percent. Motor vehicles are the largest source category of ozone precursor emissions, and reducing their emissions will continue to be the cornerstone of California's ozone control efforts. New vehicles must meet the ARB's low emission vehicle standards, which equate to about 95 percent fewer smog-forming emissions than vehicles produced in the 1970s. However, increases in population and driving are partially offsetting the benefits of cleaner vehicles. In addition to motor vehicle controls, the ARB is establishing controls for other sources of ozone precursor emissions, such as consumer products. The ARB and other agencies are also looking at new and more efficient ways of doing business and implementing incentive programs to improve air quality.

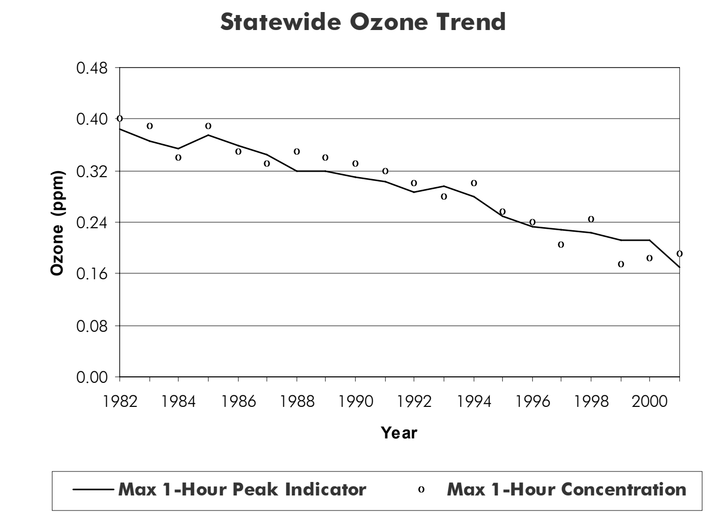

Figure 3-4

Population-Weighted Exposures Over the State Ozone Standard

There are a number of ways to look at how ozone levels have changed over the years. Though simple indicators are most commonly used, complex indicators can offer additional insight concerning air quality. One such indicator is the *population-weighted exposure* indicator. As used here, an "exposure" occurs when a person experiences a one-hour ozone concentration outdoors that is higher than 0.09 ppm, the level of the State standard. The population-weighted exposure indicator considers both the level and the duration of ozone concentrations above the State standard. The annual exposure is the sum of all the hourly exposures during the year and presents the result as an average per exposed person.

In contrast to the peak indicator, which provides an indication of the potential for acute adverse health impacts, the population-weighted exposure provides an indication of the potential for chronic adverse health impacts. For the purposes of computing the exposures in this almanac, individuals are presumed to have been exposed to concentrations measured by the ambient air quality monitoring network. However, daily activity patterns (for example, being inside a building or exercising outdoors) may diminish or increase exposures to some outdoor concentrations that exceed the State standard. While many indicators characterize air quality at an individual monitoring location, the exposure indicator provides an integrated regional perspective. For each hour, the calculations simultaneously consider ozone data from all of the monitors in a region. People living in areas where ozone exceeds the standard are then included in the population-weighted exposure for that hour.

The examples below show two simple exposure calculations. First, a measured ozone concentration of 0.11 ppm for one hour represents an exposure of 0.02 ppm-hours above the State ozone standard of 0.09 ppm:

$$(0.11 \text{ ppm} - 0.09 \text{ ppm}) \times 1 \text{ hour} = 0.02 \text{ ppm-hours}$$

Second, a measured concentration of 0.10 ppm for two hours also equals an exposure of 0.02 ppm-hours:

$$(0.10 \text{ ppm} - 0.09 \text{ ppm}) \times 2 \text{ hours} = 0.02 \text{ ppm-hours}$$

In contrast to these examples, when the concentration is equal to or below the level of the State standard of 0.09 ppm, the exposure is zero. These "zero" exposures are not included in the exposure calculations in this almanac because including the zero exposures dilutes the real impact of the ozone concentrations that are above the State standard and are, therefore, adversely affecting public health. In all cases, an exposure calculation that excludes the zero values will be higher than one incorporating concentrations at or below the level of the standard (areas of zero exposure).

The population-weighted exposures in Table 3-3 are listed for each year, from 1982 through 2001, for the five most populated areas of California: the South Coast Air Basin, the San Francisco Bay Area Air Basin, the San Joaquin Valley Air Basin, the San Diego Air Basin, and the Sacramento Metropolitan Area (the southern, urbanized portion of the Sacramento Valley Air Basin). While these areas do not encompass all of California's ozone nonattainment areas, they do include the major urban areas where the majority of the State's population lives.

The exposure values listed in Table 3-3 are presented in parts per million to be consistent with the units in which the State standard is expressed. In addition to the exposure values, Table 3-3 also lists the percent of the total population represented in the exposure value. The percent value reflects the percent of the total population in the area that was exposed to an ozone concentration above the level of the State standard for at least one hour during the year. Because the exposure result is an average, it may not accurately portray the exposure of any particular individual or sub-area. Some people in the region experience higher exposure while others experience lower exposure. Nevertheless, this method provides a reasonable approach for comparing exposures among various regions and for assessing trends in exposure reductions.

The calculations for the exposure indicators are based on all concentrations measured in the area that satisfy the specified data requirements. Exposures for the years 1982 through 1999 use census information for 1990, while exposures for the years 2000 and 2001 use census information for the year 2000. General details about the computational procedure can be found in the ARB publication entitled: "*Guidance for Using Air Quality-Related Indicators in Reporting Progress in Attaining the State Ambient Air Quality Standards*" (September 1993).

Ozone Exposures Over the State Standard: Population-Weighted (ppm-hours / person)																				
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
South Coast Air Basin																				
Exposure	31.94	40.60	35.97	36.89	34.68	30.18	33.24	29.21	21.88	22.24	21.96	17.82	18.77	13.19	10.59	6.46	4.97	2.07	2.80	3.38
% Population Represented*	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	100%	92%	66%	72%	71%	58%
San Francisco Bay Area Air Basin																				
Exposure	0.81	2.28	2.28	1.45	0.85	1.80	1.24	0.68	0.47	0.48	0.54	0.41	0.26	1.06	1.02	0.10	0.96	0.57	0.31	0.27
% Population Represented	57%	97%	100%	73%	46%	72%	73%	54%	41%	45%	50%	72%	40%	81%	60%	48%	34%	37%	11%	33%
San Joaquin Valley Air Basin																				
Exposure	8.22	5.95	7.59	8.45	10.66	11.07	9.93	7.64	5.72	6.49	5.89	6.41	6.48	6.12	6.90	3.73	6.55	4.45	4.64	4.71
% Population Represented	98%	97%	97%	97%	94%	98%	99%	96%	96%	96%	96%	99%	99%	99%	99%	99%	99%	99%	99%	99%
San Diego Air Basin																				
Exposure	7.22	10.04	6.97	8.27	5.24	5.65	7.44	7.34	6.50	3.97	3.34	2.75	2.28	2.41	1.19	0.83	1.91	0.60	0.52	0.69
% Population Represented	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	79%	100%	98%	100%	84%	70%	71%	95%
Sacramento Metropolitan Area																				
Exposure	2.29	2.32	3.12	2.88	2.57	3.20	4.23	1.83	2.15	2.46	2.41	1.08	1.76	2.19	1.84	0.52	1.95	1.41	0.80	0.95
% Population Represented	100%	94%	100%	93%	94%	100%	100%	100%	100%	99%	100%	100%	95%	100%	100%	99%	100%	100%	99%	100%

* *% Population Represented* is the percent of the total population in the area exposed to an ozone concentration above the level of the State standard for at least one hour during the year.

Table 3-3

Ozone Transport

Since 1989, the ARB staff has evaluated the impacts of the transport of ozone and ozone precursor emissions from upwind areas to the ozone concentrations in downwind areas. These analyses demonstrate that the air basin boundaries are not true boundaries of air masses. All urban areas are upwind contributors to their downwind neighbors with the exception of San Diego. Figure 3-5 shows the flow of pollutants throughout the State. The ozone problem in some rural areas is caused almost solely by transported pollutants. These areas, although designated as nonattainment, are not required to adopt an air quality plan because local control strategies in these areas would not be effective in reducing ozone concentrations. However, these areas are subject to many statewide control strategies, such as cleaner fuels and low emission vehicles. More detailed information about ozone transport is available on the web at: *www.arb.ca.gov/aqd/transport/transport.htm*.

Figure 3-5

Directly Emitted Particulate Matter (PM_{10})

Emission Trends and Forecasts - Directly Emitted PM_{10}

PM_{10} emissions increase from 1975 to 1990, then decrease slightly in 1995 and 2000, and slowly increase after 2000. PM_{10} emissions are dominated by area-wide sources. Emissions from paved road dust more than double between 1975 and 2000. Unpaved road dust emissions increase slightly, while other area-wide sources decrease slightly. The increase in emissions of unpaved and paved road dust are due to increases in vehicle miles traveled (VMT) over these roads. Exhaust emissions from diesel vehicles dropped by 45 percent from 1990 to 2000 due to more stringent emissions standards and the introduction of cleaner burning diesel fuel. PM_{10} emissions from stationary sources are expected to increase slightly in the future due to industrial growth.

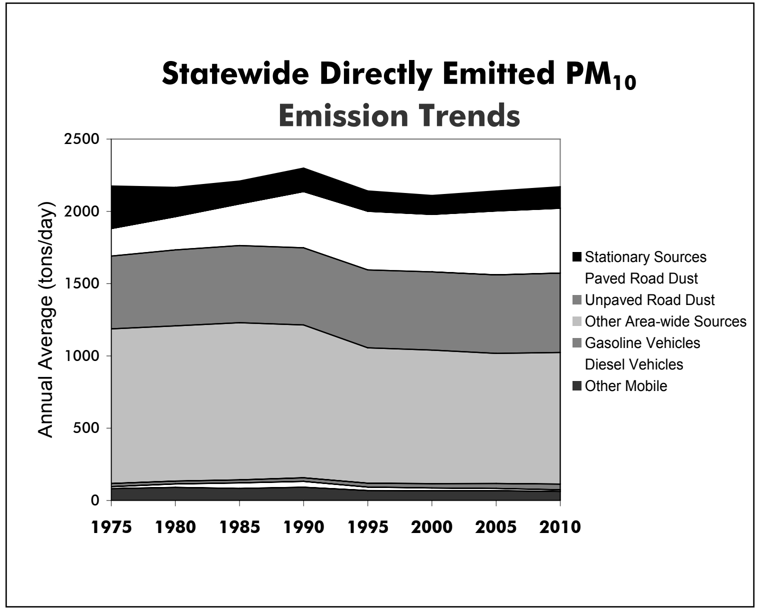

Figure 3-6

Emission Trends and Forecasts - Directly Emitted PM_{10}

Directly Emitted PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***2175***	***2166***	***2210***	***2300***	***2141***	***2110***	***2141***	***2170***
Stationary Sources	294	203	158	163	141	132	138	149
Area-wide Sources	1764	1829	1909	1980	1880	1862	1886	1909
Paved Road Dust	190	230	288	389	405	397	442	448
Unpaved Road Dust	504	525	533	534	539	541	543	550
Other Area-wide Sources	1070	1074	1087	1057	936	925	900	911
On-Road Mobile	36	43	60	66	51	48	49	50
Gasoline Vehicles	22	19	21	25	27	30	34	39
Diesel Vehicles	14	24	38	41	24	18	15	12
Other Mobile	82	90	83	91	69	68	68	63

Table 3-4

Directly Emitted Particulate Matter ($PM_{2.5}$)

Emission Trends and Forecasts - Directly Emitted $PM_{2.5}$

$PM_{2.5}$ emissions decrease from 1975 to 1985 as a result of reduced stationary source emissions. Emissions increase slightly between 1995 and 2010. $PM_{2.5}$ emissions are dominated by area-wide sources. Emissions from paved road dust almost double between 1975 and 2000. Unpaved road dust emissions increase slightly, while other area-wide sources decrease slightly. The increase in emissions of unpaved and paved road dust are due to increases in vehicle miles traveled (VMT) over these roads. Exhaust emissions from diesel vehicles dropped by 45 percent from 1990 to 2000 due to more stringent emissions standards and the introduction of cleaner burning diesel fuel. $PM_{2.5}$ emissions from stationary sources are expected to increase slightly in the future due to industrial growth.

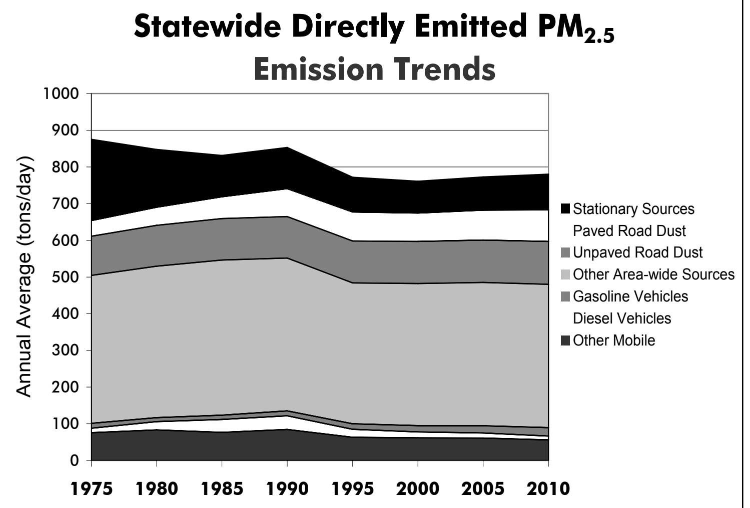

Figure 3-7

Emission Trends and Forecasts - Directly Emitted $PM_{2.5}$

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***875***	***848***	***831***	***853***	***772***	***761***	***773***	***780***
Stationary Sources	222	157	113	112	95	86	90	97
Area-wide Sources	552	573	595	606	577	579	588	594
Paved Road Dust	43	49	59	76	79	77	82	86
Unpaved Road Dust	107	111	113	113	114	115	115	117
Other Area-wide Sources	403	413	423	417	384	387	391	391
On-Road Mobile	26	33	47	51	37	33	34	34
Gasoline Vehicles	13	11	12	13	15	17	20	23
Diesel Vehicles	12	22	35	37	22	16	14	11
Other Mobile	76	83	77	84	63	62	61	56

Table 3-5

Statewide Air Quality - PM_{10}

In contrast to ozone and carbon monoxide, PM_{10} concentrations do not relate as well to growth in population or vehicle usage, and high PM_{10} concentrations do not always occur in high population areas. Activities that contribute directly to high PM_{10} include wood burning, agricultural activities, and driving on unpaved roads. In addition, emissions from stationary sources and motor vehicles form secondary particles that contribute to PM_{10} in some areas. Figure 3-8 shows the maximum statewide annual average PM_{10} concentrations for a non-desert area. The trend line reflects the South Coast Air Basin. The line shows a fairly steady decline over the period, reflecting an overall decrease of about 33 percent. However, there is a great deal of variability, especially during the latter years. Much of this variability may be due to meteorology rather than changes in emissions. Several more years of data are needed before making any judgement about the direction of the trend. Currently, over 99 percent of Californians breathe air that violates the State PM_{10} standards during at least part of the year. As a result, particulate matter is commanding greater attention, and much effort will be needed to attain the standards for this pollutant.

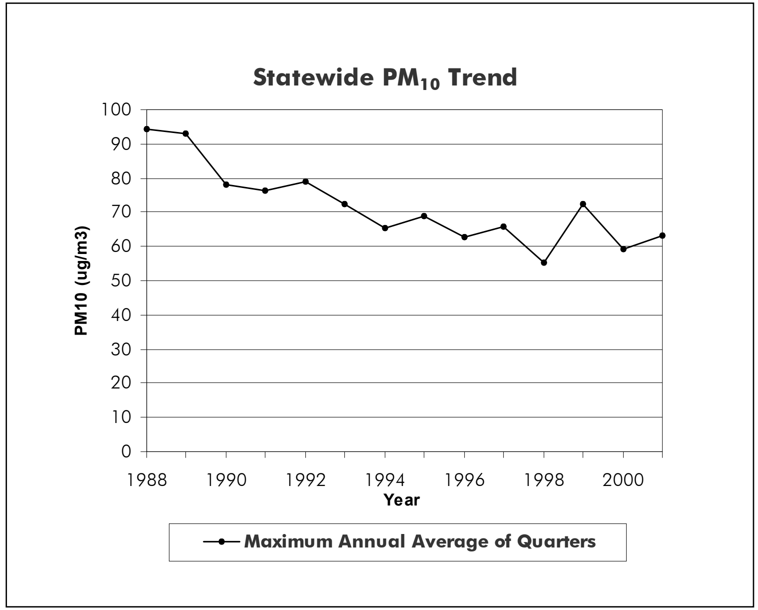

Figure 3-8

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Carbon Monoxide (CO)

Emission Trends and Forecasts - Carbon Monoxide

Since 1975, even though motor vehicle miles traveled (VMT) have continued to climb, the adoption of more stringent motor vehicle emissions standards has dropped statewide CO emissions from on-road motor vehicles by over 68 percent in 2000. With continued vehicle fleet turnover to cleaner vehicles, including super ultra low emitting vehicles (SULEVs) and electric vehicles (EVs), and the incorporation of cleaner burning fuels, CO emissions are forecast to continue decreasing through the year 2010. CO emissions from other mobile sources are also projected to decrease through 2010 as more stringent emissions standards are implemented. CO emissions from area-wide sources are expected to increase slightly due to increased waste burning and additional residential fuel combustion resulting from population increases.

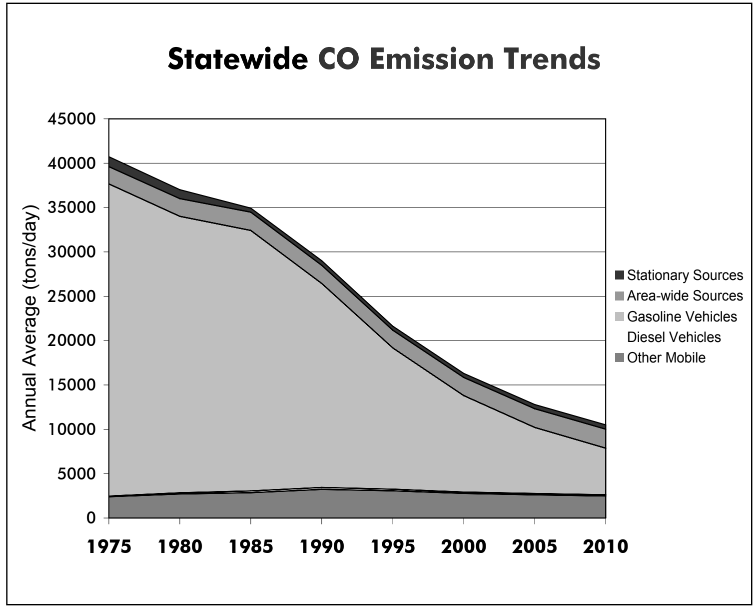

Figure 3-9

Emission Trends and Forecasts - Carbon Monoxide

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***40729***	***37016***	***34929***	***29004***	***21626***	***16299***	***12786***	***10510***
Stationary Sources	1116	1012	452	519	458	450	460	499
Area-wide Sources	1943	1992	2061	2036	1995	2056	2111	2145
On-Road Mobile	35269	31295	29565	23227	16106	11019	7593	5375
Gasoline Vehicles	35199	31171	29359	23004	15930	10872	7458	5256
Diesel Vehicles	69	124	205	223	176	146	136	119
Other Mobile	2402	2717	2851	3223	3067	2774	2622	2491

Table 3-6

Statewide Air Quality - Carbon Monoxide (CO)

Similar to ozone, carbon monoxide concentrations in all areas of California have decreased substantially over the last 20 years, despite significant growth. Statewide, the maximum peak 8-hour indicator declined about 40 percent from 1982 to 2001. During 2001, measured carbon monoxide concentrations exceeded the State and national standards only in the city of Calexico, in Imperial County. In contrast, measured CO concentrations during 2001 did not exceed the standards at Lynwood, in Los Angeles County. However, more years of data are needed to see if this trend will continue. The introduction of cleaner fuels has helped bring the rest of the State into attainment. While cleaner fuels will have a continuing impact on carbon monoxide levels, additional emission reductions will be needed in the future to keep pace with increases in population and vehicle usage. These reductions will come from continued fleet turnover, expanded use of low emission vehicles, and measures to promote less polluting modes of transportation.

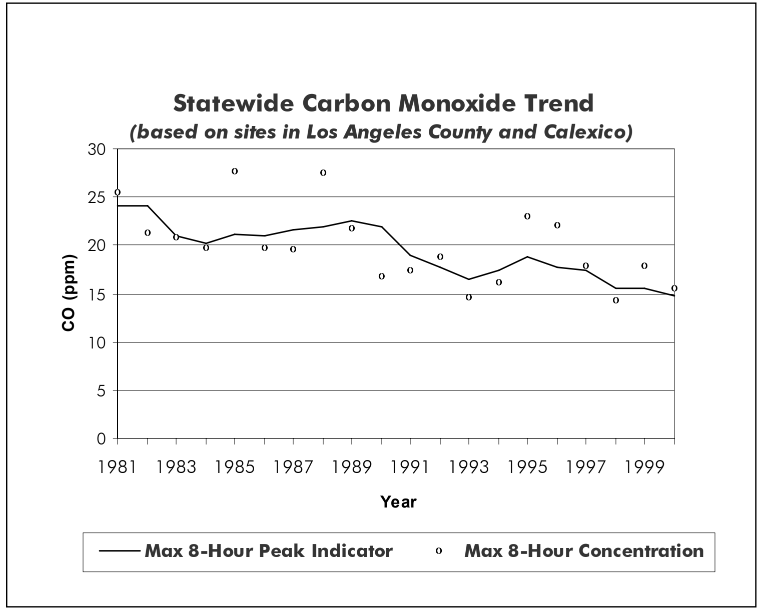

Figure 3-10

Success Stories

Statewide Air Quality - Lead

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from the gasoline now sold in California. All areas of the State are currently designated as attainment for the State lead standard (the United States Environmental Protection Agency does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the ARB identified lead as a toxic air contaminant in 1997.

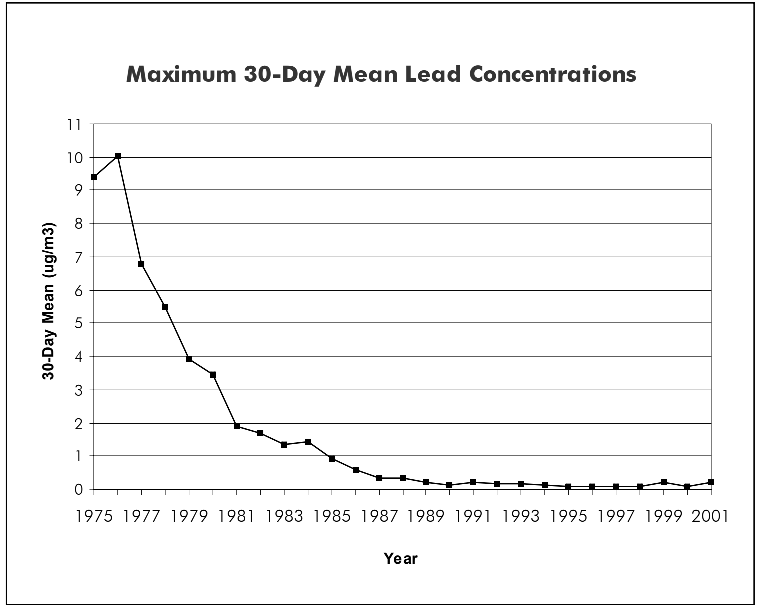

Figure 3-11

Nitrogen Dioxide

Emission Trends and Forecasts - Oxides of Nitrogen

Nitrogen dioxide (NO_2) is a colorless, tasteless gas that can cause lung damage, chronic lung disease, and respiratory infections. Nitrogen dioxide is a component of NO_x, and its presence in the atmosphere can be correlated with emissions of NO_x. Statewide emissions of NO_x are projected to decrease by almost 50 percent from 1990 to 2010 as a result of more stringent emissions standards for stationary source combustion and motor vehicles, and cleaner burning fuels. The introduction of lower emitting vehicles will continue to further reduce NO_x emissions.

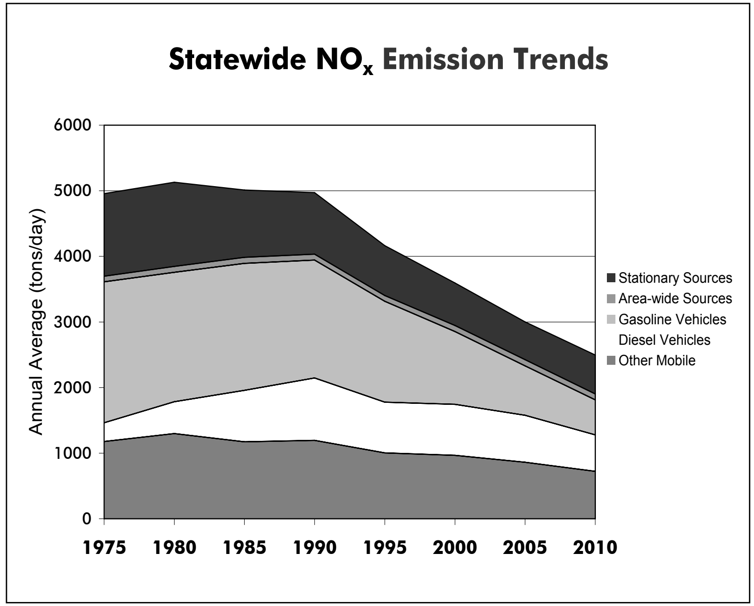

Figure 3-12

Emission Trends and Forecasts - Oxides of Nitrogen

NOx Emission Trends (tons/day, annual average)								
Emission Source	1975	1980	1985	1990	1995	2000	2005	2010
All Sources	***4957***	***5130***	***5010***	***4971***	***4163***	***3595***	***3000***	***2496***
Stationary Sources	1261	1282	1024	938	759	650	575	594
Area-wide Sources	85	90	93	90	89	92	94	90
On-Road Mobile	2435	2459	2721	2748	2311	1888	1470	1088
Gasoline Vehicles	2149	1975	1936	1797	1538	1108	753	533
Diesel Vehicles	286	484	784	951	774	780	717	555
Other Mobile	1177	1299	1173	1196	1004	966	860	724

Table 3-7

Statewide Air Quality - Nitrogen Dioxide

Oxides of nitrogen (NO_x) emissions are a by-product of combustion from both mobile and stationary sources, and they contribute to ambient nitrogen dioxide (NO_2) concentrations. Since 1975, maximum NO_2 concentrations have decreased more than 50 percent, due primarily to the implementation of tighter controls on both mobile and stationary sources. Although many of these controls were implemented to reduce ozone, they also benefited NO_2. All areas of California are currently designated as attainment for the State nitrogen dioxide standard and unclassified/attainment for the national nitrogen dioxide standard. Projections show NO_x emissions will continue to decline, thereby assuring continued attainment.

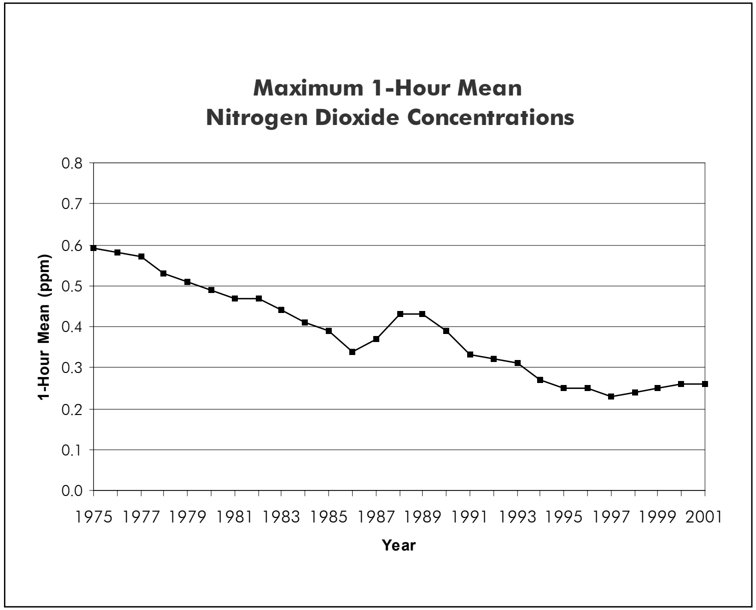

Figure 3-13

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Sulfur Dioxide

Emission Trends and Forecasts - Oxides of Sulfur

SO_x (oxides of sulfur) is a group of compounds of sulfur and oxygen. A major constituent of SO_x is sulfur dioxide (SO_2). Emissions of SO_x declined tremendously in California between 1975 and 2000. Emissions in 2000 are about 85 percent less than emissions in 1975. Sulfur dioxide emissions from stationary sources were decreased between 1975 and 2000 due to improved industrial source controls and switching from fuel oil to natural gas for electric generation and industrial boilers. The SO_x emissions from both gasoline and diesel vehicle exhaust have also decreased due to lower sulfur content in the fuel.

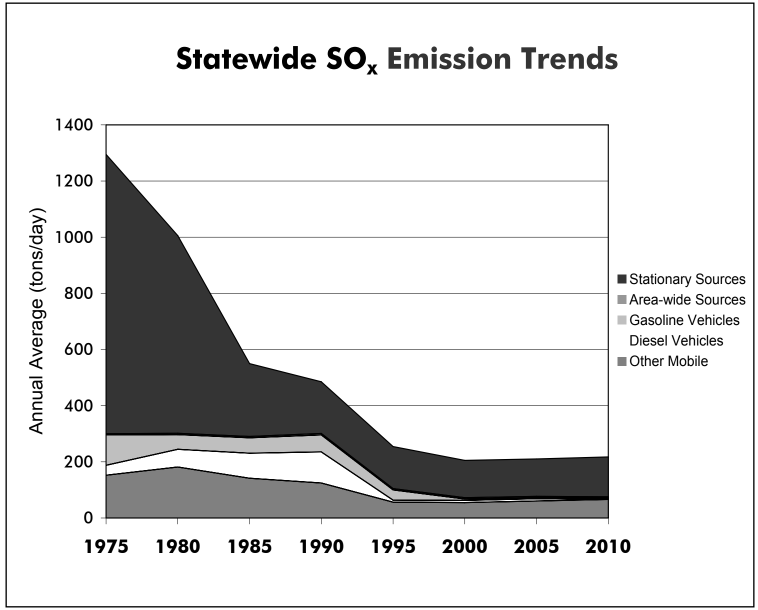

Figure 3-14

Emission Trends and Forecasts - Oxides of Sulfur

SOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1295***	***1006***	***550***	***485***	***254***	***205***	***210***	***217***
Stationary Sources	995	704	259	184	150	133	133	142
Area-wide Sources	4	5	5	5	5	5	5	4
On-Road Mobile	144	115	144	171	43	12	12	5
Gasoline Vehicles	108	52	55	60	36	5	4	4
Diesel Vehicles	35	63	89	111	7	7	8	1
Other Mobile	152	182	141	125	57	55	61	66

Table 3-8

Statewide Air Quality - Sulfur Dioxide

Similar to oxides of nitrogen, oxides of sulfur (SO_x) emissions come from both mobile and stationary sources. These SO_x emissions contribute to ambient sulfur dioxide (SO_2) concentrations. While SO_2 poses significant problems in other parts of the nation, SO_x emissions in California have been reduced sufficiently over the last 25 years so that all areas of California now attain the State standards for sulfur dioxide. Many of the major urban areas are also designated as attainment for the national sulfur dioxide standards. However, most of California is designated as unclassified. With current and anticipated SO_x emission control measures, all areas of the State are expected to remain attainment for SO_2.

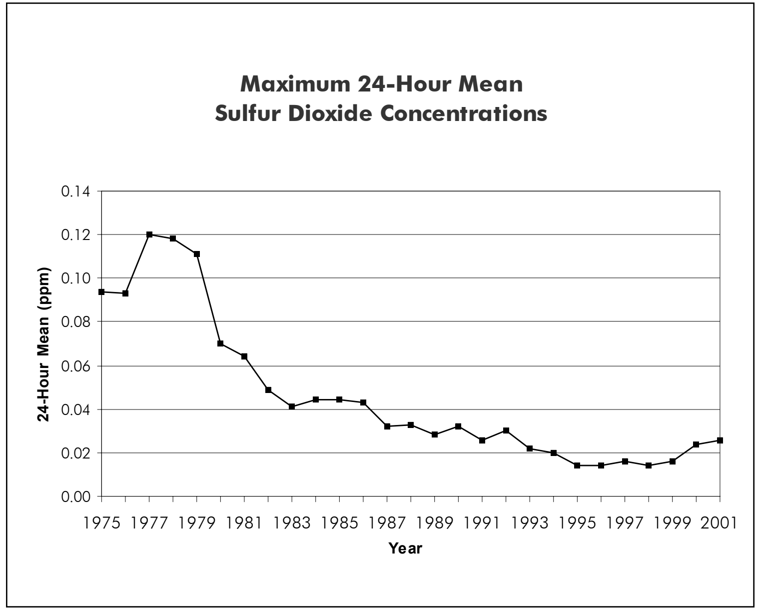

Figure 3-15

Chapter 4

Air Basin Trends and Forecasts -- Criteria Pollutants

Introduction

This chapter includes information about criteria pollutant emission and air quality trends in California's five most populated air basins: the South Coast Air Basin, the San Francisco Bay Area Air Basin, the San Joaquin Valley Air Basin, the San Diego Air Basin, and the Sacramento Valley Air Basin. The primary focus of the chapter is ozone, particulate matter (PM_{10} and $PM_{2.5}$), and carbon monoxide (CO). However, information on nitrogen dioxide (NO_2) is included for the South Coast Air Basin and San Diego Air Basin. Although these areas were once designated as nonattainment for NO_2, both areas now attain the nitrogen dioxide standards

The introduction section for each air basin includes a description of the area, a discussion of the emission trends and forecasts for each pollutant, and a description of the changes in population and the number of vehicle miles traveled each day in the air basin. This introduction is followed by more detailed discussions of trends and forecasts in emissions by major source categories and trends in ambient air quality, organized by pollutant.

The emissions discussion for each air basin includes information on both PM_{10} and $PM_{2.5}$. In contrast, the air quality discussion includes only PM_{10}. At this time, air quality information for $PM_{2.5}$ is limited, and not yet sufficient for trends analysis. However, those $PM_{2.5}$ data that are available are summarized in Chapter 2.

South Coast Air Basin

Introduction - Area Description

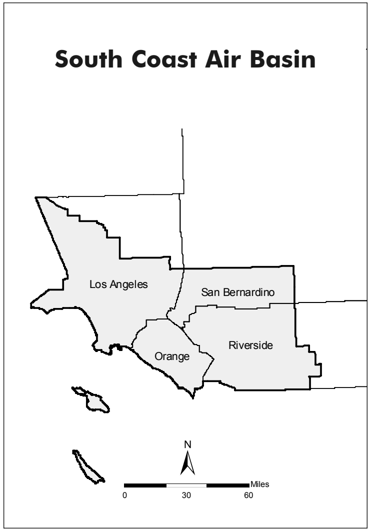

Figure 4-1

The South Coast Air Basin is California's largest metropolitan region. The area includes the southern two-thirds of Los Angeles County, all of Orange County, and the western urbanized portions of Riverside and San Bernardino counties. It covers a total of 6,729 square miles, is home to more than 40 percent of California's population, and generates about 29 percent of the State's total criteria pollutant emissions.

The South Coast Air Basin generally forms a lowland plain, bounded by the Pacific Ocean on the west and by mountains on the other three sides. In terms of air pollution potential, there are probably few areas less suited for urban development. The warm sunny weather associated with a persistent high pressure system is conducive to the formation of ozone, commonly referred to as "smog." The problem is further aggravated by the surrounding mountains, frequent low inversion heights, and stagnant air conditions. All of these factors act together to trap pollutants in the air basin.

Pollutant concentrations in parts of the South Coast Air Basin are among the highest in California. As a result, controlling the contributing emission sources poses a great challenge to State and local air pollution control agencies.

South Coast Air Basin

Emission Trends and Forecasts

Overall, since 1975 the emission levels for CO and the ozone precursors NO_x and ROG have been decreasing in the South Coast Air Basin and are projected to continue decreasing through 2010. The decreases are predominantly due to motor vehicle controls and reductions in evaporative emissions. In the South Coast Air Basin, on-road motor vehicles are the largest contributors to CO, NO_x, and ROG emissions. Other mobile sources are also significant contributors to CO and NO_x emissions. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/planning/sip/sip.htm*.

South Coast Air Basin

Population and VMT

Both population and the daily number of vehicle miles traveled, or VMT, grew at high rates in the South Coast Air Basin from 1982 to 2001. The population increased 36 percent -- from about 11 million in 1982 to almost 15 million in 2001. During the same general period, the number of vehicle miles traveled each day increased 90 percent -- from 168 million miles per day in 1982 to almost 322 million miles per day in 2001. While high growth rates are often associated with corresponding increases in emissions and pollutant concentrations, aggressive emission control programs in the South Coast Air Basin have resulted in emission decreases and a continuing improvement in air quality.

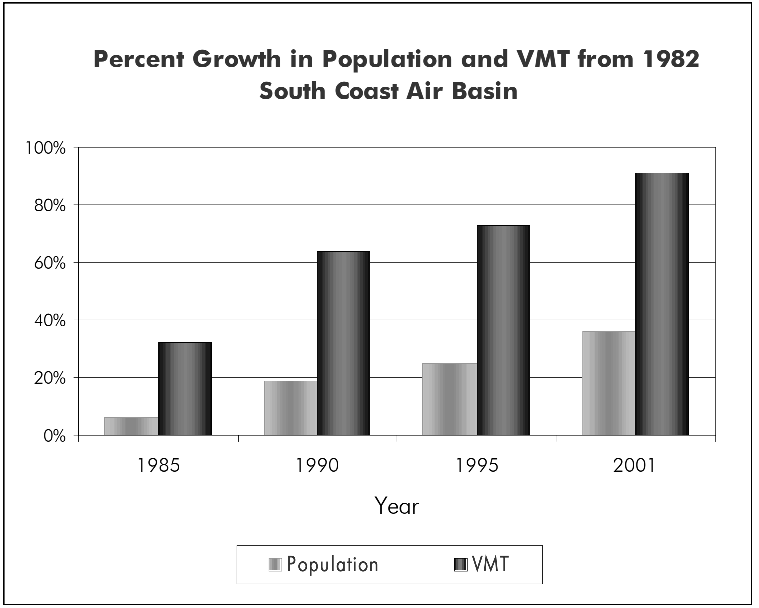

Figure 4-2

South Coast Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursors NO_x and ROG in the South Coast Air Basin are generally following the statewide downward trend. Motor vehicle miles traveled in the basin are increasing, but NO_x and ROG emissions from on-road vehicles are dropping as more stringent vehicle emission standards have been adopted. These decreases in NO_x and ROG emissions are projected to continue between 2000 and 2010, as even more stringent motor vehicle standards are implemented and as newer, lower-emitting vehicles become a larger percentage of the fleet. NO_x emissions from electric utilities in the air basin have declined substantially since 1975, despite a nationwide increase in emissions from electric utilities in the same time period. These large reductions are primarily due to increased use of natural gas as the principal fuel for power plants, and control rules that limit NO_x emissions.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1765***	***1677***	***1770***	***1660***	***1362***	***1165***	***927***	***730***
Stationary Sources	358	319	280	195	153	110	84	80
Area-wide Sources	31	34	35	28	27	30	32	27
On-Road Mobile	1026	954	1094	1065	874	727	535	389
Gasoline Vehicles	921	768	788	702	591	428	266	183
Diesel Vehicles	105	186	306	363	283	299	269	206
Other Mobile	350	370	362	374	308	298	275	234

Table 4-1

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***2492***	***2162***	***2133***	***1624***	***1171***	***918***	***671***	***572***
Stationary Sources	472	413	419	378	201	163	126	134
Area-wide Sources	201	217	240	210	184	192	169	159
On-Road Mobile	1684	1387	1317	864	614	408	271	193
Gasoline Vehicles	1678	1376	1299	847	601	398	261	185
Diesel Vehicles	6	12	18	17	13	10	9	8
Other Mobile	136	145	156	172	171	155	106	86

Table 4-2

South Coast Air Basin
Ozone Precursor Emission Trends and Forecasts

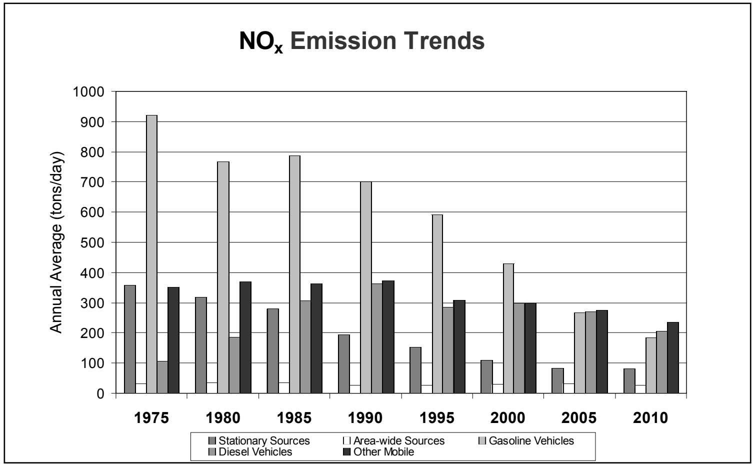

Figure 4-3

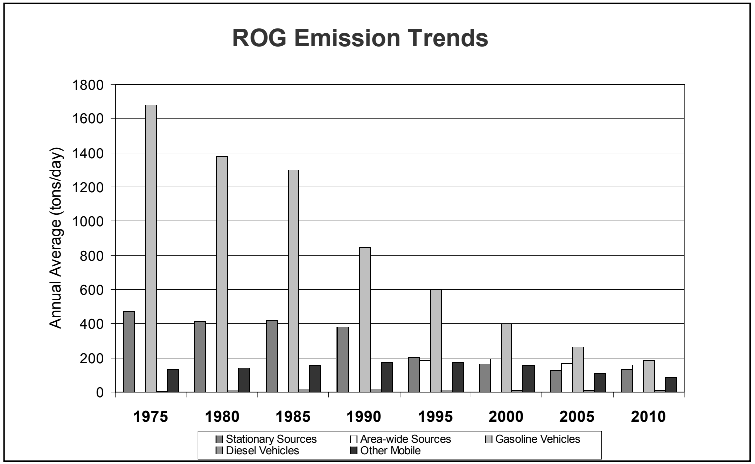

Figure 4-4

South Coast Air Basin

Ozone Air Quality Trend

Air quality as it relates to ozone in the South Coast Air Basin has improved substantially over the last 30 years. During the 1960s, maximum 1-hour concentrations were above 0.60 parts per million. Today, the maximum measured concentrations are less than one-third of that. All of the ozone statistics show an overall, steady decline. The 2001 peak 1-hour indicator value is more than 50 percent lower than the 1982 value. The maximum 1-hour concentration has also decreased more than 50 percent. The number of days above the standards has declined dramatically, as have the number of Stage I and Stage II episode days.

The ARB has identified the South CoastAir Basin as a transport contributor to several downwind areas -- the Mojave Desert Air Basin, the Salton Sea Air Basin, the San Diego Air Basin, and the South Central Coast Air Basin. As ozone concentrations in the South Coast Air Basin decline further, the transport impact on the downwind areas should also decrease.

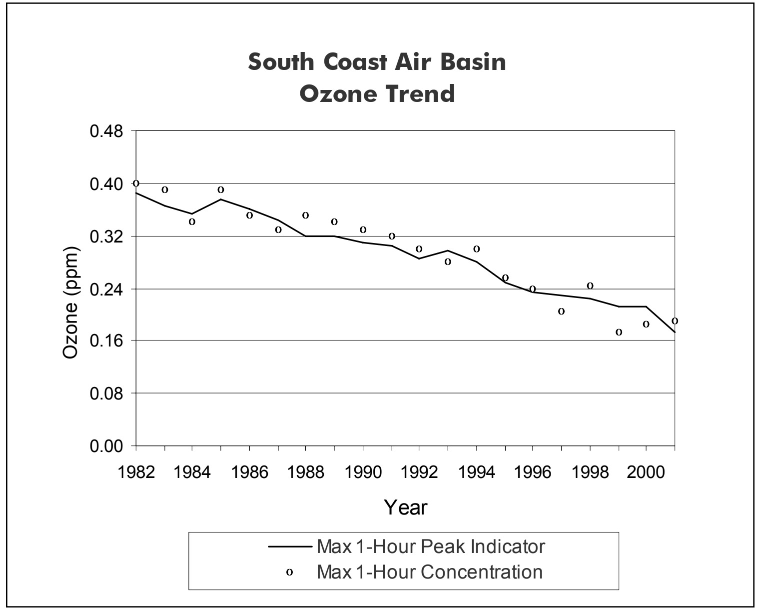

Figure 4-5

South Coast Air Basin
Ozone Air Quality Table

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.385	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.233	0.229	0.224	0.211	0.213	0.172
4th High 1-Hr in 3 Yrs	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211	0.170
Avg of 4th Hi 8-Hr in 3 Yrs	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129
Maximum 1-Hr. Concentration	0.400	0.390	0.340	0.390	0.350	0.330	0.350	0.340	0.330	0.320	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184	0.190
Max. 8-Hr. Concentration	0.265	0.258	0.248	0.288	0.251	0.210	0.258	0.252	0.193	0.203	0.218	0.195	0.208	0.203	0.173	0.148	0.206	0.142	0.149	0.144
Days Above State Standard	198	192	209	207	217	196	216	211	185	184	190	185	165	153	141	144	107	111	115	121
Days Above Nat. 1-Hr. Std.	151	153	175	158	167	161	178	157	131	130	142	124	118	98	85	64	60	39	33	36
Days Above Nat. 8-Hr. Std.	166	169	190	181	191	179	194	181	161	160	173	161	148	120	115	118	93	93	94	92

Table 4-3

South Coast Air Basin

Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} have been increasing in the South Coast Air Basin since 1975. A decrease in emissions would have been observed, if not for growth in emissions from area-wide sources, primarily fugitive dust from paved and unpaved roads and other sources. The increase in activity of these area-wide sources reflects the increased growth and vehicle miles traveled (VMT) in the air basin.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The PM_{10} emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 35 percent of the ambient PM_{10} in the South Coast Air Basin.

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***239***	***250***	***277***	***345***	***322***	***291***	***292***	***299***
Stationary Sources	57	40	27	27	16	16	16	17
Area-wide Sources	145	168	203	269	268	237	239	246
On-Road Mobile	15	17	24	25	20	18	18	18
Gasoline Vehicles	10	8	9	10	11	12	13	15
Diesel Vehicles	5	9	15	15	9	6	5	4
Other Mobile	23	24	23	25	19	19	19	18

Table 4-4

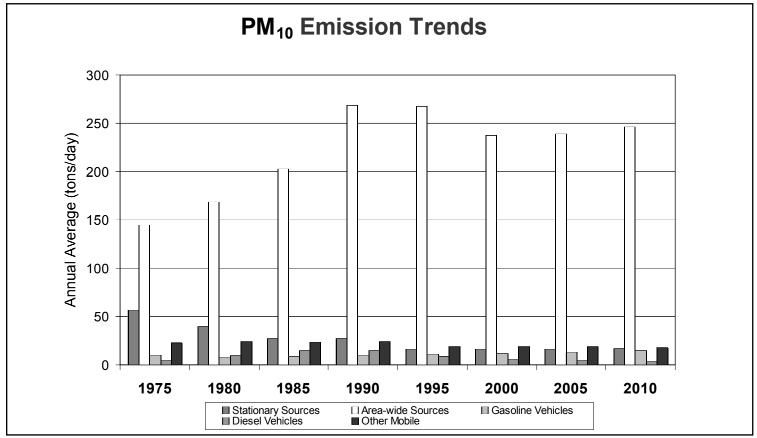

Figure 4-6

South Coast Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ have been relatively steady in the South Coast Air Basin since 1975. Stationary source emissions have been decreasing, while area-wide emissions have been increasing. A decrease in emissions would have been observed, if not for growth in emissions from area-wide sources, primarily fugitive dust from paved and unpaved roads and other sources. The increase in activity of these area-wide sources reflects the increased growth and vehicle miles traveled (VMT) in the air basin.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted $PM_{2.5}$ emissions contribute approximately 60 percent of the ambient $PM_{2.5}$ in the South Coast Air Basin.

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***125***	***116***	***118***	***130***	***110***	***108***	***110***	***111***
Stationary Sources	53	34	22	24	14	13	13	14
Area-wide Sources	41	47	56	65	65	66	68	69
On-Road Mobile	11	13	19	19	14	12	12	12
Gasoline Vehicles	6	5	5	6	6	7	8	9
Diesel Vehicles	5	9	14	13	8	6	5	4
Other Mobile	21	22	21	22	17	17	17	16

Table 4-5

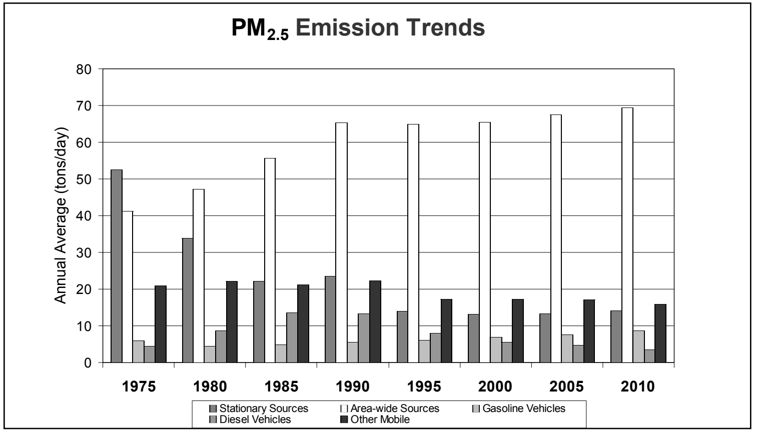

Figure 4-7

South Coast Air Basin

PM_{10} Air Quality Trend

As with other pollutants, the PM_{10} statistics also show overall improvement. During the period for which data are available, the maximum annual average of quarters decreased about 33 percent. Although the values for the last several years show some variability, this is probably due to meteorology rather than a change in emissions. Despite the overall decrease, ambient concentrations still exceed the State annual and 24-hour PM_{10} standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop. During 1988, there were 345 calculated days above the State standard and 44 calculated days above the national standard. By 2001, there were still 278 calculated State standard exceedance days. In contrast, there were only 5 calculated national standard exceedance days.

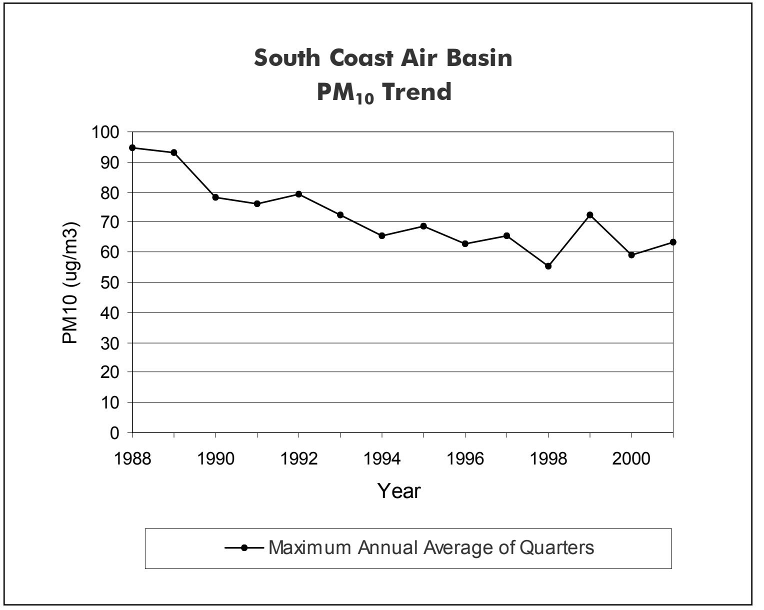

Figure 4-8

Despite these decreases, PM_{10} continues to pose a significant problem in the South Coast Air Basin. While emission controls implemented for ozone will also benefit PM_{10}, more controls aimed specifically at reducing PM_{10} will be needed to reach attainment.

South Coast Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							289	271	475	179	649	231	161	219	162	208	116	183	139	219
Max. Avg. of Quarters							94.5	93.0	78.2	76.1	79.0	72.5	65.5	68.8	62.8	65.6	55.3	72.2	59.1	63.3
Calc Days Above State 24-Hr Std							345	338	301	294	282	293	276	252	276	290	238	288	300	278
Calc Days Above Nat 24-Hr Std							44	32	33	15	24	12	3	31	6	17	0	6	0	5

Table 4-6

South Coast Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO have been trending downward since 1975 in the South Coast Air Basin even though motor vehicle miles traveled have increased and industrial activity has grown. On-road motor vehicle controls are primarily responsible for this decline in emissions of CO. Stationary source emissions decreased during the 1970s and 1980s as a result of a decline in the manufacture of carbon black (a material used in the manufacture of tires) and steel in the South Coast Air Basin. CO emissions from other mobile sources are projected to decrease as more stringent emission standards are adopted.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***15849***	***13068***	***12813***	***10051***	***7306***	***5281***	***3736***	***2883***
Stationary Sources	315	306	94	120	97	78	78	79
Area-wide Sources	54	51	82	70	87	142	158	161
On-Road Mobile	14571	11754	11622	8750	6116	4168	2670	1861
Gasoline Vehicles	14546	11708	11545	8670	6055	4119	2626	1823
Diesel Vehicles	25	47	78	81	61	49	44	38
Other Mobile	909	956	1015	1111	1006	892	831	782

Table 4-7

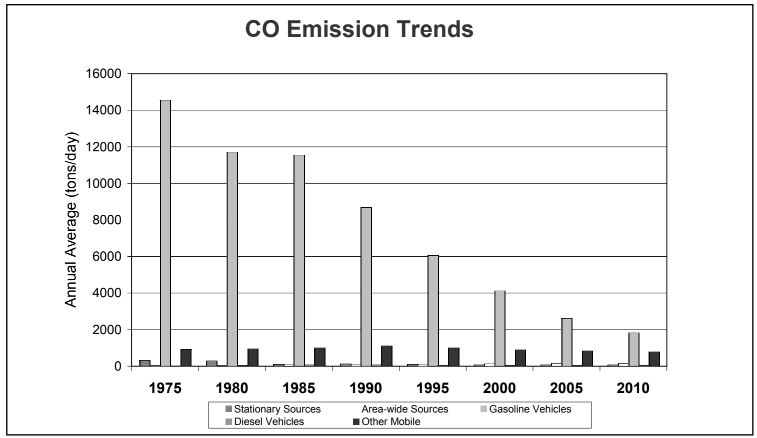

Figure 4-9

South Coast Air Basin

Carbon Monoxide Air Quality Trend

Carbon monoxide concentrations in the South Coast Air Basin have decreased markedly -- a total decrease of 54 percent in the maximum peak 8-hour indicator since 1982. The number of standard exceedance days has also declined. There were 79 days above the State standard and 68 days above the national standard during 1982. However, during 2001, there were no exceedances of either standard. This marks the first year with no exceedances. However, additional years of data are needed to confirm whether this trend will continue.

While the entire South Coast Air Basin is designated as nonattainment for the national CO standards and Los Angeles County is designated as nonattainment for the State standards, CO violations have been limited to a small portion of Los Angeles County. No violations have occurred in the other three counties since 1992. Continuing reductions in motor vehicle emissions should continue reducing ambient CO concentrations.

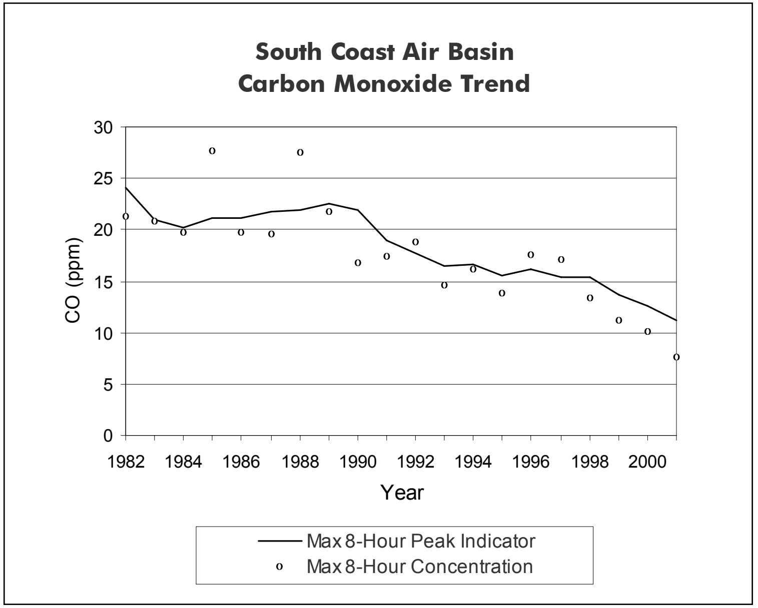

Figure 4-10

South Coast Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6	11.2
Max. 1-Hr. Concentration	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.8	11.7
Max. 8-Hr. Concentration	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	16.1	13.8	17.5	17.1	13.3	11.2	10.1	7.6
Days Above State 8-Hr. Std.	79	67	79	64	58	50	73	71	50	51	39	29	27	17	26	18	13	11	6	0
Days Above Nat. 8-Hr. Std.	68	57	66	54	49	40	65	67	42	41	34	19	19	14	19	13	10	7	3	0

Table 4-8

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South Coast Air Basin

Nitrogen Dioxide

Oxides of Nitrogen Emission Trends and Forecasts

NO_x (and nitrogen dioxide) emissions in the South Coast Air Basin have been trending downward since 1985. This decline should continue as more stringent motor vehicle and stationary source emission standards are adopted and implemented.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1765***	***1677***	***1770***	***1660***	***1362***	***1165***	***927***	***730***
Stationary Sources	358	319	280	195	153	110	84	80
Area-wide Sources	31	34	35	28	27	30	32	27
On-Road Mobile	1026	954	1094	1065	874	727	535	389
Gasoline Vehicles	921	768	788	702	591	428	266	183
Diesel Vehicles	105	186	306	363	283	299	269	206
Other Mobile	350	370	362	374	308	298	275	234

Table 4-9

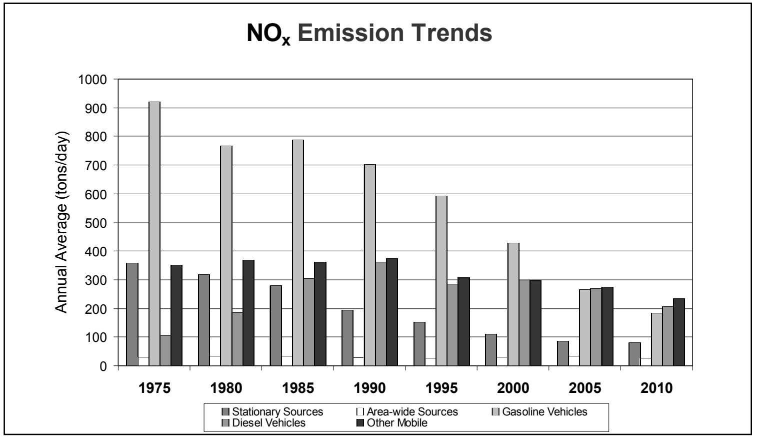

Figure 4-11

South Coast Air Basin

Nitrogen Dioxide Air Quality Trend

The South Coast Air Basin is one of only a few areas in California where nitrogen dioxide has been a problem. However, over the last 20 years, there has been a fairly steady decline in NO_2 values. The maximum peak 1-hour indicator for 2001 was nearly half what it was during 1982. Nitrogen dioxide concentrations in the South Coast area no longer violate the State and national standards. Furthermore, the downward trend should continue in the future.

Nitrogen dioxide is formed from emissions of oxides of nitrogen, which also contribute to ozone. As a result, the majority of the future emission control measures will be implemented as part of the overall ozone control strategy. Many of these control measures will target mobile sources, which account for more than three-quarters of California's oxides of nitrogen emissions.

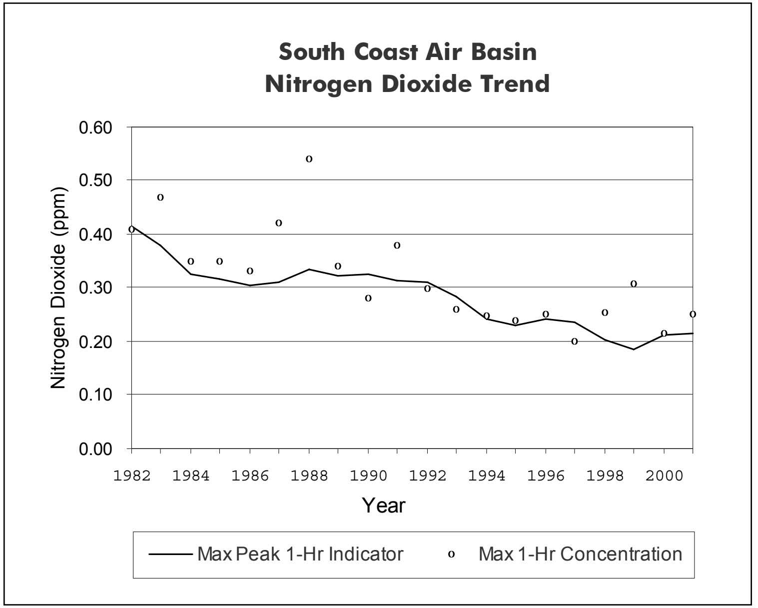

Figure 4-12

South Coast Air Basin

Nitrogen Dioxide Air Quality Table

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.414	0.378	0.325	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.203	0.185	0.213	0.216
Max. 1-Hr. Concentration	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.255	0.307	0.214	0.251
Max. Annual Average	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044	0.041

Table 4-10

San Francisco Bay Area Air Basin

Introduction - Area Description

Figure 4-13

The San Francisco Bay Area is California's second largest metropolitan area and is the focal point of northern California. The nine county area comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern half of Sonoma County, and the southwestern portion of Solano County. The unifying feature of the area is the Bay itself, which is oriented north-south and covers about 400 square miles of the area's total 5,545 square miles. Close to 20 percent of California's population resides in the San Francisco Bay Area, and pollution sources in the region account for about 16 percent of the total statewide criteria pollutant emissions. The climate in the San Francisco Bay Area varies from one location to the next. Along the coast, temperatures are mild year-round. However, as one moves inland, temperatures show larger diurnal and seasonal variations. Overall air quality in the San Francisco Bay Area Air Basin is better than in the South Coast Air Basin. This is due to a more favorable climate, with cooler temperatures and better ventilation. However, exceedances of the ozone standards continue to occur in the San Francisco Bay Area Air Basin, and still pose challenges to State and local air pollution control agencies.

San Francisco Bay Area Air Basin
Emission Trends and Forecasts

The emission levels for the ozone precursors NO_x and ROG have been trending downward in the San Francisco Bay Area Air Basin since 1990 and 1980, respectively. CO emissions have also been trending downward since 1985. On-road motor vehicles are the largest contributors to CO, ROG, and NO_x emissions in the air basin. The implementation of stricter mobile source (both on-road and other) emission standards will continue to decrease vehicle emissions in this air basin. Controls on stationary source solvent evaporation and fugitive emissions will also continue to impact ROG emissions.

San Francisco Bay Area Air Basin

Population and VMT

Compared with the statewide totals, population and the number of vehicle miles traveled each day grew at a slower rate in the San Francisco Bay Area Air Basin from 1982 to 2001. During that 20-year period, the population increased about 29 percent, from about 5.2 million in 1982 to more than 6.7 million in 2001. During the same period, the daily VMT increased 71 percent: from 95 million miles per day in 1982 to over 162 million miles per day in 2001. While these growth rates are lower than the growth rates seen in other areas, they still represent substantial increases.

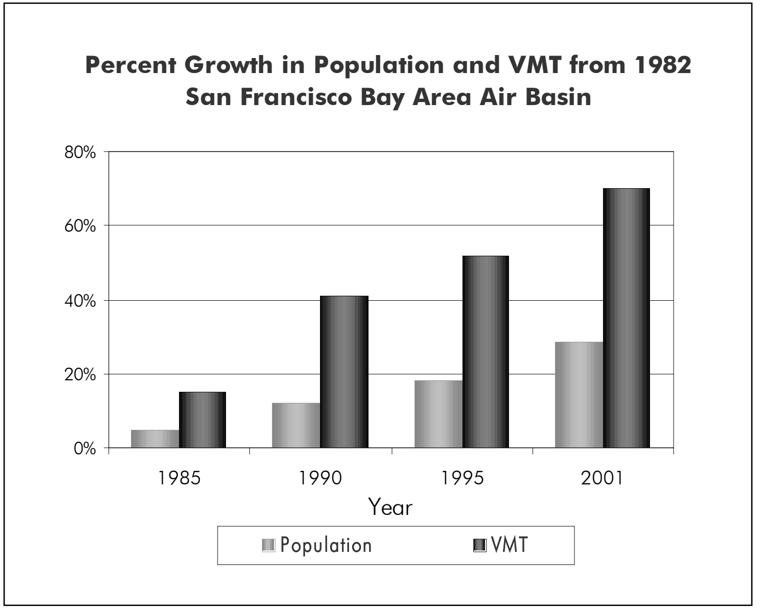

Figure 4-14

San Francisco Bay Area Air Basin
Ozone Precursor Emission Trends and Forecasts

Emissions of ozone precursors have decreased in the San Francisco Bay Area Air Basin since the 1980s and are projected to continue declining through 2010. The Bay Area has a significant motor vehicle population, and the implementation of stricter motor vehicle controls has resulted in significant emissions reductions for NO_x and ROG. Stationary source emissions of ROG have declined over the last 20 years due to new controls for oil refinery fugitive emissions and new rules for control of ROG from various industrial coatings and solvent operations.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***999***	***990***	***928***	***898***	***759***	***668***	***542***	***453***
Stationary Sources	247	224	154	152	120	121	74	75
Area-wide Sources	16	17	18	22	23	22	22	22
On-Road Mobile	552	570	566	524	437	352	286	217
Gasoline Vehicles	497	478	417	348	294	208	155	114
Diesel Vehicles	55	92	149	176	142	144	131	103
Other Mobile	183	179	190	200	179	173	160	138

Table 4-11

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1461***	***1375***	***1106***	***781***	***635***	***494***	***394***	***344***
Stationary Sources	365	333	229	136	137	116	100	98
Area-wide Sources	144	137	129	128	97	91	86	85
On-Road Mobile	873	822	658	421	309	208	152	113
Gasoline Vehicles	869	816	649	413	303	202	146	108
Diesel Vehicles	3	6	9	8	6	6	6	5
Other Mobile	80	83	90	97	91	78	57	47

Table 4-12

San Francisco Bay Area Air Basin
Ozone Precursor Emission Trends and Forecasts

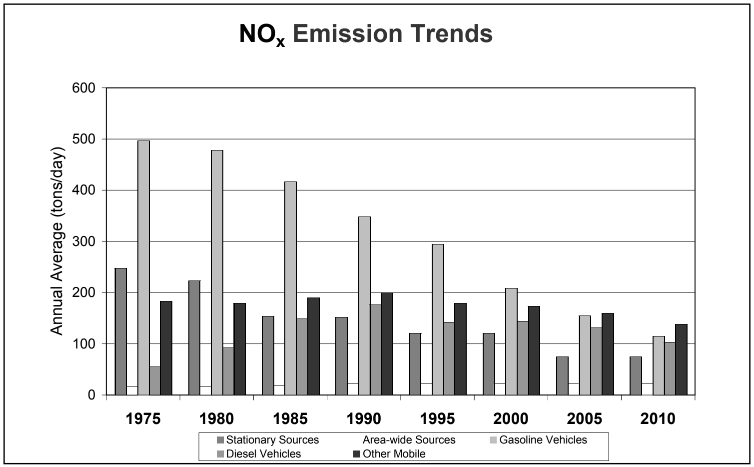

Figure 4-15

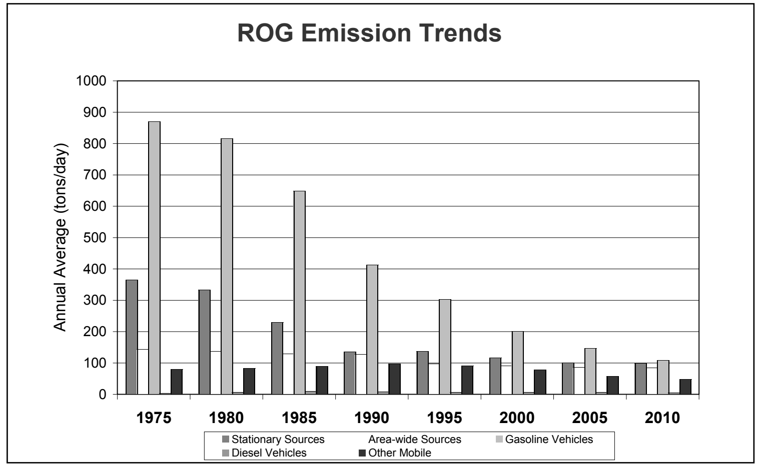

Figure 4-16

San Francisco Bay Area Air Basin

Ozone Air Quality Trend

Ozone concentrations in the San Francisco Bay Area are much lower than in the South Coast Air Basin. The peak 1-hour indicator declined about 21 percent from 1982 to 2001. Although the trend has not been consistently downward, the ambient concentrations generally declined from 1982 to 1994. Since 1994, the peak indicator values have been somewhat higher. However, it is not yet clear whether these data represent a significant change in the overall trend. Data for 1999 through 2001 are lower than values during the prior few years. The number of days above the State and national 1-hour standards show a similar trend.

Bacause of meteorology, ozone and ozone precursor emissions can be transported from one air basin to another. The ARB has identified the San Francisco Bay Area Air Basin as a transport contributor to the following six areas: the Broader Sacramento Area, the Mountain Counties Air Basin, the North Central Coast Air Basin, the North Coast Air Basin, the San Joaquin Valley Air Basin, and the South Central Coast Air Basin. The amount of transport impact varies from day to day, depending in large part on meteorology. To the extent that the Bay Area continues to reduce ozone precursor emissions, the transport impact on downwind areas should also decrease.

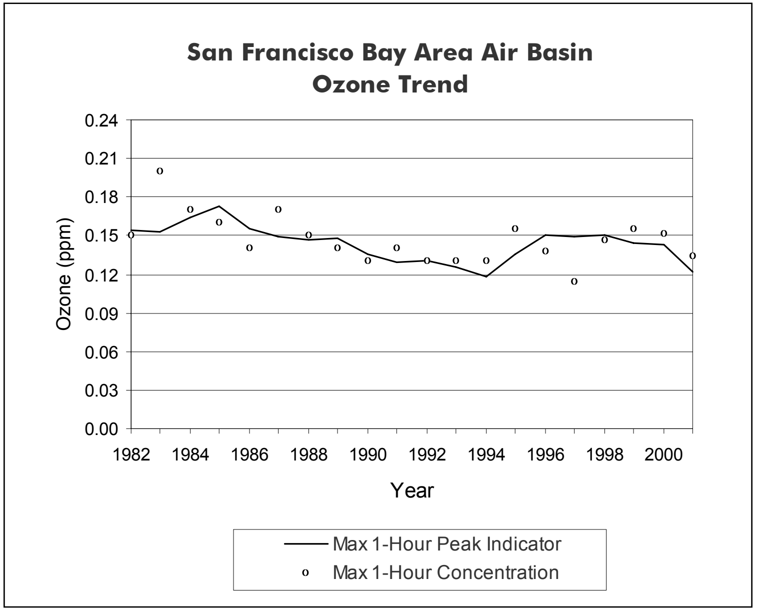

Figure 4-17

San Francisco Bay Area Air Basin

Ozone Air Quality Table

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.154	0.153	0.164	0.173	0.155	0.149	0.147	0.148	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143	0.122
4th High 1-Hr in 3 Yrs	0.180	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126
Avg of 4th Hi 8-Hr in 3 Yrs	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.082
Maximum 1-Hr. Concentration	0.150	0.200	0.170	0.160	0.140	0.170	0.150	0.140	0.130	0.140	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152	0.134
Max. 8-Hr. Concentration	0.108	0.150	0.124	0.127	0.106	0.116	0.101	0.102	0.105	0.108	0.101	0.112	0.097	0.115	0.112	0.084	0.111	0.122	0.114	0.102
Days Above State Standard	36	53	55	45	39	46	41	22	14	23	23	19	13	28	34	8	29	20	12	15
Days Above Nat. 1-Hr. Std.	5	21	22	9	5	14	5	4	2	2	2	3	2	11	8	0	8	3	3	1
Days Above Nat. 8-Hr. Std.	13	26	32	17	13	29	20	13	7	6	6	5	4	18	14	0	16	9	4	7

Table 4-13

San Francisco Bay Area Air Basin

Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} increase slightly in the San Francisco Bay Area Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Emissions of directly emitted PM_{10} from diesel motor vehicles have been decreasing since 1990 even though population and vehicle miles traveled (VMT) are growing, due to adoption of more stringent emission standards.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The PM_{10} emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 25 percent of the ambient PM_{10} in the San Francisco Bay Area Air Basin.

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***171***	***173***	***188***	***190***	***177***	***191***	***202***	***205***
Stationary Sources	36	25	21	18	19	16	17	18
Area-wide Sources	112	124	138	142	136	153	163	165
On-Road Mobile	7	9	12	12	9	9	10	10
Gasoline Vehicles	5	4	4	5	5	6	7	8
Diesel Vehicles	2	5	7	7	4	3	3	2
Other Mobile	15	15	17	18	14	13	13	12

Table 4-14

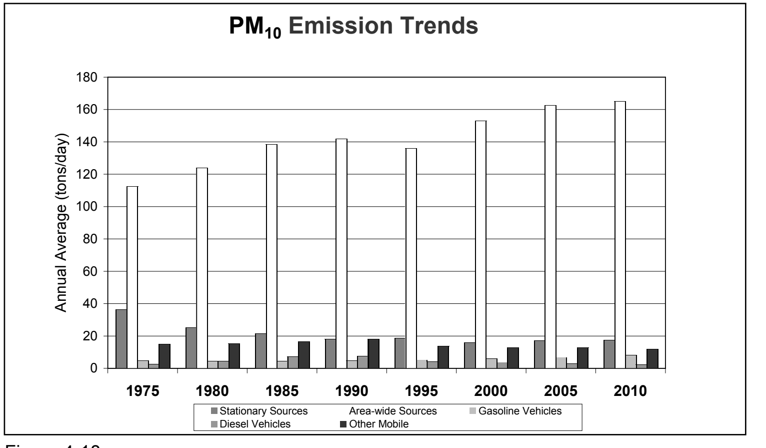

Figure 4-18

San Francisco Bay Area Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ are relatively steady in the San Francisco Bay Area Air Basin between 1975 and 2010. Emissions from stationary sources declines slightly, while area-wide sources increase. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Emissions of directly emitted PM_{10} from diesel motor vehicles have been decreasing since 1990 even though population and vehicle miles traveled (VMT) are growing, due to adoption of more stringent emission standards.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted $PM_{2.5}$ emissions contribute approximately 40 percent of the ambient $PM_{2.5}$ in the San Francisco Bay Area Air Basin.

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***87***	***85***	***86***	***87***	***78***	***78***	***81***	***81***
Stationary Sources	27	21	15	13	14	12	13	13
Area-wide Sources	41	43	46	48	44	48	50	50
On-Road Mobile	5	7	9	9	7	6	7	7
Gasoline Vehicles	3	3	2	3	3	3	4	5
Diesel Vehicles	2	4	7	7	4	3	3	2
Other Mobile	14	14	16	17	13	12	12	11

Table 4-15

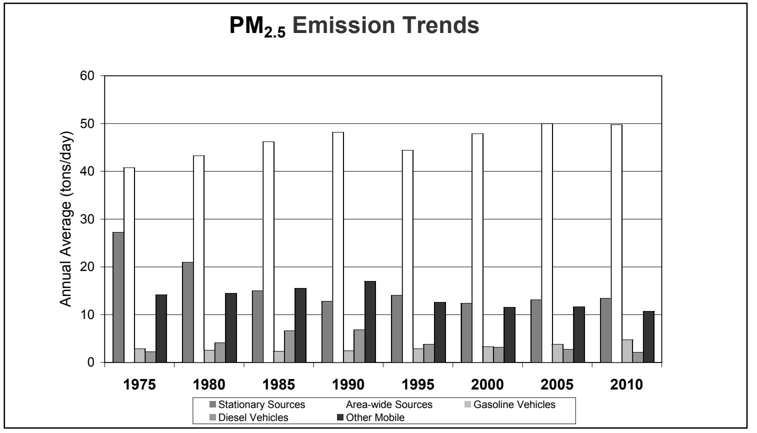

Figure 4-19

San Francisco Bay Area Air Basin

PM_{10} Air Quality Trend

PM_{10} is generally sampled only once every six days. As a result, there are fewer data on which to base historical trends. However, based on the data that are available, the annual mean concentration declined about 25 percent from 1988 to 2001.

Calculated exceedance days for the State 24-hour standard dropped from a high of 137 days during 1989 to 51 days during 2001. The national 24-hour standard was last exceeded in 1991. Because many of the same sources contribute to both ozone and PM_{10}, future ozone precursor emission controls should help ensure continued PM_{10} improvements.

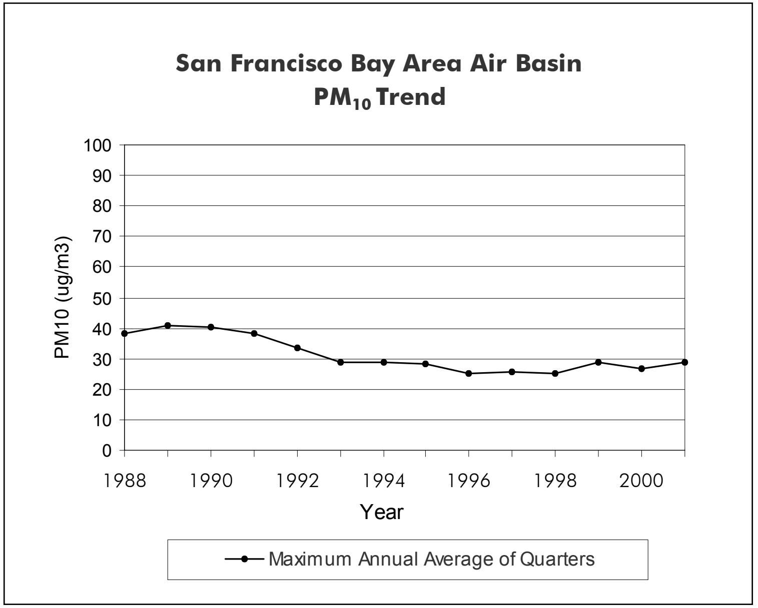

Figure 4-20

San Francisco Bay Area Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							146	150	173	155	112	101	97	74	76	95	92	114	76	109
Max. Avg. of Quarters							38.3	40.8	40.4	38.3	33.7	28.8	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9
Calc Days Above State 24-Hr Std							123	137	93	125	108	59	54	42	18	20	25	63	42	51
Calc Days Above Nat 24-Hr Std							0	0	4	1	0	0	0	0	0	0	0	0	0	0

Table 4-16

San Francisco Bay Area Air Basin

Carbon Monoxide Emission Trends and Forecasts

Emissions of CO have been declining in the San Francisco Bay Area Air Basin since 1975. Motor vehicles and other mobile sources are the largest sources of CO emissions in the air basin. Emissions from motor vehicles have been declining, with the introduction of new automotive emission controls, despite increases in vehicle miles traveled (VMT). Oil refineries, manufacturing, and electric generation contribute a significant portion of the stationary source CO emissions. Area-wide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***8842***	***8178***	***6955***	***5106***	***3723***	***2692***	***2135***	***1718***
Stationary Sources	56	64	84	78	68	47	52	53
Area-wide Sources	174	175	177	175	164	169	175	171
On-Road Mobile	8155	7477	6190	4310	2965	2029	1496	1105
Gasoline Vehicles	8142	7454	6152	4270	2934	2001	1470	1082
Diesel Vehicles	13	23	38	39	31	27	26	23
Other Mobile	458	461	504	544	526	447	413	389

Table 4-17

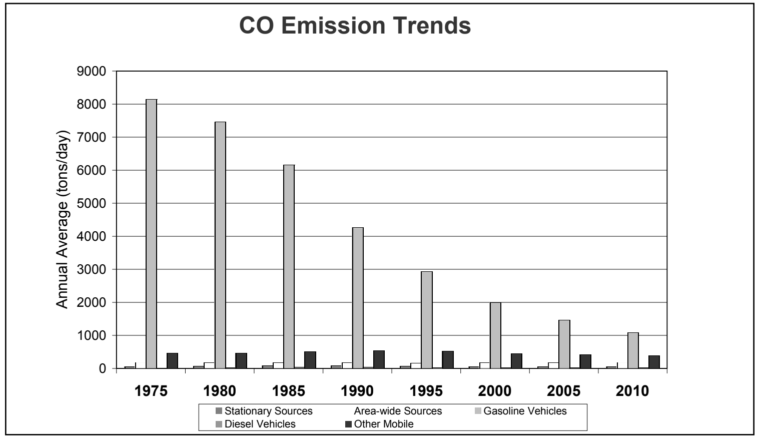

Figure 4-21

San Francisco Bay Area Air Basin
Carbon Monoxide Air Quality Trend

As in other areas of the State, carbon monoxide concentrations in the San Francisco Bay Area Air Basin have declined substantially over the last 20 years. The peak 8-hour indicator value during 2001 was half what it was during 1982 and is now well below the level of the standards. In fact, neither the State nor the national standards have been exceeded in this area since 1991.

Much of the decline in ambient carbon monoxide concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles. The San Francisco Bay Area Air Basin is currently designated as attainment for both the State and national CO standards. Based on emission projections, the area is expected to maintain its attainment status in the coming years.

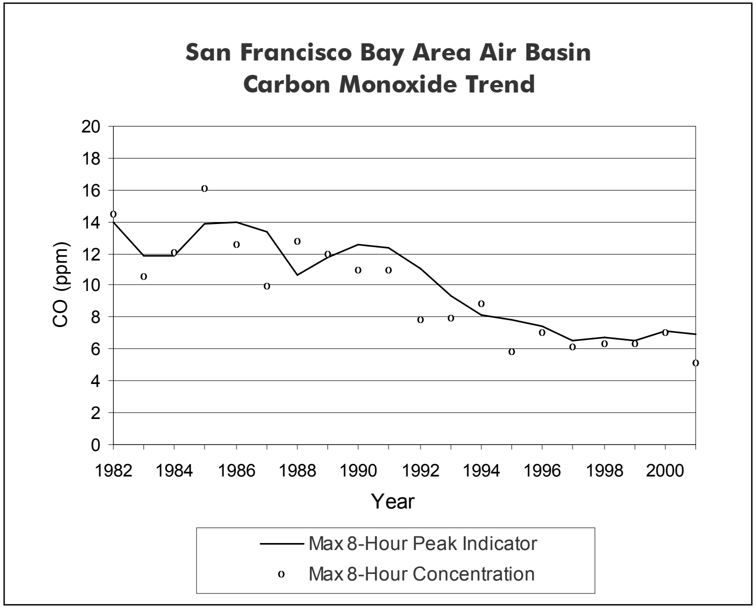

Figure 4-22

San Francisco Bay Area Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9
Max. 1-Hr. Concentration	18.0	17.0	20.0	21.0	20.0	17.0	15.0	19.0	18.0	15.0	12.0	14.0	12.0	10.1	8.8	10.7	8.7	9.0	9.8	7.6
Max. 8-Hr. Concentration	14.5	10.6	12.1	16.1	12.6	10.0	12.8	12.0	11.0	11.0	7.8	7.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0	5.1
Days Above State 8-Hr. Std.	15	4	8	24	8	2	4	10	4	5	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	12	4	7	21	8	1	4	9	2	4	0	0	0	0	0	0	0	0	0	0

Table 4-18

San Joaquin Valley Air Basin

Introduction - Area Description

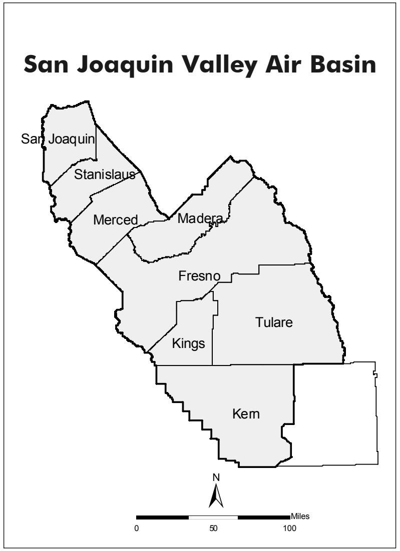

Figure 4-23

The San Joaquin Valley Air Basin occupies the southern two-thirds of California's Central Valley. The eight-county area comprises Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties and the western portion of Kern County. The Valley covers nearly 25,000 square miles. With very few exceptions, the San Joaquin Valley is flat and unbroken, with most of the area lying below 400 feet in elevation. The Valley floor slopes downward from east to west, and the San Joaquin River winds its way along the western side from south to north.

Similar to other inland areas, the San Joaquin Valley has cool wet winters and hot dry summers. Generally, the temperature increases and rainfall decreases from north to south.

In contrast to other California areas, air quality in the San Joaquin Valley is not dominated by emissions from one large urban area. Instead, there are a number of moderately sized urban areas spread along the main axis of the Valley. This wide distribution of emissions complicates the challenge faced by air quality control agencies. Overall, about 9 percent of California's population lives in the San Joaquin Valley, and pollution sources in the region account for about 14 percent of the total statewide criteria pollutant emissions.

San Joaquin Valley Air Basin

Emission Trends and Forecasts

Overall, the emission levels in the San Joaquin Valley Air Basin have been decreasing since 1990. The decreases are predominantly due to motor vehicle controls and reductions in evaporative and fugitive emissions. On-road motor vehicles are the largest contributors to CO emissions in the San Joaquin Valley. On-road motor vehicles, other mobile sources, and stationary sources are all significant contributors to NO_x emissions. A significant portion of the stationary source ROG emissions is fugitive emissions from the extensive oil and gas production operations in the lower San Joaquin Valley. PM_{10} emissions are mostly fugitive dust from paved and unpaved roads, agricultural operations, and waste burning.

San Joaquin Valley Air Basin
Population and VMT

Compared to California's other urban areas, the population and number of vehicle miles traveled each day in the San Joaquin Valley Air Basin grew at a much faster rate during the 1982 to 2001 time period. The population increased about 58 percent, from nearly 2.1 million in 1982 to nearly 3.3 million in 2001. During the same period, the daily VMT more than doubled, from about 35 million miles per day in 1982 to over 83 million miles per day in 2001. This represents a 139 percent increase. Because these growth rates are so much higher than the growth rates in other areas, there has not been the same level of air quality improvement in the San Joaquin Valley Air Basin, especially with respect to ozone.

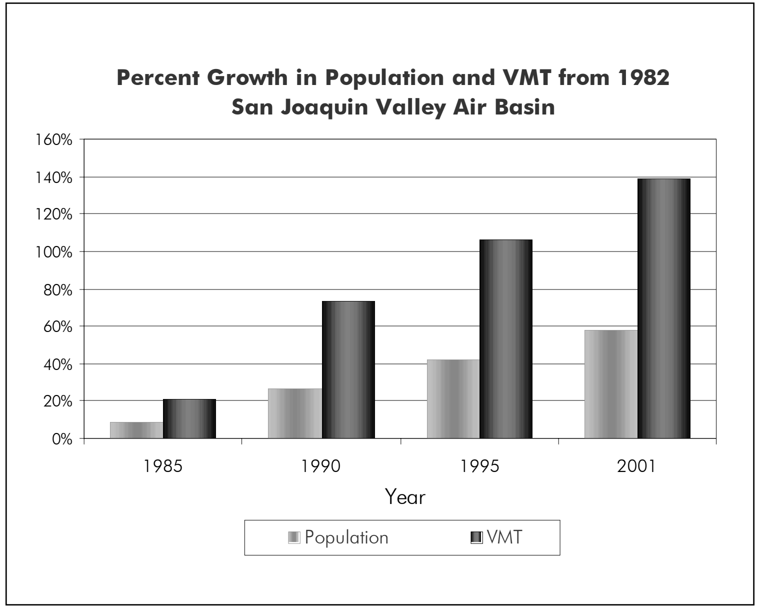

Figure 4-24

San Joaquin Valley Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursors NO_x and ROG are decreasing in the San Joaquin Valley Air Basin. Both stationary source and motor vehicle NO_x emissions have been reduced by the adoption of more stringent emission standards. Stricter standards have reduced ROG emissions from motor vehicles since 1985, even though vehicle miles traveled (VMT) have been increasing. Stationary and area-wide sources of ROG include petroleum production operations and the use of solvents. Stricter emission standards and new controls have reduced the ROG emissions from these sources. Also, declining crude oil prices have resulted in cutbacks in oil production activities and an attendant decrease in ROG fugitive emissions. Future increases in oil prices could result in higher levels of production, which could again increase emissions.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***685***	***840***	***816***	***793***	***674***	***563***	***485***	***414***
Stationary Sources	246	332	319	277	222	169	157	160
Area-wide Sources	14	14	14	12	12	11	11	11
On-Road Mobile	219	252	292	320	288	239	196	145
Gasoline Vehicles	169	171	168	174	161	121	83	58
Diesel Vehicles	50	81	124	145	127	118	113	87
Other Mobile	207	243	192	184	152	144	122	98

Table 4-19

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***1161***	***1234***	***1068***	***641***	***508***	***446***	***399***	***385***
Stationary Sources	674	739	586	197	105	100	97	103
Area-wide Sources	140	148	156	162	169	169	170	181
On-Road Mobile	292	286	268	224	174	119	84	59
Gasoline Vehicles	289	281	260	216	168	114	79	55
Diesel Vehicles	3	5	8	8	6	5	5	5
Other Mobile	55	62	57	59	60	58	48	42

Table 4-20

San Joaquin Valley Air Basin
Ozone Precursor Emission Trends and Forecasts

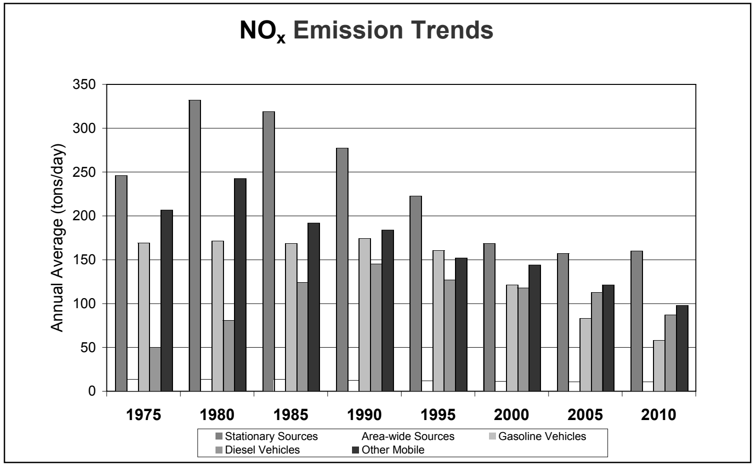

Figure 4-25

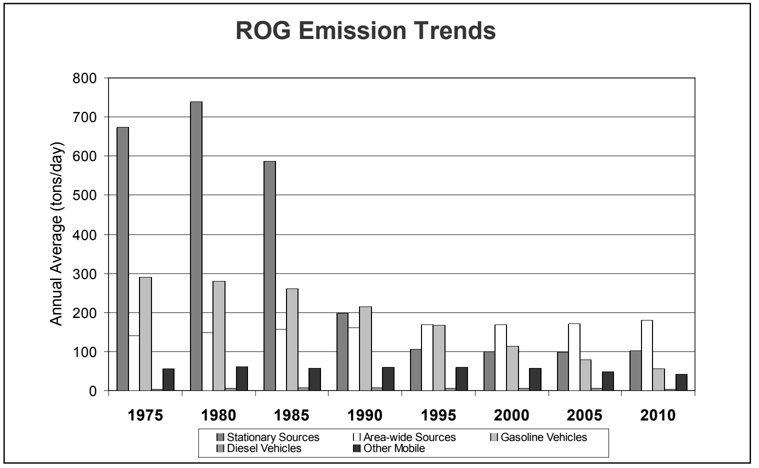

Figure 4-26

San Joaquin Valley Air Basin

Ozone Air Quality Trend

The ozone problem in the San Joaquin Valley ranks among the most severe in the State. From 1982 to 2001, the maximum peak 1-hour indicator decreased 22 percent. The number of national 1-hour standard exceedance days has been quite variable over the years, but has also shown overall improvement. During 1982, there were 43 national 1-hour standard exceedance days. This compares with 32 national 1-hour standard exceedance days in 2000. In contrast, the number of State standard exceedance days shows an increase when comparing the two end years: 113 in 1982 compared with 123 in 2001.

The ARB has identified the San Joaquin Valley Air Basin as both a contributor and a receptor for ozone transport. The Valley is a transport contributor to the Broader Sacramento Area, the Great Basin Valleys Air Basin, the Mountain Counties Air Basin, the Mojave Desert Air Basin, the North Central Coast Air Basin, and the South Central Coast Air Basin. In contrast, the San Joaquin Valley Air Basin is a receptor area for ozone transported from the Broader Sacramento Area and the San Francisco Bay Area Air Basin.

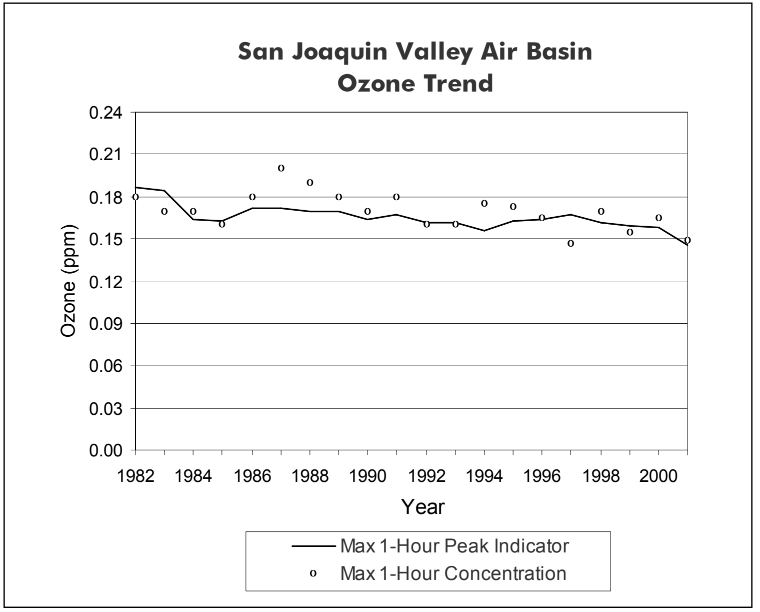

Figure 4-27

San Joaquin Valley Air Basin

Ozone Air Quality Table

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.187	0.184	0.164	0.163	0.172	0.172	0.169	0.170	0.164	0.167	0.162	0.162	0.156	0.163	0.164	0.167	0.162	0.159	0.158	0.146
4th High 1-Hr in 3 Yrs	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.161	0.161	0.161	0.146
Avg of 4th Hi 8-Hr in 3 Yrs	0.123	0.116	0.114	0.111	0.117	0.118	0.121	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111	0.109
Maximum 1-Hr. Concentration	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.180	0.170	0.180	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165	0.149
Max. 8-Hr. Concentration	0.133	0.122	0.136	0.131	0.135	0.150	0.127	0.136	0.123	0.130	0.121	0.125	0.129	0.134	0.137	0.127	0.136	0.123	0.131	0.120
Days Above State Standard	113	105	135	149	147	156	156	148	131	133	127	125	118	124	120	110	90	123	114	123
Days Above Nat. 1-Hr. Std.	43	41	61	53	59	65	74	54	45	51	29	43	43	44	56	16	39	28	30	32
Days Above Nat. 8-Hr. Std.	108	100	120	127	134	148	140	133	104	121	119	104	108	109	114	95	84	117	103	109

Table 4-21

San Joaquin Valley Air Basin

Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} decrease from 1975 to 1995, and stay steady between 2000 and 2010. PM_{10} emissions in the San Joaquin Valley are dominated by emissions area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion (including wood).

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The PM_{10} emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 25 percent of the ambient PM_{10} in the San Joaquin Valley Air Basin.

Directly Emitted PM10 Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***463***	***432***	***414***	***405***	***377***	***365***	***364***	***362***
Stationary Sources	56	41	32	26	26	26	28	30
Area-wide Sources	390	371	363	359	336	324	321	319
On-Road Mobile	4	6	8	9	7	6	6	6
Gasoline Vehicles	2	2	2	2	3	3	4	4
Diesel Vehicles	2	4	6	6	4	3	3	2
Other Mobile	12	15	12	12	9	9	8	7

Table 4-22

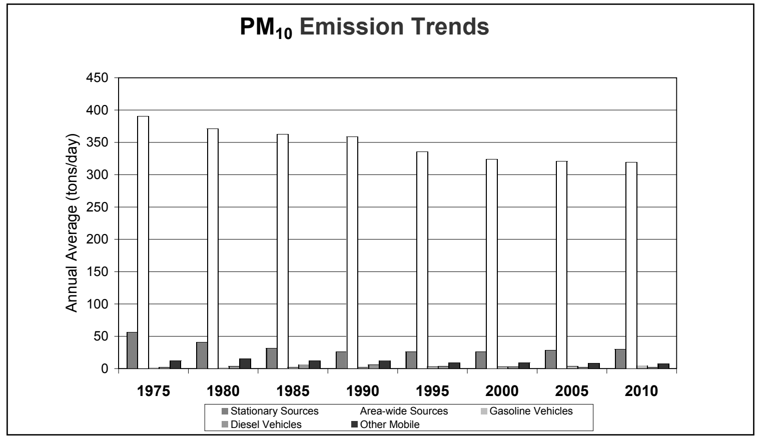

Figure 4-28

San Joaquin Valley Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ decrease from 1975 to 1995, and stay steady between 2000 and 2010. $PM_{2.5}$ emissions in the San Joaquin Valley are dominated by emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion (including wood).

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia (secondary PM). The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted $PM_{2.5}$ emissions contribute approximately 40 percent of the ambient $PM_{2.5}$ in the San Joaquin Valley Air Basin.

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***194***	***180***	***168***	***162***	***151***	***146***	***146***	***145***
Stationary Sources	46	32	23	18	18	17	19	20
Area-wide Sources	134	130	128	126	119	116	115	114
On-Road Mobile	3	5	6	7	5	4	4	4
Gasoline Vehicles	1	1	1	1	2	2	2	2
Diesel Vehicles	2	4	6	6	4	3	2	2
Other Mobile	11	14	11	11	8	8	8	6

Table 4-23

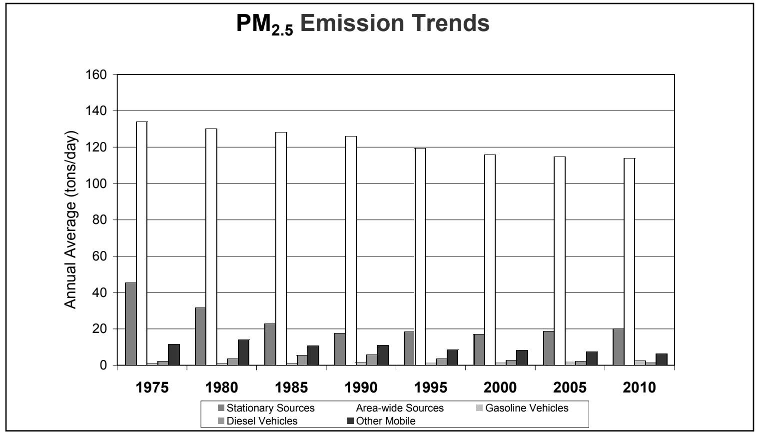

Figure 4-29

San Joaquin Valley Air Basin
PM_{10} Air Quality Trend

The available PM_{10} data show some variation during the trend period, but overall, there has been a downward trend. Part of the variation can be attributed to meteorology. Long periods of stagnation during the winter months allow PM_{10} to accumulate over many days with resulting high concentrations. The maximum annual average shows a decrease of about 19 percent from 1988 to 2001. The calculated number of days exceeding the State and national 24-hour standards also shows a decrease. There were 300 calculated State standard exceedance days and 40 calculated national standard exceedance days during 1988. During 2001, there were 236 calculated State standard exceedance days and 12 national standard exceedance days. Although PM_{10} air quality has improved overall in the San Joaquin Valley Air Basin, values for 1999 through 2001 were higher than those for 1998. We will need several more years of data before we can determine whether this trend is a result of meteorology or a change in emissions. However, based on the ambient data, it will still be a number of years before this area reaches attainment.

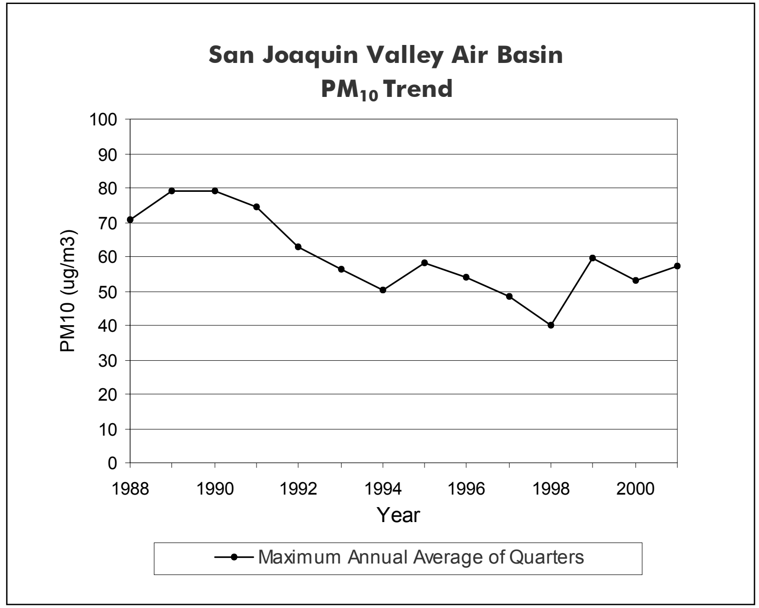

Figure 4-30

San Joaquin Valley Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							244	250	439	279	183	239	190	279	153	199	160	183	145	205
Max. Avg. of Quarters							70.8	79.3	79.3	74.3	62.9	56.3	50.1	58.2	54.1	48.2	39.9	59.5	53.1	57.4
Calc Days Above State 24-Hr Std							300	302	313	285	273	233	253	246	225	188	185	216	237	236
Calc Days Above Nat 24-Hr Std							40	40	56	40	3	11	8	8	0	3	6	12	0	12

Table 4-24

San Joaquin Valley Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO are trending downward between 1985 and 2010. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled (VMT), with the introduction of new automotive emission controls and fleet turnover.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***3830***	***3855***	***3620***	***3290***	***2578***	***2035***	***1647***	***1367***
Stationary Sources	180	160	59	76	70	58	64	68
Area-wide Sources	434	431	430	417	400	394	391	388
On-Road Mobile	2895	2869	2784	2428	1751	1252	874	606
Gasoline Vehicles	2883	2848	2750	2391	1721	1227	851	585
Diesel Vehicles	12	21	34	37	30	25	24	21
Other Mobile	321	394	346	369	357	331	318	304

Table 4-25

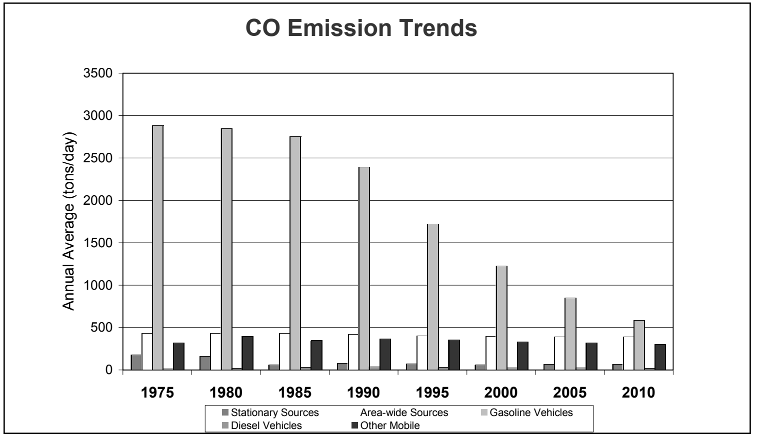

Figure 4-31

San Joaquin Valley Air Basin
Carbon Monoxide Air Quality Trend

Carbon monoxide concentrations show a fairly consistent downward trend from 1982 through 2001. Similar to other areas of the State, the trend line for the San Joaquin Valley Air Basin shows a slight increase during the late 1980s, probably related to meteorology. The maximum peak 8-hour indicator for 2001 is less than half that for 1982. Measured concentrations in the San Joaquin Valley Air Basin have not exceeded the national CO standards since 1991, and concentrations have not exceeded the State standards for the last six years. Much of the decline in ambient CO concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles.

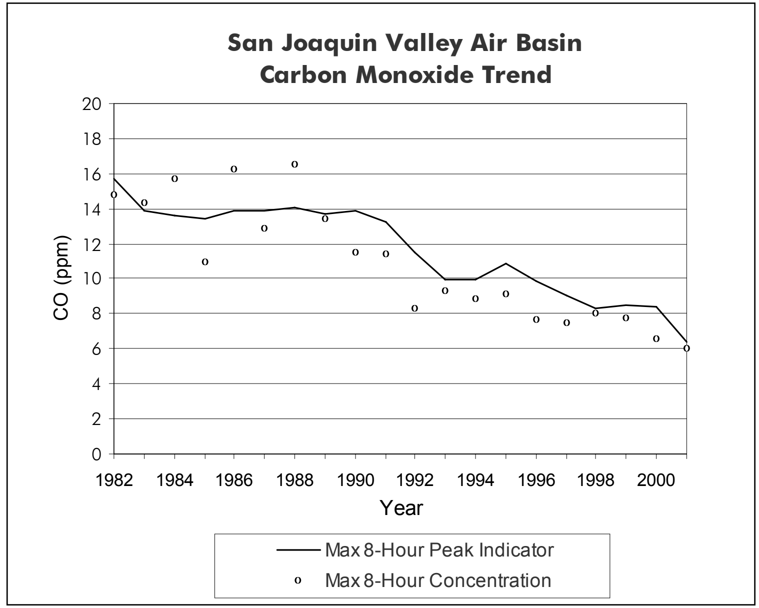

Figure 4-32

San Joaquin Valley Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	15.7	13.9	13.6	13.4	13.9	13.9	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	6.4
Max. 1-Hr. Concentration	18.0	17.0	24.0	18.0	21.0	16.0	19.0	23.0	17.0	19.0	13.0	13.0	15.0	12.0	11.0	9.9	10.3	11.9	10.1	16.0
Max. 8-Hr. Concentration	14.8	14.3	15.7	11.0	16.3	12.9	16.5	13.4	11.5	11.4	8.3	9.3	8.9	9.1	7.7	7.5	8.0	7.8	6.6	6.0
Days Above State 8-Hr. Std.	9	12	7	7	13	4	5	24	10	3	0	2	0	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	8	9	6	7	11	4	6	18	9	3	0	0	0	0	0	0	0	0	0	0

Table 4-26

San Diego Air Basin

Introduction - Area Description

Figure 4-33

The San Diego Air Basin lies in the southwest corner of California and comprises all of San Diego County. However, the population and emissions are concentrated mainly in the western portion of the County. The air basin covers 4,260 square miles, includes about 11 percent of the State's population, and produces about 7 percent of the State's criteria pollutant emissions. Because of its southerly location and proximity to the ocean, much of the San Diego Air Basin has a relatively mild climate.

Air quality in the San Diego Air Basin is impacted not only by local emissions, but also by pollutants transported from other areas -- in particular, ozone and ozone precursor emissions transported from the South Coast Air Basin and Mexico. Although the impact of transport is particularly important on days with high ozone concentrations, transported pollutants and emissions cannot be blamed entirely for the ozone problem in the San Diego area. Studies show that emissions from the San Diego Air Basin are sufficient, on their own, to cause ozone violations.

San Diego Air Basin

Emission Trends and Forecasts

Emissions of NO_x, ROG, PM_{10}, and CO in the San Diego Air Basin have been following the statewide trends since 1975. These trends are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO_x, ROG, and CO emissions in the San Diego Air Basin. The majority of the PM_{10} emissions are from area-wide sources.

San Diego Air Basin

Population and VMT

Growth rates in the San Diego Air Basin during the last 20 years were among the highest in the State's urban areas. The population increased 54 percent: from over 1.9 million in 1982 to almost 2.9 million in 2001. During this same time period, the number of vehicle miles traveled each day increased over 120 percent, from about 34 million miles per day in 1982 to over 75 million miles per day in 2001. As in other parts of California, overall air quality in the San Diego Air Basin has improved, despite high growth rates, indicating the benefits of cleaner technologies.

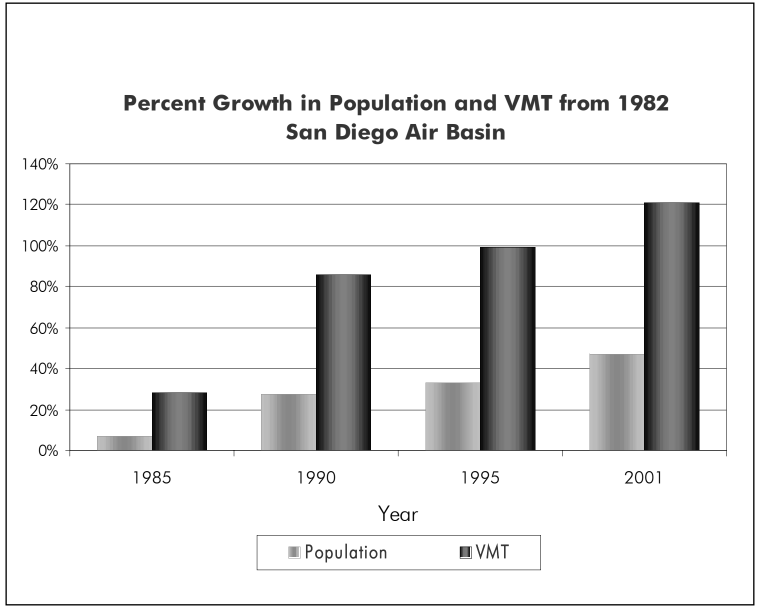

Figure 4-34

San Diego Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of the ozone precursor NO_x increase between 1975 and 1990 and decrease thereafter. ROG emissions have been decreasing overall since 1975. These decreases are mostly due to decreased emissions from motor vehicles, brought about by stricter motor vehicle emission standards. Stationary and area-wide source emissions of ROG have remained mostly unchanged over the last 20 years, with stricter emission standards offsetting industrial and population growth.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***289***	***282***	***294***	***326***	***277***	***235***	***194***	***161***
Stationary Sources	51	37	22	25	21	17	15	20
Area-wide Sources	3	3	3	3	3	3	3	3
On-Road Mobile	178	174	195	216	185	149	113	83
Gasoline Vehicles	168	155	156	157	133	96	62	43
Diesel Vehicles	10	19	39	59	52	52	51	40
Other Mobile	57	69	73	81	68	66	62	55

Table 4-27

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***432***	***431***	***407***	***335***	***260***	***218***	***184***	***172***
Stationary Sources	35	56	54	52	45	50	56	64
Area-wide Sources	35	41	45	47	42	42	40	42
On-Road Mobile	338	306	274	196	133	89	60	43
Gasoline Vehicles	337	305	271	193	130	86	58	41
Diesel Vehicles	1	1	3	3	3	2	2	2
Other Mobile	24	29	34	39	40	37	27	23

Table 4-28

San Diego Air Basin
Ozone Precursor Emission Trends and Forecasts

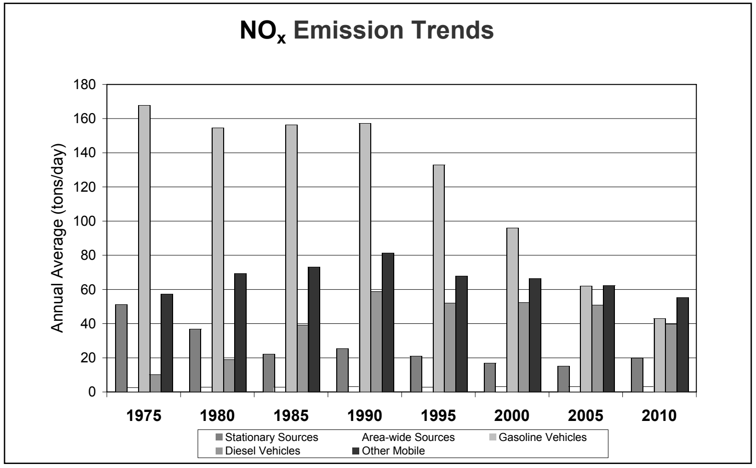

Figure 4-35

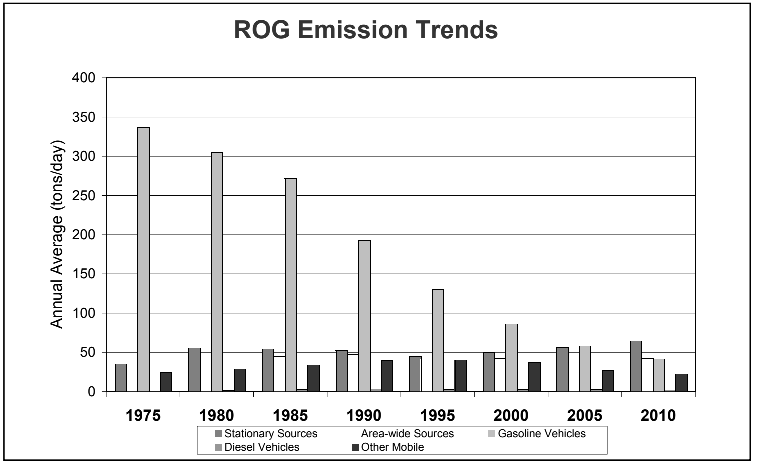

Figure 4-36

San Diego Air Basin

Ozone Air Quality Trend

Both the peak indicator and the number of days above the State and national ozone standards have decreased over the last 20 years. The peak 1-hour ozone indicator shows an overall decline of 42 percent from 1982 to 2001. The number of State and national 1-hour standard exceedance days has dropped even more. There were 120 State standard exceedance days during 1982 compared with 29 during 2001. This represents a decrease of about 76 percent. During 1982, there were 47 national 1-hour standard exceedance days compared with 2 during 2001. However, there were still 17 national 8-hour standard exceedance days during 2001.

The San Diego Air Basin is the only one of the five major air basins the ARB has not identified as a transport contributor to a downwind area. The San Diego area is, however, a transport receptor. While it is clear that additional local emission controls will be needed to reach attainment of the ozone standards in the San Diego area, because of transport, future air quality in this area will also be affected by emission controls and growth in the South Coast Air Basin and, to some extent, Mexico.

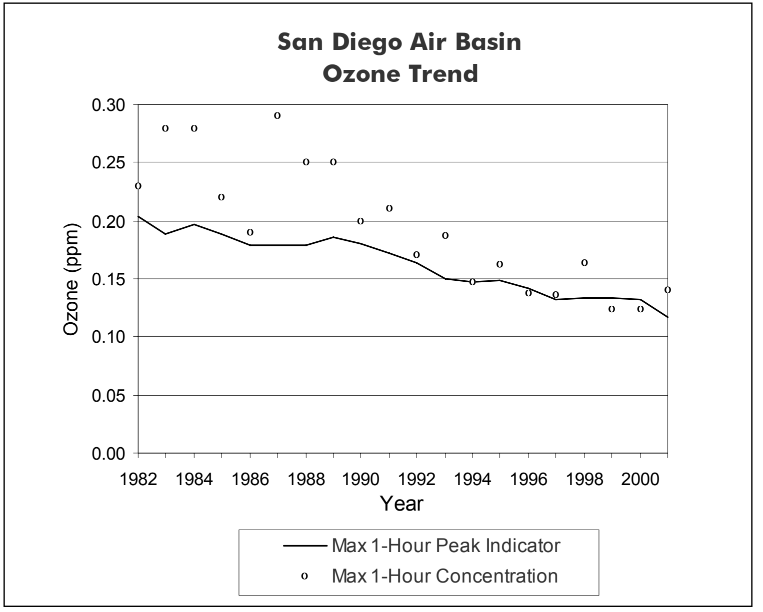

Figure 4-37

San Diego Air Basin

Ozone Air Quality Table

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.203	0.188	0.197	0.189	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132	0.117
4th High 1-Hr in 3 Yrs	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131	0.118
Avg of 4th Hi 8-Hr in 3 Yrs	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094
Maximum 1-Hr. Concentration	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141
Max. 8-Hr. Concentration	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106	0.116
Days Above State Standard	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24	29
Days Above Nat. 1-Hr. Std.	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0	2
Days Above Nat. 8-Hr. Std.	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16	17

Table 4-29

San Diego Air Basin

Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} almost double in the San Diego Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from construction and demolition operations, and particulates from residential fuel combustion (including wood). The growth in these area-wide sources is primarily due to population growth and increases in vehicle miles traveled (VMT).

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The PM_{10} emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 30 percent of the ambient PM_{10} in the San Diego Air Basin.

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***74***	***83***	***92***	***109***	***106***	***112***	***119***	***126***
Stationary Sources	17	12	6	8	11	8	8	10
Area-wide Sources	49	61	74	89	85	93	100	105
On-Road Mobile	3	3	4	5	4	4	5	5
Gasoline Vehicles	2	2	2	2	3	3	3	4
Diesel Vehicles	1	1	2	3	2	1	1	1
Other Mobile	6	7	7	8	6	7	7	6

Table 4-30

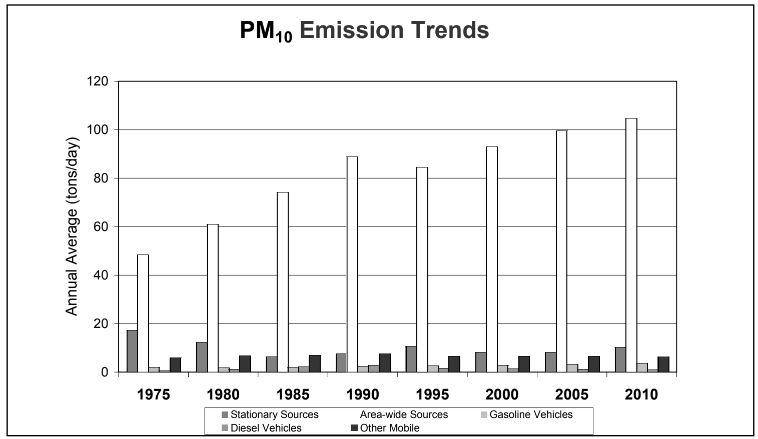

Figure 4-38

San Diego Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of PM_{10} increase steadily in the San Diego Air Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from construction and demolition operations, and particulates from residential fuel combustion (including wood). The growth in these area-wide sources is primarily due to population growth and increases in vehicle miles traveled (VMT).

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted $PM_{2.5}$ emissions contribute approximately 50 percent of the ambient $PM_{2.5}$ in the San Diego Air Basin.

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***34***	***37***	***36***	***41***	***39***	***40***	***42***	***44***
Stationary Sources	11	10	4	4	6	5	5	7
Area-wide Sources	16	19	22	26	24	26	27	29
On-Road Mobile	2	2	3	4	3	3	3	3
Gasoline Vehicles	1	1	1	1	1	2	2	2
Diesel Vehicles	0	1	2	3	2	1	1	1
Other Mobile	6	6	6	7	6	6	6	6

Table 4-31

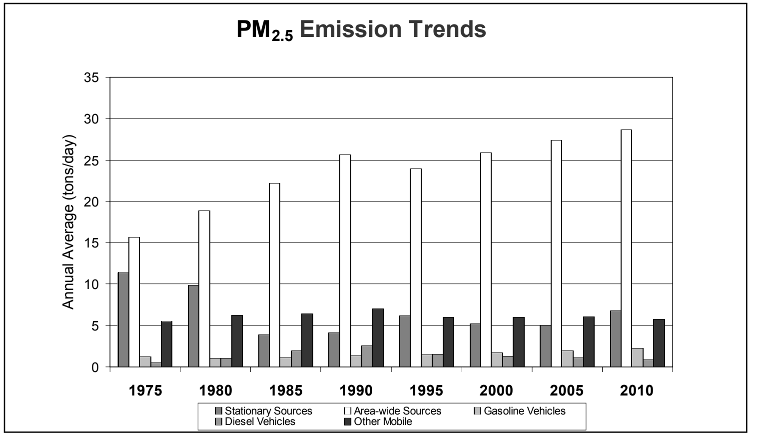

Figure 4-39

San Diego Air Basin

PM_{10} Air Quality Trend

PM_{10} concentrations in the San Diego Air Basin have changed little during the years for which reliable data are available. The maximum annual average for 2001 exceeds the State annual standard and is actually higher than it was during 1988. This apparent lack of progress is a result of monitoring that began at a new site, with higher concentrations, during 1993. The maximum 24-hour concentration also exceeds the State standard. During 2001, the maximum 24-hour concentration was 107 µg/m^3.

During 1988, there were 105 calculated State standard exceedance days, compared with 146 during 2001. Again, some of this apparent increase is attributable to the new site that began operating in 1993. There is a substantial amount of variability from year-to-year in the 24-hour statistics. This variability is a reflection of meteorology, the 1-in-6-day sampling schedule, and changes in monitoring location. Although ambient PM_{10} concentrations in the San Diego Air Basin are not as high as in some other areas of the State, additional emission controls will be needed to bring this area into attainment.

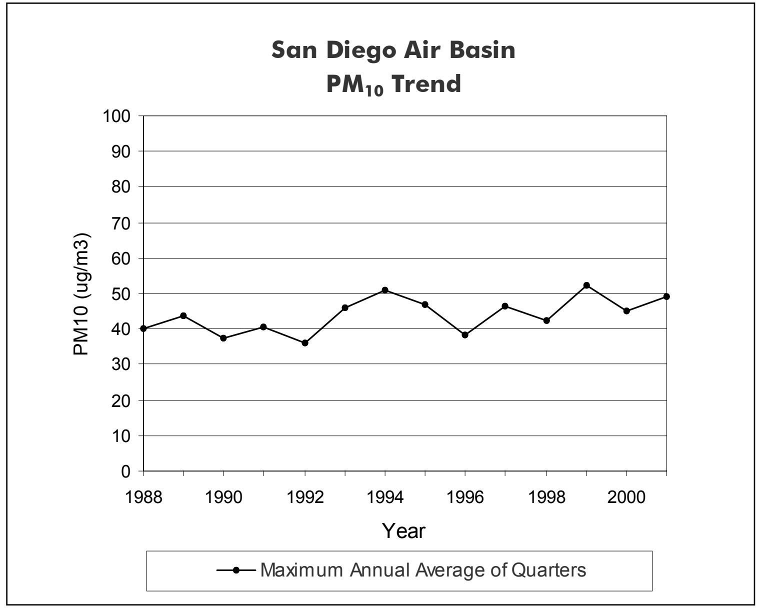

Figure 4-40

San Diego Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							81	90	115	81	67	159	129	121	93	125	89	121	139	107
Max. Avg. of Quarters							40.0	43.8	37.6	40.6	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1
Calc Days Above State 24-Hr Std							105	146	60	90	42	144	131	117	96	125	108	140	144	146
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	6	0	0	0	0	0	0	0	0

Table 4-32

San Diego Air Basin
Carbon Monoxide Emission Trends and Forecasts

CO emissions in the San Diego Air Basin mirror the decreasing statewide trend from 1975 to 2010, even though the motor vehicle miles traveled (VMT) are increasing. This is yet another example of how California's motor vehicle control program is having a positive impact on CO emissions.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***3274***	***3006***	***2894***	***2425***	***1702***	***1266***	***950***	***775***
Stationary Sources	17	23	23	28	30	43	39	59
Area-wide Sources	56	62	68	72	64	66	68	70
On-Road Mobile	3059	2740	2586	2067	1360	930	626	438
Gasoline Vehicles	3056	2735	2575	2052	1347	918	616	429
Diesel Vehicles	3	6	11	15	13	11	11	9
Other Mobile	142	181	217	259	248	227	217	208

Table 4-33

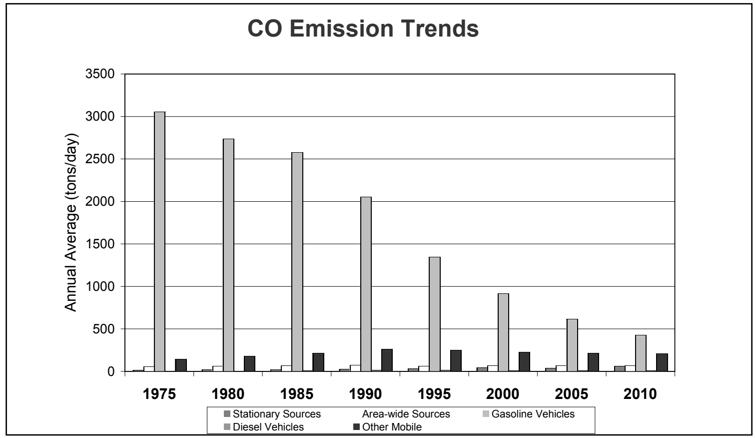

Figure 4-41

San Diego Air Basin

Carbon Monoxide Air Quality Trend

Peak 8-hour carbon monoxide concentrations in the San Diego Air Basin decreased substantially over the trend period: a 43 percent decrease from 1982 to 2001. As a result of these decreases, the national CO standards have not been exceeded in the San Diego Air Basin since 1989. The last exceedance of the State standards occurred during 1990.

With existing and anticipated motor vehicle and clean fuels regulations, ambient CO concentrations should continue to decline. This should be sufficient to maintain a healthful level of carbon monoxide in this area.

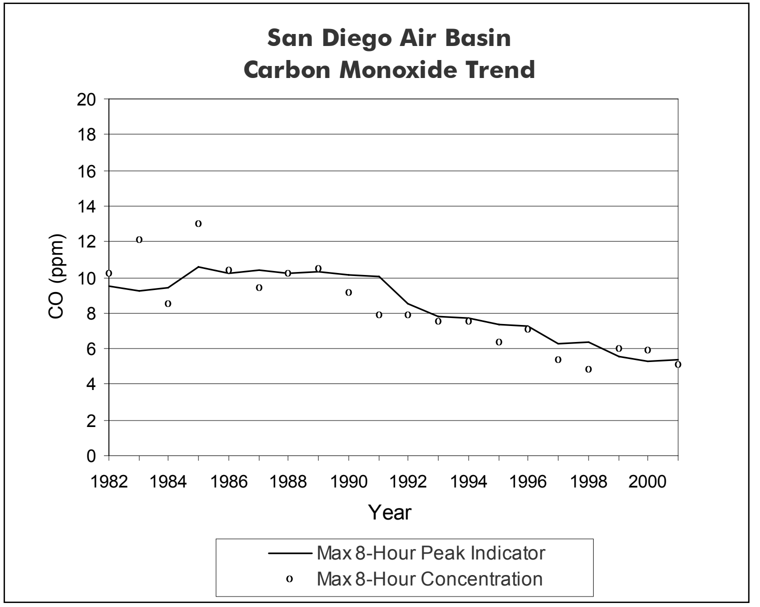

Figure 4-42

San Diego Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	9.5	9.2	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.5	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3	5.4
Max. 1-Hr. Concentration	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3	8.5
Max. 8-Hr. Concentration	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9	5.1
Days Above State 8-Hr. Std.	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-34

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San Diego Air Basin

Oxides of Nitrogen Emission Trends and Forecasts

NO_x (and nitrogen dioxide) emissions in the San Diego Air Basin follow the declining statewide trend from 1990 to 2010. The continued adoption of more stringent motor vehicle and stationary source emission standards should continue to reduce nitrogen dioxide emissions.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***289***	***282***	***294***	***326***	***277***	***235***	***194***	***161***
Stationary Sources	51	37	22	25	21	17	15	20
Area-wide Sources	3	3	3	3	3	3	3	3
On-Road Mobile	178	174	195	216	185	149	113	83
Gasoline Vehicles	168	155	156	157	133	96	62	43
Diesel Vehicles	10	19	39	59	52	52	51	40
Other Mobile	57	69	73	81	68	66	62	55

Table 4-35

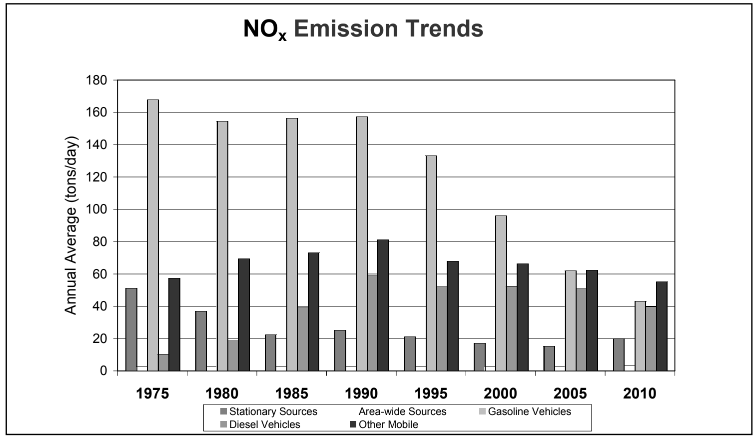

Figure 4-43

San Diego Air Basin

Nitrogen Dioxide Air Quality Trend

In the past, the San Diego Air Basin had a nitrogen dioxide problem. Maximum 1-hour concentrations during the 1980s occasionally exceeded the ambient air quality standards. However, ambient concentrations are now well below the levels of both the State and national standards. Data show that the maximum peak 1-hour indicator decreased 46 percent from 1982 to 2001, and the San Diego Air Basin is in attainment for the nitrogen dioxide standards.

Because oxides of nitrogen (NO_x) emissions contribute to ozone, as well as to nitrogen dioxide, many of the ozone control measures help reduce ambient NO_2 concentrations. Furthermore, NO_x emission controls are a critical part of the ozone control strategy and are not expected to be relaxed in the future. As a result, these controls should assure continued attainment of the State and national nitrogen dioxide standards.

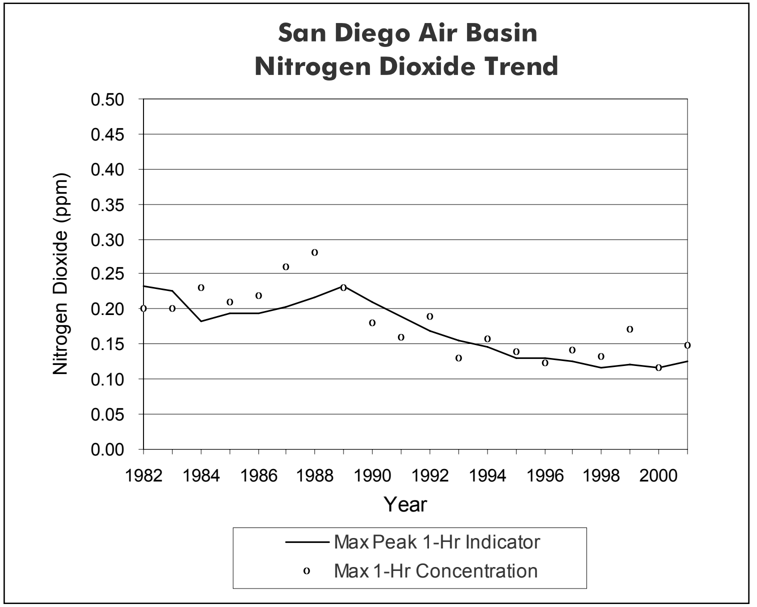

Figure 4-44

San Diego Air Basin

Nitrogen Dioxide Air Quality Table

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.233	0.225	0.183	0.193	0.193	0.203	0.217	0.233	0.210	0.189	0.169	0.155	0.145	0.130	0.129	0.126	0.116	0.122	0.117	0.126
Max. 1-Hr. Concentration	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117	0.148
Max. Annual Average	0.030	0.027	0.031			0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024	0.022

Table 4-36

Sacramento Valley Air Basin

Introduction - Area Description

Figure 4-45

The Sacramento Valley Air Basin is home to California's capital. Located in the northern portion of the Central Valley, the Sacramento Valley Air Basin includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western urbanized portion of Placer County, and the eastern portion of Solano County. The Sacramento Valley Air Basin occupies 15,043 square miles and has a population of more than two million people.

Because of its inland location, the climate of the Sacramento Valley Air Basin is more extreme than the climate in the San Francisco Bay Area Air Basin or South Coast Air Basin. The winters are generally cool and wet, while the summers are hot and dry.

Emissions from the Sacramento metropolitan area dominate the emission inventory for the Sacramento Valley Air Basin, and on-road motor vehicles are the primary source of emissions in the metropolitan area. While pollutant concentrations have generally declined over the years, additional regulations will be needed to attain the State and national ambient air quality standards in this air basin.

Sacramento Valley Air Basin

Emission Trends and Forecasts

The emission levels in the Sacramento Valley Air Basin are trending downward from 1990 to 2010 for NO_x and ROG, and downward from 1985 to 2010 for CO. The decreases in NO_x, ROG, and CO are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO_x, ROG, and CO emissions in the Sacramento Valley Air Basin. PM_{10} and $PM_{2.5}$ emissions are steady from 1975 to 2010.

Sacramento Valley Air Basin
Population and VMT

Between 1982 and 2001, population in the Sacramento Valley Air Basin grew at a higher rate than the statewide average--a 52 percent increase, compared with a 40 percent increase statewide. During this same period, the increase in the number of vehicle miles traveled each day was not much different from the overall statewide value: a 93 percent increase in the Sacramento Valley Air Basin compared with a 97 percent increase statewide. While the actual population and VMT totals for the Sacramento Valley Air Basin are much smaller than those for the South Coast Air Basin and San Francisco Bay Area Air Basin, they are important because motor vehicles are a significant source of emissions in the Sacramento Valley Air Basin.

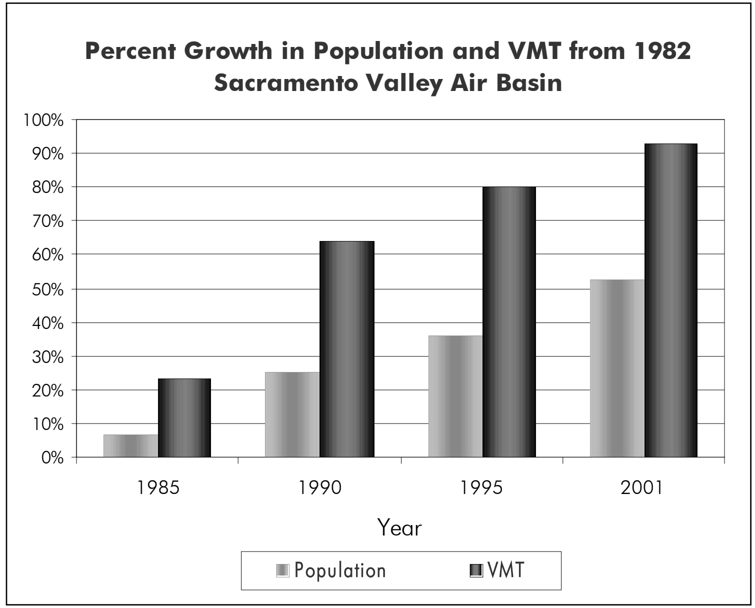

Figure 4-46

Sacramento Valley Air Basin

Ozone Precursor Emission Trends and Forecasts

Emissions of NO_x show a steady decrease from 1980 to 2010. On-road motor vehicles and other mobile sources are by far the largest contributors to NO_x emissions. More stringent mobile source emission standards and cleaner burning fuels have largely contributed to the decline in NO_x emissions. ROG emissions have been decreasing for the last 20 years due to more stringent motor vehicle standards and new rules for control of ROG from various industrial coating and solvent operations.

NOx Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***341***	***378***	***358***	***385***	***333***	***289***	***242***	***198***
Stationary Sources	37	35	31	49	52	47	46	48
Area-wide Sources	8	8	8	9	8	8	8	8
On-Road Mobile	179	194	208	216	182	147	113	80
Gasoline Vehicles	147	148	143	132	112	78	54	38
Diesel Vehicles	32	46	65	84	70	68	59	43
Other Mobile	118	142	111	110	92	88	75	61

Table 4-37

ROG Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***444***	***433***	***409***	***358***	***292***	***234***	***203***	***186***
Stationary Sources	83	61	62	62	50	42	45	50
Area-wide Sources	61	68	65	71	65	62	61	63
On-Road Mobile	272	268	243	180	130	86	62	44
Gasoline Vehicles	270	265	239	176	126	83	59	42
Diesel Vehicles	2	3	4	4	3	3	3	2
Other Mobile	28	37	38	44	47	45	34	28

Table 4-38

Sacramento Valley Air Basin
Ozone Precursor Emission Trends and Forecasts

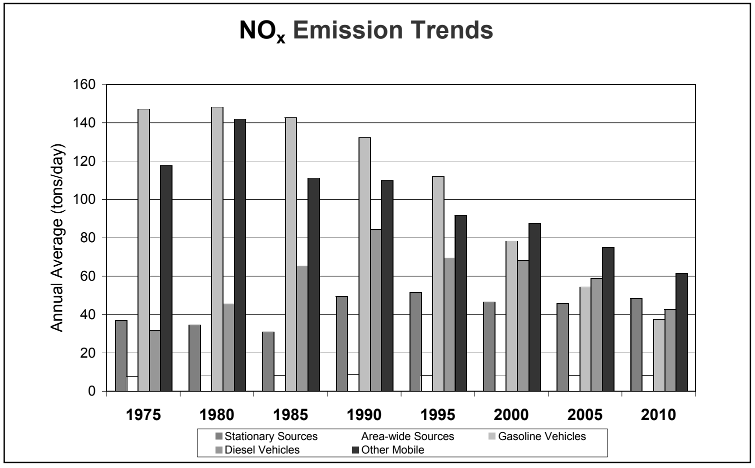

Figure 4-47

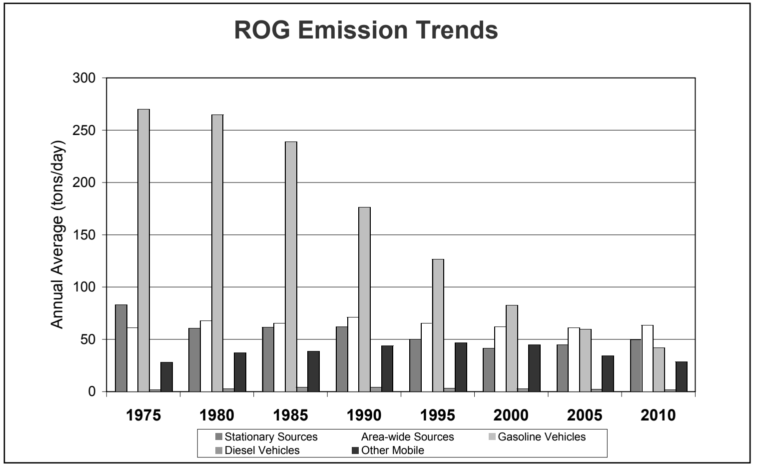

Figure 4-48

Sacramento Valley Air Basin

Ozone Air Quality Trend

Peak ozone values in the Sacramento Valley Air Basin have not declined as quickly over the last several years as they have in other urban areas. The maximum peak 1-hour values remained fairly constant from 1982 to 1988. Since 1988, the peak values have decreased slightly, and the overall decline for the 20-year period is about 20 percent. Looking at the number of days above the State and national standards, the trend is much more variable. However, the number of exceedance days has declined since 1988. The maximum measured 1-hour concentrations have also decreased, but with more year-to-year variation. Based on the data, it is apparent that additional emission controls will be needed for this area to attain the ozone standards.

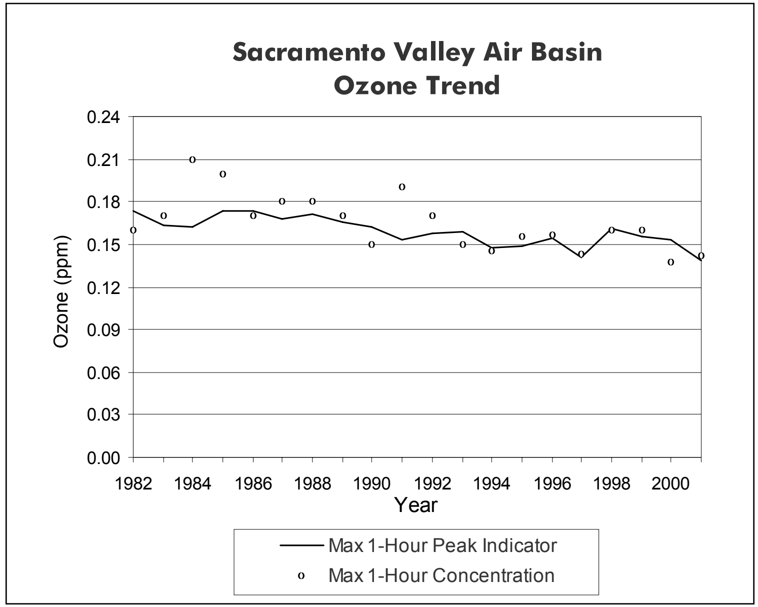

Figure 4-49

Similar to the San Joaquin Valley, the urbanized portion of the Sacramento Valley Air Basin, or the Broader Sacramento Area (BSA), is identified as both a contributor and a receptor for ozone transport. The BSA is a transport contributor to the Mountain Counties, San Joaquin Valley, and San Francisco Bay Area Air Basins, as well as to the Upper Sacramento Valley. In contrast, the BSA is a transport receptor for the San Francisco Bay Area and San Joaquin Valley Air Basins.

Sacramento Valley Air Basin

Ozone Air Quality Table

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.155	0.153	0.139
4th High 1-Hr in 3 Yrs	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148	0.133
Avg of 4th Hi 8-Hr in 3 Yrs	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105	0.099
Maximum 1-Hr. Concentration	0.160	0.170	0.210	0.200	0.170	0.180	0.180	0.170	0.150	0.190	0.170	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138	0.142
Max. 8-Hr. Concentration	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.127	0.140	0.122	0.120	0.121	0.128	0.126	0.107	0.137	0.129	0.108	0.108
Days Above State Standard	66	62	64	59	66	94	98	68	50	68	74	34	60	50	58	25	62	59	42	46
Days Above Nat. 1-Hr. Std.	17	15	23	19	24	24	35	8	16	14	14	7	9	11	9	3	14	7	5	2
Days Above Nat. 8-Hr. Std.	46	44	46	42	50	73	68	37	44	60	56	22	48	40	44	15	60	43	35	37

Table 4-39

Sacramento Valley Air Basin

Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are fairly steady in the Sacramento Valley Air Basin between 1975 and 2010. Emissions are dominated by contributions from area-wide sources, primarily fugitive dust from paved and unpaved roads, fugitive dust from construction and demolition, and particulates from residential fuel combustion. Emissions of directly emitted PM_{10} from mobile sources and stationary sources in the Sacramento Valley Air Basin have remained relatively steady.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The PM_{10} emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 25 percent of the ambient PM_{10} in the Sacramento Valley Air Basin.

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***253***	***255***	***258***	***260***	***242***	***243***	***247***	***250***
Stationary Sources	25	19	16	21	16	17	17	19
Area-wide Sources	218	224	231	227	216	217	221	223
On-Road Mobile	3	4	5	5	4	4	4	4
Gasoline Vehicles	1	1	1	2	2	2	2	3
Diesel Vehicles	2	2	3	4	2	2	1	1
Other Mobile	7	8	7	7	6	6	6	5

Table 4-40

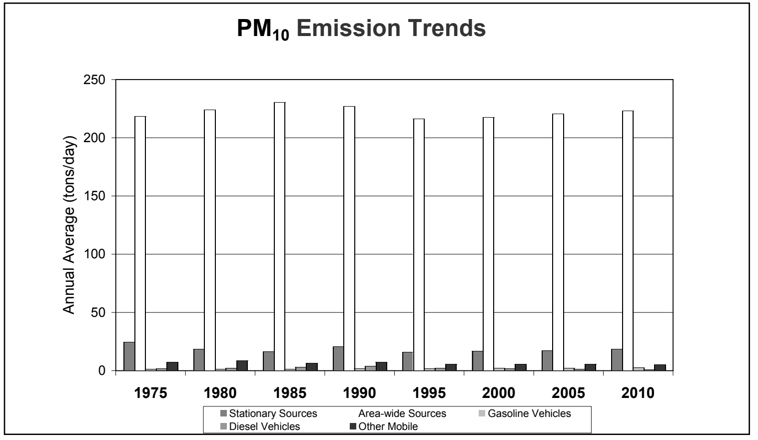

Figure 4-50

Sacramento Valley Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ are fairly steady in the Sacramento Valley Air Basin between 1975 and 2010. Emissions are dominated by contributions from area-wide sources, primarily fugitive dust from paved and unpaved roads, fugitive dust from construction and demolition, and particulates from residential fuel combustion. Emissions of directly emitted $PM_{2.5}$ from mobile sources and stationary sources in the Sacramento Valley Air Basin have remained relatively steady.

Particulate matter can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere from the reaction of gaseous precursors such as NOx, SOx, ROG, and ammonia (secondary PM). The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. On an annual average basis, directly emitted $PM_{2.5}$ emissions contribute approximately 30 percent of the ambient $PM_{2.5}$ in the Sacramento Valley Air Basin.

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	***103***	***102***	***102***	***104***	***93***	***92***	***93***	***94***
Stationary Sources	18	12	11	13	10	10	11	11
Area-wide Sources	77	79	82	79	75	74	75	75
On-Road Mobile	2	3	4	4	3	3	3	2
Gasoline Vehicles	1	1	1	1	1	1	1	2
Diesel Vehicles	1	2	3	3	2	2	1	1
Other Mobile	6	8	6	6	5	5	5	4

Table 4-41

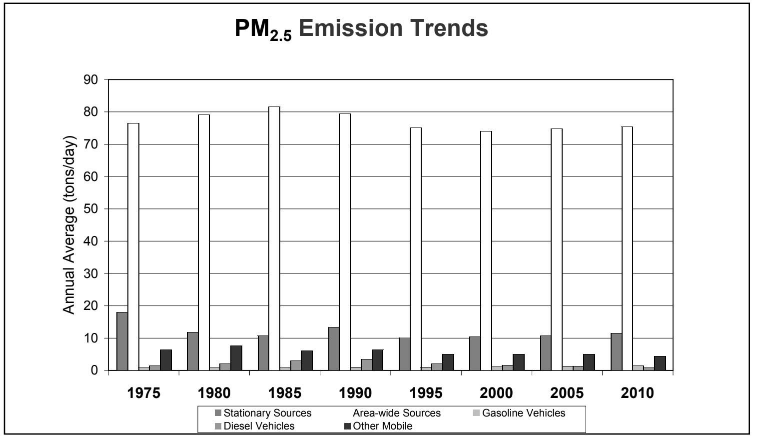

Figure 4-51

Sacramento Valley Air Basin

PM_{10} Air Quality Trend

The maximum annual average PM_{10} concentrations in the Sacramento Valley Air Basin show a fairly steady decline over the trend period, with some variability over the last several years. The maximum annual average shows a decrease of about 41 percent from 1988 to 2001. The number of exceedance days also decreased. During 1988, there were 183 calculated exceedance days of the State 24-hour standard, compared with 96 days during 2001. Because many of the sources that contribute to ozone also contribute to PM_{10}, future ozone emission controls should improve PM_{10} air quality.

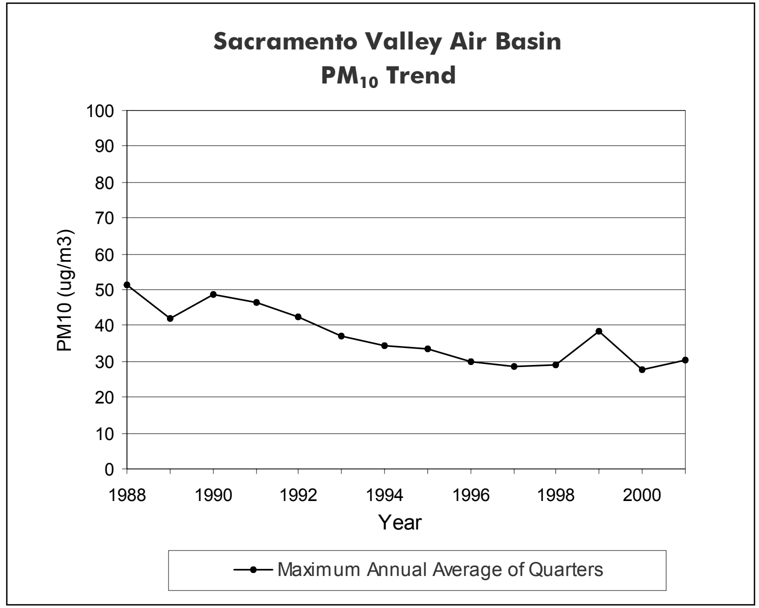

Figure 4-52

Sacramento Valley Air Basin

PM_{10} Air Quality Table

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							115	139	153	136	111	110	154	145	98	126	130	179	86	105
Max. Avg. of Quarters							51.2	41.9	48.7	46.4	42.3	36.9	34.5	33.4	29.8	28.6	29.0	38.4	27.9	30.2
Calc Days Above State 24-Hr Std							183	134	175	189	177	92	108	108	129	65	97	144	81	96
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	6	0	0

Table 4-42

Sacramento Valley Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO are declining in the Sacramento Valley Air Basin between 1980 and 2010. Motor vehicles are the largest source of CO emissions. With the introduction of new automotive emission controls to meet more stringent emission standards, motor vehicle CO emissions have been declining since 1985, despite increases in vehicle miles traveled (VMT). Stationary and area-wide source CO emissions have remained relatively steady, with additional emission controls offsetting growth.

CO Emission Trends (tons/day, annual average)								
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
All Sources	**3010**	**3015**	**2877**	**2503**	**1875**	**1446**	**1192**	**1006**
Stationary Sources	28	30	18	54	42	45	46	48
Area-wide Sources	362	376	387	367	342	329	332	334
On-Road Mobile	2450	2389	2246	1813	1225	822	576	398
Gasoline Vehicles	2442	2377	2228	1793	1210	808	565	389
Diesel Vehicles	8	12	17	20	16	13	12	9
Other Mobile	170	220	227	269	265	250	239	226

Table 4-43

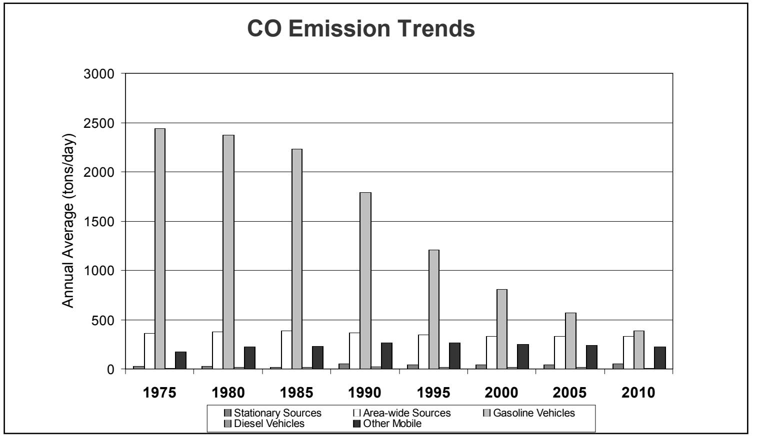

Figure 4-53

Sacramento Valley Air Basin

Carbon Monoxide Air Quality Trend

The maximum peak 8-hour carbon monoxide trend for the Sacramento Valley Air Basin was relatively flat from 1982 to 1991, with some year-to-year variability that was probably caused by meteorology. Since 1991, concentrations have decreased substantially. The 2001 value was about 51 percent lower than the 1991 value. The number of days above the State and national standards is even more variable. However, these indicators also show an overall downward trend. The national CO standards have not been exceeded since 1991, and the State standards were last exceeded in 1993. Much of the decline in ambient carbon monoxide concentrations is attributable to the introduction of cleaner fuels and newer, cleaner motor vehicles. These controls will help keep the area in attainment for both the State and national CO standards.

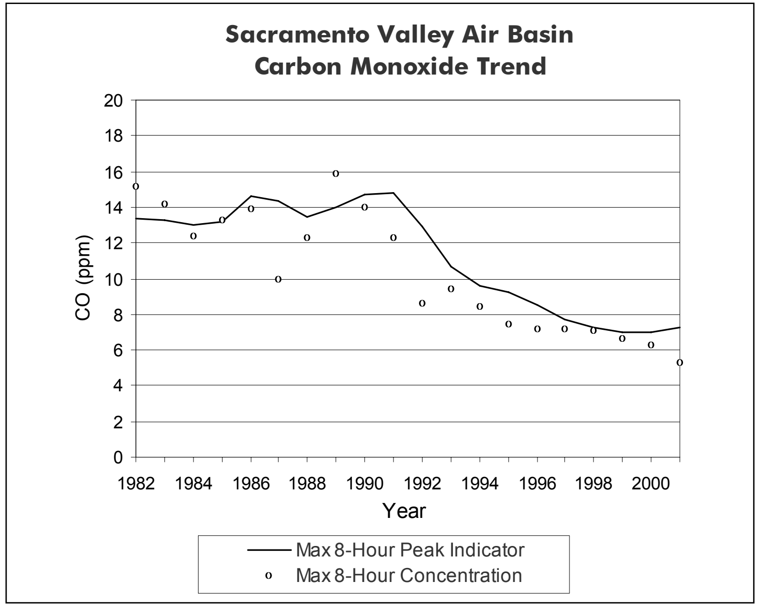

Figure 4-54

Sacramento Valley Air Basin

Carbon Monoxide Air Quality Table

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	13.4	13.2	13.0	13.1	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3
Max. 1-Hr. Concentration	17.0	19.0	18.0	17.0	20.0	15.0	17.0	18.0	17.0	15.0	14.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	19.1
Max. 8-Hr. Concentration	15.1	14.1	12.4	13.3	13.9	10.0	12.3	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3
Days Above State 8-Hr. Std.	11	6	6	12	13	5	12	22	14	9	0	2	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	9	4	5	12	12	3	9	22	12	6	0	0	0	0	0	0	0	0	0	0

Table 4-44

Chapter 5

Toxic Air Contaminant Emissions, Air Quality, and Health Risk

Introduction

This chapter presents a summary of the emissions and air quality data available for selected toxic air contaminants, or TACs. The Health and Safety Code defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The summary information includes available data for the ten TACs posing the greatest health risk in California, based primarily on ambient air quality data. These TACs are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Information is summarized for the State as a whole and for each of the five most populated air basins. It is important to note that the summarized data reflect a spatial average, and the ambient concentrations and health risks for individual locations may be higher or lower.

This section provides some general background information on toxic air contaminants, their emissions, and air quality. The following section provides information on a statewide level. The information includes summaries of statewide emissions, statewide annual average concentrations (calculated as a mean of the monthly means) and statewide average health risks for the ten selected TACs. The final sections of this chapter provide similar information for California's five most populated air basins: the South Coast Air Basin, the San Francisco Bay Area Air Basin, the San Joaquin Valley Air Basin, the San Diego Air Basin, and the Sacramento Valley Air Basin (concentration and health risk data for individual sites within these air basins are found in Appendix C). It is important to note that the ambient concentration and health risk information reflect data collected only at sites operated by the ARB.

It is important to note that the information presented in this chapter reflects only the ten TACs for which available data indicate the most substantial health risk. There may be other TACs that pose a substantial risk, but for which data are not available (dioxins, for example), or which have not been identified as a concern. Furthermore, additional information about interpreting the toxic air contaminant air quality data can be found in Chapter 1.

Sources of Toxic Air Contaminant Emissions in California. Similar to the criteria pollutants, toxic air contaminants are emitted from stationary sources, area-wide sources, and mobile sources. The ARB developed the stationary source emissions inventory in cooperation with affected industries and the air pollution control and air quality management districts (districts) as part of Assembly Bill 2588, the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots Program). The ARB developed the emission estimates for area-wide sources and mobile sources.

Emissions of the selected TACs are reported on a statewide basis and for the highest-emitting ten counties in California. Emissions are also included for the five most populated air basins. In general, the inventory base year is 2002. Note, however, that the stationary source emissions inventory represents the best available information for the emission source, although the data may not have been specifically collected for 2002.

Air Quality Monitoring for Toxic Air Contaminants. The ARB maintains a statwide air quality monitoring network for toxic air contaminants. The network was originally designed to measure selected substances in ambient air to determine if the levels were sufficiently high to be of concern. As a result of this monitoring, the ARB has determined atmospheric concentrations of

Figure 5-1

over 60 individual TACs. As shown in Figure 5-1, the ARB currently maintains a network of 18 air quality monitoring stations, measuring ambient concentrations of 58 TACs. The number of sites is smaller than in previous years and reflects the closure of several sites during 2000. By closing these sites, additional resources were made available to support monitoring for the ARB community health program. The sites selected for closure generally showed "average" concentrations, thereby having a small overall impact on the statewide annual averages. Other factors considered in selecting sites included the total number of sites in the area and the continuity of the data record.

TAC samples are generally collected once every 12 days, throughout the year. This results in 20,000 to 35,000 separate TAC measurements annually. The TAC data are typically sampled, analyzed, and reported as 24-hour averages. These 24-hour averages provide the basis for the annual average concentrations. These annual average concentrations are then used to support statewide risk assessment.

The TAC monitoring network is currently designed to provide air quality data on general population exposures. Therefore, the data do not provide information on localized impacts, often referred to as near-source or neighborhood exposures. The ARB is currently participating in several studies to address localized impacts and community health issues. For example, during October 1999, the ARB initiated a monitoring and evaluation study in the Barrio Logan and Logan Heights neighborhoods of San Diego. In addition, the ARB is conducting monitoring in five other communities in support of the children's health program. Efforts such as these will supplement our existing statewide TAC monitoring network, which was designed for regional rather than neighborhood assessments. Information from these and other studies may be incorporated in subsequent editions of this almanac.

The ambient TAC air quality trends included in this chapter are based on ambient data collected during 1990 through 2001. At this time, there are no available ambient air quality data for diesel particulate matter. However, the ARB has made some estimates of ambient diesel particulate matter concentrations, based on receptor modeling techniques. These estimates are included for comparison.

Statewide Health Risk and Community Health. In this almanac, health risk is presented on a pollutant-by-pollutant basis and on a cumulative basis, with a focus on cancer risk. Because the monitoring data represent general population exposures, the risk estimates represent general population impacts. Localized impacts may involve exposure to different toxic air contaminants or higher concentrations than those represented by the ambient air monitoring data. The next challenge is to better characterize community health risks by focusing on localized impacts. In addition, the focus of this almanac is only on cancer risks. In contrast to cancer risks, non-cancer risks may be more significant on a localized basis than on a general population exposure basis.

The cancer risk estimates presented in this almanac are calculated using an annual average concentration multiplied by a unit risk factor. The unit risk factor is expressed as the probability, or chance, of contracting cancer as a result of constant exposure to an ambient concentration of 1 microgram per cubic meter over a 70-year lifetime. The potential impacts for cancer are expressed as the chance of contracting cancer (or excess cancer cases) per million people exposed over a 70-year period. Table 5-1 lists the unit risk factor for each of the ten TACs presented in this almanac. The factors reflect only the inhalation pathway.

Additional Information. Additional emissions and air quality data for the ten TACs in this almanac, as well as many other TACs, may be found by accessing the ARB website at *www.arb.ca.gov/html/aqe&m.htm*. The web data are updated periodically, as new information becomes available. More detailed information on the health effects of these compounds, as well as many other TACs, can be found in an ARB report entitled: "*Toxic Air Contaminant Identification List - Summaries,*" dated September 1997. This report can be obtained from the ARB Public Information Office or by accessing the ARB website.

Toxic Air Contaminant Unit Risk Factors

Toxic Air Contaminant	Unit Risk/Million People*
Acetaldehyde	**2.7**
Benzene	**29**
1,3-Butadiene	**170**
Carbon Tetrachloride	**42**
Chromium (Hexavalent)	**150,000**
***para*-Dichlorobenzene**	**11**
Formaldehyde	**6**
Methylene Chloride	**1**
Perchloroethylene	**5.9**
Diesel Particulate Matter	**300****

* The Unit Risk represents the number of excess cancers per million people per microgram per cubic meter TAC concentration over a 70-year, lifetime exposure.

** A diesel particulate matter unit risk value of 300 is used as a reasonable estimate in the *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles"* (ARB, October 2000).

Table 5-1

Acetaldehyde

2002 Statewide Emission Inventory

Acetaldehyde is a federal hazardous air pollutant (HAP). The ARB identified acetaldehyde as a TAC in April 1993 under Assembly Bill 2728. This bill required the ARB to identify all federal HAPs as TACs. In California, acetaldehyde is identified as a carcinogen. This compound also causes chronic non-cancer toxicity in the respiratory system.

Acetaldehyde		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	207	3%
Area-wide Sources	1664	22%
On-Road Mobile	1848	24%
Gasoline Vehicles	898	12%
Diesel Vehicles	950	13%
Other Mobile	3824	51%
Natural Sources	0	0%
Total Statewide	*7543*	*100%*

Table 5-2

Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. Approximately 24 percent of the statewide acetaldehyde emissions can be attributed to on-road motor vehicles, with an additional 51 percent attributed to other mobile sources such as construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area-wide sources of emissions, which contribute 22 percent of the statewide acetaldehyde emissions, include the burning of wood in residential fireplaces and wood stoves. Stationary sources contribute 3 percent of the statewide acetaldehyde emissions. The primary stationary sources are manufacturers of miscellaneous food and kindred products and crude oil and natural gas extraction. The emissions from these sources are from fuel combustion.

2002 Top Ten Counties - Acetaldehyde

The top ten counties account for approximately 46 percent of the statewide acetaldehyde emissions. The South Coast Air Basin has four of the top ten counties: South Coast portion of Los Angeles County (12 percent of the emissions of acetaldehyde statewide), Orange County (4 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (2 percent). Collectively, approximately 21 percent of statewide acetaldehyde emissions occur in the South Coast Air Basin. San Diego County accounts for approximately 7 percent. The five other counties in the top ten for acetaldehyde emissions are Alameda, Kern, Santa Clara, Fresno, and Sacramento. These five counties account for approximately 18 percent of statewide acetaldehyde emissions.

Acetaldehyde			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	923	12%
San Diego	San Diego	526	7%
Orange	South Coast	327	4%
Kern	San Joaquin Valley	283	4%
Alameda	San Francisco Bay Area	280	4%
Santa Clara	San Francisco Bay Area	268	4%
Fresno	San Joaquin Valley	254	3%
Sacramento	Sacramento Valley	221	3%
San Bernardino	South Coast	196	3%
Riverside	South Coast	187	2%

Table 5-3

Acetaldehyde

Air Quality and Health Risk

The ARB routinely monitors acetaldehyde concentrations in the ambient air at its network of toxic monitoring sites. The trend graph for acetaldehyde, shown in Figure 5-2, shows a lot of variability. However, there is a general drop in ambient concentrations and health risk during 1990 through 1995. Values show a substantial increase during 1996, and then a variable trend, with an overall decrease, through 2001. Although data are shown for all years during 1990 through 2001, the values prior to 1996 are uncertain because the ARB analyzed ambient samples using a method that underestimated the actual concentrations. A method change in 1996 corrected this bias. However, the ARB was not able to develop a correction factor for the earlier data. Although the concentrations and health risk values for years prior to 1996 are lower than expected, they are included here for completeness.

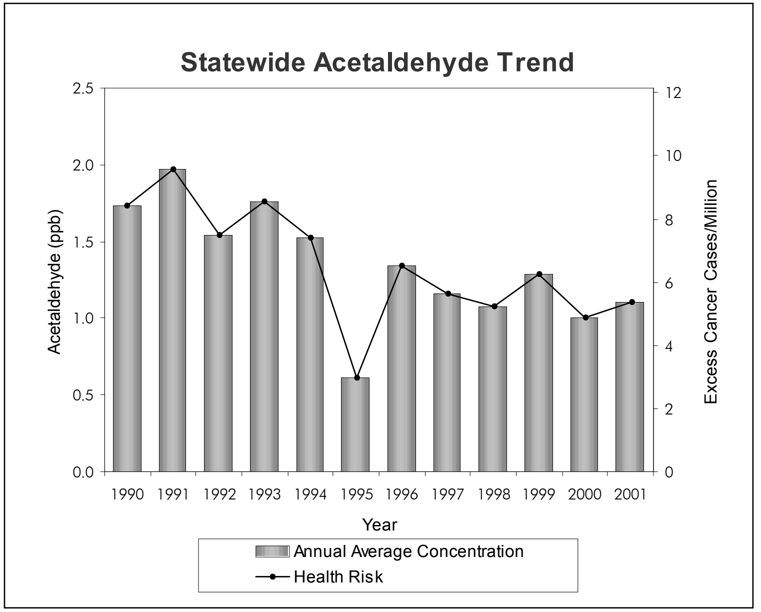

Figure 5-2

Based on the statewide annual averages for the six years with consistent data, 1996 through 2001, acetaldehyde concentrations and associated health risk decreased by about 18 percent. On an individual basis, the health risks from acetaldehyde alone are much lower than they are for some of the other toxic air contaminants. In fact, considering the ten compounds presented in this almanac, the health risk from acetaldehyde alone ranks eighth out of ten. During 2001, there was an estimated chance of 5 excess cancer cases per million people. However, as with all air pollutants, the health risk is not spread evenly throughout the State, and it is important to remember that the data reflect statewide averages. They do not consider local impacts. Therefore, some Californians may be exposed to near-source, or "hot spot" concentrations of acetaldehyde which are above the statewide annual average concentrations. "Hot spot" exposure may increase the potential cancer risk to individuals living near large combustion sources. Information collected under the Assembly Bill 2588 air toxics "hot spots" emission reporting program will be used during the risk management phase to help determine the priority and need for control of sources of acetaldehyde. Another thing to consider is the fact that the statewide averages reflect ambient outdoor concentrations. In general, acetaldehyde concentrations are higher indoors than outdoors, due in part to the abundance of combustion sources such as cigarettes, fireplaces, and woodstoves.

Acetaldehyde is directly emitted and also occurs as a result of the photochemical oxidation of reactive organic gases (ROG). Over the years, the emission standards for new vehicles have resulted in steady declines in vehicular ROG emissions, including acetaldehyde, and NO_x emissions. Further reductions in ROG and NO_x are expected to result in a decline in secondary acetaldehyde due to vehicular emissions. Declines are expected to continue because of the adopted low emission vehicle (LEV) emission standards. Additionally, the primary directly emitted acetaldehyde, also a reactive organic gas, is expected to decline.

Benzene

2002 Statewide Emission Inventory

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985 under California's TAC program (Assembly Bill 1807). In addition to being a carcinogen, benzene also has non-cancer health impacts. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Benzene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	1963	14%
Area-wide Sources	97	1%
On-Road Mobile	7517	54%
Gasoline Vehicles	7258	52%
Diesel Vehicles	259	2%
Other Mobile	4292	31%
Natural Sources	43	0%
Total Statewide	*13912*	*100%*

Table 5-4

Current estimates show that approximately 85 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. The predominant sources of total benzene emissions in the atmosphere are gasoline fugitive emissions and gasoline motor vehicle exhaust. Approximately 54 percent of the statewide benzene emissions can be attributed to on-road motor vehicles, with an additional 31 percent attributed to other mobile sources such as recreational boats, off-road recreational vehicles, and lawn and garden equipment. Currently, the benzene content of gasoline is less than 1 percent. Some of the benzene in the fuel is emitted from vehicles as unburned fuel. Benzene is also formed as a partial combustion product of larger aromatic fuel components. Industry-related stationary sources contribute 14 percent and area-wide sources contribute 1 percent of the statewide benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation. The primary area-wide sources include the application of agricultural and structural pesticides. The primary natural sources are petroleum seeps that form where oil or natural gas emerge from subsurface sources to the ground or water surface.

2002 Top Ten Counties - Benzene

The top ten counties account for approximately 56 percent of the statewide benzene emissions. The South Coast Air Basin has four of the top ten counties emitting benzene: South Coast portion of Los Angeles County (19 percent of the emissions of benzene statewide), Orange County (6 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 31 percent of statewide benzene emissions occur in the South Coast Air Basin. Three counties in the San Francisco Air Basin contribute approximately 10 percent: Alameda County (3 percent), Contra Costa (3 percent) and Santa Clara County (4 percent). The three other counties in the top ten for benzene emissions are San Diego, Kern, and Sacramento. These three counties account for approximately 16 percent of statewide benzene emissions.

Benzene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	2628	19%
San Diego	San Diego	947	7%
Orange	South Coast	883	6%
Kern	San Joaquin Valley	821	6%
Santa Clara	San Francisco Bay Area	545	4%
Alameda	San Francisco Bay Area	438	3%
San Bernardino	South Coast	431	3%
Riverside	South Coast	403	3%
Sacramento	Sacramento Valley	372	3%
Contra Costa	San Francisco Bay Area	353	3%

Table 5-5

Benzene
Air Quality and Health Risk

The ARB has routinely monitored benzene concentrations in the ambient air for more than a decade. Based on the statewide annual averages, the 2001 statewide ambient benzene concentration was about 76 percent lower than the peak in 1990. Figure 5-3 shows the annual average statewide benzene concentrations and the associated health risk from benzene alone. Health risk is based on the annual average concentration and represents the estimated number of excess cancer cases per million people exposed to the specified concentration level over a 70-year lifetime. From these data, it is apparent that benzene poses a substantial health risk. In fact, based on the statewide averages, benzene ranks third highest among the ten TACs presented in this almanac. During 2001, there was an estimated chance of 56 excess cancer cases per million people from benzene. However, as with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. In general, ambient benzene concentrations and associated health risks tend to be higher in the more urbanized areas.

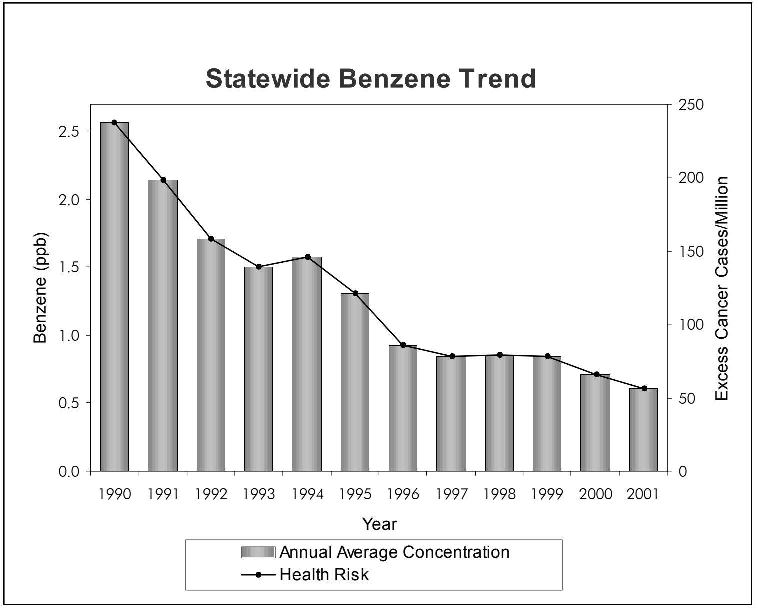

Figure 5-3

It is important to note that the ambient benzene concentrations have been corrected to provide a consistent long-term data record. Prior to 1999, the ARB analyzed samples using a single-point calibration of the gas chromatograph analyzers. While this method was approved by the U.S. Environmental Protection Agency, it resulted in low concentrations being under-reported. Beginning January 1, 1999, new and more sophisticated computer software allowed the ARB to switch to a 3-point calibration of the analyzers. This improved measurement technique more accurately characterizes the ambient benzene, especially at low concentrations. However, concentrations measured using the 3-point calibration method are higher than those measured with the single-point calibration method. A year-long study showed that the two measurement methods were highly correlated, and the ARB was able to develop a predictive relationship between the two. To avoid discontinuity in the trend data, the pre-1999 benzene data shown in Figure 5-3 have been adjusted according to these predictive equations, and they now reflect the results that would have been produced using the 3-point calibration method. Information about the specific study process and adjustment equations is available from the ARB Monitoring and Laboratory Division.

Although the health risk from benzene is still substantial, emissions have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures and control technologies. Since motor vehicles continue to be the major source of benzene in the State, future efforts to improve fuel formulations, reduce vehicle exhaust emissions, and promote less polluting modes of transportation will likely continue to help reduce benzene emissions.

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1,3-Butadiene

2002 Statewide Emission Inventory

The ARB identified 1,3-butadiene as a TAC in 1992. In California, 1,3-butadiene has been identified as a carcinogen. In addition, 1,3-butadiene vapors are mildly irritating to the eyes and mucous membranes and cause neurological effects at very high levels.

Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for approximately 85 percent of the total statewide emissions. Vehicles that are not equipped with functioning exhaust catalysts emit greater amounts of 1,3-butadiene than vehicles with functioning catalysts. Approximately 49 percent of the statewide 1,3-butadiene emissions can be attributed to on-road motor vehicles, with an additional 36 percent attributed to other mobile sources such as recreational boats, off-road recreational vehicles, and aircraft. Area-wide sources such as agricultural waste burning and open burning associated with forest management contribute approximately 12 percent. Stationary sources contribute less than 1 percent of the statewide 1,3-butadiene emissions. The primary stationary sources with reported 1,3-butadiene emissions include petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources are wildfires.

1,3-Butadiene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	14	0%
Area-wide Sources	371	12%
On-Road Mobile	1560	49%
Gasoline Vehicles	1535	48%
Diesel Vehicles	25	1%
Other Mobile	1151	36%
Natural Sources	83	3%
Total Statewide	*3180*	*100%*

Table 5-6

2002 Top Ten Counties - 1,3-Butadiene Emissions

The top ten counties account for approximately 49 percent of the statewide 1,3-butadiene emissions. Four counties in the South Coast Air Basin contribute approximately 28 percent: South Coast portion of Los Angeles County (16 percent), Orange County (5 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). San Diego County accounts for approximately 7 percent. The San Joaquin Valley Air Basin has three of the top ten counties emitting 1,3-butadiene: Tulare County (3 percent), Fresno County (3 percent) and Kern County (3 percent). The other counties in the top ten for 1,3-butadiene emissions are Santa Clara, and Alameda.

1,3-Butadiene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	509	16%
San Diego	San Diego	224	7%
Orange	South Coast	159	5%
Tulare	San Joaquin Valley	109	3%
Santa Clara	San Francisco Bay Area	107	3%
San Bernardino	South Coast	97	3%
Alameda	San Francisco Bay Area	90	3%
Kern	San Joaquin Valley	90	3%
Fresno	San Joaquin Valley	87	3%
Riverside	South Coast	84	3%

Table 5-7

1,3-Butadiene

Air Quality and Health Risk

The ARB routinely monitors for 1,3-butadiene at its statewide air toxics monitoring network. Figure 5-4 shows the annual average statewide 1,3-butadiene concentrations and the associated health risk from this TAC alone. The data show a general downward trend, with some variability. Ambient concentrations show a drop of about 58 percent from 1990 to 2001. There has been an equivalent drop in the health risk. Despite this substantial drop, the health risk from this compound remains relatively high. Of the ten compounds presented in this almanac, the average statewide health risk from 1,3-butadiene ranks second. Again, it is important to remember that the data shown here reflect statewide averages. They do not consider local impacts, which may be higher or lower.

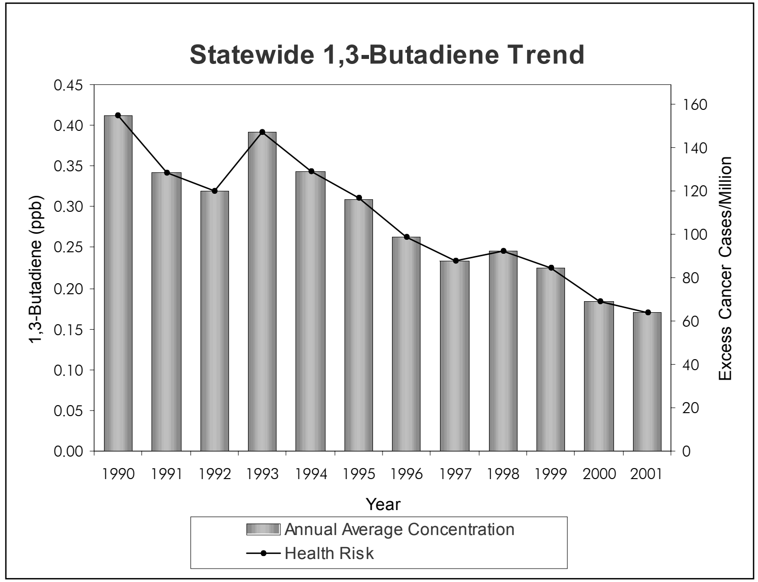

Figure 5-4

Similar to benzene, the ARB analyzed 1,3-butadiene samples using a single-point calibration of the gas chromatograph analyzers prior to 1999. While this method was approved by the U.S. EPA, it resulted in low concentrations being under-reported. Beginning January 1, 1999, new and more sophisticated computer software allowed the ARB to switch to a 3-point calibration of the analyzers. This improved measurement technique more accurately characterizes the ambient 1,3-butadiene, especially at low concentrations. However, concentrations measured using the 3-point calibration method are higher than those measured with the single-point calibration method. A year-long study showed that the two measurement methods were highly correlated and the ARB was able to develop a predictive relationship between them. To avoid discontinuity in the trend data, the pre-1999 1,3-butadiene data shown in Figure 5-4 have been adjusted according to these predictive equations and now reflect the results that would have been produced using the 3-point calibration method. Information about the specific study process and adjustment equations is available from the ARB Monitoring and Laboratory Division.

In California, the majority of 1,3-butadiene emissions are from incomplete combustion of gasoline and diesel fuels. The ARB adopted the Low Emission Vehicles/Clean Fuels regulations in 1990 and the Phase 2 reformulated gasoline regulations in 1991. These regulations are expected to continue to reduce 1,3-butadiene emissions from cars and light-duty trucks.

Carbon Tetrachloride

2002 Statewide Emission Inventory

The ARB identified carbon tetrachloride as a Toxic Air Contaminant in 1987 under California's TAC program (AB 1807). In California, carbon tetrachloride has been identified as a carcinogen. Carbon tetrachloride is also a central nervous system depressant and mild eye and respiratory tract irritant.

The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 3.48 tons per year), and background concentrations account for most of the health risk.

Carbon Tetrachloride		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	3.48	100%
Area-wide Sources	0	0%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	*3.48*	*100%*

Table 5-8

2002 Top Ten Counties - Carbon Tetrachloride

The top two counties account for 90 percent of the statewide carbon tetrachloride emissions. Los Angeles County (South Coast Air Basin portion) accounts for approximately 53 percent, and Contra Costa County, located in the San Francisco Bay Area Air Basin, accounts for approximately 37 percent of the emissions of carbon tetrachloride statewide. Although the percentages for these two counties are high, the emissions are very small (2 tons or less per year in each county). The eight other counties in the top ten contribute approximately 10 percent of statewide carbon tetrachloride emissions.

Carbon Tetrachloride			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	1.83	53%
Contra Costa	San Francisco Bay Area	1.31	37%
San Diego	San Diego	0.09	3%
Orange	South Coast	0.08	2%
Sacramento	Sacramento Valley	0.06	2%
Ventura	South Central Coast	0.05	2%
Riverside	South Coast	0.02	1%
San Bernardino	South Coast	<0.01	<1%
Fresno	San Joaquin Valley	<0.01	<1%
El Dorado	Lake Tahoe	<0.01	<1%

Table 5-9

Carbon Tetrachloride

Air Quality and Health Risk

The ARB routinely monitors carbon tetrachloride concentrations in the ambient air. Based on data from sites in the TAC monitoring network, the year 2001 statewide average carbon tetrachloride concentration and the associated health risk were about 34 percent lower than the peak in 1990. Figure 5-5 shows the annual average statewide concentrations and the associated health risk from carbon tetrachloride alone. During 2001, there was an estimated risk of 23 excess cancer cases per million people. This ranks fourth among the ten compounds presented in this almanac. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. As with a number of other TACs, there are several years of incomplete data for carbon tetrachloride. Based on the data that are available, the ambient concentrations and health risk dropped between 1990 and 1996, and then there was a substantial increase in values for 1998. Although values dropped again in 2000 and 2001, the values for 2001 are still about 12 percent higher than the values for 1996. Data are not sufficient to determine if the higher

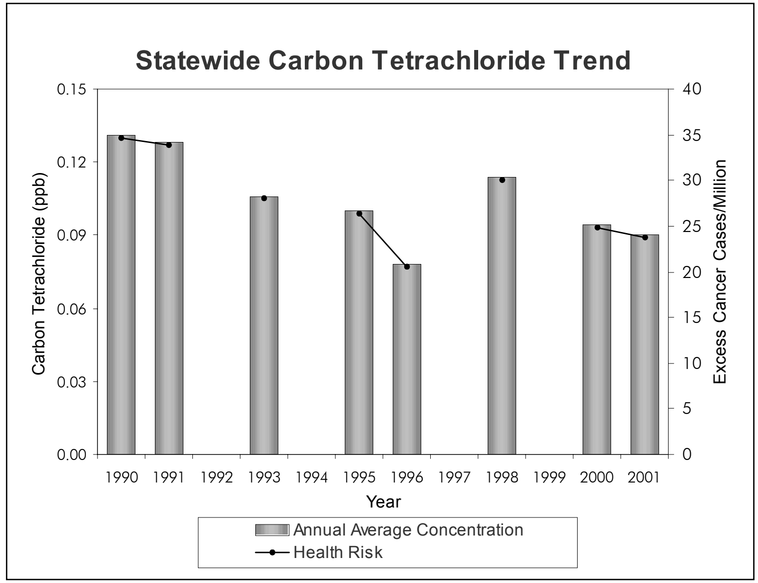

Figure 5-5

values during the end years are anomalous or if a trend towards higher values will continue. It is, however, important to remember that the data have not been adjusted for variations in meteorology, and the increased values may be due in part to meteorological fluctuations rather than changes in emissions.

Unlike many of the other TACs, carbon tetrachloride is emitted primarily by sources other than motor vehicles. Many of these sources are being controlled. However, because carbon tetrachloride persists in the atmosphere for many years (estimated atmospheric lifetime is 50 years), background concentrations account for most of the health risk, and local controls have limited impact.

Chromium (Hexavalent)

2002 Statewide Emission Inventory

Chromium (hexavalent) was identified as a Toxic Air Contaminant (TAC) in 1986 under California's TAC program (AB 1807). In California, chromium (hexavalent) has been identified as a carcinogen. There is epidemiological evidence that exposure to inhaled chromium (hexavalent) may result in lung cancer. The principal acute effects of chromium (hexavalent) are renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.

Chrome plating is a primary source of chromium (hexavalent) emissions in the State. Chromic acid anodizing is another industrial metal finishing process which uses chromium (hexavalent). A third source of chromium (hexavalent) emissions is the firebrick lining of glass furnaces. In California, stationary sources are estimated to emit approximately 1.5 tons annually of chromium (hexavalent). Emissions from these sources were obtained from facilities under the Air Toxics Hot Spots Act of 1987. This act required facilities to estimate toxics and potential toxics emissions, including chromium (hexavalent). Area-wide sources include oil and gas production, specifically the burning of residual and distillate oils. Approximately 0.12 tons of chromium (hexavalent) are emitted by gasoline motor vehicles. Other mobile sources such as trains and ships contribute approximately 1 ton of chromium (hexavalent) annually.

Chromium (Hexavalent)		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	1.52	60%
Area-wide Sources	0	0%
On-Road Mobile	0.12	5%
Gasoline Vehicles	0.12	5%
Diesel Vehicles	<0.01	0%
Other Mobile	0.92	36%
Natural Sources	<0.01	0%
Total Statewide	*2.56*	*100%*

Table 5-10

2002 Top Ten Counties - Chromium (Hexavalent)

Four counties account for approximately 63 percent of the statewide chromium (hexavalent) emissions: South Coast portion of Los Angeles County (17 percent of the emissions of chromium (hexavalent) statewide), Mojave Desert portion of Kern County (12 percent), San Diego County (11 percent), and San Francisco Bay Area portion of Solano County (8 percent). Collectively, approximately 19 percent of statewide chromium (hexavalent) emissions occur in the South Coast Air Basin. Two counties in the San Joaquin Valley Air Basin contribute approximately 3 percent: Fresno County (3 percent) and Madera County (3 percent). The remaining four counties in the top ten for chromium (hexavalent) emissions are Tuolumne County, Orange County, Solono County (San Francisco Bay Area Air Basin portion), and San Bernardino (Mojave Desert Air Basin portion).

Chromium (Hexavalent)			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	0.45	17%
Kern	Mojave Desert	0.30	12%
San Diego	San Diego	0.29	11%
Solano	San Francisco Bay Area	0.20	8%
Tuolumne	Mountain Counties	0.09	4%
Fresno	San Joaquin Valley	0.08	3%
Madera	San Joaquin Valley	0.08	3%
Orange	South Coast	0.06	2%
Alameda	San Francisco Bay Area	0.06	2%
San Bernardino	Mojave Desert	0.05	2%

Table 5-11

Chromium (Hexavalent)
Air Quality and Health Risk

Chromium (hexavalent) is the only one of the top ten toxic air contaminants that is a metal, not a gas. Statewide annual averages and health risk estimates are available for 1992 through 2001. Prior to 1992, a different measurement method was used. With this method, some of the chromium (hexavalent) was transformed into chromium (trivalent) on the collection filter. As a result, the chromium (hexavalent) concentrations were underestimated, and these data are not included in this almanac. Since 1992, a new and more accurate method has been used.

The annual average statewide concentrations and health risk values are shown in Figure 5-6. Both show a general downward trend, with the exception of 1995. The high 1995 value is driven in part by an extremely high annual average for the Burbank site in the South Coast Air Basin. However, a number of other sites also had higher concentrations in 1995 than in other years. While the reasons for these high values are uncertain, some of the variation may be attributable to meteorology. Based on statewide data, the 2001 annual average chromium (hexavalent) concentration and the associated health

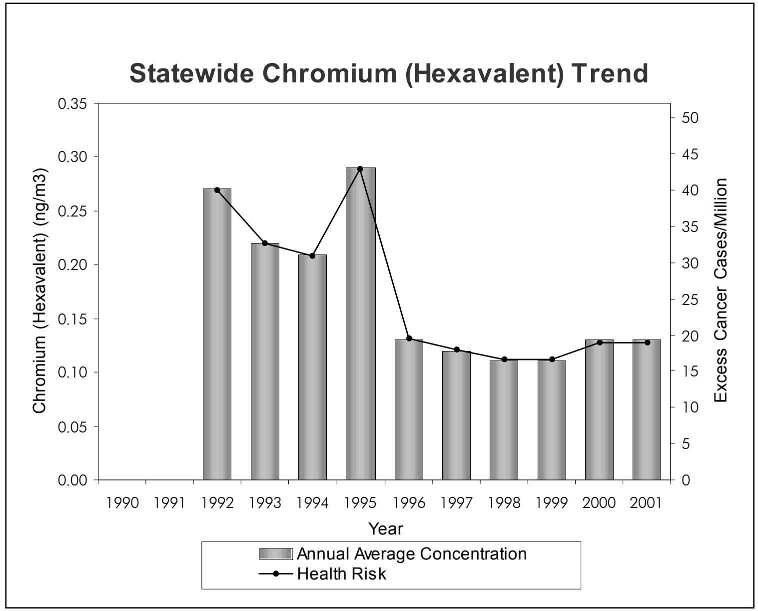

Figure 5-6

risk were 52 percent lower than they were in 1992. During 2001, there was an estimated risk of 19 excess cancer cases per million people, from chromium (hexavalent) alone. While the values for 2000 and 2001 are slightly higher than the values for 1997 through 1999, remember that the data have not been adjusted for meteorological fluctuations. Based on data for all ten TACs presented in this almanac, chromium (hexavalent) ranks sixth in terms of health risk. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower.

It is important to note that many of the chromium (hexavalent) measurements are below the Limit of Detection (LOD), which is the lowest concentration that can be reliably measured. The LOD for chromium (hexavalent) is 0.2 nanograms per cubic meter (ng/m^3). During 1998 through 2001, a very high percentage of the measured values were below the LOD. In calculating an annual average, values below the LOD are assumed to equal one-half the LOD. For chromium (hexavalent), one-half the LOD is 0.1 ng/m^3.

In 1988, the ARB adopted an airborne toxic control measure to control emissions of chromium (hexavalent) from chrome plating and chromic acid anodizing operations. The control measure contains both an interim requirement (95 percent control) and a technology-forcing requirement (99.8 percent control). In the past, compounds containing chromium (hexavalent), such as sodium dichromate or lead chromate, were added to cooling tower water to control corrosion in the towers and associated heat exchangers. The ARB adopted a statewide airborne toxic control measure in 1989 that prohibits the use of chromium (hexavalent) in cooling towers. Implementation of these control measures has helped reduce ambient concentrations and associated health risks from chromium (hexavalent).

At its September 2001 Board Hearing, the ARB approved an air toxic control measure banning the use of both chromium (hexavalent) and cadmium in motor vehicle and mobile equipment coatings. The measure becomes effective January 1, 2003, and allows a sell-through period to deplete existing inventories. Statewide, ARB estimates that 99 percent of auto body repair and refinishing facilities already use chromium-free and cadmium-free coatings. This rule will ensure additional reductions in chromium (hexavalent) exposures near those facilities that do not use chromium-free and cadmium-free coatings.

para-Dichlorobenzene
2002 Statewide Emission Inventory

The ARB identified *para*-dichlorobenzene as a TAC in April 1993 under AB 2728. This bill required the ARB to identify, by regulation, all federal hazardous air pollutants as TACs. In California, *para*-dichlorobenzene has been identified as a carcinogen. In addition to the carcinogenic impact, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans.

The primary area-wide sources that have reported emissions of *para*-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute approximately 99 percent of the statewide *para*-dichlorobenzene emissions. Stationary sources contribute approximately 1 percent. The primary stationary sources include plating and polishing of fabricated metal products, crude petroleum and natural gas extraction, and sanitary services.

para-DiChlorobenzene		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	16	1%
Area-wide Sources	1807	99%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	*1822*	*100%*

Table 5-12

2002 Top Ten Counties - *para*-Dichlorobenzene

The top ten counties account for approximately 69 percent of the statewide *para*-dichlorobenzene emissions. The South Coast Air Basin has four of the top ten counties: South Coast portion of Los Angeles County (27 percent of the emissions of *para*-dichlorobenzene statewide), Orange County (8 percent), South Coast portion of San Bernardino County (4 percent), and South Coast portion of Riverside County (4 percent). Collectively, approximately 43 percent of statewide *para*-dichlorobenzene emissions occur in the South Coast Air Basin. San Diego County contributes approximately 8 percent. Three counties in the San Francisco Bay Area Air Basin contribute approximately 12 percent: Santa Clara County (5 percent), Alameda County (4 percent), and Contra Costa County (3 percent). The two other counties in the top ten for *para*-dichlorobenzene emissions are Sacramento and Fresno.

para-DiChlorobenzene			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	489	27%
San Diego	San Diego	154	8%
Orange	South Coast	153	8%
Santa Clara	San Francisco Bay Area	91	5%
Alameda	San Francisco Bay Area	76	4%
San Bernardino	South Coast	70	4%
Riverside	South Coast	66	4%
Sacramento	Sacramento Valley	65	4%
Contra Costa	San Francisco Bay Area	49	3%
Fresno	San Joaquin Valley	44	2%

Table 5-13

para-Dichlorobenzene
Air Quality and Health Risk

The ARB routinely monitors for *para*-dichlorobenzene, and statewide annual average concentrations and health risk estimates are available for the years 1991 through 1997, 2000, and 2001. No summary data are available for 1998 and 1999 because of problems with laboratory equipment and associated data reliability.

Para-dichlorobenzene values have remained fairly constant over the trend period, showing very little change. The variations that are present are probably caused by year-to-year variations in meteorology rather than substantial changes in emissions. Figure 5-7 shows the annual average statewide *para*-dichlorobenzene concentrations and the associated health risk from *para*-dichlorobenzene alone. As with all air pollutants, the health risk is not spread evenly throughout the State. In some areas, the health risk is higher than the statewide average, while in other areas the health risk is lower. During 2001, there was an estimated risk of 10 excess cancer cases per million people, from this compound alone. Based on this, *para*-dichlorobenzene ranks seventh out of the ten compounds presented in this almanac.

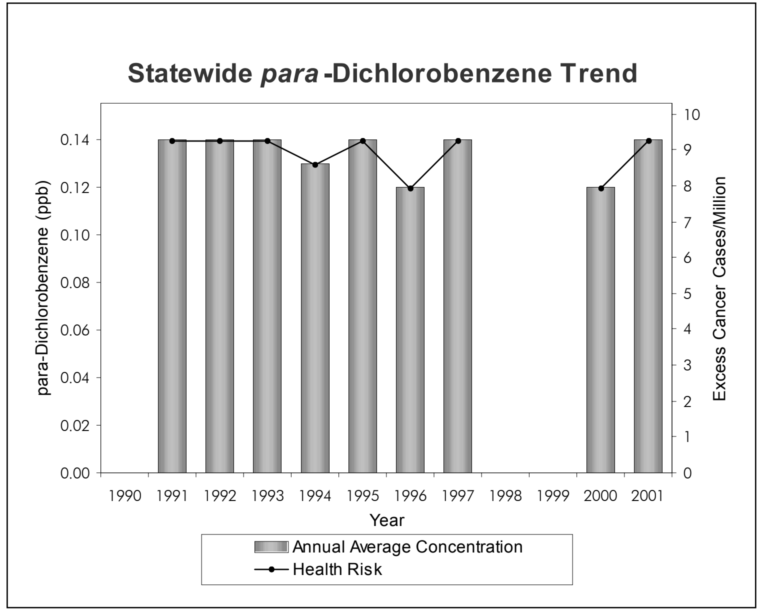

Figure 5-7

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Formaldehyde

2002 Statewide Emission Inventory

The ARB identified formaldehyde as a TAC in 1992 under California's TAC program (AB 1807). In California, formaldehyde has been identified as a carcinogen. Chronic exposure is associated with respiratory symptoms and eye, nose, and throat irritation.

Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. About 78 percent of direct formaldehyde emissions are estimated to come from the combustion of fossil fuels from mobile sources. Approximately 29 percent of the total statewide formaldehyde emissions can be attributed to on-road motor vehicles, with an additional 48 percent attributed to other mobile sources such as aircraft, recreational boats, and construction and mining equipment. Area-wide sources contribute approximately 9 percent and stationary sources contribute approximately 14 percent of the statewide formaldehyde emissions. The primary area-wide sources in California of formaldehyde emissions include the wood burning in residential fireplaces and wood stoves.

Formaldehyde		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	2871	14%
Area-wide Sources	1976	9%
On-Road Mobile	6035	29%
Gasoline Vehicles	4133	20%
Diesel Vehicles	1901	9%
Other Mobile	10150	48%
Natural Sources	0	0%
Total Statewide	*21033*	*100%*

Table 5-14

2002 Top Ten Counties - Formaldehyde

The top ten counties account for approximately 51 percent of the statewide formaldehyde emissions. The South Coast Air Basin has four of the top ten counties emitting formaldehyde: South Coast portion of Los Angeles County (15 percent of the emissions of formaldehyde statewide), Orange County (5 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 26 percent of statewide formaldehyde emissions occur in the South Coast Air Basin. The six other counties in the top ten for formaldehyde emissions are San Diego, Kern, Santa Clara, Alameda, Fresno, and Santa Barbara. These six counties account for approximately 26 percent of statewide formaldehyde emissions.

Formaldehyde			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	3173	15%
Kern	San Joaquin Valley	1530	7%
San Diego	San Diego	1362	6%
Orange	South Coast	1019	5%
Santa Clara	San Francisco Bay Area	720	3%
Alameda	San Francisco Bay Area	631	3%
Fresno	San Joaquin Valley	599	3%
Santa Barbara	South Central Coast	597	3%
Riverside	South Coast	567	3%
San Bernardino	South Coast	561	3%

Table 5-15

Formaldehyde

Air Quality and Health Risk

The ARB routinely monitors formaldehyde concentrations in the ambient air. While the trend graph for formaldehyde shows a great deal of variability, there is a general drop in ambient concentrations and health risk (excess cancer cases) during 1990 through 1992. Following this, there is a general increase until 1996 and then a general decrease, with much variability, from 1996 to 2001. Because of the variability in the data, it will be several more years before we can determine the overall nature of the trend.

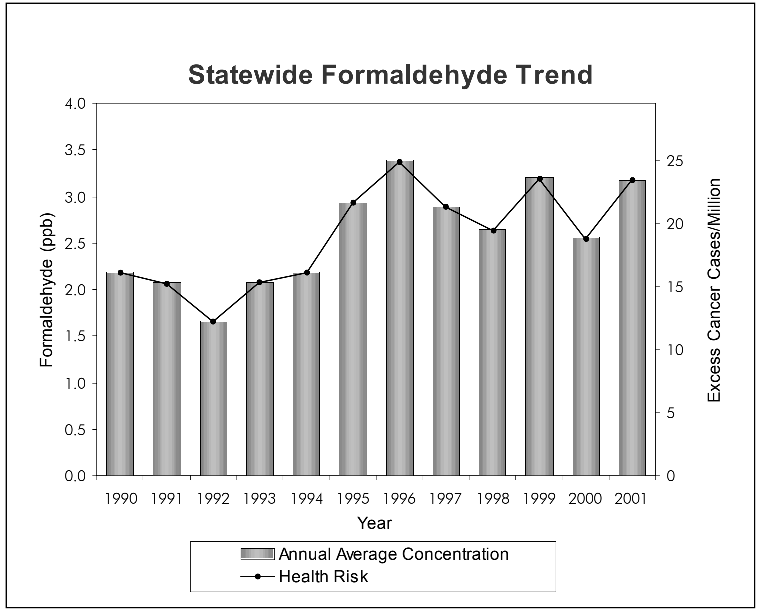


Figure 5-8

Although data are shown for all years during the trend period, the values prior to 1996 are uncertain. The data analyzed prior to 1996 were based on a method that underestimated the actual concentrations. A method change in 1996 corrected this problem. However, a correction factor could not be developed for the earlier data. While the data prior to the method change are included here for completeness, they are not directly comparable to data collected during the later years. Since 1996, the statewide annual average concentrations and health risk have declined about 6 percent. While formaldehyde is emitted by both stationary and mobile sources, mobile sources are, by far, the largest contributors. The ARB adopted the Low Emissions/Clean Fuels Regulations in 1990, and these regulations are expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. With these reductions should come lower ambient outdoor concentrations and a lowered health risk from formaldehyde exposure.

While ambient outdoor formaldehyde concentrations are expected to decline, formaldehyde concentrations indoors are generally higher. This is because many building materials, consumer products, and fabrics emit formaldehyde. As a result, indoor formaldehyde levels are expected to remain higher than outdoor levels because of new materials brought into homes, as a consequence of remodeling or purchasing new furnishings. Other indoor combustion sources such as wood and gas stoves, kerosene heaters, and cigarettes also contribute to indoor formaldehyde levels, although intermittently.

Methylene Chloride
2002 Statewide Emission Inventory

The ARB identified methylene chloride as a Toxic Air Contaminant (TAC) in 1987 under California's TAC program. In California, methylene chloride has been identified as a carcinogen. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity.

Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Although methylene chloride is used in some aerosol consumer products (e.g., aerosol paints and automotive products), most consumer product manufacturers have voluntarily phased out its use. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride. These sources contribute approximately 52 percent of the statewide methylene chloride emissions. Area-wide sources contribute approximately 48 percent.

Methylene Chloride		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	4042	52%
Area-wide Sources	3697	48%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	*7739*	*100%*

Table 5-16

The primary area-wide sources include consumer products such as paint removers and strippers and automotive brake cleaners.

2002 Top Ten Counties - Methylene Chloride

The top ten counties account for approximately 77 percent of the statewide methylene chloride emissions. The South Coast Air Basin has four of the top ten counties emitting methylene chloride: South Coast portion of Los Angeles County (33 percent of the emissions of methylene chloride statewide), Orange County (13 percent), South Coast portion of San Bernardino County (6 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 55 percent of statewide methylene chloride emissions occur in the South Coast Air Basin. Two counties in the San Francisco Bay Area Air Basin contribute approximately 9 percent: Santa Clara County (6 percent), and Alameda County (3 percent). The four other counties in the top ten for methylene chloride emissions are San Diego, Sacramento, Fresno and Ventura. Together, these three counties account for approximately 11 percent of statewide methylene chloride emissions.

Methylene Chloride			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	2580	33%
Orange	South Coast	1021	13%
Santa Clara	San Francisco Bay Area	458	6%
San Bernardino	South Coast	456	6%
San Diego	San Diego	393	5%
Alameda	San Francisco Bay Area	265	3%
Riverside	South Coast	253	3%
Sacramento	Sacramento Valley	182	2%
Ventura	South Central Coast	169	2%
Fresno	San Joaquin Valley	150	2%

Table 5-17

Methylene Chloride
Air Quality and Health Risk

The ARB routinely monitors methylene chloride in the ambient air. The trend graph in Figure 5-9 shows some variability, particularly during the early years. However, there is an overall downward trend. The statewide annual average concentrations and health risk have dropped nearly 67 percent since 1990. Of the ten compounds presented in this almanac, methylene chloride presents the lowest health risk on a statewide basis. However, any level of risk is a concern from a public health standpoint. During 2001, there was an estimated risk of 1 excess cancer case per million people.

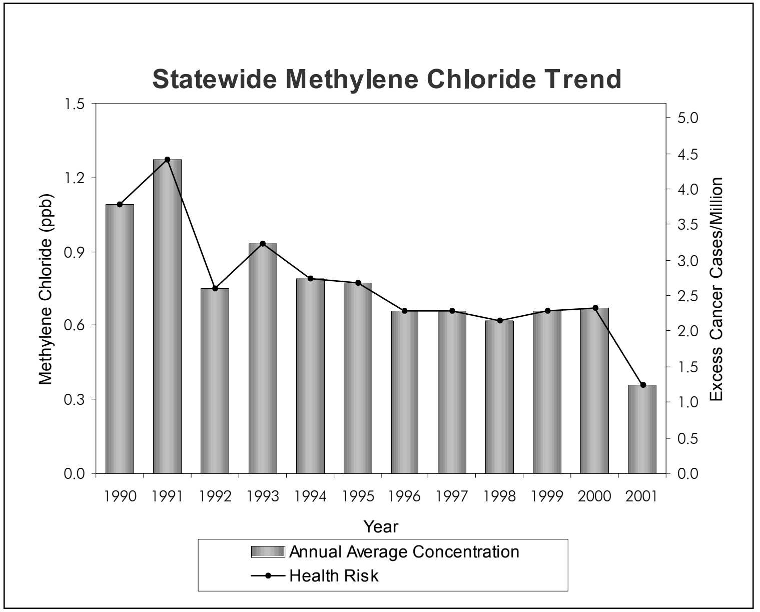


Figure 5-9

In California, paint removers account for the largest use of methylene chloride, which is the primary ingredient in paint stripping formulations used for industrial, commercial, military, and domestic applications. Because methylene chloride is also a constituent in many consumer products, including aerosol paints and automotive products, short-term indoor concentrations may be several orders of magnitude higher than the ambient outdoor concentrations. Many manufacturers of consumer products are voluntarily phasing-out their use of methylene chloride. In addition, in the case of aerosol paints, use will be restricted by a provision in the ARB's "Regulation for Reducing Volatile Organic Compound (VOC) Emissions from Aerosol Coating Products," adopted in March 1995. These regulations should help to further reduce ambient outdoor concentrations and health risks.

Perchloroethylene

2002 Statewide Emission Inventory

The ARB identified perchloroethylene as a Toxic Air Contaminant (TAC) in 1991 under California's TAC program (AB 1807). In California, perchloroethylene has been identified as a carcinogen. Perchloroethylene vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity, as well as kidney dysfunction and neurological effects.

Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. These stationary sources account for 64 percent of the statewide emissions of perchloroethylene. Area-wide sources contribute approximately 36 percent. The primary area-wide sources include consumer products such as automotive brake cleaners and tire sealants and inflators.

Perchloroethylene		
Emissions Source	**tons/yr**	**Percent**
Stationary Sources	3828	64%
Area-wide Sources	2199	36%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Natural Sources	0	0%
Total Statewide	*6027*	*100%*

Table 5-18

2002 Top Ten Counties - Perchloroethylene

The top ten counties account for approximately 71 percent of the statewide perchloroethylene emissions. The South Coast Air Basin has four of the top ten counties emitting perchloroethylene: South Coast portion of Los Angeles County (30 percent of the emissions of perchloroethylene statewide), Orange County (10 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 46 percent of statewide perchloroethylene emissions occur in the South Coast Air Basin. San Diego County contributes approximately 10 percent. The five other counties in the top ten for perchloroethylene emissions are Santa Clara, Sacramento, Alameda, Fresno and San Francisco. These five counties account for approximately 14 percent of statewide perchloroethylene emissions.

Perchloroethylene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	1783	30%
Orange	South Coast	625	10%
San Diego	San Diego	624	10%
Santa Clara	San Francisco Bay Area	226	4%
San Bernardino	South Coast	199	3%
Sacramento	Sacramento Valley	197	3%
Alameda	San Francisco Bay Area	191	3%
Riverside	South Coast	173	3%
Fresno	San Joaquin Valley	136	2%
San Francisco	San Francisco Bay Area	114	2%

Table 5-19

Perchloroethylene
Air Quality and Health Risk

The ARB routinely monitors perchloroethylene concentrations in the ambient air. The trend graph for perchloroethylene shows some variability, probably caused by year-to-year changes in meteorology. However, there is an overall downward trend. Since 1990, the statewide annual average concentrations and health risk have dropped about 68 percent. Figure 5-10 shows the annual average statewide perchloroethylene concentrations and the associated health risk for 1990 through 1998 and for 2000 through 2001, the years for which complete and representative data are available. Health risk is based on the annual average concentration and represents the estimated risk of excess cancer cases per million people exposed over a 70-year lifetime at the specified concentration level. During 2001, there was an estimated chance of 4 excess cancer cases per million people.

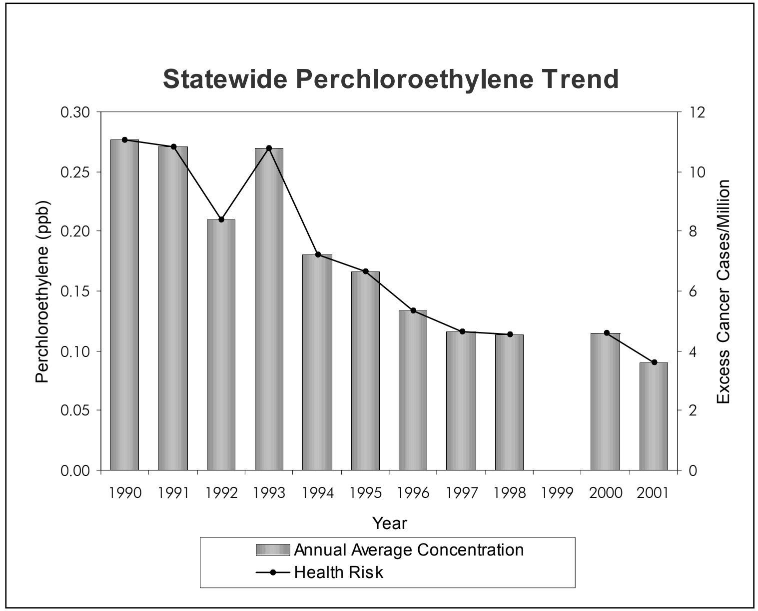


Figure 5-10

When the ARB identified perchloroethylene as a TAC in October 1991, the ARB estimated that 60 percent of perchloroethylene came from dry cleaning operations. Examination of industry practices suggested the potential for significant reductions of emissions. The ARB focused control efforts on that industry and adopted a control measure governing the use of perchloroethylene in dry cleaning operations in October 1993. The final deadline for compliance was 1998. In addition to requiring emission controls, the ARB has worked with the industry to provide training for industry personnel on improved practices and methods for reducing emissions. In the near future, the most significant factor affecting emissions will most likely be a continued reduction as more dry cleaning operations modify or replace older equipment. In the long-term, increasing population in California may lead to increased demand for services and products using perchloroethylene. Barring future control measures, this could eventually lead to increased emissions.

Diesel Particulate Matter

2002 Statewide Emission Inventory

The ARB identified the particulate matter (PM) emissions from diesel-fueled engines as a TAC in August 1998 under California's TAC program. In California, diesel engine exhaust has been identified as a carcinogen. Most researchers believe that diesel exhaust particles contribute the majority of the risk.

Diesel PM		
Emissions Source	**tons/year**	**Percent**
Stationary Sources	2492	10%
Area-wide Sources	0	0%
On-Road Mobile	6023	23%
Gasoline Vehicles	0	0%
Diesel Vehicles	6023	23%
Other Mobile	17163	67%
Natural Sources	0	0%
Total Statewide	*25678*	*100%*

Table 5-20

Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 23 percent of statewide total, with an additional 67 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 10 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report diesel PM emissions also include heavy construction (except highway), manufacturers of asphalt paving materials and blocks, and electrical generation.

Readers may note that the diesel PM emission estimates differ from those presented in the ARB's October 2000 report entitled: "*Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*" (Diesel Risk Reduction Plan). This is because they incorporate more recent data. More specifically, the on-road mobile source emissions cited in the Diesel Risk Reduction Plan are based on an earlier version of EMFAC 2001 (EMFAC 1.99(f) 6/26/00) and the other mobile inventory includes revised estimates for ship diesel PM emissions. We will continue to refine estimates of diesel PM emissions as we develop the regulations identified in the Diesel Risk Reduction Plan. Even with these differences, the statewide emission estimates for diesel PM compare favorably.

2002 Top Ten Counties - Diesel Particulate Matter

The top ten counties account for approximately 57 percent of the statewide diesel particulate matter emissions. The South Coast Air Basin has three of the top ten counties emitting diesel particulate matter: South Coast portion of Los Angeles County (18 percent of the emissions of diesel particulate matter statewide), Orange County (7 percent), and South Coast portion of Riverside County (4 percent). Collectively, approximately 29 percent of statewide diesel particulate matter emissions occur in the South Coast Air Basin. San Diego County contributes approximately 7 percent, and Fresno County contributes approximately 5 percent. Three counties in the San Francisco Bay Area Air Basin contribute 11 percent: Alameda (4 percent), Santa Clara (4 percent), and San Francisco (3 percent). The San Joaquin Valley portion of Kern County and Sacramento County contribute the remainder.

Diesel PM			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	4563	18%
Orange	South Coast	1822	7%
San Diego	San Diego	1800	7%
Fresno	San Joaquin Valley	1157	5%
Alameda	San Francisco Bay Area	976	4%
Santa Clara	San Francisco Bay Area	971	4%
Riverside	South Coast	907	4%
Kern	San Joaquin Valley	898	3%
San Francisco	San Francisco Bay Area	848	3%
Sacramento	Sacramento Valley	784	3%

Table 5-21

Diesel Particulate Matter

Air Quality and Health Risk

The exhaust from diesel-fueled engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. More than 40 diesel exhaust components are listed by the State and federal governments as toxic air contaminants or hazardous air pollutants. Most researchers believe that diesel particulate matter contributes the majority of the risk from exposure to diesel exhaust because the particles carry many of the harmful organics and metals present in exhaust.

Unlike the other toxic air contaminants presented in this almanac, the Air Resources Board does not monitor diesel particulate matter because there is no routine method for monitoring ambient concentrations. However, the ARB made a preliminary estimation of diesel particulate matter concentrations for the State's fifteen air basins and for the State as a whole using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate statewide outdoor concentrations of diesel particulate matter. The ARB

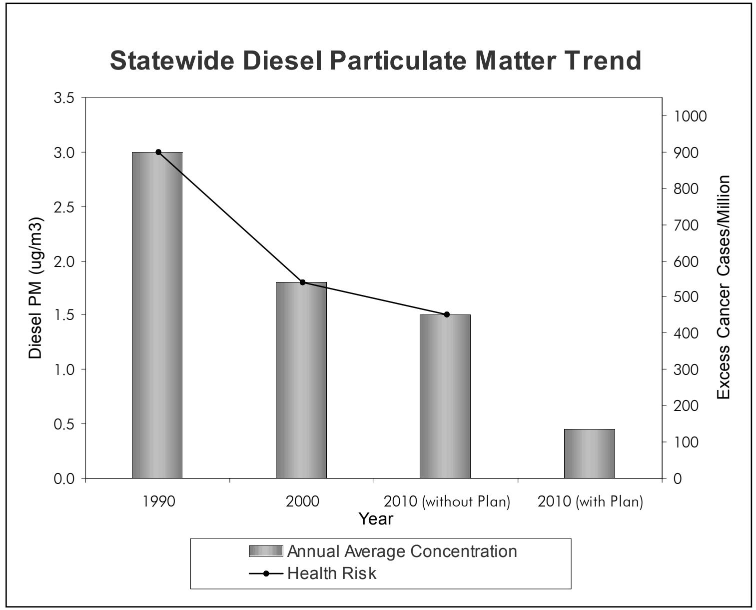


Figure 5-11

subsequently updated the original statewide estimates based on the ratio between the previous estimate for 1990 and the most recent diesel PM emission inventory for the year 1990. The details of the methodology are described in Appendix VI to the ARB report entitled: *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,"* (Risk Reduction Plan or Plan) dated October 2000.

The updated statewide population-weighted average diesel PM concentrations and health risk for various years are shown in Figure 5-11. The average statewide concentration for 1990 was estimated at 3.0 micrograms per cubic meter ($\mu g/m^3$). This is associated with a health risk of 900 excess cancer cases per million people exposed over a 70-year lifetime. In addition to the 1990 estimate, the ARB estimated population-weighted concentrations for 2000 and 2010. Two estimates are given for 2010: one reflecting the estimated ambient concentrations without implementing the Risk Reduction Plan and one reflecting the estimated ambient concentrations with implementation of control measures in the Risk Reduction Plan. These future year estimates are based on linear extrapolations from the 1990 emissions inventory and linear rollback techniques. The estimates for 2000 show a 40 percent drop from 1990, with a concentration of 1.8 $\mu g/m^3$ and an associated health risk of 540 excess cancer cases per million people. It is important to note that the estimated risk from diesel PM is higher than the risk from all other toxic air contaminants combined, and this TAC poses the most significant risk to California's citizens. In fact, the ARB estimates that 70 percent of the known statewide cancer risk from outdoor air toxics is attributable to diesel particulate matter.

The Risk Reduction Plan provides a mechanism for combating the diesel PM problem. Without implementing the Plan, concentrations in 2010 are estimated to drop by only about 17 percent from the estimated year 2000 level. However, implementing control measures in the Plan serves to reduce concentrations by 75 percent over the same timeframe. The key elements of the Plan are to clean existing engines by up to 85 percent through engine retrofits, to adopt stringent new standards that will reduce diesel particulate matter by over 90 percent, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the Risk Reduction Plan will significantly reduce emissions from both old and new diesel-fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, diesel particulate matter concentrations and associated health risk should continue to decline.

South Coast Air Basin

2002 Emission Inventory by Compound

Acetaldehyde

Approximately 93 percent of the emissions of acetaldehyde are from mobile sources.

South Coast - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	19	1%	0%
Area-wide Sources	84	5%	1%
On-Road Mobile	623	38%	8%
Gasoline Vehicles	319	20%	4%
Diesel Vehicles	304	19%	4%
Other Mobile	906	55%	12%
Natural Sources	0	0%	0%
Total	*1633*	*100%*	*22%*
Total Statewide	7543		

Table 5-22

Benzene

The primary sources of benzene emissions in the South Coast Air Basin are mobile sources (approximately 87 percent).

South Coast - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	508	12%	4%
Area-wide Sources	43	1%	0%
On-Road Mobile	2689	62%	19%
Gasoline Vehicles	2607	60%	19%
Diesel Vehicles	83	2%	1%
Other Mobile	1104	25%	8%
Natural Sources	0	0%	0%
Total	*4344*	*100%*	*31%*
Total Statewide	13912		

Table 5-23

1,3-Butadiene

Approximately 93 percent of the emissions of 1,3-butadiene are from mobile sources.

South Coast - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	4	0%	0%
Area-wide Sources	39	5%	1%
On-Road Mobile	554	65%	17%
Gasoline Vehicles	546	64%	17%
Diesel Vehicles	8	1%	0%
Other Mobile	237	28%	7%
Natural Sources	17	2%	1%
Total	*852*	*100%*	*27%*
Total Statewide	3180		

Table 5-24

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers and petroleum refineries account for all of the emissions of carbon tetrachloride.

South Coast - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1.95	100%	56%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*1.95*	*100%*	*56%*
Total Statewide	3.48		

Table 5-25

Chromium (Hexavalent)

Approximately 85 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

South Coast - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.48	85%	31%
Area-wide Sources	0	0%	0%
On-Road Mobile	0.05	8%	2%
Gasoline Vehicles	0.05	8%	2%
Diesel Vehicles	<0.01	0%	0%
Other Mobile	0.04	6%	2%
Natural Sources	<0.01	0%	0%
Total	*0.57*	*100%*	*22%*
Total Statewide	2.56		

Table 5-26

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

South Coast - para-DiChlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	9	1%	0%
Area-wide Sources	769	99%	42%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*778*	*100%*	*43%*
Total Statewide	1822		

Table 5-27

Formaldehyde

Approximately 81 percent of the formaldehyde emissions are from mobile sources.

South Coast - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	808	15%	4%
Area-wide Sources	175	3%	1%
On-Road Mobile	2086	39%	10%
Gasoline Vehicles	1478	28%	7%
Diesel Vehicles	608	11%	3%
Other Mobile	2252	42%	11%
Natural Sources	0	0%	0%
Total	*5321*	*100%*	*25%*
Total Statewide	21033		

Table 5-28

Methylene Chloride

Approximately 64 percent of the emissions of methylene chloride are from stationary sources such as plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers.

South Coast - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	2745	64%	35%
Area-wide Sources	1565	36%	20%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*4310*	*100%*	*56%*
Total Statewide	7739		

Table 5-29

Perchloroethylene

Approximately 66 percent of the emissions of perchloroethylene are from dry cleaning plants, manufacturers of aircraft parts and fabricated metal parts, and other stationary sources.

South Coast - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1844	66%	31%
Area-wide Sources	936	34%	16%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*2780*	*100%*	*46%*
Total Statewide	6027		

Table 5-30

Diesel Particulate Matter

Approximately 93 percent of emissions of diesel particulate matter are from mobile sources.

South Coast - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	538	7%	2%
Area-wide Sources	0	0%	0%
On-Road Mobile	2026	25%	8%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	2026	25%	8%
Other Mobile	5470	68%	21%
Natural Sources	0	0%	0%
Total	*8034*	*100%*	*31%*
Total Statewide	25678		

Table 5-31

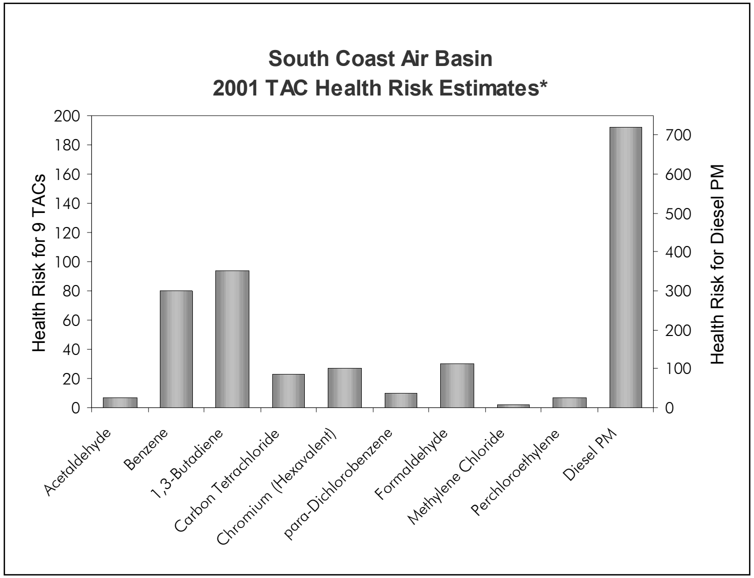
South Coast Air Basin

Air Quality and Health Risk

From 1990 through 2001, the ARB monitored ambient toxics concentrations at seven sites in the South Coast Air Basin. Data are available for most of the years at sites located in Burbank, Los Angeles, North Long Beach, and Riverside. Measurements for 1990 through 1997 are available from a site at Upland. In addition, there are data for 1998 at a site in Fontana. During December 1999, monitoring activities for most of the TACs at Fontana were relocated to Azusa, and this site is now part of the statewide ambient TAC monitoring network.

Figure 5-12 shows the estimated annual average health risks for the nine TACs with measured ambient data. As indicated on the graph, the health risk numbers for eight of the nine TACs reflect the year 2001, the most recent year for which complete and representative data are available. Also included are estimates of health risk for chromium (hexavalent) and diesel particulate matter which reflect the year 2000.

Based on the estimate of health risk for diesel particulate matter, this TAC presents the most significant risk of the ten TACs.



** Data for Chromium (Hexavalent) and Diesel PM reflect 2000; data for all other TACs reflect 2001.*

Figure 5-12

The estimated health risk is 720 excess cancer cases per million people. This is higher than the average statewide health risk for diesel PM.

Although much smaller by comparison, 1,3-butadiene and benzene also pose substantial health risks as shown in Figure 5-12 and Table 5-32. However, it is important to remember that the health risks shown here are based on an annual average concentration (calculated as a mean of the monthly means) for all sites in the air basin. The health risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources. While the average health risks for several of the TACs are high, there have been substantial reductions in concentrations and associated health risks since 1990. Benzene shows the largest reduction (about 75 percent) while perchloroethylene, methylene chloride, chromium (hexavalent), and 1,3-butadiene all show reductions of more than 50 percent. The estimates for diesel particulate matter show a 33 percent decrease between 1990 and the year 2000. The reductions for all six of these TACs are similar to the average statewide reductions. However, it is important to note that although the percent reductions are similar, the annual averages and associated health risks for almost all the TACs are higher for the South Coast Air Basin than they are statewide. Furthermore, there may be other compounds that pose a significant risk but are not monitored. Reductions in ambient TAC concentrations and health risks should continue, as new rules and regulations are implemented to control toxic air contaminants.

South Coast Air Basin

Annual Average Concentrations and Health Risks

South Coast Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks													
TAC*	**Conc./ Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	2.46	3.00	2.46	2.67	2.30	0.97	2.08	1.77	1.54	1.63	1.26	1.47
	Health Risk	12	15	12	13	11	5	10	9	7	8	6	7
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.40	1.89	1.45	1.34	1.25	1.20	0.97	0.86
	Health Risk	317	269	242	201	222	175	134	124	116	111	90	80
1,3-Butadiene	Annual Avg	0.53	0.45	0.50	0.57	0.50	0.46	0.39	0.38	0.35	0.33	0.25	0.25
	Health Risk	200	170	187	212	187	173	146	142	133	123	94	94
Carbon Tetrachloride	Annual Avg	0.14	0.13		0.11		0.10	0.08		0.11		0.10	0.09
	Health Risk	36	35		28		27	21		30		25	23
Chromium (Hexavalent)	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18	
	Health Risk			59	43	43	69	27	25	22	22	27	
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13	0.15
	Health Risk		11	13	11	8	11	7	9			9	10
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	4.13
	Health Risk	22	23	16	24	23	26	37	33	28	30	23	30
Methylene Chloride	Annual Avg	1.86	1.51	0.90	1.23	1.10	1.28	0.95	1.14	0.85	0.92	0.83	0.63
	Health Risk	6	5	3	4	4	4	3	4	3	3	3	2
Perchloroethylene	Annual Avg	0.58	0.55	0.41	0.45	0.39	0.36	0.32	0.27	0.26		0.21	0.18
	Health Risk	23	22	16	18	16	15	13	11	10		8	7
*Diesel Particulate Matter***	*Annual Avg*	*(3.6)*					*(2.7)*					*(2.4)*	
	Health Risk	*(1080)*					*(810)*					*(720)*	
Average Basin Risk***	Without Diesel PM	616	550	548	554	514	505	398	357	349	297	285	253
	With Diesel PM	***(1696)***					***(1315)***					***(1005)***	

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics*.

Table 5-32

San Francisco Bay Area Air Basin
2002 Emission Inventory by Compound

Acetaldehyde

Approximately 78 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion and agricultural burning contribute approximately 20 percent.

San Francisco Bay Area - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	28	2%	0%
Area-wide Sources	279	20%	4%
On-Road Mobile	356	26%	5%
Gasoline Vehicles	172	12%	2%
Diesel Vehicles	183	13%	2%
Other Mobile	727	52%	10%
Natural Sources	0	0%	0%
Total	*1390*	*100%*	*18%*
Total Statewide	7543		

Table 5-33

Benzene

Mobile sources are the primary sources of benzene emissions in the San Francisco Bay Area Air Basin (approximately 91 percent).

San Francisco Bay Area - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	202	9%	1%
Area-wide Sources	17	1%	0%
On-Road Mobile	1468	64%	11%
Gasoline Vehicles	1418	62%	10%
Diesel Vehicles	50	2%	0%
Other Mobile	615	27%	4%
Natural Sources	0	0%	0%
Total	*2302*	*100%*	*17%*
Total Statewide	13912		

Table 5-34

1,3-Butadiene

Essentially all of the emissions of 1,3-butadiene are from mobile sources.

San Francisco Bay Area - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	4	1%	0%
Area-wide Sources	2	0%	0%
On-Road Mobile	306	61%	10%
Gasoline Vehicles	301	60%	9%
Diesel Vehicles	5	1%	0%
Other Mobile	191	38%	6%
Natural Sources	1	0%	0%
Total	*504*	*100%*	*16%*
Total Statewide	3180		

Table 5-35

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers and petroleum refineries account for all of the emissions of carbon tetrachloride.

San Francisco Bay Area - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1.31	100%	38%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*1.31*	*100%*	*38%*
Total Statewide	3.48		

Table 5-36

Chromium (Hexavalent)

Approximately 65 percent of the chromium (hexavalent) emissions are from other mobile sources. Stationary sources such as electrical generation and fabricated metal product manufacturing contribute approximately 29 percent.

San Francisco Bay Area - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.11	29%	4%
Area-wide Sources	0	0%	0%
On-Road Mobile	0.02	6%	1%
Gasoline Vehicles	0.02	6%	1%
Diesel Vehicles	<0.01	0%	0%
Other Mobile	0.25	65%	10%
Natural Sources	<0.01	0%	0%
Total	*0.39*	*100%*	*15%*
Total Statewide	2.56		

Table 5-37

para-Dichlorobenzene

Emissions of *para*-dichlorobenzene are essentially all from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Francisco Bay Area - para-DiChlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	<1	0%	0%
Area-wide Sources	350	100%	19%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*351*	*100%*	*19%*
Total Statewide	1822		

Table 5-38

Formaldehyde

Approximately 85 percent of the formaldehyde emissions are from mobile sources.

San Francisco Bay Area - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	173	5%	1%
Area-wide Sources	336	9%	2%
On-Road Mobile	1160	32%	6%
Gasoline Vehicles	793	22%	4%
Diesel Vehicles	367	10%	2%
Other Mobile	1912	53%	9%
Natural Sources	0	0%	0%
Total	*3580*	*100%*	*17%*
Total Statewide	21033		

Table 5-39

Methylene Chloride

Approximately 55 percent of the emissions of methylene chloride are from area-wide sources.

San Francisco Bay Area - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	587	45%	8%
Area-wide Sources	715	55%	9%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*1302*	*100%*	*17%*
Total Statewide	7739		

Table 5-40

Perchloroethylene

Approximately 51 percent of the emissions of perchloroethylene are from such stationary sources as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

San Francisco Bay Area - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	445	51%	7%
Area-wide Sources	426	49%	7%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*870*	*100%*	*14%*
Total Statewide	6027		

Table 5-41

Diesel Particulate Matter

Emissions of diesel particulate matter are primarily all from mobile sources.

San Francisco Bay Area - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	315	7%	1%
Area-wide Sources	0	0%	0%
On-Road Mobile	1165	25%	5%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	1165	25%	5%
Other Mobile	3255	69%	13%
Natural Sources	0	0%	0%
Total	*4735*	*100%*	*18%*
Total Statewide	25678		

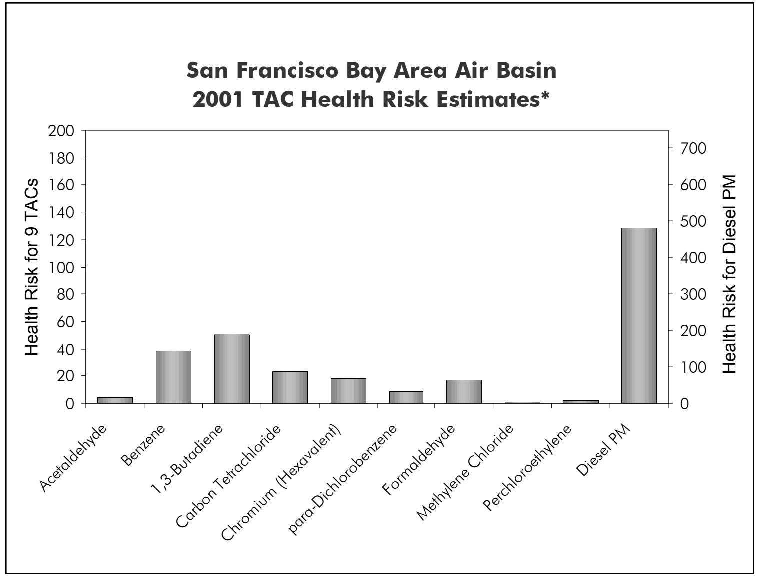
Table 5-42

San Francisco Bay Area Air Basin

Air Quality and Health Risk

Over the last twelve years, the ARB has monitored ambient TAC concentrations at six sites in the San Francisco Bay Area Air Basin. Data for the entire time period are available from sites located in Fremont, San Francisco, and San Jose. Data are also available from a site in Concord from 1990 through 1999. In addition, there was a monitor at Richmond from 1990 through April 1997. This site was relocated to San Pablo and began sampling there in May 1997. At the end of February 2000, TAC monitoring was discontinued at the Concord and San Pablo sites, and additional data from these sites will not be available.

Figure 5-13 and Table 5-43 show the estimated annual average health risks for the San Francisco Bay Area Air Basin. The health risk estimates for eight of the TACs that are measured in the ambient air reflect 2001, the most recent year with complete and representative data. In contrast, the health risk estimates for chromium (hexavalent) and diesel particulate matter reflect the year 2000. Of the ten TACs considered in this almanac, diesel particulate matter poses the greatest health risk



** Data for Chromium (Hexavalent) and Diesel PM reflect 2000; data for all other TACs reflect 2001.*

Figure 5-13

in this air basin, 480 excess cancer cases per million people exposed over a 70-year lifetime. This is lower than the estimated statewide value for the same year.

Two other TACs, 1,3-butadiene and benzene, also pose substantial health risks. Again, however, it is important to remember that the health risks shown here are based on an average concentration for the entire air basin, and the health risk at individual locations may be higher or lower. Of those TACs included in Figure 5-13, benzene, methylene chloride, perchloroethylene, and 1,3-butadiene all show reductions of 63 percent or more. In most cases, both the average TAC concentration and the average health risk for the San Francisco Bay Area Air Basin are lower than the statewide averages and generally, are much lower than those for the South Coast Air Basin. However, it is important to note that there may be other compounds that pose a significant risk but are not monitored. Nearly all the compounds show some reduction over the time period, and the reduction for several compounds is fairly substantial. These reductions should continue as additional control measures are implemented.

San Francisco Bay Area Air Basin
Annual Average Concentrations and Health Risks

San Francisco Bay Area Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks													
TAC*	**Conc./ Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.30	1.40	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68	0.73
	Health Risk	6	7	5	6	6	2	4	4	3	4	3	4
Benzene	Annual Avg	2.18	1.82	1.49	1.49	1.40	1.26	0.71	0.61	0.71	0.60	0.56	0.43
	Health Risk	202	169	138	138	129	116	66	56	66	55	52	39
1,3-Butadiene	Annual Avg	0.36	0.29	0.28	0.37	0.29	0.28	0.22	0.19	0.22	0.17	0.15	0.13
	Health Risk	135	108	103	138	108	104	82	70	82	64	56	50
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08				0.09	0.09
	Health Risk	34	33		29		26	21				25	23
Chromium (Hexavalent)	Annual Avg			0.23	0.20	0.19	0.25	0.13	0.12	0.10	0.10	0.12	
	Health Risk			34	29	29	37	19	17	15	15	18	
para-Dichlorobenzene	Annual Avg		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11	0.14
	Health Risk		8	8	8	7	8	9	8			7	9
Formaldehyde	Annual Avg	1.87	1.73	1.43	1.56	1.66	2.06	2.62	1.85	1.76	2.09	1.77	2.32
	Health Risk	14	13	11	11	12	15	19	14	13	15	13	17
Methylene Chloride	Annual Avg	1.04	2.32	0.65	0.72	0.59	0.60	0.58	0.55			0.53	0.27
	Health Risk	4	8	2	2	2	2	2	2			2	1
Perchloroethylene	Annual Avg	0.20	0.23	0.17	0.13	0.08	0.09	0.07	0.07			0.08	0.06
	Health Risk	8	9	7	5	3	4	3	3			3	2
*Diesel Particulate Matter***	*Annual Avg*	*(2.5)*					*(1.9)*					*(1.6)*	
	Health Risk	*(750)*					*(570)*					*(480)*	
Average Basin Risk***	Without Diesel PM	403	355	308	366	296	314	225	174	179	153	179	145
	With Diesel PM	***(1153)***					***(884)***					***(659)***	

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-43

San Joaquin Valley Air Basin
2002 Emission Inventory by Compound

Acetaldehyde

Approximately 79 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion account for approximately 16 percent.

San Joaquin Valley - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	71	6%	1%
Area-wide Sources	192	16%	3%
On-Road Mobile	270	22%	4%
Gasoline Vehicles	101	8%	1%
Diesel Vehicles	168	14%	2%
Other Mobile	703	57%	9%
Natural Sources	0	0%	0%
Total	*1236*	*100%*	*16%*
Total Statewide	7543		

Table 5-44

Benzene

The primary sources of benzene emissions in the San Joaquin Valley Air Basin are mobile sources (approximately 67 percent) and stationary sources (approximately 33 percent).

San Joaquin Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	663	33%	5%
Area-wide Sources	13	1%	0%
On-Road Mobile	843	42%	6%
Gasoline Vehicles	797	39%	6%
Diesel Vehicles	46	2%	0%
Other Mobile	508	25%	4%
Natural Sources	< 1	0%	0%
Total	*2027*	*100%*	*15%*
Total Statewide	13912		

Table 5-45

1,3-Butadiene

Approximately 70 percent of the emissions of 1,3-butadiene are from mobile sources.

San Joaquin Valley - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	3	1%	0%
Area-wide Sources	134	27%	4%
On-Road Mobile	175	35%	5%
Gasoline Vehicles	170	34%	5%
Diesel Vehicles	4	1%	0%
Other Mobile	173	35%	5%
Natural Sources	10	2%	0%
Total	*495*	*100%*	*16%*
Total Statewide	3180		

Table 5-46

Carbon Tetrachloride

Emissions of carbon tetrachloride are all from stationary sources such as chemical and allied product manufacturers.

San Joaquin Valley - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< .01	100%	0%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*< .01*	*100%*	*0%*
Total Statewide	3.48		

Table 5-47

Chromium (Hexavalent)

Approximately 82 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

San Joaquin Valley - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.29	82%	11%
Area-wide Sources	0	0%	0%
On-Road Mobile	0.01	4%	1%
Gasoline Vehicles	0.01	4%	1%
Diesel Vehicles	<0.01	0%	0%
Other Mobile	0.05	14%	2%
Natural Sources	<0.01	0%	0%
Total	*0.36*	*100%*	*14%*
Total Statewide	2.56		

Table 5-48

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Joaquin Valley - para-DiChlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	5	3%	0%
Area-wide Sources	175	97%	10%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*180*	*100%*	*10%*
Total Statewide	1822		

Table 5-49

Formaldehyde

Approximately 68 percent of the formaldehyde emissions are from mobile sources.

San Joaquin Valley - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1007	26%	5%
Area-wide Sources	226	6%	1%
On-Road Mobile	804	21%	4%
Gasoline Vehicles	467	12%	2%
Diesel Vehicles	337	9%	2%
Other Mobile	1834	47%	9%
Natural Sources	0	0%	0%
Total	*3872*	*100%*	*18%*
Total Statewide	21033		

Table 5-50

Methylene Chloride

Approximately 71 percent of the emissions of methylene chloride are from paint removers/strippers, automotive brake cleaners, and other consumer products.

San Joaquin Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	148	29%	2%
Area-wide Sources	360	71%	5%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*508*	*100%*	*7%*
Total Statewide	7739		

Table 5-51

Perchloroethylene

Approximately 59 percent of the emissions of perchloroethylene are from such stationary sources as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

San Joaquin Valley - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	310	59%	5%
Area-wide Sources	213	41%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*523*	*100%*	*9%*
Total Statewide	6027		

Table 5-52

Diesel Particulate Matter

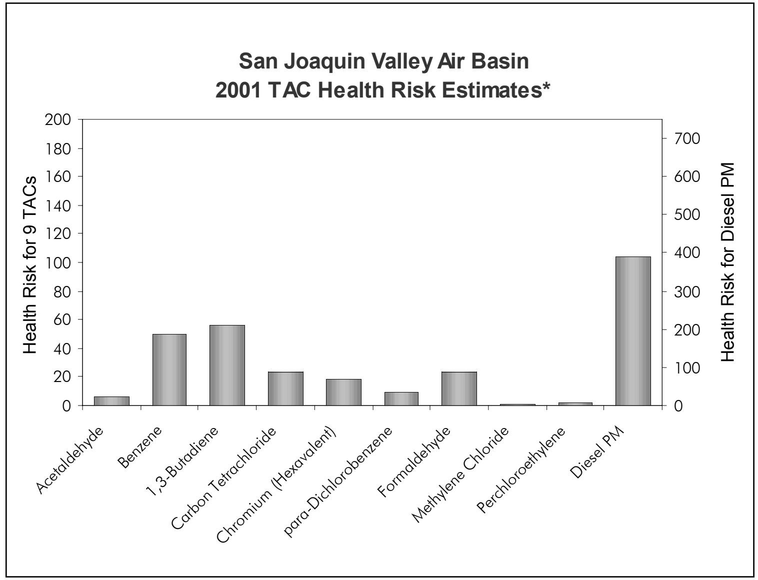
Emissions of diesel particulate matter are from mobile sources (approximately 79 percent) and stationary sources (approximately 21 percent).

San Joaquin Valley - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	966	21%	4%
Area-wide Sources	0	0%	0%
On-Road Mobile	988	21%	4%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	988	21%	4%
Other Mobile	2714	58%	11%
Natural Sources	0	0%	0%
Total	*4668*	*100%*	*18%*
Total Statewide	25678		

Table 5-53

San Joaquin Valley Air Basin
Air Quality and Health Risk

During the past twelve years, the ARB monitored ambient TAC concentrations at five sites in the San Joaquin Valley Air Basin. Data for all years are available for sites in Fresno and Stockton. Data are available for 1990 through 1993 at the Bakersfield-Chester Avenue site and for 1995 through 2001 at the Bakersfield-5558 California Avenue site. Complete and representative data are also available for a site in Modesto (14th Street) from 1990 through 1999. In addition, a limited amount of TAC data are available from a second site in Modesto during 1991 to 1997.



** Data for Chromium (Hexavalent) and Diesel PM reflect 2000; data for all other TACs reflect 2001.*

Figure 5-14

Figure 5-14 and Table 5-54 show the estimated average health risks for all the sites in the San Joaquin Valley Air Basin. As indicated on the figure, health risk numbers for eight of the TACs with measured data reflect the year 2001. The health risk for chromium (hexavalent) and for diesel particulate matter reflect the year 2000. As in all other areas of the State, the health risk for diesel PM overwhelms the other nine TACs. Based on receptor modeling techniques, the diesel PM health risk for 2000 is estimated at 390 excess cancer cases per one million people exposed over a 70-year lifetime. While this value is lower than the estimated statewide health risk, it is similar to values estimated for other urbanized areas of the State such as the San Francisco Bay Area Air Basin and the Sacramento Valley Air Basin.

Similar to most other areas of the State, Figure 5-14 and Table 5-54 show that of the nine remaining TACs, 1,3-butadiene and benzene pose the greatest health risk, on average, in the San Joaquin Valley Air Basin. Overall, the average concentrations and health risks from all the TACs except *para*-dichlorobenzene and formaldehyde have been reduced since 1990. Benzene, methylene chloride, 1,3-butadiene, and perchloroethylene all show more than a 60 percent reduction, and diesel PM shows a reduction equal to 50 percent. In contrast, formaldehyde concentrations and health risks show an increase of about 26 percent. This apparent increase may be related to the change in the analysis method for this TAC rather than increases in emissions. Again, as in all other areas of California, it is important to remember that there may be local source impacts, and these may be higher than the air basin averages. Furthermore, there may be other TACs that pose a significant risk in the San Joaquin Valley Air Basin but are not monitored.

San Joaquin Valley Air Basin

Annual Average Concentrations and Health Risks

San Joaquin Valley Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks													
TAC*	**Conc./ Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.30	1.56	1.09	1.15
	Health Risk	9	9	7	8	6	3	6	6	6	8	5	6
Benzene	Annual Avg	2.45	2.11	1.36	1.32	1.33	1.16	0.73	0.71	0.76	0.69	0.63	0.54
	Health Risk	227	196	126	122	123	107	68	66	71	64	58	50
1,3-Butadiene	Annual Avg	0.41	0.36	0.24	0.34	0.32	0.26	0.22	0.20	0.23	0.18	0.16	0.15
	Health Risk	154	135	89	127	121	99	83	73	88	67	59	56
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08		0.11		0.10	0.09
	Health Risk	34	34		29		26	20		30		25	23
Chromium (Hexavalent)	Annual Avg			0.23	0.21	0.19	0.28	0.13	0.11	0.10	0.10	0.12	
	Health Risk			34	31	29	42	20	16	15	15	18	
para-Dichlorobenzene	Annual Avg		0.11	0.11	0.13	0.11	0.11	0.10	0.13			0.11	0.13
	Health Risk		7	7	9	7	8	7	9			7	9
Formaldehyde	Annual Avg	2.45	1.81	1.46	1.67	1.80	2.10	2.96	2.77	2.86	3.44	2.61	3.08
	Health Risk	18	13	11	12	13	15	22	20	21	25	19	23
Methylene Chloride	Annual Avg	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.50	0.53	0.27
	Health Risk	3	2	2	3	2	2	2	2	2	2	2	1
Perchloroethylene	Annual Avg	0.13	0.13	0.10	0.47	0.07	0.07	0.07	0.06	0.04		0.08	0.05
	Health Risk	5	5	4	19	3	3	3	2	2		3	2
*Diesel Particulate Matter***	*Annual Avg*	*(2.6)*					*(1.7)*					*(1.3)*	
	Health Risk	*(780)*					*(510)*					*(390)*	
Average Basin Risk***	Without Diesel PM	450	401	280	360	304	305	231	194	235	181	196	170
	With Diesel PM	***(1230)***					***(815)***					***(586)***	

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-54

San Diego Air Basin

2002 Emission Inventory by Compound

Acetaldehyde

Approximately 79 percent of the emissions of acetaldehyde are from mobile sources.

San Diego - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	4	1%	0%
Area-wide Sources	103	20%	1%
On-Road Mobile	148	28%	2%
Gasoline Vehicles	73	14%	1%
Diesel Vehicles	75	14%	1%
Other Mobile	271	51%	4%
Natural Sources	0	0%	0%
Total	*526*	*100%*	*7%*
Total Statewide	7543		

Table 5-55

Benzene

The primary sources of benzene emissions in the San Diego Air Basin are mobile sources (approximately 97 percent).

San Diego - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	30	3%	0%
Area-wide Sources	3	0%	0%
On-Road Mobile	611	65%	4%
Gasoline Vehicles	591	62%	4%
Diesel Vehicles	20	2%	0%
Other Mobile	302	32%	2%
Natural Sources	0	0%	0%
Total	*947*	*100%*	*7%*
Total Statewide	13912		

Table 5-56

1,3-Butadiene

Approximately 95 percent of the emissions of 1,3-butadiene are from mobile sources.

San Diego - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< 1	0%	0%
Area-wide Sources	4	2%	0%
On-Road Mobile	127	57%	4%
Gasoline Vehicles	125	56%	4%
Diesel Vehicles	2	1%	0%
Other Mobile	85	38%	3%
Natural Sources	8	4%	0%
Total	*224*	*100%*	*7%*
Total Statewide	3180		

Table 5-57

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers account for all of the emissions of carbon tetrachloride.

San Diego - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.09	100%	3%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*0.09*	*100%*	*3%*
Total Statewide	3.48		

Table 5-58

Chromium (Hexavalent)

Approximately 62 percent of the chromium (hexavalent) emissions are from other mobile sources. Stationary sources account for approximately 34 percent.

San Diego - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.10	34%	4%
Area-wide Sources	0	0%	0%
On-Road Mobile	0.01	4%	0%
Gasoline Vehicles	0.01	4%	0%
Diesel Vehicles	<0.01	0%	0%
Other Mobile	0.18	62%	7%
Natural Sources	<0.01	0%	0%
Total	*0.29*	*100%*	*11%*
Total Statewide	2.56		

Table 5-59

para-Dichlorobenzene

All of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

San Diego - para-DiChlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0	0%	0%
Area-wide Sources	154	100%	8%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*154*	*100%*	*8%*
Total Statewide	1822		

Table 5-60

Formaldehyde

Approximately 90 percent of the formaldehyde emissions are from mobile sources.

San Diego - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	21	2%	0%
Area-wide Sources	118	9%	1%
On-Road Mobile	492	36%	2%
Gasoline Vehicles	342	25%	2%
Diesel Vehicles	150	11%	1%
Other Mobile	731	54%	3%
Natural Sources	0	0%	0%
Total	*1362*	*100%*	*6%*
Total Statewide	21033		

Table 5-61

Methylene Chloride

Area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products account for approximately 81 percent of the emissions of methylene chloride.

San Diego - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	76	19%	1%
Area-wide Sources	317	81%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*393*	*100%*	*5%*
Total Statewide	7739		

Table 5-62

Perchloroethylene

Approximately 70 percent of the emissions of perchloroethylene are from stationary sources such as dry cleaning plants, manufacturers of aircraft parts and fabricated metal parts, and other stationary sources.

San Diego - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	436	70%	7%
Area-wide Sources	188	30%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*624*	*100%*	*10%*
Total Statewide	6027		

Table 5-63

Diesel Particulate Matter

Approximately 95 percent of the emissions of diesel particulate matter are from mobile sources.

San Diego - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	98	5%	0%
Area-wide Sources	0	0%	0%
On-Road Mobile	468	26%	2%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	468	26%	2%
Other Mobile	1235	69%	5%
Natural Sources	0	0%	0%
Total	*1800*	*100%*	*7%*
Total Statewide	25678		

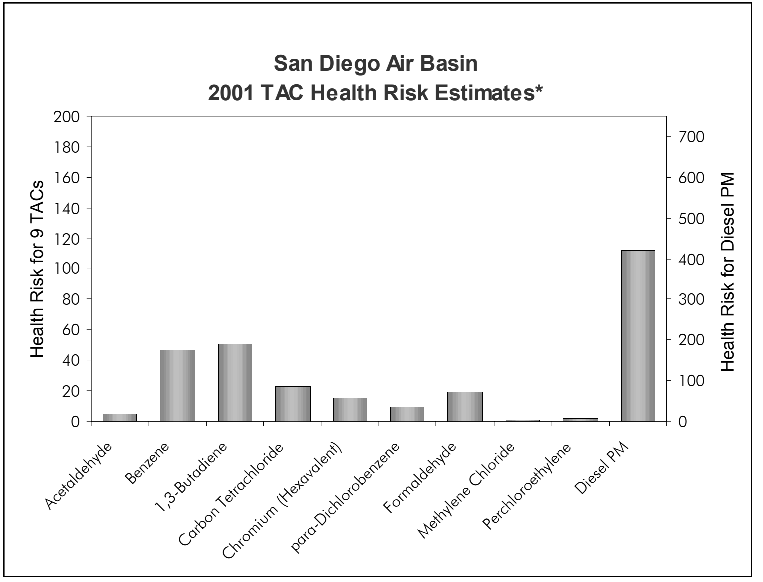
Table 5-64

San Diego Air Basin

Air Quality and Health Risk

During 1990 through 2001, the ARB monitored ambient TAC concentrations at two sites in the San Diego Air Basin. The sites are located in Chula Vista and El Cajon. One additional special study site, located in the Logan Heights/Barrio Logan area of San Diego, operated between October 1999 and February 2001. The Barrio Logan community is located in a large urban area near major freeways, industrial sources, and neighborhood sources such as gas stations, dry cleaners, and automotive repair facilities. Although not included in this almanac, data from the Barrio Logan and other community monitoring studies are being used in support of the ARB Community Health Program.

Figure 5-15 and Table 5-65 show the estimated average health risks for the two San Diego sites in the ambient TAC network. Because of incomplete data, the concentration and health risk estimates for chromium (hexavalent) reflect 2000. The health risk estimates for the remaining eight TACs measured in ambient air reflect the year 2001. The estimated health risk for diesel PM also reflects data for the year 2000 and is 420 excess



** Data for Chromium (Hexavalent) and Diesel PM reflect 2000; data for all other TACs reflect 2001.*

Figure 5-15

cancer cases per million people. While the health risk from diesel PM is lower than the estimated statewide value, it is comparable to the annual averages estimated for other urbanized areas such as the Sacramento Valley and San Joaquin Valley Air Basins. Furthermore, diesel particulate matter represents the most substantial health risk in the San Diego Air Basin.

Similar to most other areas, Figure 5-15 and Table 5-65 show that aside from diesel particulate matter, benzene and 1,3-butadiene pose the greatest health risks, on average, in the San Diego Air Basin. However, it is important to remember that the health risks shown here are based on an average concentration for the entire air basin, and the health risk at individual locations may be higher or lower, depending on the impact of local sources. Overall, the total average health risk from all the TACs combined have been reduced over the trend period. In contrast to the overall reduction, the health risk for *para*-dichlorobenzene shows an increase from 1990 to 2001. Furthermore, although it appears that formaldehyde concentrations and health risk have increased, remember that the analysis method used before 1996 underestimated ambient concentrations, and the data have not been corrected. Based on data analyzed since 1996, formaldehyde concentrations and health risk have decreased. Of the ten TACs included in Figure 5-15, perchloroethylene, benzene, methylene chloride, 1,3-butadiene, chromium (hexavalent), and diesel PM show the greatest reductions in concentration: 79 percent, 78 percent, 71 percent, 58 percent, 58 percent, and 52 percent, respectively. Again, as in all other areas of California, it is important to remember that there may be other compounds that pose a significant risk in the San Diego Air Basin but are not monitored. Being near a source of toxics emissions can also increase the health risk.

San Diego Air Basin

Annual Average Concentrations and Health Risks

San Diego Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks													
TAC*	**Conc./ Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.33	1.50	1.22	1.41	1.48	0.64	1.03	1.00	0.86	1.04	0.84	0.95
	Health Risk	6	7	6	7	7	3	5	5	4	5	4	5
Benzene	Annual Avg	2.25	1.70	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65	0.50
	Health Risk	208	158	137	107	129	90	71	70	70	79	60	47
1,3-Butadiene	Annual Avg	0.333	0.257	0.258	0.312	0.307	0.242	0.208	0.198	0.196	0.220	0.159	0.136
	Health Risk	125	97	97	117	115	91	78	75	74	83	60	51
Carbon Tetrachloride	Annual Avg	0.132	0.127		0.103		0.099	0.077				0.094	0.086
	Health Risk	35	34		27		26	20				25	23
Chromium (Hexavalent)	Annual Avg			0.24	0.19	0.16	0.18	0.11	0.11	0.10	0.10	0.10	
	Health Risk			36	28	23	27	16	16	15	15	15	
para-Dichlorobenzene	Annual Avg		0.10	0.11	0.13	0.15	0.12	0.11	0.13				0.15
	Health Risk		7	8	8	10	8	7	8				10
Formaldehyde	Annual Avg	1.64	1.53	1.26	1.76	2.25	2.13	2.62	2.62	2.27	2.67	2.23	2.59
	Health Risk	12	11	9	13	17	16	19	19	17	20	16	19
Methylene Chloride	Annual Avg	0.59	0.83	1.34	1.13	0.73	0.63	0.59	0.57		0.53	0.76	0.17
	Health Risk	2	3	5	4	3	2	2	2		2	3	1
Perchloroethylene	Annual Avg	0.282	0.269	0.263	0.200	0.207	0.249	0.147	0.125			0.089	0.061
	Health Risk	11	11	11	8	8	10	6	5			4	2
*Diesel Particulate Matter***	*Annual Avg*	*(2.9)*					*(1.9)*					*(1.4)*	
	Health Risk	*(870)*					*(570)*					*(420)*	
Average Basin Risk***	Without Diesel PM	399	328	309	319	312	273	224	200	180	204	187	158
	With Diesel PM	*(1269)*					*(843)*					*(607)*	

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

** Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

*** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-65

Sacramento Valley Air Basin

2002 Emission Inventory by Compound

Acetaldehyde

Approximately 60 percent of the emissions of acetaldehyde are from mobile sources. Another 36 percent are from area-wide sources, including the burning of wood in residential fireplaces and wood stoves.

Sacramento Valley - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	32	4%	0%
Area-wide Sources	288	36%	4%
On-Road Mobile	154	19%	2%
Gasoline Vehicles	69	8%	1%
Diesel Vehicles	85	11%	1%
Other Mobile	335	41%	4%
Natural Sources	0	0%	0%
Total	*808*	*100%*	*11%*
Total Statewide	7543		

Table 5-66

Benzene

The primary sources of benzene emissions in the Sacramento Valley Air Basin are mobile sources (approximately 84 percent).

Sacramento Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	175	15%	1%
Area-wide Sources	8	1%	0%
On-Road Mobile	580	49%	4%
Gasoline Vehicles	557	47%	4%
Diesel Vehicles	23	2%	0%
Other Mobile	415	35%	3%
Natural Sources	0	0%	0%
Total	*1177*	*100%*	*8%*
Total Statewide	13912		

Table 5-67

1,3-Butadiene

Approximately 76 percent of the emissions of 1,3-butadiene are from mobile sources.

Sacramento Valley - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< 1	0%	0%
Area-wide Sources	58	20%	2%
On-Road Mobile	120	41%	4%
Gasoline Vehicles	117	41%	4%
Diesel Vehicles	2	1%	0%
Other Mobile	102	35%	3%
Natural Sources	8	3%	0%
Total	*289*	*100%*	*9%*
Total Statewide	3180		

Table 5-68

Carbon Tetrachloride

Stationary sources such as chemical and allied product manufacturers account for all of the emissions of carbon tetrachloride.

Sacramento Valley - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.06	100%	2%
Area-wide Sources	0	0%	0%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	0.06	100%	2%
Total Statewide	3.48		

Table 5-69

Chromium (Hexavalent)

Approximately 83 percent of the chromium (hexavalent) emissions are from stationary sources such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing.

Sacramento Valley - Chromium (Hexavalent)			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.16	83%	6%
Area-wide Sources	0	0%	0%
On-Road Mobile	<0.01	4%	0%
Gasoline Vehicles	<0.01	4%	0%
Diesel Vehicles	<0.01	0%	0%
Other Mobile	0.03	13%	1%
Natural Sources	<0.01	0%	0%
Total	*0.19*	*100%*	*7%*
Total Statewide	2.56		

Table 5-70

para-Dichlorobenzene

Most of the emissions of *para*-dichlorobenzene are from consumer products (non-aerosol insect repellants and solid/gel air fresheners).

Sacramento Valley - para-DiChlorobenzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< 1	0%	0%
Area-wide Sources	124	100%	7%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*124*	*100%*	*7%*
Total Statewide	1822		

Table 5-71

Formaldehyde

Approximately 71 percent of the formaldehyde emissions are from mobile sources, and 17 percent are from area-wide sources.

Sacramento Valley - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	248	13%	1%
Area-wide Sources	325	17%	2%
On-Road Mobile	479	25%	2%
Gasoline Vehicles	309	16%	1%
Diesel Vehicles	170	9%	1%
Other Mobile	878	46%	4%
Natural Sources	0	0%	0%
Total	*1930*	*100%*	*9%*
Total Statewide	21033		

Table 5-72

Methylene Chloride

Approximately 71 percent of the emissions of methylene chloride are from area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products.

Sacramento Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	102	29%	1%
Area-wide Sources	256	71%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*358*	*100%*	*5%*
Total Statewide	7739		

Table 5-73

Perchloroethylene

Approximately 60 percent of the emissions of perchloroethylene are from stationary sources such as dry cleaning plants and manufacturers of aircraft parts and fabricated metal parts.

Sacramento Valley - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	223	60%	4%
Area-wide Sources	151	40%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Natural Sources	0	0%	0%
Total	*374*	*100%*	*6%*
Total Statewide	6027		

Table 5-74

Diesel Particulate Matter

Approximately 88 percent emissions of diesel particulate matter are from mobile sources.

Sacramento Valley - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	285	12%	1%
Area-wide Sources	0	0%	0%
On-Road Mobile	556	23%	2%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	556	23%	2%
Other Mobile	1576	65%	6%
Natural Sources	0	0%	0%
Total	*2417*	*100%*	*9%*
Total Statewide	25678		

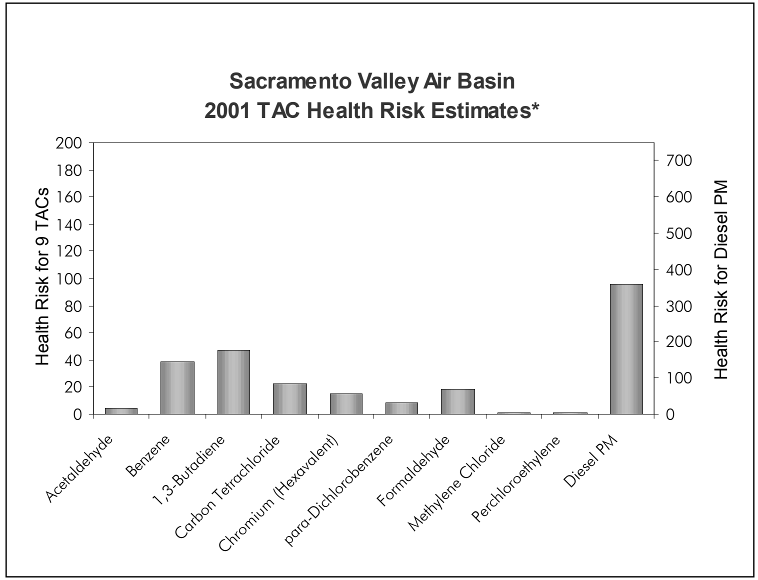
Table 5-75

Sacramento Valley Air Basin

Air Quality and Health Risk

Unlike the other air basins described in this almanac, TAC monitoring in the Sacramento Valley Air Basin has not been continuous at any site. TAC concentrations were monitored at the Chico-Salem Street site during 1990 through the middle of 1992. The site was then moved to Chico-Manzanita Avenue. While there was monitoring in the Chico area during all of 1992, an annual average is not included here because neither site has a full year of data. Similarly, TAC concentrations were monitored at the Citrus Heights site during 1990 through part of 1993, when the site was relocated to Roseville. Again, no data are available for the year during which the site was moved because neither site has a full year of data.

Figure 5-16 is based on all data collected in the Sacramento Valley Air Basin and shows the estimated annual average health risks for this area. As shown in the graph, the health risk estimates for the nine TACs measured by the ambient network reflect 2001, the most recent year for which complete and representative data are available. The estimate for diesel PM reflects the year 2000. Like all other air basins,



** Data for Diesel PM reflects 2000; data for all other TACs reflect 2001.*

Figure 5-16

diesel particulate matter poses the greatest health risk among the ten TACs considered in this almanac. Based on receptor modeling techniques, the ARB estimated a year 2000 health risk of 360 excess cancer cases per million people. This is about half the estimated statewide health risk. The estimated health risk for the Sacramento Valley is similar to that for the San Joaquin Valley. However, it is lower than the concentrations estimated for other urban areas including the San Francisco Bay Area Air Basin and the San Diego Air Basin.

In the absence of diesel particulate matter, Figure 5-16 and Table 5-76 show that benzene and 1,3-butadiene pose the greatest health risk, on average, in the Sacramento Valley Air Basin. However, these compounds also show the largest reductions since 1990, 79 percent and 66 percent, respectively. It is important to remember that the health risks shown here are based on an average concentration for only two areas in the air basin, and the health risk at other locations may be higher or lower. Overall, the average concentrations and health risks from all the TACs except *para*-dichlorobenzene and formaldehyde have been reduced since 1990. The annual average concentration and health risk for formaldehyde are more than 50 percent higher in 2001 than in 1990. The increase may be attributed in part to the method change implemented in 1996. While the pre-1996 data are included for completeness, a more reasonable approach is to compare the 1996 data with the 2001 data. When doing this, formaldehyde shows a decrease on the order of 13 percent. More years of data are needed to determine if this decrease will continue. Finally, as in all areas of the State, it is important to note that there may be other compounds that are not monitored, but which may pose a substantial health risk in the Sacramento Valley Air Basin.

Sacramento Valley Air Basin
Annual Average Concentrations and Health Risks

Sacramento Valley Air Basin Toxic Air Contaminants - Annual Average Concentrations and Health Risks													
TAC*	**Conc./ Risk**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.29			1.37	1.04	0.39	1.03	1.05	0.92	1.23	0.83	0.74
	Health Risk	6			7	5	2	5	5	4	6	4	4
Benzene	Annual Avg	2.02	1.88	1.35	1.00	1.02	0.80	0.56	0.55	0.50	0.56	0.45	0.42
	Health Risk	187	174	125	92	95	74	51	51	47	52	42	39
1,3-Butadiene	Annual Avg	0.378	0.332	0.283	0.288	0.221	0.186	0.176	0.160	0.154	0.128	0.119	0.125
	Health Risk	142	125	106	108	83	70	66	60	58	48	45	47
Carbon Tetrachloride	Annual Avg	0.123	0.123		0.109		0.099	0.078				0.094	0.088
	Health Risk	33	32		29		26	21				25	23
Chromium (Hexavalent)	Annual Avg			0.17	0.14	0.13	0.18	0.11	0.10	0.10	0.10	0.10	0.10
	Health Risk			26	21	19	26	16	15	15	15	15	15
para-Dichlorobenzene	Annual Avg			0.11	0.10	0.20	0.14	0.11	0.14			0.10	0.13
	Health Risk			7	7	14	9	7	10			7	9
Formaldehyde	Annual Avg	1.57			1.77	1.75	1.91	2.76	2.92	2.52	3.61	2.51	2.41
	Health Risk	12			13	13	14	20	22	19	27	18	18
Methylene Chloride	Annual Avg	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.60	0.57	0.29
	Health Risk	2	2	2	3	2	2	2	2		2	2	1
Perchloroethylene	Annual Avg	0.071	0.074	0.063	0.052	0.165	0.049	0.055	0.052			0.058	0.027
	Health Risk	3	3	3	2	7	2	2	2			2	1
*Diesel Particulate Matter***	*Annual Avg*	*(2.5)*					*(1.6)*					*(1.2)*	
	Health Risk	*(750)*					*(480)*					*(360)*	
Average Basin Risk***	Without Diesel PM	385	336	269	282	238	225	190	167	143	150	160	157
	With Diesel PM	***(1135)***					***(705)***					***(520)***	

*   Concentrations for Chromium (Hexavalent) are expressed as ng/m3 and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as parts per billion.

**   Diesel PM concentration estimates are based on receptor modeling techniques, and estimates are available only for selected years.

***   Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. It reflects only those compounds listed in this table and only those with data for that year. There may be other significant compounds for which we do not monitor or have health risk information. Additional information about interpreting the toxic air contaminant air quality trends can be found in Chapter 1, *Interpreting the Emission and Air Quality Statistics.*

Table 5-76

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APPENDIX A

County Level Emissions and Air Quality by Air Basin

Appendix A: *County Level Emissions and Air Quality by Air Basin*

List of Tables

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Introduction

This appendix contains criteria pollutant emission trends and forecasts and air quality trend data for each of California's 15 air basins. The emissions data are summarized first, by county or county portion within the air basin. Emissions data are included for the ozone precursors NO_x and ROG, and also for directly emitted PM_{10} and CO. The values represent the total tons of pollutant emissions per average day, listed every five years, from 1975 to 2010. In addition to these data, tables listing the highest emitting facilities for NO_x, ROG, and PM_{10}, by air basin, are also included. The lists of high emitting facilities consist of only the top ten facilities exceeding 100 tons per year. The emission totals are the most recent data available from the respective district agencies. Some facilities may have reduced or increased emissions since these data were collected, and these changes will be reflected in subsequent editions of the almanac. Finally, the lists do not include military bases, landfills, or airports.

The air quality trend statistics for each county or county portion are also organized alphabetically, by air basin. The time period covered is 1982 through 2001 for ozone, CO, NO_2, and SO_2 and 1988 through 2001 for PM_{10}. Tables for some areas include blanks, indicating that no monitoring data are available or data are incomplete for a given statistic. In a number of cases, tables are completely blank. These blank tables are included for completeness, but the lack of data is noted on the tables. (Note: $PM_{2.5}$ air quality data are not included in Appendix A because the data are limited and not yet adequate for developing trends. However, available $PM_{2.5}$ air quality data are summarized by air basin in Chapter 2.)

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The peak and maximum value air quality statistics reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the maximum 8-hour average carbon monoxide concentrations in Imperial County in the Salton Sea Air Basin are below the levels of the State and national standards from 1982 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards are violated. The CO concentrations in this air basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing set of sites in the Salton Sea Air Basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available on the web at: *www.arb.ca.gov/aqd/namslams/namslams.htm*.

Since the peak and maximum air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 8-hour ozone concentration. In contrast to the peak and maximum statistics, the counts of days above a standard generally reflect a composite, countywide value (in other words, a count of the total number of days an exceedance occurred at any site in the county. The exception is PM_{10}. The calculated days above the State and national 24-hour standards for this pollutant reflect the number of exceedance days at the high site, only.

Great Basin Valleys Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alpine	0	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2
Inyo*	5	5	4	4	4	3	3	3	7	7	6	6	5	4	4	3
Mono*	2	3	3	3	3	2	2	2	5	5	5	6	6	6	6	6

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alpine	1	2	2	2	2	2	2	2	3	4	5	6	8	8	8	8
Inyo*	29	30	30	29	28	28	28	28	50	51	44	41	29	22	18	15
Mono*	19	22	22	25	26	26	27	27	35	41	41	37	34	28	27	26

	Directly Emitted PM2.5 Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alpine	0	0	0	0	0	0	1	1
Inyo*	7	7	7	7	7	7	7	7
Mono*	5	6	6	6	6	6	7	7

* Values for these counties include emissions from the Owens and Mono Lake Beds.

Table A-1

Great Basin Valleys Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
California Energy Company	Coso	165

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-2

Lake County Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lake	7	8	9	10	9	8	7	6	11	12	14	14	14	12	11	9

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lake	9	10	12	12	12	12	12	13	86	98	114	109	102	87	80	72

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lake	3	4	4	4	4	5	5	5

Table A-3

Lake County Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-4

Lake Tahoe Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
El Dorado	4	4	4	5	4	4	3	3	8	6	6	7	6	6	5	5
Placer	2	1	1	2	2	2	2	1	5	3	3	3	3	2	2	2

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
El Dorado	2	2	3	3	3	4	4	4	100	76	67	58	48	40	36	33
Placer	1	1	1	1	1	1	2	2	76	32	33	27	23	18	15	13

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
El Dorado	1	1	2	2	2	2	2	2
Placer	0	1	1	1	1	1	1	1

A portion of El Dorado County lies within the Mountain Counties Air Basin. Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Table A-5

Lake Tahoe Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-6

Mojave Desert Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Kern	56	31	37	48	37	37	37	35	64	44	30	27	16	14	12	11
Los Angeles	34	40	38	42	33	31	27	22	30	38	41	42	27	23	20	20
Riverside	4	4	4	10	6	7	6	5	5	4	4	4	3	2	2	2
San Bernardino	125	156	144	174	153	146	143	140	27	34	45	62	54	44	38	34

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Kern	52	42	37	52	32	33	33	33	740	480	254	193	126	104	91	77
Los Angeles	36	38	37	35	29	31	33	33	100	173	211	253	162	112	86	68
Riverside	7	7	7	9	9	8	7	8	12	9	12	17	14	11	8	7
San Bernardino	72	78	93	83	93	91	95	100	127	210	283	432	339	276	234	190

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Kern	22	15	13	23	10	11	11	11
Los Angeles	9	10	9	9	7	8	8	9
Riverside	2	2	2	2	2	2	2	2
San Bernardino	22	22	30	24	30	28	30	31

A portion of Kern County lies within the San Joaquin Valley Air Basin. A portion of Los Angeles County lies within the South Coast Air Basin. Portions of Riverside County lie within the Salton Sea and South Coast Air Basins. A portion of San Bernardino County lies within the South Coast Air Basin.

Table A-7

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Mojave Desert Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Cemex-California Cement	Apple Valley	4640
Riverside Cement Co.	Oro Grande	4315
Cal Portland Cement Co.	Mojave	3279
Mitsubishi Cement	Lucerne Valley	2245
IMC Chemicals, Inc.	Trona	1948
Southern California Gas Co.	Blythe	1897
National Cement Co	Lebec	1549
Reliant Energy	Daggett	1426
Calaveras Cement Co.	Monolith	1234
PG&E Topock Compressor Station	Needles	1140

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Southern California Gas Co.	Blythe	120

Table A-8

Mojave Desert Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
National Cement Co.	Lebec	756
Mitsubishi Cement	Lucerne Valley	553
Cemex-California Cement	Apple Valley	544
U.S. Borax	Boron	539
Calaveras Cement Co.	Monolith	406
IMC Chemicals, Inc.	Trona	374
Riverside Cement Co.	Oro Grande	312
Cal Portland Cement Co.	Mojave	297
Antelope Valley Aggregate Inc.	Littlerock	112

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Mitsubishi Cement	Lucerne Valley	377
Cemex-California Cement	Apple Valley	360
National Cement Co.	Lebec	241
IMC Chemicals, Inc.	Trona	212
Riverside Cement Co.	Oro Grande	191
U.S. Borax	Boron	157
Calaveras Cement Co.	Monolith	152
Cal Portland Cement Co.	Mojave	103

Table A-8 (continued)

Mountain Counties Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	1975	1980	1985	1990	1995	2000	2005	2010	1975	1980	1985	1990	1995	2000	2005	2010
Amador	5	7	7	9	9	7	7	6	10	11	11	12	10	9	9	8
Calaveras	5	12	6	7	6	5	5	4	8	9	10	12	12	11	10	8
El Dorado	9	12	12	13	12	9	8	6	16	23	22	21	20	14	12	11
Mariposa	2	2	2	3	3	2	2	2	4	5	5	6	6	6	5	4
Nevada	10	14	14	15	12	10	9	7	13	18	20	19	17	15	14	13
Placer	4	7	6	5	4	5	4	3	4	9	5	4	4	4	3	3
Plumas	14	18	10	10	8	8	7	6	11	14	13	15	16	16	16	16
Sierra	1	1	1	1	1	1	1	1	2	3	3	3	4	4	4	3
Tuolumne	9	11	10	13	11	9	8	7	13	14	15	16	15	13	12	11

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	1975	1980	1985	1990	1995	2000	2005	2010	1975	1980	1985	1990	1995	2000	2005	2010
Amador	9	9	9	9	11	10	11	11	63	70	73	80	65	54	51	45
Calaveras	29	11	10	11	11	11	11	12	62	80	76	81	75	62	56	49
El Dorado	10	12	13	15	16	16	17	18	114	150	155	151	127	98	85	76
Mariposa	6	7	8	8	8	8	8	9	26	31	31	34	32	26	22	18
Nevada	11	14	15	18	18	19	19	20	107	140	157	147	122	103	94	84
Placer	6	7	7	7	7	8	8	8	31	35	39	37	31	31	28	24
Plumas	17	19	20	19	19	20	20	20	125	136	134	144	143	136	133	130
Sierra	11	12	12	11	12	12	12	11	27	26	27	30	30	30	28	28
Tuolumne	7	9	9	12	10	10	10	11	92	105	109	122	107	87	80	72

A portion of El Dorado County lies within the Lake Tahoe Air Basin. Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Table A-9

Mountain Counties Air Basin

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Amador	5	5	5	5	6	6	6	6
Calaveras	11	5	5	5	5	5	5	5
El Dorado	5	5	6	7	7	7	7	7
Mariposa	2	2	2	2	3	3	3	3
Nevada	5	7	7	8	9	9	9	9
Placer	2	3	2	3	2	2	3	3
Plumas	8	9	10	9	9	9	9	9
Sierra	3	3	4	3	3	3	3	3
Tuolumne	3	5	4	5	5	4	4	4

A portion of El Dorado County lies within the Lake Tahoe Air Basin. Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Table A-9 (continued)

Mountain Counties Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Sierra Pacific Industries (Wood Products)	Quincy	361
Wheelabrator Martell Inc. (Electric Services)	Martell	180
Sierra Pacific Industries (Wood Products)	Loyalton	176
Collins Pine Co (Wood Products)	Chester	164
Pacific-Ultrapower Chinese Station (Wood Products)	Jamestown	157

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Sierrapine Ltd., Ampine Division (Wood Products)	Martell	244

Table A-10

Mountain Counties Air Basin

High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Sierrapine Ltd., Ampine Division (Wood Products)	Martell	482
Collins Pine Co (Wood Products)	Chester	197
Wheelabrator Martell Inc. (Electric Services)	Martell	131

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Sierrapine Ltd., Ampine Division (Wood Products)	Martell	385
Collins Pine Co (Wood Products)	Chester	173
Wheelabrator Martell Inc. (Electric Services)	Martell	115

Table A-10 (continued)

North Central Coast Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Monterey	123	136	91	90	74	63	58	52	91	74	68	63	53	45	38	36
San Benito	8	9	10	11	10	8	8	7	10	9	9	9	7	6	6	6
Santa Cruz	22	25	29	32	27	23	21	18	42	41	42	38	29	25	22	20

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Monterey	52	53	47	44	41	43	47	50	680	573	580	503	371	321	299	287
San Benito	13	13	15	16	13	15	16	17	86	84	88	81	68	61	61	63
Santa Cruz	12	13	14	15	14	14	14	14	250	253	259	227	165	130	106	85

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Monterey	21	23	18	17	15	17	20	23
San Benito	5	5	7	7	5	6	7	7
Santa Cruz	5	5	6	6	5	5	5	5

Table A-11

North Central Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Duke Energy	Moss Landing	2831
RMC Pacific Materials (Cement)	Davenport	1000
Chemical Lime Company	Salinas	100

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Duke Energy	Moss Landing	212

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Duke Energy	Moss Landing	292
RMC Pacific Materials (Cement)	Davenport	189
Chemical Lime Company	Salinas	117

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Duke Energy	Moss Landing	292
RMC Pacific Materials (Cement)	Davenport	113

Table A-12

North Coast Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Del Norte	6	6	5	5	4	3	3	3	10	11	8	7	6	6	5	5
Humboldt	38	40	34	35	28	28	25	23	63	39	32	30	24	20	18	17
Mendocino	23	22	21	23	19	15	13	11	29	25	19	19	17	14	13	11
Sonoma	15	22	25	26	23	21	18	14	11	19	19	20	18	14	11	9
Trinity	2	3	3	3	2	2	2	2	7	8	6	6	6	6	5	4

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Del Norte	8	9	9	10	10	10	11	11	130	127	116	113	104	96	94	91
Humboldt	28	29	27	25	23	22	22	22	327	291	260	243	189	156	140	123
Mendocino	19	17	18	19	20	20	22	23	162	151	144	140	111	87	78	67
Sonoma	5	6	6	9	7	6	6	6	59	147	155	147	118	90	74	63
Trinity	16	19	20	19	20	18	18	17	70	75	74	75	66	60	57	54

	Directly Emitted PM2.5 Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Del Norte	5	6	6	6	6	6	6	6
Humboldt	17	17	16	13	11	11	11	10
Mendocino	10	7	7	7	7	7	8	8
Sonoma	2	3	3	5	3	3	3	3
Trinity	6	7	7	6	6	6	6	6

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

Table A-13

North Coast Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
PG&E Humboldt Bay Plant	Eureka	1547
Samoa-Pacific Cellulose (Wood Products)	Samoa	435
Pacific Lumber Company (Wood Products)	Scotia	246
Louisiana-Pacific Corp. (Wood Products)	Arcata	242
Georgia Pacific (Wood Products)	Fort Bragg	169
Fairhaven Power Company	Fairhaven	144

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Samoa-Pacific Cellulose (Wood Products)	Samoa	147

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Georgia Pacific (Wood Products)	Fort Bragg	119
Samoa-Pacific Cellulose (Wood Products)	Samoa	117

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Georgia Pacific (Wood Products)	Fort Bragg	109

Table A-14

Northeast Plateau Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lassen	10	10	9	9	8	7	6	5	9	13	13	12	12	11	11	10
Modoc	7	10	5	5	5	4	4	3	5	5	5	4	4	3	3	3
Siskiyou	25	23	20	18	15	12	10	8	27	28	26	26	25	22	21	20

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lassen	20	21	21	22	21	24	23	23	64	80	80	75	72	62	59	55
Modoc	20	20	20	20	19	19	18	18	31	34	31	30	25	19	18	16
Siskiyou	35	37	35	35	35	34	34	34	356	348	335	333	308	279	269	260

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Lassen	7	7	7	7	7	7	7	7
Modoc	6	6	6	6	5	5	5	4
Siskiyou	21	21	20	20	20	19	19	19

Table A-15

Northeast Plateau Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
H.L. Power Company	Wendel	150

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Table A-16

Sacramento Valley Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Butte	31	35	34	35	30	25	21	17	40	42	40	39	33	27	25	23
Colusa	10	10	9	13	12	10	9	8	14	13	14	13	10	8	8	8
Glenn	15	14	12	13	12	9	8	8	15	15	14	12	11	9	8	8
Placer	21	26	27	29	26	25	21	17	34	32	33	31	28	22	20	18
Sacramento	131	137	143	150	124	102	83	64	203	188	171	140	109	81	64	57
Shasta	37	42	39	42	35	33	29	27	37	41	39	37	31	27	24	21
Solano	13	16	15	17	15	15	11	9	19	21	22	21	16	14	13	13
Sutter	20	23	18	21	19	17	16	14	18	17	18	16	13	11	10	10
Tehama	20	27	17	15	13	11	9	7	12	14	13	12	10	9	8	8
Yolo	31	33	33	39	36	31	26	21	38	35	31	24	21	16	13	12
Yuba	13	15	13	12	11	10	8	7	13	16	14	12	11	9	8	7

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Butte	33	34	34	35	30	29	30	30	259	278	274	263	203	157	135	114
Colusa	31	30	30	27	25	23	23	22	113	108	107	93	74		55	53
Glenn	23	22	22	20	18	18	17	17	110	112	109	88	68	55	51	47
Placer	8	9	11	13	13	14	15	16	199	234	225	197	165	144	122	105
Sacramento	37	40	43	45	41	43	45	47	1439	1354	1272	1024	720	505	374	292
Shasta	31	28	29	31	31	32	33	34	317	325	325	328	265	231	212	193
Solano	12	12	12	11	11	11	11	11	68	105	102	101	71	54	42	34
Sutter	22	22	21	19	17	17	17	17	102	104	101	94	71	55	49	42
Tehama	15	16	17	15	15	15	15	15	84	92	85	86	64	48	41	35
Yolo	30	30	30	33	32	32	32	32	222	201	191	149	108	83	63	50
Yuba	12	11	11	10	10	9	10	10	95	103	87	80	66	54	48	42

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins. A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Table A-17

Sacramento Valley Air Basin

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Butte	13	15	14	15	13	12	12	12
Colusa	13	13	13	11	10	9	9	8
Glenn	10	10	10	8	7	7	7	7
Placer	4	4	5	6	6	6	7	7
Sacramento	14	15	16	18	15	16	16	16
Shasta	18	14	14	16	15	15	16	16
Solano	4	4	4	3	3	3	3	3
Sutter	7	7	7	6	6	6	6	6
Tehama	5	6	6	6	5	5	5	5
Yolo	10	9	9	9	9	9	9	9
Yuba	5	5	4	4	4	4	4	4

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins. A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Table A-17 (continued)

Sacramento Valley Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)

Facility Name	City	Tons per Year
Wheelabrator Energy Systems (Electric Services)	Anderson	817
Lehigh Southwest Cement Co.	Redding	581
PG&E Delevan Compressor Station	Colusa	387
PG & E - Burney Station	Burney	294
Wheelabrator Lassen (Electric Services)	Anderson	263
Calpine Greenleaf Unit One (Electric Services)	Yuba City	200
Burney Forest Products	Burney	183
Yuba City Cogeneration	Yuba City	183
Sierra Pacific Industries (Wood Products)	Lincoln	164
California Medical Facility	Vacaville	163

Reactive Organic Gases (ROG)

Facility Name	City	Tons per Year
Sierra Pacific Industries (Wood Products)	Red Bluff	597
Johns-Manville (Insulation)	Willows	162
Premier Industries (Foam Products)	Dixon	150

Table A-18

Sacramento Valley Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Johns-Manville (Insulation)	Willows	249
Wheelabrator Energy Systems (Electric Services)	Anderson	148
Lehigh Southwest Cement Co.	Redding	112

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Johns-Manville (Insulation)	Willows	220
Wheelabrator Energy Systems (Electric Services)	Anderson	138

Table A-18 (continued)

Salton Sea Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Imperial	53	45	37	40	42	34	32	30	37	36	28	28	28	23	20	19
Riverside	33	34	39	40	34	24	18	14	34	36	38	36	28	18	13	11

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Imperial	319	315	308	286	248	233	224	217	228	222	197	196	161	120	103	91
Riverside	19	20	22	32	28	26	25	26	270	270	292	298	217	113	77	61

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Imperial	72	71	69	65	58	53	51	49
Riverside	7	6	6	8	7	6	6	6

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

Table A-19

Salton Sea Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Imperial Irrigation District	El Centro	451
Holly Sugar Co.	Brawley	210

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**

No High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Santa Fe Pacific Gold Corp. (Gold Ore)	Brawley	198
U.S. Gypsum Co.	Plaster City	156

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Santa Fe Pacific Gold Corp. (Gold Ore)	Brawley	140

Table A-20

San Diego Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Diego	289	282	294	326	277	235	194	161	432	431	407	335	260	218	184	172

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Diego	74	83	92	109	106	112	119	126	3274	3006	2894	2425	1702	1266	950	775

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Diego	34	37	36	41	39	40	42	44

Table A-21

San Diego Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Cabrillo Power Inc.	Carlsbad	983
Duke Energy-South Bay Power Plant	Chula Vista	295
Applied Energy	San Diego	117

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
National Steel & Shipbuilding	San Diego	165

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Cabrillo Power Inc.	Carlsbad	217
Duke Energy-South Bay Power Plant	Chula Vista	138

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Cabrillo Power Inc.	Carlsbad	216
Duke Energy-South Bay Power Plant	Chula Vista	138

Table A-22

San Francisco Bay Area Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alameda	184	179	188	179	149	130	110	92	306	276	228	164	130	102	80	71
Contra Costa	266	247	203	188	155	144	99	87	253	259	200	128	110	84	71	64
Marin	31	31	31	30	26	22	20	16	56	52	44	32	27	22	17	14
Napa	15	15	16	16	15	13	11	9	27	24	21	17	15	12	10	8
San Francisco	107	116	106	105	86	79	66	55	155	134	108	76	60	48	38	33
San Mateo	110	108	104	100	87	72	64	54	169	153	123	85	71	53	41	36
Santa Clara	211	209	197	193	169	144	122	98	363	341	265	186	150	117	91	79
Solano	45	53	51	52	41	39	29	25	65	73	63	50	36	27	23	21
Sonoma	30	32	34	35	31	26	22	17	68	63	55	42	36	28	22	19

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alameda	30	28	33	33	30	34	36	36	1893	1711	1473	1070	754	546	418	340
Contra Costa	35	35	31	30	27	28	30	30	1273	1150	1032	769	573	405	331	267
Marin	5	6	6	7	7	7	8	8	390	364	307	229	166	125	102	79
Napa	7	6	8	7	7	7	7	7	152	141	129	109	91	72	61	49
San Francisco	12	13	14	14	14	15	15	16	859	804	674	469	336	251	200	165
San Mateo	17	17	20	21	19	22	24	24	1243	1130	901	636	467	317	251	199
Santa Clara	40	40	45	48	45	52	55	55	2296	2141	1771	1292	946	693	548	443
Solano	14	16	17	17	14	13	14	14	319	327	298	239	160	118	96	78
Sonoma	12	12	14	14	13	13	14	14	417	410	371	294	229	166	128	99

A portion of Solano County lies within the Sacramento Valley Air Basin. A portion of Sonoma County lies within the North Coast Air Basin.

Table A-23

San Francisco Bay Area Air Basin

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Alameda	15	14	16	15	14	15	15	15
Contra Costa	23	22	17	16	13	13	13	14
Marin	3	3	3	3	3	3	3	3
Napa	2	2	3	3	3	2	3	3
San Francisco	8	8	8	8	9	8	8	8
San Mateo	7	7	8	8	7	9	9	9
Santa Clara	16	15	17	18	17	18	19	19
Solano	8	9	9	10	7	6	6	6
Sonoma	5	5	6	6	6	5	5	5

A portion of Solano County lies within the Sacramento Valley Air Basin. A portion of Sonoma County lies within the North Coast Air Basin.

Table A-23 (continued)

San Francisco Bay Area Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Martinez Refining Company	Martinez	3187
Exxon Mobil Refining And Supply	Benicia	2927
Chevron Products Co.	Richmond	2312
Ultramar, Inc. Avon Refinery	Martinez	2239
Mirant Delta (Electric Services)	Pittsburg	1579
Hanson Permanente Cement	Cupertino	1400
Phillips 66 Company	Rodeo	1299
Mirant Delta (Electric Services)	Antioch	1157
Tosco Refining Company	Rodeo	766
Owens Brockway Glass Container	Oakland	666

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	Richmond	2143
Ultramar, Inc. Avon Refinery	Martinez	1824
Martinez Refining Company	Martinez	1633
Phillips 66 Company	Rodeo	567
New United Motor Manufacturing	Fremont	511
Ball Metal Beverage Container	Fairfield	384
Exxon Mobil Refining And Supply	Benicia	245
United States Pipe & Foundry	Union City	163
Pacific Custom Materials	Port Costa	139
Advanced Dielectrics, Inc.	Fremont	105

Table A-24

San Francisco Bay Area Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Martinez Refining Company	Martinez	354
Chevron Products Co.	Richmond	191
Exxon Mobil Refining And Supply	Benicia	181
Ultramar, Inc. Avon Refinery	Martinez	175
Owens Brockway Glass Container	Oakland	134
Hanson Permanente Cement	Cupertino	117

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Martinez Refining Company	Martinez	342
Chevron Products Co.	Richmond	184
Exxon Mobil Refining And Supply	Benicia	166
Ultramar, Inc. Avon Refinery	Martinez	152
Owens Brockway Glass Container	Oakland	101

Table A-24 (continued)

San Joaquin Valley Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Fresno	133	157	159	160	145	116	98	82	170	155	134	121	103	87	74	70
Kern	228	323	306	258	194	149	133	122	604	721	603	197	114	101	93	91
Kings	43	40	40	37	33	28	21	19	29	27	26	22	24	20	18	18
Madera	30	37	32	34	32	31	29	26	41	25	23	23	21	18	17	16
Merced	45	50	43	50	45	40	33	26	51	49	41	45	39	36	33	32
San Joaquin	96	101	107	112	100	88	75	61	100	94	88	81	69	57	47	43
Stanislaus	52	66	64	77	66	57	49	40	84	83	78	81	72	65	59	59
Tulare	58	67	65	65	60	54	48	39	81	79	74	71	67	61	58	57

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Fresno	112	100	97	96	88	87	87	87	880	833	798	719	561	435	336	273
Kern	75	70	65	59	54	52	53	53	715	819	704	595	437	331	261	218
Kings	47	44	42	40	37	32	31	30	150	138	119	108	97	73	61	49
Madera	27	27	24	24	21	20	20	19	175	185	180	158	119	104	94	78
Merced	47	44	41	42	40	38	38	38	342	337	292	302	237	192	163	138
San Joaquin	41	39	39	40	39	38	39	39	604	592	600	519	405	309	232	185
Stanislaus	44	42	41	41	38	36	35	34	406	400	390	406	308	237	181	145
Tulare	70	66	65	64	61	61	61	61	558	551	538	482	413	354	319	279

A portion of Kern County lies within the Mojave Desert Air Basin.

Table A-25

San Joaquin Valley Air Basin

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Fresno	43	35	34	33	30	30	30	29
Kern	36	34	29	24	22	21	21	22
Kings	15	14	13	12	12	10	10	10
Madera	10	11	9	9	8	8	8	8
Merced	16	16	15	15	14	14	14	14
San Joaquin	17	16	15	16	16	15	15	15
Stanislaus	18	17	17	17	16	15	14	14
Tulare	37	36	36	35	34	34	34	34

A portion of Kern County lies within the Mojave Desert Air Basin.

Table A-25 (continued)

San Joaquin Valley Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Guardian Industries Corp (Glass Products)	Kingsburg	1201
Pilkington North America (Glass Products)	Lathrop	924
Pacific Gas & Electric Co	Avenal	638
Kern River Cogeneration Co.	Bakersfield	554
Occidental Petroleum	Tupman	539
Texaco Inc.	Kern County	467
Saint-Gobain Containers	Madera	463
Chevron Usa Inc	Kern County	451
Sycamore Cogeneration Co	Bakersfield	447
Owens-Brockway Glass Container	Tracy	430

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Occidental Petroleum	Tupman	1233
SC Johnson Home Storage Inc	Fresno	620
Unocal California Pipeline	Bakersfield	425
Silgan Containers Corp.	Riverbank	256
Kern Oil & Refining Co.	Bakersfield	233
Eott Energy Operating Co.	Bakersfield	162
Tricor Refining	Oildale	153
Equilon Enterprises (Petroleum)	Bakersfield	148

Table A-26

San Joaquin Valley Air Basin

High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Texaco Inc.	Kern County	326
Holly Sugar Co.	Tracy	274
Pilkington North America (Glass Products)	Lathrop	205
Calaveras Materials Inc.	Fresno	168
Berry Seed & Feed Company	Keyes	159
Aera Energy (Electric Services)	Bakersfield	137
J.G. Boswell Company	Corcoran	118
Foster Commodities	Kingsburg	117
Heller Performance Polymers	Visalia	115
Paramount Farms	Lost Hills	101

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Texaco Inc.	Kern County	326
Pilkington North America (Glass Products)	Lathrop	198
Heller Performance Polymers	Visalia	114

Table A-26 (continued)

South Central Coast Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Luis Obispo	68	69	48	50	34	33	28	23	41	45	47	39	32	30	26	24
Santa Barbara	52	66	62	62	51	44	36	29	78	72	75	66	50	41	33	28
Ventura	95	106	93	86	67	57	47	38	104	112	102	90	71	58	47	43

	Directly Emitted PM_{10} Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Luis Obispo	29	30	30	30	29	30	30	31	270	287	297	270	199	168	142	119
Santa Barbara	19	20	20	20	18	19	20	20	445	427	433	392	275	205	160	123
Ventura	24	22	22	25	25	26	27	28	518	576	568	506	377	279	208	167

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
San Luis Obispo	12	13	12	12	11	11	11	11
Santa Barbara	7	8	8	8	7	7	7	7
Ventura	12	10	9	10	9	9	9	10

Table A-27

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South Central Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Duke Energy	Morro Bay	1685
Celite (Minerals)	Lompoc	451
Orcutt Hill IC Engines (Petroleum)	Santa Maria	279
Mandalay Power Generation	Oxnard	201
Procter & Gamble Paper Products	Oxnard	150
SCE-Ormond Beach Gen Station	Oxnard	137
Tosco Santa Maria Refinery	Arroyo Grande	105
Cat Canyon IC Engines (Petroleum)	Cat Canyon Field	103

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Aera Energy (Electric Services)	Ventura	144
Duke Energy	Morro Bay	142
Carpinteria Gas Plant	Carpinteria	100

Table A-28

South Central Coast Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Celite (Minerals)	Lompoc	195
Duke Energy	Morro Bay	195
Tosco Santa Maria Refinery	Arroyo Grande	110

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Duke Energy	Morro Bay	195

Table A-28 (continued)

South Coast Air Basin

County Emission Trends and Forecasts

	NOx Emissions (tons/day, annual average)								ROG Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Los Angeles	1261	1147	1187	1071	866	712	550	433	1803	1470	1419	1049	737	559	399	333
Orange	278	285	318	295	240	211	175	139	432	417	421	317	226	179	131	113
Riverside	97	103	116	143	126	122	102	80	108	111	120	117	97	85	67	60
San Bernardino	130	142	149	151	131	119	100	79	149	164	173	141	111	95	75	66

	Directly Emitted PM10 Emissions (tons/day, annual average)								CO Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Los Angeles	141	138	153	186	162	143	140	141	11515	8842	8629	6488	4605	3274	2240	1693
Orange	32	39	45	59	54	54	54	55	2529	2314	2366	1885	1397	981	720	569
Riverside	24	29	32	48	49	49	52	55	756	768	825	827	647	528	398	315
San Bernardino	43	44	46	53	58	45	47	49	1049	1145	992	852	657	498	379	307

	Directly Emitted PM2.5 Emissions (tons/day, annual average)							
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**
Los Angeles	81	71	72	77	61	58	58	57
Orange	16	18	19	21	18	19	19	19
Riverside	9	10	11	15	15	16	17	18
San Bernardino	19	18	16	17	17	16	17	18

A portion of Los Angeles County lies within the Mojave Desert Air Basin. Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins. A portion of San Bernardino County lies within the Mojave Desert Air Basin.

Table A-29

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South Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	1751
Mobil Oil Corp.	Torrance	1651
Arco Products Co.	Carson	1495
AES Alamitos (Electric Services)	Long Beach	1064
California Portland Cement	Colton	1016
Equilon Enterprises (Petroleum)	Wilmington	1006
LA City, DWP Scattergood Generating	Playa Del Rey	931
Tosco Refining Company	Wilmington	838
LA City, DWP Haynes Generating	Long Beach	757
Reliant Energy	Etiwanda	732

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	760
Mobil Oil Corp.	Torrance	641
Arco Products Co.	Carson	452
Equilon Enterprises (Petroleum)	Wilmington	446
Southern California Gas Co.	Valencia	429
MCP Foods Inc. (Food Products)	Anaheim	304
Tomkins Industries Inc-Lasco P	Anaheim	280
Tosco Refining Company	Wilmington	276
TABC Inc. (Auto Parts)	Long Beach	230
Filtrol Corp. (Chemicals)	Vernon	200

Table A-30

South Coast Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	250
Arco Products Co.	Carson	218
Johns-Manville (Insulation)	Corona	200
Tosco Refining Company	Wilmington	183
Mobil Oil Corp.	Torrance	177
Equilon Enterprises (Petroleum)	Wilmington	146
Ultramar Inc	Wilmington	142
El Segundo Power	El Segundo	109
California Portland Cement	Colton	108
LA City, DWP Scattergood Generating	Playa Del Rey	103

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Chevron Products Co.	El Segundo	228
Arco Products Co.	Carson	214
Johns-Manville (Insulation)	Corona	198
Tosco Refining Company	Wilmington	171
Mobil Oil Corp.	Torrance	162
Ultramar Inc	Wilmington	124
Equilon Enterprises (Petroleum)	Wilmington	122
El Segundo Power	El Segundo	109
LA City, DWP Scattergood Generating	Playa Del Rey	103

Table A-30 (continued)

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Air Quality

This section contains air quality trend data for each county in California's 15 air basins, organized alphabetically, by air basin. It is important to note that some counties are located in more than one air basin. For these counties, the air quality data are for that portion of the county located in each air basin. The time period covered is 1982 through 2001 for ozone, CO, NO_2, and SO_2 and 1988 through 2001 for PM_{10}. In some areas, no monitoring data are available or the data are incomplete. Tables for these areas are included, but the lack of data is noted on the tables.

Compared with last year's almanac, the following tables contain several changes to the air quality statistics for ozone and PM_{10}. Specifically, the National 1-Hour Design Value and National 8-Hour Design Value ozone statistics have been renamed as the 4th High 1-Hour in 3-Years and the Average of the 4th High 8-Hour in 3 Years, respectively. These names more accurately reflect the basis for the statistics. In some cases, they may be the same as the national design value, but because they do not consider missing data, the new names are more appropriate. In addition, the maximum average of quarters replaces the maximum annual geometric mean statistic for PM_{10}. The average of quarters statistic is consistent with the revised State annual PM_{10} standard the ARB adopted in June 2002. Additional information about the data in the folowing tables can be found in the *Introduction* section to this Appendix and in the *Interpreting the Emissions and Air Quality Statistics* section in Chapter 1.

Great Basin Valleys Air Basin

County: Alpine

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration																				
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-31

Great Basin Valleys Air Basin

County: Inyo

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator											0.083	0.083	0.097	0.097	0.094	0.090	0.092	0.090	0.090	0.090
4th High 1-Hr in 3 Yrs										0.040	0.080	0.080	0.093	0.093	0.093	0.086	0.088	0.089	0.090	0.092
Avg of 4th Hi 8-Hr in 3 Yrs										0.040	0.055	0.060	0.068	0.064	0.076	0.074	0.079	0.079	0.080	0.079
Maximum 1-Hr. Concentration										0.050	0.080	0.080	0.101	0.085	0.095	0.084	0.092	0.094	0.090	0.095
Max. 8-Hr. Concentration										0.041	0.076	0.077	0.089	0.073	0.082	0.080	0.085	0.089	0.080	0.089
Days Above State Standard										0	0	0	2	0	1	0	0	0	0	1
Days Above Nat. 1-Hr. Std.										0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.										0	0	0	3	0	0	0	1	1	0	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							394	1861	866	181	526	781	388	2668	491	402	1116	514	715	3189
Max. Avg. of Quarters																	53.4		38.6	71.6
Calc Days Above State 24-Hr Std							78	68	30	33	36	35	42	33	55	55	82	19	48	42
Calc Days Above Nat 24-Hr Std							13	27	12	3	19	8	4	14	26	17	22	0	13	17

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator											3.5	3.2	3.1	2.9						
Max. 1-Hr. Concentration										6.0	11.0	5.0	5.0	4.0						
Max. 8-Hr. Concentration										3.6	3.8	2.8	2.8	2.0						
Days Above State 8-Hr. Std.										0	0	0	0	0						
Days Above Nat. 8-Hr. Std.										0	0	0	0	0						

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-32

Great Basin Valleys Air Basin

County: Mono

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.094	0.091	0.096	0.095	0.100	0.099	0.100	0.099	0.100	0.099	0.115	0.110	0.108	0.097	0.099	0.096	0.095			0.105
4th High 1-Hr in 3 Yrs	0.080	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.100	0.090	0.120	0.120	0.120	0.100	0.100	0.091	0.090			0.097
Avg of 4th Hi 8-Hr in 3 Yrs	0.072	0.076	0.078	0.079	0.082	0.084	0.086	0.081	0.081	0.076	0.081	0.078	0.082	0.079	0.079	0.077	0.073			0.083
Maximum 1-Hr. Concentration	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.080	0.100	0.090	0.150	0.090	0.120	0.110	0.090	0.092	0.079			0.100
Max. 8-Hr. Concentration	0.082	0.087	0.087	0.090	0.093	0.091	0.098	0.077	0.091	0.073	0.103	0.077	0.092	0.101	0.090	0.078	0.075			0.095
Days Above State Standard	0	0	0	1	5	4	3	0	2	0	5	0	2	2	0	0	0			4
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0			0
Days Above Nat. 8-Hr. Std.	0	1	2	2	13	2	6	0	3	0	9	0	3	2	1	0	0			2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							166	163	161	134	493	981	92	122	158	112	106	133	3059	134
Max. Avg. of Quarters							35.9	33.5	38.2		37.1		29.9	26.1		25.6		12.5		
Calc Days Above State 24-Hr Std							75	62	73	48	69	59	60	36	18	32	18	3	20	24
Calc Days Above Nat 24-Hr Std							6	7	12	0	6	6	0	0	0	0	0	0	15	

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	8.6	7.7		7.3	7.2	7.0	5.9	5.8	5.7	5.6		5.0	4.7	4.6	4.0	4.0	3.9		2.9	2.5
Max. 1-Hr. Concentration	18.0	14.0	13.0	16.0	11.0	9.0	13.0	12.0	10.0	11.0	8.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2	15.4
Max. 8-Hr. Concentration	10.8	7.9	7.3	7.4	6.0	6.3	5.0	5.4	4.4	5.0	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5	2.5
Days Above State 8-Hr. Std.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-33

Lake County Air Basin

County: Lake

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.083	0.077	0.080	0.075	0.081	0.081	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.076	0.076	0.087	0.084	0.080
4th High 1-Hr in 3 Yrs	0.080	0.080	0.080	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
Avg of 4th Hi 8-Hr in 3 Yrs	0.063	0.059	0.063	0.059	0.064	0.065	0.065	0.058	0.054	0.055	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062	0.063
Maximum 1-Hr. Concentration	0.080	0.070	0.080	0.080	0.080	0.090	0.070	0.060	0.090	0.080	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080	0.070
Max. 8-Hr. Concentration	0.073	0.061	0.077	0.070	0.080	0.080	0.061	0.053	0.063	0.066	0.057	0.072	0.075	0.063	0.070	0.065	0.076	0.072	0.073	0.065
Days Above State Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							28	29	30	31	22	30	21	30	26	18	35	43	22	21
Max. Avg. of Quarters								12.9		12.6	11.9	11.2	11.0	10.7	10.3	8.5	7.8		10.6	
Calc Days Above State 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0		0	

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator								1.9	2.9	2.9										
Max. 1-Hr. Concentration								3.0	6.0	7.0										
Max. 8-Hr. Concentration								2.2	2.6	3.1										
Days Above State 8-Hr. Std.								0	0	0										
Days Above Nat. 8-Hr. Std.								0	0	0										

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-34

Lake Tahoe Air Basin

County: El Dorado

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.088	0.086	0.080	0.081	0.082	0.085	0.089	0.091	0.092	0.093	0.089	0.079	0.082	0.084	0.084	0.083	0.082	0.081	0.089	0.090
4th High 1-Hr in 3 Yrs	0.090	0.080	0.080	0.080	0.080	0.090	0.090	0.090	0.090	0.090	0.090	0.070	0.081	0.086	0.083	0.083	0.081	0.081	0.086	0.087
Avg of 4th Hi 8-Hr in 3 Yrs	0.070	0.069	0.067	0.068	0.069	0.071	0.074	0.076	0.075	0.076	0.075	0.056	0.061	0.070	0.071	0.068	0.069	0.069	0.074	0.075
Maximum 1-Hr. Concentration	0.090	0.080	0.080	0.100	0.090	0.090	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.089	0.095
Max. 8-Hr. Concentration	0.080	0.071	0.072	0.086	0.080	0.082	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.077	0.084
Days Above State Standard	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	1	0	1
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	1	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							95	73	84	78	85	92	78	71	72	55	59	41	50	58
Max. Avg. of Quarters								27.9	30.1	28.2			27.2	22.6	23.6	21.6	22.9	20.0	20.2	19.9
Calc Days Above State 24-Hr Std							57	26	55	36	30	30	42	18	24	12	12	0	0	18
Calc Days Above Nat 24-Hr Std								0	0	0			0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	15.6	16.1	16.1	16.4	15.5	14.9	13.2	12.6	11.9	11.1	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1	2.0
Max. 1-Hr. Concentration	27.0	30.0	23.0	23.0	20.0	19.0	19.0	17.0	18.0	14.0	15.0	13.0	11.3	9.3	10.4	7.7	7.5	3.2	16.1	3.1
Max. 8-Hr. Concentration	18.3	17.4	14.8	16.3	12.5	13.0	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	2.8	1.9
Days Above Lk. Tahoe 8-Hr. Std.	161	139	139	121	96	87	80	67	39	24	13	12	9	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	40	24	28	28	10	12	9	5	5	0	1	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.073	0.085	0.079	0.079	0.074	0.076	0.073	0.074	0.078	0.076	0.078	0.062	0.062	0.062	0.062	0.061	0.060	0.057	0.058	0.068
Max. 1-Hr. Concentration	0.090	0.080	0.060	0.080	0.080	0.080	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.086	0.090
Max. Annual Average		0.010	0.012	0.011	0.010	0.012	0.012		0.012	0.012		0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011	0.011

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-35

A portion of El Dorado County lies within the Mountain Counties Air Basin.

Lake Tahoe Air Basin

County: Placer

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration														24	50					
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std														0	0					
Calc Days Above Nat 24-Hr Std																				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator												3.9	3.9	3.9						
Max. 1-Hr. Concentration	15.0		13.0									9.0	11.6	9.5						
Max. 8-Hr. Concentration	8.5		7.3									4.3	4.7	2.9						
Days Above Lk. Tahoe 8-Hr. Std.	7		2									0	0	0						
Days Above Nat. 8-Hr. Std.	0		0									0	0	0						

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-36

Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Mojave Desert Air Basin

County: Kern

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator													0.122	0.134	0.125	0.121	0.125	0.121	0.121	0.116
4th High 1-Hr in 3 Yrs												0.120	0.121	0.123	0.123	0.123	0.126	0.119	0.119	0.118
Avg of 4th Hi 8-Hr in 3 Yrs												0.102	0.102	0.101	0.100	0.097	0.099	0.096	0.097	0.096
Maximum 1-Hr. Concentration												0.130	0.124	0.142	0.130	0.119	0.134	0.119	0.113	0.126
Max. 8-Hr. Concentration												0.112	0.107	0.109	0.109	0.096	0.117	0.100	0.095	0.106
Days Above State Standard												15	43	54	46	22	43	39	25	33
Days Above Nat. 1-Hr. Std.												2	0	3	2	0	2	0	0	1
Days Above Nat. 8-Hr. Std.												13	46	46	42	19	40	34	15	33

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							148	54	462	534	65	64	116	235	92	130	165	45	90	115
Max. Avg. of Quarters									34.5							18.5		19.2	21.3	21.1
Calc Days Above State 24-Hr Std							66	6	30	18	12	12	18	6	12	6	12	0	12	6
Calc Days Above Nat 24-Hr Std									6			0		0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator													0.063	0.067	0.072	0.072	0.072	0.067	0.070	0.066
Max. 1-Hr. Concentration												0.070	0.060	0.120	0.075	0.075	0.082	0.083	0.071	0.071
Max. Annual Average														0.008		0.010	0.011		0.010	0.010

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-37

A portion of Kern County lies within the San Joaquin Valley Air Basin.

Mojave Desert Air Basin

County: Los Angeles

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.220	0.205	0.176	0.185	0.187	0.191	0.187	0.181	0.179	0.141	0.154	0.159	0.161	0.194	0.138	0.134	0.140	0.131	0.137	0.128
4th High 1-Hr in 3 Yrs	0.220	0.200	0.180	0.180	0.190	0.190	0.180	0.170	0.170	0.140	0.160	0.160	0.160	0.172	0.138	0.129	0.137	0.137	0.139	0.128
Avg of 4th Hi 8-Hr in 3 Yrs	0.145	0.133	0.124	0.132	0.134	0.132	0.128	0.123	0.105	0.105	0.110	0.113	0.113	0.130	0.103	0.098	0.097	0.089	0.092	0.091
Maximum 1-Hr. Concentration	0.160	0.180	0.180	0.190	0.200	0.170	0.180	0.210	0.150	0.140	0.170	0.160	0.143	0.185	0.131	0.123	0.164	0.097	0.141	0.146
Max. 8-Hr. Concentration	0.127	0.146	0.141	0.147	0.150	0.140	0.131	0.147	0.106	0.111	0.137	0.127	0.112	0.154	0.104	0.101	0.118	0.083	0.117	0.102
Days Above State Standard	82	93	110	106	108	105	105	95	52	62	78	59	62	92	40	14	24	1	35	37
Days Above Nat. 1-Hr. Std.	25	42	49	58	47	32	44	27	7	8	25	14	10	34	1	0	8	0	2	3
Days Above Nat. 8-Hr. Std.	57	66	85	85	79	76	91	65	36	39	53	36	33	70	18	7	18	0	28	24

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration								110	342	780	68	70	97	61	67	54	80	85		
Max. Avg. of Quarters								46.0		59.8	33.0	34.7		25.7	29.0	29.0		28.8		
Calc Days Above State 24-Hr Std								143	127	66	30	54	18	18	12	9	7	12		
Calc Days Above Nat 24-Hr Std								0		13	0	0		0	0	0		0		

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	5.8	5.4	5.4	5.6	5.2	4.9	4.6	5.5	7.7	7.6	6.5	6.2	6.1	5.8	5.3	4.8	4.4	4.4	4.6	4.8
Max. 1-Hr. Concentration	10.0	13.0	10.0	12.0	9.0	12.0	11.0	13.0	11.0	10.0	9.0	8.0	9.1	7.5	6.8	5.9	5.4	7.2	6.0	6.1
Max. 8-Hr. Concentration	5.0	6.3	4.9	5.7	4.6	3.9	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.1	4.7	4.0	3.6	5.4	4.3	3.3
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.092	0.095	0.093	0.091	0.087	0.084	0.090	0.091	0.096	0.095	0.097	0.098	0.097	0.099	0.090	0.086	0.070	0.070	0.070	0.070
Max. 1-Hr. Concentration	0.080	0.090	0.110	0.080	0.090	0.090	0.090	0.080	0.090	0.110	0.160	0.110	0.097	0.140	0.080	0.071	0.077	0.083	0.065	0.075
Max. Annual Average		0.015	0.018	0.015	0.014	0.016	0.016	0.019		0.014	0.017	0.020	0.018	0.019	0.015				0.016	

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-38

A portion of Los Angeles County lies within the South Coast Air Basin.

Mojave Desert Air Basin

County: Riverside

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator				0.143	0.138	0.144	0.142	0.141	0.132	0.140	0.146	0.146								
4th High 1-Hr in 3 Yrs				0.110	0.140	0.147	0.147	0.140	0.131	0.130	0.130	0.131								
Avg of 4th Hi 8-Hr in 3 Yrs				0.092	0.096	0.101	0.103	0.102	0.096	0.099	0.101	0.101								
Maximum 1-Hr. Concentration				0.140	0.160	0.148	0.140	0.140	0.130	0.130	0.138	0.140								
Max. 8-Hr. Concentration				0.102	0.105	0.127	0.105	0.117	0.102	0.115	0.115	0.108								
Days Above State Standard				19	39	65	32	31	23	33	44	18								
Days Above Nat. 1-Hr. Std.				3	3	10	4	2	1	6	7	1								
Days Above Nat. 8-Hr. Std.				8	30	49	16	20	18	37	39	16								

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration										112	242									85
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std										54	42									36
Calc Days Above Nat 24-Hr Std																				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-39

Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

Mojave Desert Air Basin

County: San Bernardino

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.207	0.199	0.193	0.200	0.235	0.231	0.234	0.204	0.215	0.224	0.220	0.194	0.191	0.193	0.186	0.171	0.176	0.162	0.154	0.136
4th High 1-Hr in 3 Yrs	0.210	0.210	0.220	0.220	0.230	0.230	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.188	0.182	0.175	0.167	0.166	0.164	0.135
Avg of 4th Hi 8-Hr in 3 Yrs	0.143	0.141	0.132	0.150	0.168	0.163	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.137	0.131	0.124	0.127	0.118	0.110	0.102
Maximum 1-Hr. Concentration	0.200	0.230	0.230	0.210	0.260	0.220	0.270	0.220	0.270	0.240	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163	0.146
Max. 8-Hr. Concentration	0.145	0.182	0.158	0.167	0.225	0.161	0.167	0.161	0.198	0.173	0.165	0.147	0.155	0.170	0.146	0.133	0.144	0.122	0.132	0.117
Days Above State Standard	105	109	103	138	142	147	148	150	135	132	148	129	137	109	98	95	74	74	79	52
Days Above Nat. 1-Hr. Std.	25	48	38	74	94	71	104	91	76	67	75	66	77	47	38	22	24	4	10	3
Days Above Nat. 8-Hr. Std.	82	101	86	119	136	135	137	136	118	122	128	121	126	94	83	74	60	61	61	47

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							150	191	381	389	105	79	140	85	138	85	70	109	80	84
Max. Avg. of Quarters								48.6			39.7		41.9		29.1	27.1	27.7	32.1	33.8	29.6
Calc Days Above State 24-Hr Std							90	132	103	66	81	59	84	18	24	18	18	30	36	18
Calc Days Above Nat 24-Hr Std							0	6	6	7	0	0	0		0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	7.6	2.8	3.1	3.4	3.4	3.5	4.2	4.1	4.1	4.2	4.3	3.8	3.8	2.9	7.4	2.3	2.4	2.1	1.7	1.8
Max. 1-Hr. Concentration	5.0	8.0	6.0	6.0	8.0	6.0	10.0	7.0	9.0	5.0	6.0	5.0	7.9	6.1	8.4	4.1	3.9	10.3	3.0	3.8
Max. 8-Hr. Concentration	3.5	2.9	2.9	3.5	3.4	4.0	5.8	3.9	3.9	3.9	3.4	3.5	3.2	2.7	7.5	3.1	2.2	3.2	1.6	1.7
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.141	0.148	0.138	0.136	0.131	0.134	0.112	0.100	0.182	0.259	0.275	0.289	0.202	0.124	0.119	0.097	0.102	0.105	0.106	0.099
Max. 1-Hr. Concentration	0.200	0.150	0.160	0.140	0.150	0.130	0.100	0.120	0.190	0.350	0.240	0.360	0.138	0.118	0.087	0.107	0.196	0.113	0.105	0.102
Max. Annual Average	0.025			0.025	0.021			0.026						0.023	0.021		0.022	0.024	0.025	0.024

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.02	0.03	0.04	0.04	0.03	0.03	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01
Max. 24-Hr. Concentration	0.01	0.00	0.00	0.01	0.01	0.00	0.02	0.03	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-40

A portion of San Bernardino County lies within the South Coast Air Basin.

Mountain Counties Air Basin

County: Amador

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator											0.119	0.117	0.117	0.120	0.123	0.124	0.133	0.129	0.127	0.114
4th High 1-Hr in 3 Yrs											0.110	0.110	0.119	0.119	0.123	0.127	0.128	0.128	0.126	0.118
Avg of 4th Hi 8-Hr in 3 Yrs											0.090	0.089	0.091	0.091	0.093	0.090	0.095	0.096	0.099	0.091
Maximum 1-Hr. Concentration											0.120	0.110	0.123	0.146	0.127	0.135	0.143	0.121	0.121	0.107
Max. 8-Hr. Concentration											0.105	0.090	0.104	0.112	0.106	0.104	0.115	0.107	0.102	0.087
Days Above State Standard											15	11	15	21	21	9	30	22	13	4
Days Above Nat. 1-Hr. Std.											0	0	0	1	2	1	4	0	0	0
Days Above Nat. 8-Hr. Std.											11	5	15	18	14	3	28	13	14	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration																30				
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std																0				
Calc Days Above Nat 24-Hr Std																				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator											2.5	2.2	2.0	2.0	1.7	1.5	1.4	1.5	1.5	1.5
Max. 1-Hr. Concentration											3.0	3.0	9.3	9.3	2.2	2.8	2.5	2.2	5.0	3.5
Max. 8-Hr. Concentration											2.4	3.0	1.8	2.6	1.5	1.4	1.4	1.5	1.3	1.4
Days Above State 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-41

Mountain Counties Air Basin

County: Calaveras

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator													0.121	0.119	0.123	0.124	0.129	0.123	0.124	0.117
4th High 1-Hr in 3 Yrs													0.114	0.117	0.129	0.130	0.130	0.124	0.124	0.120
Avg of 4th Hi 8-Hr in 3 Yrs													0.099	0.096	0.097	0.093	0.096	0.096	0.100	0.094
Maximum 1-Hr. Concentration													0.121	0.146	0.138	0.140	0.134	0.126	0.134	0.120
Max. 8-Hr. Concentration													0.108	0.107	0.112	0.112	0.109	0.106	0.105	0.090
Days Above State Standard													35	23	24	6	27	21	16	8
Days Above Nat. 1-Hr. Std.													0	1	3	1	1	1	1	0
Days Above Nat. 8-Hr. Std.													34	19	18	4	28	18	17	5

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration													44	118	36	112	35	65	35	44
Max. Avg. of Quarters														21.1	17.8	19.9	15.7	20.5	17.8	19.5
Calc Days Above State 24-Hr Std													0	12	0	6	0	12	0	0
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator													0.7	1.0	0.9	0.9	0.9	0.9	0.8	1.1
Max. 1-Hr. Concentration													1.5	2.1	1.7	2.1	1.8	1.8	1.2	6.2
Max. 8-Hr. Concentration													0.7	1.8	0.9	1.7	0.9	0.8	0.9	4.3
Days Above State 8-Hr. Std.													0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.													0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-42

Mountain Counties Air Basin

County: El Dorado

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator								0.138			0.128	0.122	0.127	0.131	0.137	0.140	0.147	0.144	0.144	0.137
4th High 1-Hr in 3 Yrs								0.120			0.120	0.120	0.124	0.124	0.126	0.123	0.143	0.144	0.143	0.128
Avg of 4th Hi 8-Hr in 3 Yrs								0.103			0.098	0.095	0.097	0.099	0.103	0.099	0.103	0.103	0.107	0.104
Maximum 1-Hr. Concentration								0.130			0.120	0.120	0.130	0.126	0.136	0.145	0.163	0.144	0.128	0.148
Max. 8-Hr. Concentration								0.110			0.112	0.108	0.104	0.113	0.113	0.106	0.127	0.118	0.113	0.109
Days Above State Standard								21			29	10	26	32	41	19	32	39	37	42
Days Above Nat. 1-Hr. Std.								2			0	0	2	1	3	1	6	4	2	1
Days Above Nat. 8-Hr. Std.								24			29	12	22	31	36	16	26	40	31	35

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							56	59	89		103	62	34	53	58	62	41	49	38	52
Max. Avg. of Quarters												17.7	18.1	18.3	17.0	17.4	14.7	18.4	16.5	16.9
Calc Days Above State 24-Hr Std							6	18	12		6	6	0	6	6	6	0	0	0	6
Calc Days Above Nat 24-Hr Std												0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator								4.1	4.3		1.6	1.3	1.3	1.2	1.0	1.0	0.9	0.8	0.8	0.8
Max. 1-Hr. Concentration								6.0	5.0		3.0	2.0	1.7	1.6	1.3	1.6	1.7	1.4	2.7	1.4
Max. 8-Hr. Concentration								4.6	3.5		2.4	1.5	1.0	1.0	0.9	0.8	0.9	0.9	1.0	0.8
Days Above State 8-Hr. Std.								0	0		0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.								0	0		0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-43

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mountain Counties Air Basin

County: Mariposa

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator						0.129	0.124	0.122	0.116	0.118	0.118	0.115	0.114	0.113	0.108	0.111	0.114	0.120	0.118	0.113
4th High 1-Hr in 3 Yrs						0.116	0.119	0.119	0.113	0.110	0.110	0.110	0.110	0.111	0.109	0.110	0.111	0.112	0.112	0.112
Avg of 4th Hi 8-Hr in 3 Yrs						0.093	0.092	0.090	0.090	0.088	0.089	0.096	0.095	0.095	0.096	0.095	0.095	0.095	0.094	0.091
Maximum 1-Hr. Concentration						0.145	0.119	0.110	0.120	0.110	0.111	0.120	0.113	0.114	0.111	0.120	0.114	0.155	0.121	0.116
Max. 8-Hr. Concentration						0.111	0.096	0.093	0.096	0.102	0.095	0.111	0.104	0.103	0.107	0.105	0.103	0.105	0.100	0.098
Days Above State Standard						27	26	2	20	19	10	17	10	20	28	7	13	16	10	4
Days Above Nat. 1-Hr. Std.						3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.						22	20	4	20	31	9	22	12	24	30	7	14	24	14	8

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							180	84	209	350	104	126	115	71	106	62	40	82	98	312
Max. Avg. of Quarters									39.0	48.0	31.4		35.1	27.5			20.3	27.1	26.3	33.5
Calc Days Above State 24-Hr Std							78	42	95	78	30	24	84	30	18	2	0	12	15	48
Calc Days Above Nat 24-Hr Std									10	14	0		0	0		0	0	0	0	6

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration											6.2									
Max. 8-Hr. Concentration											4.5									
Days Above State 8-Hr. Std.											0									
Days Above Nat. 8-Hr. Std.											0									

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-44

Mountain Counties Air Basin

County: Nevada

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator								0.118	0.125	0.118	0.110	0.076	0.111	0.111	0.118	0.113	0.114	0.114	0.118	0.116
4th High 1-Hr in 3 Yrs								0.100	0.110	0.110	0.110	0.070	0.100	0.100	0.110	0.108	0.111	0.109	0.115	0.116
Avg of 4th Hi 8-Hr in 3 Yrs								0.097	0.094	0.092	0.088	0.065	0.077	0.085	0.087	0.089	0.095	0.095	0.096	0.097
Maximum 1-Hr. Concentration								0.120	0.150	0.110	0.110	0.090	0.110	0.099	0.111	0.108	0.119	0.165	0.130	0.116
Max. 8-Hr. Concentration								0.107	0.115	0.096	0.087	0.078	0.107	0.092	0.104	0.101	0.099	0.103	0.113	0.106
Days Above State Standard								12	8	7	2	0	8	3	22	10	16	20	21	21
Days Above Nat. 1-Hr. Std.								0	2	0	0	0	0	0	0	0	0	1	1	0
Days Above Nat. 8-Hr. Std.								11	9	7	5	0	9	4	29	17	25	33	28	23

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							38			44	43	34			49	136	92	84	57	
Max. Avg. of Quarters											22.5									
Calc Days Above State 24-Hr Std							0			0	0	0			0	62	18	12	6	
Calc Days Above Nat 24-Hr Std											0					0	0	0		

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration										1.0	0.0	10.0	9.0							
Max. 8-Hr. Concentration										0.1	0.0	5.4	5.4							
Days Above State 8-Hr. Std.										0	0	0	0							
Days Above Nat. 8-Hr. Std.										0	0	0	0							

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-45

Mountain Counties Air Basin

County: Placer

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator							0.155	0.134	0.134	0.109	0.120	0.119	0.118	0.119	0.116	0.111	0.106	0.111	0.114	
4th High 1-Hr in 3 Yrs							0.140	0.140	0.140	0.100	0.110	0.110	0.120	0.119	0.117	0.109	0.103	0.105	0.115	
Avg of 4th Hi 8-Hr in 3 Yrs							0.108	0.102	0.089	0.063	0.092	0.092	0.092	0.092	0.091	0.086	0.086	0.086	0.089	
Maximum 1-Hr. Concentration							0.160	0.120	0.090	0.060	0.130	0.120	0.122	0.130	0.108	0.103	0.132	0.159	0.119	
Max. 8-Hr. Concentration							0.138	0.101	0.078	0.035	0.098	0.097	0.107	0.100	0.091	0.097	0.108	0.093	0.095	
Days Above State Standard							39	24	0	0	17	9	15	16	4	2	11	9	10	
Days Above Nat. 1-Hr. Std.							7	0	0	0	1	0	0	1	0	0	1	1	0	
Days Above Nat. 8-Hr. Std.							35	22	0	0	12	4	12	11	5	2	8	9	5	

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration														86	60	74				
Max. Avg. of Quarters															22.0	21.2				
Calc Days Above State 24-Hr Std														18	6	32				
Calc Days Above Nat 24-Hr Std															0	0				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-46

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Mountain Counties Air Basin

County: Plumas

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator					0.090	0.090						0.087	0.090	0.094	0.094	0.096	0.083	0.084	0.083	0.084
4th High 1-Hr in 3 Yrs					0.080	0.080					0.050	0.080	0.090	0.090	0.091	0.091	0.081	0.083	0.083	0.083
Avg of 4th Hi 8-Hr in 3 Yrs					0.073	0.071					0.037	0.053	0.062	0.077	0.078	0.065	0.060	0.060	0.070	0.069
Maximum 1-Hr. Concentration					0.090	0.080					0.050	0.090	0.090	0.105	0.091	0.046	0.087	0.086	0.081	0.086
Max. 8-Hr. Concentration					0.078	0.073					0.040	0.076	0.083	0.096	0.080	0.042	0.074	0.077	0.076	0.072
Days Above State Standard					0	0					0	0	0	1	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.					0	0					0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.					0	0					0	0	0	2	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							153	144	138	162	120	130	98	52	55	66	74	125	75	60
Max. Avg. of Quarters									38.6		38.1		33.4	24.0			25.4	27.8		22.5
Calc Days Above State 24-Hr Std							72	62	72	90	84	89	39	6	6	30	18	30	24	15
Calc Days Above Nat 24-Hr Std									0		0		0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator					4.5	4.5														
Max. 1-Hr. Concentration					6.0	3.0														
Max. 8-Hr. Concentration					4.2	2.3														
Days Above State 8-Hr. Std.					0	0														
Days Above Nat. 8-Hr. Std.					0	0														

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator					0.046	0.046														
Max. 1-Hr. Concentration					0.050	0.040														
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-47

Mountain Counties Air Basin

County: Sierra

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration															114	138	60	68	39	
Max. Avg. of Quarters																31.9	22.8	25.1		
Calc Days Above State 24-Hr Std															12	30	15	12	0	
Calc Days Above Nat 24-Hr Std																0	0	0		

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-48

Mountain Counties Air Basin

County: Tuolumne

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator							0.097	0.094	0.092	0.089	0.102	0.102	0.103	0.105	0.112	0.112	0.118	0.115	0.113	0.108
4th High 1-Hr in 3 Yrs							0.091	0.091	0.091	0.090	0.090	0.100	0.101	0.103	0.116	0.117	0.117	0.116	0.114	0.107
Avg of 4th Hi 8-Hr in 3 Yrs							0.081	0.078	0.077	0.075	0.083	0.085	0.085	0.087	0.090	0.088	0.092	0.092	0.096	0.092
Maximum 1-Hr. Concentration							0.096	0.090	0.090	0.090	0.100	0.120	0.107	0.135	0.121	0.117	0.122	0.130	0.109	0.109
Max. 8-Hr. Concentration							0.086	0.078	0.081	0.078	0.097	0.088	0.094	0.105	0.108	0.107	0.107	0.103	0.104	0.097
Days Above State Standard							2	0	0	0	2	5	8	9	25	8	21	17	13	4
Days Above Nat. 1-Hr. Std.							0	0	0	0	0	0	0	1	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.							3	0	0	0	1	6	9	14	21	7	26	25	26	5

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration																				
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator											2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7	2.4
Max. 1-Hr. Concentration											4.0	5.0	4.4	3.9	4.5	6.6	6.7	4.1	3.4	2.8
Max. 8-Hr. Concentration											2.6	3.0	2.7	3.4	2.6	1.9	5.5	3.0	1.6	1.6
Days Above State 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.											0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-49

North Central Coast Air Basin

County: Monterey

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.090	0.098	0.098	0.098	0.095	0.095	0.092	0.098	0.096	0.095	0.093	0.092	0.092	0.094	0.093	0.090	0.093	0.084	0.087	0.082
4th High 1-Hr in 3 Yrs	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.100	0.090	0.090	0.090	0.090	0.091	0.087	0.089	0.084	0.085	0.081
Avg of 4th Hi 8-Hr in 3 Yrs	0.062	0.061	0.065	0.074	0.071	0.071	0.068	0.072	0.075	0.073	0.071	0.069	0.070	0.069	0.067	0.066	0.066	0.062	0.064	0.063
Maximum 1-Hr. Concentration	0.110	0.100	0.090	0.110	0.080	0.090	0.090	0.130	0.090	0.100	0.090	0.110	0.093	0.093	0.094	0.091	0.091	0.086	0.095	0.085
Max. 8-Hr. Concentration	0.073	0.083	0.075	0.087	0.076	0.077	0.077	0.095	0.080	0.078	0.085	0.083	0.092	0.077	0.081	0.076	0.076	0.072	0.079	0.079
Days Above State Standard	1	1	0	1	0	0	0	3	0	1	0	2	0	0	0	0	0	0	1	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							51	54	57	55	45	86	50	50	50	91	52	91	74	68
Max. Avg. of Quarters							22.9	25.4					19.6	20.7	20.1		27.0	29.0	29.6	29.3
Calc Days Above State 24-Hr Std							6	12	12	6	0	18	0	0	0	42	6	12	24	30
Calc Days Above Nat 24-Hr Std							0	0	0	0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	2.9	2.7	2.6	2.4	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.0	2.0	1.9	1.6	1.6
Max. 1-Hr. Concentration	6.0	3.0	5.0	6.0	4.0	5.0	6.0	5.0	5.0	4.0	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5	3.3
Max. 8-Hr. Concentration	2.6	2.1	3.0	3.3	2.3	2.3	2.4	2.4	2.5	2.5	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4	1.6
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.100	0.070	0.066	0.072	0.083	0.083	0.077	0.072	0.071	0.068	0.062	0.064	0.064	0.062	0.059	0.059	0.059	0.054	0.046	0.045
Max. 1-Hr. Concentration	0.070	0.060	0.060	0.090	0.110	0.070	0.070	0.070	0.060	0.060	0.070	0.070	0.067	0.054	0.060	0.056	0.085	0.054	0.071	0.041
Max. Annual Average	0.012	0.011	0.014	0.015	0.014		0.014	0.014	0.012	0.011	0.012	0.012	0.012		0.011	0.010	0.010		0.007	0.007

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01											
Max. 24-Hr. Concentration	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00											
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											

Table A-50

North Central Coast Air Basin

County: San Benito

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.119	0.108	0.104	0.113	0.109	0.146	0.136	0.131	0.115	0.114	0.115	0.111	0.107	0.106	0.111	0.112	0.113	0.103	0.104	0.100
4th High 1-Hr in 3 Yrs	0.120	0.110	0.100	0.100	0.100	0.134	0.134	0.139	0.120	0.110	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107	0.100
Avg of 4th Hi 8-Hr in 3 Yrs	0.083	0.081	0.077	0.081	0.078	0.103	0.095	0.090	0.084	0.083	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082	0.079
Maximum 1-Hr. Concentration	0.100	0.110	0.100	0.110	0.100	0.146	0.127	0.140	0.120	0.140	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098	0.108
Max. 8-Hr. Concentration	0.077	0.088	0.083	0.091	0.083	0.113	0.096	0.100	0.095	0.108	0.090	0.087	0.084	0.102	0.101	0.091	0.097	0.085	0.084	0.088
Days Above State Standard	1	5	6	11	1	37	14	8	10	9	9	8	6	7	16	1	9	2	2	3
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	5	1	1	0	1	0	0	0	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	3	0	4	0	26	6	1	5	3	3	2	0	3	9	1	6	1	0	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							71	58	48	55	17	61	37	50	38	34	37	67	40	42
Max. Avg. of Quarters								24.4		22.7		18.4	17.0	17.4	17.0	17.9	15.5	21.6	15.6	17.5
Calc Days Above State 24-Hr Std							12	6	0	6	0	11	0	0	0	0	0	6	0	0
Calc Days Above Nat 24-Hr Std								0		0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001

Peak 8-Hr. Indicator
Max. 1-Hr. Concentration
Max. 8-Hr. Concentration
Days Above State 8-Hr. Std.
Days Above Nat. 8-Hr. Std.

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.090	0.099	0.092																	
Max. 1-Hr. Concentration	0.070	0.110	0.060																	
Max. Annual Average	0.009	0.009																		

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001

Peak 1-Hr. Indicator
Max. 24-Hr. Concentration
Max. Annual Average

No Monitoring Data Available

Table A-51

North Central Coast Air Basin

County: Santa Cruz

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.098	0.091	0.089	0.103	0.096	0.098	0.094	0.093	0.084	0.084	0.082	0.110	0.102	0.102	0.098	0.095	0.096	0.088	0.090	0.086
4th High 1-Hr in 3 Yrs	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.080	0.090	0.080	0.100	0.100	0.100	0.094	0.091	0.092	0.084	0.089	0.084
Avg of 4th Hi 8-Hr in 3 Yrs	0.069	0.065	0.064	0.069	0.066	0.067	0.062	0.061	0.060	0.058	0.066	0.073	0.072	0.062	0.066	0.067	0.068	0.066	0.066	0.065
Maximum 1-Hr. Concentration	0.090	0.100	0.080	0.110	0.090	0.090	0.080	0.100	0.100	0.120	0.090	0.100	0.094	0.097	0.107	0.089	0.107	0.097	0.096	0.085
Max. 8-Hr. Concentration	0.073	0.071	0.072	0.088	0.077	0.073	0.070	0.087	0.080	0.082	0.075	0.086	0.078	0.070	0.088	0.071	0.077	0.072	0.078	0.073
Days Above State Standard	0	1	0	2	0	0	0	1	1	2	0	7	0	1	2	0	1	1	1	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	2	0	0	0	1	0	0	0	2	0	0	2	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							65	51	49	49	36	102	106	152	115	113	76	103	50	72
Max. Avg. of Quarters									23.7	24.5			31.1	36.7	33.0	36.6	28.4	30.6	26.0	28.5
Calc Days Above State 24-Hr Std							18	6	0	0	0	48	30	72	72	72	24	36	0	33
Calc Days Above Nat 24-Hr Std									0	0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator						1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	0.8	0.8	0.8	0.8	0.9
Max. 1-Hr. Concentration						1.0	2.0	3.0	2.0	1.0	2.0	1.0	2.2	1.4	3.0	0.9	1.0	2.0	1.3	1.9
Max. 8-Hr. Concentration						1.0	1.3	1.3	1.0	1.0	1.2	1.0	1.3	0.9	1.0	0.7	0.9	0.8	0.8	1.0
Days Above State 8-Hr. Std.						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator						0.044	0.049	0.049	0.050	0.049	0.047	0.044	0.051	0.052	0.050	0.045	0.041	0.035	0.036	0.036
Max. 1-Hr. Concentration					0.040	0.050	0.050	0.040	0.050	0.040	0.040	0.050	0.045	0.053	0.042	0.031	0.039	0.032	0.035	0.042
Max. Annual Average						0.005		0.008			0.006		0.005		0.005		0.004	0.005	0.005	0.005

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator						0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.04	0.05	0.04	0.03	0.01	0.01	0.01	0.02
Max. 24-Hr. Concentration					0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01
Max. Annual Average					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-52

North Coast Air Basin

County: Del Norte

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator							0.062	0.059	0.066	0.063	0.063	0.062	0.063	0.062						
4th High 1-Hr in 3 Yrs						0.039	0.059	0.059	0.060	0.060	0.060	0.060	0.060	0.060						
Avg of 4th Hi 8-Hr in 3 Yrs						0.035	0.043	0.042	0.053	0.051	0.051	0.050	0.051	0.049						
Maximum 1-Hr. Concentration						0.040	0.068	0.050	0.070	0.060	0.070	0.060	0.064	0.056						
Max. 8-Hr. Concentration						0.038	0.060	0.042	0.060	0.051	0.061	0.053	0.061	0.052						
Days Above State Standard						0	0	0	0	0	0	0	0	0						
Days Above Nat. 1-Hr. Std.						0	0	0	0	0	0	0	0	0						
Days Above Nat. 8-Hr. Std.						0	0	0	0	0	0	0	0	0						

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							46							41	42	58	48	39	44	46
Max. Avg. of Quarters																20.5		17.6		17.0
Calc Days Above State 24-Hr Std							0							0	0	3	0	0	0	0
Calc Days Above Nat 24-Hr Std														0		0		0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-53

North Coast Air Basin

County: Humboldt

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator										0.049	0.049									
4th High 1-Hr in 3 Yrs									0.030	0.040	0.040									
Avg of 4th Hi 8-Hr in 3 Yrs									0.030	0.035	0.034									
Maximum 1-Hr. Concentration									0.040	0.050	0.040									
Max. 8-Hr. Concentration									0.031	0.042	0.040									
Days Above State Standard									0	0	0									
Days Above Nat. 1-Hr. Std.									0	0	0									
Days Above Nat. 8-Hr. Std.									0	0	0									

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							98	92	83				77	68	87	56	43	57	51	64
Max. Avg. of Quarters							35.8	31.1	27.5				24.3	19.8	18.6	20.7	14.7	19.1	20.6	
Calc Days Above State 24-Hr Std							69	32	25				12	6	9	6	0	6	6	6
Calc Days Above Nat 24-Hr Std							0	0	0				0	0	0	0	0	0	0	

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator								4.6	4.6											
Max. 1-Hr. Concentration								10.0	9.0											
Max. 8-Hr. Concentration								4.5	3.5											
Days Above State 8-Hr. Std.								0	0											
Days Above Nat. 8-Hr. Std.								0	0											

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-54

North Coast Air Basin

County: Mendocino

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.079	0.076	0.076	0.073	0.074	0.083						0.073	0.075	0.075	0.076	0.074	0.080	0.079	0.079	0.077
4th High 1-Hr in 3 Yrs	0.080	0.080	0.070	0.070	0.070	0.080	0.080				0.050	0.060	0.074	0.080	0.073	0.069	0.069	0.073	0.073	0.073
Avg of 4th Hi 8-Hr in 3 Yrs	0.055	0.053	0.051	0.050	0.052	0.056	0.066				0.038	0.047	0.050	0.056	0.052	0.050	0.052	0.058	0.058	0.055
Maximum 1-Hr. Concentration	0.080	0.070	0.070	0.070	0.070	0.090	0.090				0.060	0.080	0.087	0.084	0.058	0.071	0.090	0.079	0.071	0.070
Max. 8-Hr. Concentration	0.065	0.057	0.062	0.056	0.062	0.076	0.076				0.043	0.065	0.061	0.065	0.049	0.061	0.071	0.069	0.059	0.055
Days Above State Standard	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							101	82	60	74	51	54	62	54	56	66	50	66	49	61
Max. Avg. of Quarters								29.8	23.7	25.4	21.9	22.5		26.1	24.8	22.9	21.1	24.0	22.2	24.2
Calc Days Above State 24-Hr Std							54	38	24	17	6	9	24	12	6	6	0	12	0	18
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator				5.2	5.2							2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.2
Max. 1-Hr. Concentration			6.0	8.0	6.0		1.0				1.0	6.0		5.4	4.8	7.4	4.8	5.2	3.1	1.6
Max. 8-Hr. Concentration			4.1	5.5	3.1		1.0				0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.4	1.1
Days Above State 8-Hr. Std.			0	0	0		0				0	0		0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.			0	0	0		0				0	0		0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator												0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053	0.052
Max. 1-Hr. Concentration							0.030				0.080	0.050	0.079	0.078	0.044	0.061	0.052	0.066	0.042	0.052
Max. Annual Average														0.009		0.010	0.010	0.010	0.011	0.010

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator												0.01	0.01							
Max. 24-Hr. Concentration							0.01				0.01	0.00	0.00							
Max. Annual Average							0.00				0.00	0.00	0.00							

Table A-55

North Coast Air Basin

County: Sonoma

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator											0.085	0.088	0.089	0.090	0.088	0.091	0.103	0.109	0.105	0.093
4th High 1-Hr in 3 Yrs											0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100
Avg of 4th Hi 8-Hr in 3 Yrs											0.063	0.065	0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069
Maximum 1-Hr. Concentration											0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090	0.090
Max. 8-Hr. Concentration											0.072	0.073	0.080	0.090	0.071	0.091	0.106	0.087	0.077	0.073
Days Above State Standard											0	0	1	1	0	2	7	4	0	0
Days Above Nat. 1-Hr. Std.											0	0	0	0	0	0	1	0	0	0
Days Above Nat. 8-Hr. Std.											0	0	0	1	0	1	5	2	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							86	85	266	78	58	53	57	43	40	54	32	71	44	59
Max. Avg. of Quarters							24.8	26.8	23.6			20.2	18.6		16.6	16.0	15.9	18.1	14.5	
Calc Days Above State 24-Hr Std							24	29	16	35	6	12	12	0	0	3	0	12	0	6
Calc Days Above Nat 24-Hr Std							0	0	6	0		0	0		0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-56

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

North Coast Air Basin

County: Trinity

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							125							41	72	54	46	100	51	73
Max. Avg. of Quarters																17.9			18.6	
Calc Days Above State 24-Hr Std							42							0	8	6	0	30	3	18
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator						3.4														
Max. 1-Hr. Concentration						4.0														
Max. 8-Hr. Concentration						3.0														
Days Above State 8-Hr. Std.						0														
Days Above Nat. 8-Hr. Std.						0														

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-57

Northeast Plateau Air Basin

County: Lassen

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration															42	84	52	100	80	105
Max. Avg. of Quarters																				
Calc Days Above State 24-Hr Std															0	18	12	54	48	36
Calc Days Above Nat 24-Hr Std																				

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-58

Northeast Plateau Air Basin

County: Modoc

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration													101	78	74	97	62	94	79	47
Max. Avg. of Quarters														30.6				26.5	22.3	19.9
Calc Days Above State 24-Hr Std													18	54	12	6	12	30	18	6
Calc Days Above Nat 24-Hr Std														0				0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-59

Northeast Plateau Air Basin

County: Siskiyou

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.071	0.072	0.074	0.076	0.079	0.081	0.082	0.083	0.082	0.084	0.081	0.073	0.075	0.074	0.075	0.074	0.079	0.078	0.081	0.086
4th High 1-Hr in 3 Yrs	0.070	0.070	0.070	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.075	0.075	0.078	0.091
Avg of 4th Hi 8-Hr in 3 Yrs	0.056	0.056	0.059	0.061	0.064	0.069	0.069	0.069	0.067	0.059	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.063	0.056
Maximum 1-Hr. Concentration	0.070	0.070	0.080	0.080	0.080	0.090	0.080	0.080	0.080	0.050	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.082	0.056
Max. 8-Hr. Concentration	0.066	0.062	0.066	0.075	0.070	0.081	0.071	0.076	0.076	0.046	0.073	0.070	0.068	0.062	0.063	0.074	0.071	0.067	0.071	0.050
Days Above State Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							92	59	63	60	74	60	61	46	188	40	66	56	53	41
Max. Avg. of Quarters							24.8	24.7	23.1		23.9		22.3					17.7		14.2
Calc Days Above State 24-Hr Std							21	26	25	12	24	6	6	0	6	0	6	6	6	0
Calc Days Above Nat 24-Hr Std							0	0	0		0		0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration						12.0	4.0													
Max. 8-Hr. Concentration						10.4	1.8													
Days Above State 8-Hr. Std.						1	0													
Days Above Nat. 8-Hr. Std.						1	0													

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	No Monitoring Data Available																			
Max. 1-Hr. Concentration																				
Max. Annual Average																				

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	No Monitoring Data Available																			
Max. 24-Hr. Concentration																				
Max. Annual Average																				

Table A-60

Sacramento Valley Air Basin

County: Butte

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.094	0.087	0.086	0.094	0.097	0.102	0.103	0.105	0.103	0.098	0.094	0.091	0.096	0.098	0.095	0.091	0.091	0.101	0.103	0.102
4th High 1-Hr in 3 Yrs	0.100	0.090	0.080	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.090	0.090	0.095	0.097	0.097	0.091	0.096	0.103	0.103	0.099
Avg of 4th Hi 8-Hr in 3 Yrs	0.070	0.068	0.069	0.074	0.078	0.082	0.081	0.082	0.080	0.077	0.076	0.075	0.078	0.078	0.077	0.072	0.072	0.077	0.086	0.087
Maximum 1-Hr. Concentration	0.090	0.080	0.090	0.100	0.110	0.110	0.100	0.100	0.130	0.100	0.090	0.100	0.099	0.105	0.108	0.087	0.106	0.135	0.105	0.101
Max. 8-Hr. Concentration	0.076	0.068	0.075	0.093	0.087	0.088	0.092	0.087	0.095	0.085	0.077	0.083	0.091	0.086	0.084	0.072	0.090	0.100	0.095	0.089
Days Above State Standard	0	0	0	4	2	5	8	4	2	1	0	1	3	1	2	0	2	7	5	4
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	4	1	3	3	1	1	1	0	0	2	1	0	0	1	5	6	6

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							115	91	97	123	83	78	93	64	66	108	68	95	81	105
Max. Avg. of Quarters							41.4		35.2	38.5		27.0	33.4	26.4	25.4	24.1	21.8	30.6	27.4	29.4
Calc Days Above State 24-Hr Std							120	44	58	99	39	38	36	36	15	17	19	42	45	30
Calc Days Above Nat 24-Hr Std							0	0	0	0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	9.2	8.6	8.6	8.6	10.0	10.2	10.7	10.1	10.4	9.8	9.8	8.9	6.2	5.8	5.9	5.5	5.3	4.4	4.5	4.6
Max. 1-Hr. Concentration	17.0	12.0	14.0	15.0	20.0	12.0	17.0	15.0	17.0	15.0	14.0	9.0	9.4	8.5	8.7	7.0	6.0	7.2	5.2	6.4
Max. 8-Hr. Concentration	12.4	6.5	10.9	9.8	10.4	8.6	12.3	10.0	10.8	9.2	6.8	5.8	5.7	4.8	6.1	5.1	4.5	5.4	4.0	4.3
Days Above State 8-Hr. Std.	3	0	1	2	3	0	2	1	1	2	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	2	0	1	2	2	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.070	0.072	0.081	0.084	0.083	0.089	0.090	0.089	0.081	0.081	0.082	0.082	0.078	0.077	0.074	0.072	0.068	0.074	0.077	0.075
Max. 1-Hr. Concentration	0.080	0.110	0.160	0.080	0.080	0.090	0.100	0.080	0.080	0.070	0.080	0.090	0.080	0.074	0.070	0.061	0.068	0.077	0.078	0.062
Max. Annual Average		0.011	0.014	0.014	0.016	0.017	0.016	0.016	0.015		0.016	0.016	0.015	0.014	0.013	0.013	0.013	0.015	0.012	0.012

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.01																			
Max. 24-Hr. Concentration	0.00																			
Max. Annual Average	0.00																			

Table A-61

Sacramento Valley Air Basin

County: Colusa

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.105	0.102	0.110	0.111	0.109	0.112					0.108	0.107	0.102	0.102	0.109	0.101	0.100	0.095	0.094	0.098
4th High 1-Hr in 3 Yrs	0.110	0.100	0.110	0.100	0.110	0.110				0.090	0.100	0.100	0.100	0.101	0.102	0.098	0.099	0.094	0.094	0.095
Avg of 4th Hi 8-Hr in 3 Yrs	0.078	0.078	0.080	0.082	0.085	0.085				0.073	0.078	0.079	0.082	0.082	0.082	0.077	0.077	0.076	0.075	0.077
Maximum 1-Hr. Concentration	0.110	0.090	0.110	0.110	0.110	0.120				0.100	0.110	0.100	0.107	0.106	0.111	0.093	0.099	0.095	0.092	0.101
Max. 8-Hr. Concentration	0.091	0.086	0.093	0.091	0.088	0.102				0.084	0.092	0.085	0.090	0.090	0.091	0.081	0.088	0.085	0.072	0.088
Days Above State Standard	3	0	12	7	12	28				1	8	3	4	6	6	0	2	1	0	5
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	5	4	5	21				0	3	2	2	2	4	0	1	1	0	3

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							98	72	93	102	84	70	57	93	57	57	58	171	55	74
Max. Avg. of Quarters							33.0	29.8	31.0		28.9	24.2	27.9	29.9	26.9	24.3	19.5			24.5
Calc Days Above State 24-Hr Std							72	36	33	75	36	12	18	54	18	9	6	60	3	6
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	6	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-62

Sacramento Valley Air Basin

County: Glenn

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.102	0.102	0.105	0.107	0.101	0.108			0.102	0.104	0.101	0.103	0.101	0.098	0.098	0.097	0.094	0.098	0.096	0.097
4th High 1-Hr in 3 Yrs	0.100	0.100	0.100	0.110	0.100	0.110			0.090	0.100	0.100	0.100	0.100	0.096	0.098	0.092	0.095	0.097	0.097	0.096
Avg of 4th Hi 8-Hr in 3 Yrs	0.077	0.077	0.079	0.080	0.080	0.084			0.080	0.078	0.081	0.080	0.081	0.080	0.079	0.077	0.076	0.078	0.077	0.077
Maximum 1-Hr. Concentration	0.100	0.110	0.100	0.110	0.100	0.120			0.100	0.100	0.110	0.100	0.099	0.103	0.098	0.096	0.098	0.101	0.086	0.094
Max. 8-Hr. Concentration	0.080	0.095	0.088	0.090	0.083	0.097			0.086	0.082	0.088	0.083	0.086	0.087	0.081	0.080	0.088	0.093	0.078	0.084
Days Above State Standard	2	4	1	5	2	9			3	1	6	1	3	1	1	1	2	4	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	3	1	3	0	8			1	0	4	0	2	1	0	0	1	2	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							93	73	63	81	111	75	80	88	75	72	53	88	65	68
Max. Avg. of Quarters							35.1	27.0	27.9	32.4	28.6	22.5		27.8	24.8	21.8		26.1	21.8	
Calc Days Above State 24-Hr Std							72	18	18	72	39	15	12	45	27	5	7	54	3	18
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0		0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-63

Sacramento Valley Air Basin

County: Placer

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.144	0.146	0.144	0.153	0.153	0.149	0.153	0.148	0.150	0.138	0.145	0.138	0.137	0.135	0.139	0.134	0.138	0.129	0.134	0.124
4th High 1-Hr in 3 Yrs	0.150	0.140	0.150	0.160	0.160	0.150	0.160	0.150	0.150	0.140	0.140	0.140	0.140	0.134	0.131	0.131	0.131	0.132	0.132	0.127
Avg of 4th Hi 8-Hr in 3 Yrs	0.107	0.102	0.104	0.111	0.109	0.105	0.108	0.105	0.107	0.105	0.105	0.103	0.103	0.105	0.103	0.095	0.095	0.097	0.102	0.091
Maximum 1-Hr. Concentration	0.160	0.160	0.180	0.180	0.170	0.180	0.180	0.120	0.150	0.130	0.170	0.150	0.133	0.148	0.135	0.113	0.153	0.142	0.128	0.128
Max. 8-Hr. Concentration	0.130	0.118	0.112	0.127	0.123	0.121	0.120	0.097	0.127	0.115	0.122	0.120	0.117	0.119	0.110	0.096	0.119	0.113	0.107	0.102
Days Above State Standard	39	36	39	35	45	41	55	23	42	36	46	23	35	35	33	10	23	28	25	19
Days Above Nat. 1-Hr. Std.	4	6	5	8	4	7	13	0	11	4	8	4	5	3	3	0	7	3	1	1
Days Above Nat. 8-Hr. Std.	27	24	28	25	36	37	43	13	41	29	34	17	27	21	26	4	20	27	19	10

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							70	67	58	68	48	52	65	84	98	66	70	89	58	59
Max. Avg. of Quarters							31.4	28.8				24.0	25.1		23.8	21.5	21.9	25.9	23.5	24.0
Calc Days Above State 24-Hr Std							24	18	9	6	0	6	15	18	6	20	13	24	6	18
Calc Days Above Nat 24-Hr Std							0	0				0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator											2.3	2.6	2.9	2.6	2.5	2.2	2.3	2.3	2.4	2.3
Max. 1-Hr. Concentration										4.0	9.0	6.0	4.7	3.9	4.5	3.7	4.2	3.9	3.2	3.1
Max. 8-Hr. Concentration										3.3	2.3	2.8	3.0	2.2	2.8	2.1	2.4	2.2	2.4	1.9
Days Above State 8-Hr. Std.										0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.										0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator											0.090	0.088	0.090	0.096	0.098	0.095	0.091	0.092	0.091	0.090
Max. 1-Hr. Concentration										0.050	0.080	0.090	0.089	0.093	0.100	0.080	0.097	0.093	0.082	0.086
Max. Annual Average											0.015	0.016	0.018	0.017	0.016	0.015	0.016	0.012	0.016	0.015

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-64

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento Valley Air Basin

County: Sacramento

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.155	0.153	0.139
4th High 1-Hr in 3 Yrs	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148	0.133
Avg of 4th Hi 8-Hr in 3 Yrs	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.101	0.100	0.101	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105	0.099
Maximum 1-Hr. Concentration	0.160	0.170	0.210	0.200	0.160	0.170	0.170	0.170	0.150	0.190	0.150	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138	0.142
Max. 8-Hr. Concentration	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.108	0.140	0.122	0.118	0.121	0.128	0.126	0.107	0.137	0.129	0.108	0.108
Days Above State Standard	56	52	58	48	48	74	86	61	29	55	52	26	36	39	49	21	42	40	31	31
Days Above Nat. 1-Hr. Std.	17	12	23	18	22	17	30	8	8	12	9	6	6	10	7	3	13	5	4	2
Days Above Nat. 8-Hr. Std.	36	38	44	32	36	53	58	32	20	45	35	14	24	32	29	9	29	26	26	23

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							99	139	153	134	89	110	99	90	86	108	104	141	86	89
Max. Avg. of Quarters							39.8	41.5		42.2			30.4	28.8	25.2	22.4	26.3	32.9	26.5	
Calc Days Above State 24-Hr Std							90	80	93	99	42	42	36	50	24	14	43	66	21	30
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	13.4	13.2	13.0	13.1	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3
Max. 1-Hr. Concentration	17.0	19.0	18.0	17.0	20.0	15.0	15.0	18.0	16.0	15.0	12.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	6.7
Max. 8-Hr. Concentration	15.1	14.1	12.4	13.3	13.9	10.0	11.6	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3
Days Above State 8-Hr. Std.	9	6	6	12	12	5	11	22	14	8	0	2	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	8	4	5	12	11	3	8	22	12	6	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.119	0.114	0.103	0.109	0.112	0.115	0.123	0.117	0.115	0.122	0.128	0.126	0.115	0.106	0.101	0.094	0.086	0.107	0.097	0.095
Max. 1-Hr. Concentration	0.120	0.110	0.100	0.130	0.120	0.100	0.180	0.130	0.160	0.240	0.190	0.120	0.111	0.099	0.145	0.092	0.101	0.110	0.085	0.102
Max. Annual Average	0.018	0.016	0.019	0.021	0.022	0.022	0.025		0.023	0.024	0.021		0.022	0.022	0.022	0.019	0.021	0.021	0.019	0.019

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.03	0.03		0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01		0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02
Max. Annual Average	0.00	0.00	0.00	0.00	0.00		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Table A-65

Sacramento Valley Air Basin

County: Shasta

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.111	0.117	0.110	0.115	0.115	0.121	0.122	0.119	0.129	0.119	0.117	0.111	0.111	0.105	0.114	0.118	0.127	0.126	0.125	0.110
4th High 1-Hr in 3 Yrs	0.110	0.110	0.100	0.100	0.110	0.120	0.120	0.120	0.110	0.110	0.110	0.110	0.110	0.101	0.110	0.110	0.120	0.120	0.120	0.111
Avg of 4th Hi 8-Hr in 3 Yrs	0.091	0.088	0.082	0.077	0.080	0.091	0.088	0.085	0.093	0.091	0.090	0.083	0.084	0.080	0.087	0.086	0.095	0.095	0.093	0.082
Maximum 1-Hr. Concentration	0.100	0.100	0.100	0.120	0.120	0.130	0.120	0.090	0.130	0.110	0.110	0.110	0.113	0.099	0.110	0.119	0.140	0.116	0.102	0.100
Max. 8-Hr. Concentration	0.091	0.093	0.091	0.105	0.097	0.108	0.105	0.083	0.110	0.095	0.091	0.088	0.105	0.084	0.100	0.107	0.126	0.098	0.087	0.084
Days Above State Standard	5	7	2	10	8	25	5	0	13	12	10	1	7	3	16	8	40	23	3	1
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3	0	0	0
Days Above Nat. 8-Hr. Std.	2	4	2	9	9	21	3	0	13	11	10	1	8	0	14	6	45	12	1	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							60	91	80	83	86	91	64	55	51	63	61	81	49	66
Max. Avg. of Quarters							26.0							25.5	24.4	21.8	23.1		23.2	23.8
Calc Days Above State 24-Hr Std							24	50	54	60	36	29	12	12	6	8	13	15	0	6
Calc Days Above Nat 24-Hr Std							0		0	0		0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator			1.1	1.1	3.1	3.1		2.3	2.3	2.3	2.6	2.0	2.0							
Max. 1-Hr. Concentration	9.0	10.0	3.0	2.0	5.0	4.0	4.0	4.0	4.0	3.0	3.0	4.0	4.5							
Max. 8-Hr. Concentration	3.4	6.0	1.1	1.1	2.8	2.5	1.8	2.5	2.3	2.0	1.9	2.1	1.7							
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0							
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0							

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator					0.091	0.093	0.093	0.091	0.081	0.069	0.069									
Max. 1-Hr. Concentration				0.020	0.090	0.100	0.100	0.080	0.070	0.070	0.050									
Max. Annual Average						0.015				0.012										

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-66

Sacramento Valley Air Basin

County: Solano

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.106	0.094	0.085	0.081	0.093	0.112	0.108	0.112	0.104					0.114	0.113	0.113	0.117	0.121	0.120	0.112
4th High 1-Hr in 3 Yrs	0.110	0.090	0.080	0.080	0.090	0.110	0.110	0.120	0.100					0.102	0.106	0.106	0.123	0.123	0.123	0.110
Avg of 4th Hi 8-Hr in 3 Yrs	0.069	0.055	0.051	0.047	0.055	0.066	0.079	0.082	0.075					0.079	0.079	0.076	0.082	0.085	0.085	0.077
Maximum 1-Hr. Concentration	0.100	0.080	0.100	0.070	0.090	0.120	0.100	0.120	0.110					0.115	0.126	0.105	0.137	0.140	0.100	0.104
Max. 8-Hr. Concentration	0.065	0.052	0.070	0.052	0.066	0.102	0.088	0.101	0.088					0.090	0.101	0.083	0.101	0.106	0.081	0.081
Days Above State Standard	1	0	1	0	0	12	2	4	1					6	8	3	10	8	2	2
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0					0	1	0	2	1	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	8	2	1	1					3	2	0	7	8	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							81	109	96	98	70	53	76	62	45	74	56	66	47	77
Max. Avg. of Quarters											24.5	22.3	21.3	19.0	17.4	15.5	16.9	19.8	18.3	20.1
Calc Days Above State 24-Hr Std							21	26	31	72	24	6	18	12	0	2	6	18	0	12
Calc Days Above Nat 24-Hr Std											0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration							4.0													
Max. 8-Hr. Concentration							1.8													
Days Above State 8-Hr. Std.							0													
Days Above Nat. 8-Hr. Std.							0													

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-67

A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Sacramento Valley Air Basin

County: Sutter

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.105	0.123	0.127	0.125	0.125	0.120	0.128	0.123	0.121	0.106	0.111	0.125	0.121	0.120	0.115	0.114	0.120	0.116	0.115	0.107
4th High 1-Hr in 3 Yrs	0.100	0.130	0.130	0.120	0.120	0.120	0.130	0.120	0.120	0.100	0.110	0.110	0.113	0.113	0.113	0.107	0.116	0.116	0.116	0.106
Avg of 4th Hi 8-Hr in 3 Yrs	0.085	0.086	0.089	0.089	0.092	0.093	0.095	0.091	0.082	0.076	0.082	0.097	0.096	0.096	0.096	0.091	0.091	0.089	0.089	0.083
Maximum 1-Hr. Concentration	0.140	0.130	0.130	0.120	0.140	0.140	0.150	0.100	0.110	0.110	0.120	0.140	0.115	0.126	0.116	0.105	0.124	0.115	0.108	0.116
Max. 8-Hr. Concentration	0.103	0.108	0.101	0.097	0.103	0.107	0.103	0.087	0.083	0.095	0.108	0.108	0.100	0.103	0.102	0.092	0.102	0.097	0.092	0.093
Days Above State Standard	10	11	22	18	21	23	41	4	2	10	29	13	25	21	28	5	16	21	9	6
Days Above Nat. 1-Hr. Std.	2	2	1	0	2	1	2	0	0	0	0	2	0	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	5	5	14	10	12	16	32	2	0	2	13	9	18	17	28	3	14	11	5	3

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							109	103	96	108	79	78	154	128	82	98	60	150	70	80
Max. Avg. of Quarters							37.8		38.4	38.7	34.6	30.2	34.4		29.8	27.9	23.3	38.1	27.7	30.2
Calc Days Above State 24-Hr Std							84	48	75	96	54	36	33	54	21	14	19	48	21	48
Calc Days Above Nat 24-Hr Std							0		0	0	0	0	0		0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator										10.2	8.1	5.8	5.7	5.2	4.8	4.6	4.4	4.4	4.4	4.6
Max. 1-Hr. Concentration										12.0	9.0	10.0	8.8	7.5	7.7	6.1	7.3	7.2	6.1	17.2
Max. 8-Hr. Concentration										8.5	6.3	7.3	6.1	4.7	4.7	4.1	4.9	4.4	3.6	3.9
Days Above State 8-Hr. Std.										0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.										0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator										0.108	0.089	0.088	0.086	0.083	0.079	0.077	0.075	0.081	0.079	0.082
Max. 1-Hr. Concentration										0.100	0.090	0.090	0.075	0.074	0.068	0.073	0.074	0.085	0.072	0.079
Max. Annual Average											0.017	0.017	0.016	0.013	0.012	0.014	0.013	0.014		

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-68

Sacramento Valley Air Basin

County: Tehama

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator									0.119	0.115	0.113	0.107	0.104	0.108	0.102	0.099	0.109	0.115	0.115	0.111
4th High 1-Hr in 3 Yrs									0.110	0.110	0.110	0.100	0.100	0.100	0.098	0.099	0.120	0.120	0.120	0.109
Avg of 4th Hi 8-Hr in 3 Yrs									0.095	0.089	0.089	0.086	0.086	0.086	0.084	0.083	0.086	0.091	0.091	0.086
Maximum 1-Hr. Concentration									0.120	0.110	0.100	0.100	0.100	0.110	0.108	0.101	0.120	0.128	0.099	0.099
Max. 8-Hr. Concentration									0.100	0.085	0.091	0.093	0.087	0.103	0.084	0.093	0.112	0.108	0.088	0.085
Days Above State Standard									15	6	9	5	2	10	4	2	12	18	3	3
Days Above Nat. 1-Hr. Std.									0	0	0	0	0	0	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.									11	2	9	4	3	9	0	2	11	20	2	1

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							99	68	67	85	75	67	74	63	56	58	119	98	49	71
Max. Avg. of Quarters							42.6	31.5	29.7	32.6	29.5	24.9	30.0			22.1			23.1	26.3
Calc Days Above State 24-Hr Std							114	42	24	63	30	18	36	30	6	8	48	48	0	18
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0			0			0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-69

Sacramento Valley Air Basin

County: Yolo

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.132	0.129	0.126	0.124	0.120	0.125	0.124	0.119	0.115	0.113	0.112	0.110	0.106	0.107	0.109	0.111	0.120	0.116	0.115	0.112
4th High 1-Hr in 3 Yrs	0.130	0.130	0.120	0.120	0.130	0.140	0.130	0.120	0.120	0.100	0.110	0.110	0.110	0.103	0.108	0.108	0.110	0.110	0.110	0.105
Avg of 4th Hi 8-Hr in 3 Yrs	0.096	0.091	0.084	0.086	0.086	0.087	0.087	0.085	0.080	0.077	0.086	0.080	0.079	0.078	0.082	0.079	0.087	0.086	0.085	0.082
Maximum 1-Hr. Concentration	0.120	0.120	0.140	0.140	0.140	0.140	0.120	0.100	0.140	0.100	0.120	0.130	0.100	0.114	0.122	0.104	0.115	0.117	0.103	0.103
Max. 8-Hr. Concentration	0.105	0.093	0.097	0.097	0.100	0.127	0.097	0.083	0.105	0.091	0.096	0.097	0.082	0.091	0.104	0.086	0.102	0.094	0.089	0.093
Days Above State Standard	18	13	20	13	12	25	32	3	9	4	14	1	4	9	13	2	10	10	7	6
Days Above Nat. 1-Hr. Std.	0	0	2	1	2	3	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	12	7	11	6	4	13	12	0	6	1	7	1	0	4	4	1	5	6	2	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							96	113	147	136	106	96	98	145	77	126	130	179	79	95
Max. Avg. of Quarters							39.7					31.3			27.6	26.5	28.5	32.1	25.5	27.4
Calc Days Above State 24-Hr Std							111	44	43	114	96	60	36	66	42	8	55	60	30	30
Calc Days Above Nat 24-Hr Std							0		0		0	0	0	0	0	0	0	7	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	5.1	4.6	4.2	3.6	4.4	4.6	4.6	4.6	4.9	5.2	3.8	3.8			1.4	1.7	1.5	1.4	1.2	1.2
Max. 1-Hr. Concentration	9.0	10.0	9.0	12.0	13.0	14.0	9.0	13.0	12.0	7.0	7.0	6.0	10.0	5.3	2.4	2.8	2.5	2.4	2.5	19.1
Max. 8-Hr. Concentration	6.4	3.8	4.1	4.9	6.0	8.4	4.9	5.4	5.0	3.5	3.9	3.4	6.6	3.1	1.8	1.8	1.1	1.4	1.3	3.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator															0.064	0.061	0.064	0.069	0.069	0.082
Max. 1-Hr. Concentration															0.061	0.057	0.060	0.073	0.053	0.172
Max. Annual Average																0.010	0.011	0.012	0.011	0.010

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-70

Sacramento Valley Air Basin

County: Yuba

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator																				
4th High 1-Hr in 3 Yrs																				
Avg of 4th Hi 8-Hr in 3 Yrs																				
Maximum 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State Standard																				
Days Above Nat. 1-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							96	113	80	102										
Max. Avg. of Quarters									31.3											
Calc Days Above State 24-Hr Std							39	44	37	60										
Calc Days Above Nat 24-Hr Std									0											

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-71

Salton Sea Air Basin

County: Imperial

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.117	0.114	0.104	0.122	0.134	0.092	0.110	0.110	0.117	0.108	0.150	0.156	0.154	0.163	0.155	0.157	0.145	0.147	0.149	0.152
4th High 1-Hr in 3 Yrs	0.120	0.110	0.100	0.120	0.120	0.090	0.110	0.110	0.110	0.120	0.150	0.150	0.150	0.180	0.180	0.160	0.140	0.142	0.157	0.166
Avg of 4th Hi 8-Hr in 3 Yrs	0.083	0.078	0.059	0.067	0.071	0.069	0.073	0.075	0.076	0.078	0.090	0.095	0.104	0.105	0.103	0.103	0.093	0.092	0.089	0.092
Maximum 1-Hr. Concentration	0.100	0.110	0.050	0.130	0.090	0.090	0.120	0.110	0.110	0.180	0.150	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169	0.167
Max. 8-Hr. Concentration	0.081	0.080	0.031	0.102	0.080	0.081	0.098	0.088	0.082	0.135	0.117	0.128	0.116	0.116	0.117	0.120	0.104	0.110	0.113	0.112
Days Above State Standard	2	3	0	16	0	0	17	4	6	9	46	50	75	83	69	69	44	65	20	41
Days Above Nat. 1-Hr. Std.	0	0	0	1	0	0	0	0	0	3	8	16	8	22	10	10	5	24	5	10
Days Above Nat. 8-Hr. Std.	0	0	0	10	0	0	3	1	0	3	24	24	47	49	34	50	18	20	5	18

PM_{10} (ug/m3)*	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							368	676	258	243	103	175	258	229	359	532	176	227	268	647
Max. Avg. of Quarters							61.0	78.4	57.5		48.0	53.1		71.7		77.4	66.3	78.1	95.9	86.1
Calc Days Above State 24-Hr Std							198	210	195	192	138	137	192	210	246	290	229	264	312	305
Calc Days Above Nat 24-Hr Std							7	27	12	7	0	13	0	13	30	12	12	32	38	18

** PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator													17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3
Max. 1-Hr. Concentration													30.6	32.0	27.0	24.0	23.5	22.9	19.9	17.4
Max. 8-Hr. Concentration													13.1	22.9	22.1	17.8	14.4	17.9	15.5	12.3
Days Above State 8-Hr. Std.													10	17	11	15	12	13	7	6
Days Above Nat. 8-Hr. Std.													9	15	9	10	8	11	6	6

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator													0.153	0.182	0.179	0.179	0.150	0.145	0.170	
Max. 1-Hr. Concentration													0.227	0.217	0.164	0.128	0.257	0.286	0.192	0.086
Max. Annual Average														0.016	0.014			0.018		

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator															0.04	0.04	0.04	0.04	0.03	
Max. 24-Hr. Concentration													0.02	0.02	0.02	0.02	0.02	0.02	0.01	
Max. Annual Average													0.01	0.01	0.00	0.00	0.00	0.00	0.00	

Table A-72

Salton Sea Air Basin

County: Riverside

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.209	0.194	0.202	0.204	0.197	0.185	0.182	0.180	0.181	0.175	0.168	0.159	0.153	0.153	0.154	0.152	0.153	0.143	0.138	0.130
4th High 1-Hr in 3 Yrs	0.200	0.190	0.190	0.190	0.190	0.180	0.180	0.180	0.180	0.180	0.170	0.170	0.152	0.158	0.158	0.152	0.155	0.143	0.133	0.128
Avg of 4th Hi 8-Hr in 3 Yrs	0.144	0.134	0.134	0.134	0.135	0.131	0.130	0.129	0.126	0.125	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099	0.100
Maximum 1-Hr. Concentration	0.190	0.190	0.200	0.240	0.180	0.170	0.200	0.190	0.170	0.180	0.170	0.170	0.165	0.160	0.160	0.155	0.173	0.126	0.124	0.137
Max. 8-Hr. Concentration	0.142	0.150	0.165	0.160	0.142	0.141	0.137	0.160	0.130	0.148	0.128	0.126	0.130	0.132	0.125	0.117	0.136	0.107	0.104	0.113
Days Above State Standard	96	95	100	93	80	85	99	117	82	80	82	82	78	56	61	45	42	33	43	56
Days Above Nat. 1-Hr. Std.	38	50	40	28	31	40	35	38	27	24	24	21	13	11	12	4	8	1	0	6
Days Above Nat. 8-Hr. Std.	80	77	79	68	62	72	70	90	56	62	66	64	39	34	52	26	31	23	30	43

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							115	712	520	340	175	125	97	199	215	182	158	119	201	604
Max. Avg. of Quarters							47.9	90.5	80.6	70.6	43.0	46.3	48.5	52.6	56.2	53.7	48.0	52.2	54.7	59.0
Calc Days Above State 24-Hr Std							126	222	241	222	99	150	138	162	177	146	142	180	180	171
Calc Days Above Nat 24-Hr Std							0	26	26	19	6	0	0	7	13	13	3	0	9	18

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	3.6	3.1	2.5	2.5	2.6	2.6	2.5	2.3	2.3	2.3	2.2	2.1	1.9	1.7	1.6	1.5	1.5	1.6	1.7	1.7
Max. 1-Hr. Concentration	5.0	7.0	4.0	5.0	5.0	5.0	4.0	6.0	5.0	5.0	5.0	6.0	3.9	3.3	3.2	2.7	3.1	2.9	2.7	2.2
Max. 8-Hr. Concentration	2.6	2.8	2.1	2.6	3.6	2.9	2.1	2.9	2.3	2.5	2.4	2.0	2.0	1.5	1.6	1.3	1.7	1.8	1.6	1.6
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.141	0.150	0.150	0.124	0.085	0.083	0.084	0.089	0.092	0.092	0.088	0.088	0.088	0.088	0.084	0.082	0.077	0.075	0.073	0.071
Max. 1-Hr. Concentration	0.150	0.160	0.090	0.080	0.080	0.080	0.110	0.090	0.090	0.090	0.090	0.090	0.080	0.082	0.080	0.069	0.070	0.068	0.064	0.081
Max. Annual Average	0.025	0.027	0.014	0.020		0.019	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020		0.016	0.018	0.016	0.017

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.03	0.02	0.02																	
Max. 24-Hr. Concentration	0.01	0.01	0.00																	
Max. Annual Average	0.00	0.00	0.00																	

Table A-73

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin

County: San Diego

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.203	0.188	0.197	0.189	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132	0.117
4th High 1-Hr in 3 Yrs	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131	0.118
Avg of 4th Hi 8-Hr in 3 Yrs	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094
Maximum 1-Hr. Concentration	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141
Max. 8-Hr. Concentration	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106	0.116
Days Above State Standard	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24	29
Days Above Nat. 1-Hr. Std.	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0	2
Days Above Nat. 8-Hr. Std.	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16	17

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							81	90	115	81	67	159	129	121	93	125	89	121	139	107
Max. Avg. of Quarters							39.6	44.0	37.6	40.8	36.3	44.8	50.5	46.6		46.4	43.0	52.5	45.2	48.5
Calc Days Above State 24-Hr Std							87	111	42	81	36	132	128	111	90	122	108	126	111	128
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	6	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	9.5	9.2	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.5	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3	5.4
Max. 1-Hr. Concentration	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3	8.5
Max. 8-Hr. Concentration	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9	5.1
Days Above State 8-Hr. Std.	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.233	0.225	0.183	0.193	0.193	0.203	0.215	0.233	0.210	0.189	0.169	0.155	0.145	0.130	0.129	0.126	0.116	0.122	0.117	0.126
Max. 1-Hr. Concentration	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117	0.148
Max. Annual Average	0.030	0.027	0.031			0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024	0.022

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.12	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.06
Max. 24-Hr. Concentration	0.04	0.02	0.04	0.02	0.03	0.04	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Max. Annual Average	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00

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San Francisco Bay Area Air Basin

County: Alameda

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.142	0.148	0.155	0.157	0.148	0.141	0.143	0.138	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143	0.122
4th High 1-Hr in 3 Yrs	0.170	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.120	0.138	0.138	0.138	0.138	0.139	0.139	0.113
Avg of 4th Hi 8-Hr in 3 Yrs	0.084	0.086	0.090	0.096	0.093	0.089	0.087	0.089	0.087	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.078
Maximum 1-Hr. Concentration	0.150	0.190	0.150	0.150	0.140	0.160	0.150	0.140	0.130	0.140	0.130	0.130	0.129	0.155	0.138	0.114	0.146	0.146	0.152	0.113
Max. 8-Hr. Concentration	0.097	0.127	0.118	0.106	0.106	0.116	0.096	0.101	0.105	0.092	0.091	0.102	0.092	0.115	0.112	0.084	0.110	0.116	0.114	0.089
Days Above State Standard	12	29	36	27	22	21	27	14	9	19	16	8	7	21	23	6	22	15	9	9
Days Above Nat. 1-Hr. Std.	4	13	10	7	5	7	4	2	2	1	1	2	2	9	8	0	6	2	2	0
Days Above Nat. 8-Hr. Std.	4	12	15	12	5	11	8	5	4	2	3	4	3	12	10	0	10	6	2	3

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							74	108	137	155	99	84	97	52	71	65	63	88	71	109
Max. Avg. of Quarters							31.6	37.2		36.3	29.0	25.7		22.4	22.9	24.0	21.7		21.4	24.6
Calc Days Above State 24-Hr Std							54	74	52	84	30	18	24	6	6	8	12	18	12	18
Calc Days Above Nat 24-Hr Std							0	0	0	3	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	8.0	7.1	7.4	6.7	7.0	6.4	6.6	6.6	6.7	7.0	6.4	5.8	4.8	4.8	4.8	4.4	4.5	4.7	4.6	4.4
Max. 1-Hr. Concentration	10.0	11.0	12.0	10.0	12.0	10.0	10.0	10.0	8.0	9.0	7.0	7.0	8.7	5.5	6.9	7.9	6.3	6.4	5.4	5.8
Max. 8-Hr. Concentration	7.5	7.3	8.0	6.1	7.5	5.0	5.6	7.5	6.1	6.8	4.6	4.9	5.6	3.8	3.9	3.6	4.6	5.2	3.3	4.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.136	0.130	0.132	0.138	0.140	0.138	0.139	0.138	0.138	0.133	0.120	0.113	0.092	0.091	0.090	0.089	0.087	0.094	0.091	0.090
Max. 1-Hr. Concentration	0.120	0.150	0.130	0.140	0.140	0.150	0.140	0.150	0.130	0.150	0.110	0.110	0.097	0.086	0.088	0.086	0.098	0.112	0.081	0.078
Max. Annual Average	0.023	0.023	0.025	0.026	0.025	0.025	0.026	0.025	0.023	0.024	0.022	0.022	0.022	0.021	0.022	0.020	0.020	0.022	0.020	0.019

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				0.00
Max. Annual Average																				0.00

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San Francisco Bay Area Air Basin

County: Contra Costa

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.134	0.136	0.143	0.140	0.129	0.129	0.128	0.129	0.115	0.113	0.112	0.111	0.110	0.121	0.125	0.124	0.126	0.128	0.128	0.120
4th High 1-Hr in 3 Yrs	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.110	0.110	0.110	0.110	0.121	0.130	0.127	0.127	0.119	0.126	0.130	0.126
Avg of 4th Hi 8-Hr in 3 Yrs	0.091	0.089	0.091	0.088	0.088	0.088	0.086	0.088	0.086	0.083	0.081	0.079	0.079	0.081	0.085	0.083	0.083	0.084	0.084	0.082
Maximum 1-Hr. Concentration	0.130	0.150	0.160	0.150	0.120	0.150	0.140	0.110	0.120	0.110	0.110	0.130	0.121	0.152	0.137	0.108	0.147	0.156	0.138	0.134
Max. 8-Hr. Concentration	0.108	0.101	0.116	0.103	0.092	0.105	0.095	0.097	0.105	0.088	0.092	0.096	0.097	0.114	0.100	0.081	0.109	0.122	0.094	0.102
Days Above State Standard	15	17	18	15	9	22	12	12	7	5	7	10	6	12	15	4	16	8	2	7
Days Above Nat. 1-Hr. Std.	1	7	3	2	0	3	1	0	0	0	0	2	0	4	1	0	2	3	1	1
Days Above Nat. 8-Hr. Std.	9	9	11	5	4	15	5	7	5	2	2	2	2	6	5	0	8	7	1	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							95	115	147	123	73	81	87	73	76	78	67	101	62	106
Max. Avg. of Quarters							33.8	30.0		33.3	26.3	24.7	24.7	23.4	21.3		19.6	25.2	19.7	22.7
Calc Days Above State 24-Hr Std							78	50	37	75	48	36	24	18	6	8	7	36	6	18
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	6.3	6.1	6.6	6.1	6.2	5.8	6.3	6.1	6.1	6.1	5.7	5.2	4.5	4.1	3.6	3.2	3.3	3.4	3.3	3.1
Max. 1-Hr. Concentration	18.0	13.0	12.0	11.0	10.0	12.0	15.0	12.0	11.0	9.0	9.0	9.0	7.7	6.5	6.8	5.7	5.7	7.8	4.9	5.2
Max. 8-Hr. Concentration	6.4	5.6	5.9	5.3	5.9	5.5	6.6	5.6	5.8	5.4	5.4	5.0	4.2	2.9	2.9	3.2	3.8	3.3	2.7	2.7
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.136	0.112	0.112	0.113	0.114	0.113	0.112	0.110	0.098	0.099	0.096	0.097	0.084	0.082	0.079	0.077	0.070	0.075	0.074	0.074
Max. 1-Hr. Concentration	0.110	0.130	0.150	0.110	0.130	0.130	0.130	0.110	0.100	0.120	0.110	0.100	0.081	0.087	0.085	0.076	0.066	0.087	0.074	0.065
Max. Annual Average	0.024	0.021	0.024	0.023	0.023	0.023	0.023	0.023	0.021	0.023	0.020	0.020	0.020	0.019	0.017	0.016	0.016	0.018	0.016	0.015

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.11	0.08	0.07	0.07	0.08	0.08	0.08	0.07	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06
Max. 24-Hr. Concentration	0.03	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.03	0.02
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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San Francisco Bay Area Air Basin

County: Marin

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.087	0.085	0.098	0.103	0.100	0.095	0.094	0.095	0.084	0.074	0.067	0.076	0.080	0.087	0.088	0.087	0.081	0.085	0.083	0.080
4th High 1-Hr in 3 Yrs	0.090	0.090	0.110	0.110	0.100	0.090	0.090	0.090	0.080	0.080	0.066	0.080	0.080	0.082	0.088	0.088	0.081	0.092	0.085	0.087
Avg of 4th Hi 8-Hr in 3 Yrs	0.053	0.051	0.058	0.062	0.063	0.059	0.058	0.057	0.053	0.054	0.051	0.047	0.050	0.055	0.057	0.055	0.051	0.051	0.050	0.051
Maximum 1-Hr. Concentration	0.100	0.110	0.110	0.100	0.080	0.100	0.100	0.080	0.080	0.080	0.070	0.080	0.089	0.088	0.105	0.106	0.074	0.102	0.071	0.087
Max. 8-Hr. Concentration	0.066	0.091	0.083	0.077	0.060	0.076	0.076	0.068	0.062	0.067	0.055	0.061	0.061	0.072	0.081	0.073	0.058	0.080	0.058	0.065
Days Above State Standard	1	2	5	1	0	1	1	0	0	0	0	0	0	0	2	1	0	2	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							91	73	115	115	63	69	72	74	50	72	52	76	40	79
Max. Avg. of Quarters								29.4	25.1	30.3	24.6	23.0	24.3	20.7	21.9	21.4	20.1	21.8	19.5	20.3
Calc Days Above State 24-Hr Std							12	35	19	57	30	6	24	6	0	8	6	12	0	12
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	6.6	5.3	5.3	5.1	5.5	5.4	5.4	4.7	4.9	5.2	5.4	5.1	3.9	3.5	3.3	3.2	3.3	3.1	2.9	2.6
Max. 1-Hr. Concentration	14.0	11.0	14.0	10.0	10.0	12.0	10.0	9.0	8.0	10.0	8.0	9.0	6.4	6.1	7.1	6.0	5.9	5.6	4.2	5.2
Max. 8-Hr. Concentration	5.6	5.5	5.8	4.6	5.9	4.5	5.0	4.0	5.0	5.7	5.0	4.0	3.0	3.2	4.0	2.6	3.3	2.9	2.3	2.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.133	0.105	0.101	0.099	0.100	0.099	0.104	0.102	0.096	0.091	0.084	0.085	0.078	0.075	0.068	0.065	0.064	0.068	0.065	0.066
Max. 1-Hr. Concentration	0.110	0.100	0.120	0.090	0.110	0.130	0.140	0.100	0.070	0.090	0.080	0.080	0.079	0.060	0.068	0.067	0.062	0.087	0.057	0.061
Max. Annual Average	0.024	0.024	0.025	0.024	0.024	0.023	0.022	0.022	0.021	0.021	0.021	0.021	0.020	0.018	0.018	0.016	0.017	0.018	0.016	0.017

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Francisco Bay Area Air Basin

County: Napa

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.108	0.102	0.112	0.115	0.107	0.106	0.107	0.109	0.100	0.098	0.094	0.099	0.096	0.106	0.107	0.103	0.101	0.106	0.105	0.099
4th High 1-Hr in 3 Yrs	0.110	0.100	0.110	0.110	0.110	0.110	0.100	0.100	0.090	0.100	0.090	0.100	0.091	0.105	0.095	0.095	0.091	0.103	0.103	0.099
Avg of 4th Hi 8-Hr in 3 Yrs	0.069	0.066	0.072	0.073	0.069	0.068	0.070	0.071	0.066	0.064	0.063	0.066	0.066	0.073	0.071	0.067	0.063	0.067	0.069	0.066
Maximum 1-Hr. Concentration	0.090	0.110	0.110	0.110	0.090	0.110	0.100	0.100	0.090	0.110	0.090	0.120	0.092	0.130	0.090	0.084	0.125	0.115	0.077	0.099
Max. 8-Hr. Concentration	0.077	0.081	0.090	0.085	0.067	0.080	0.088	0.085	0.072	0.075	0.070	0.083	0.075	0.096	0.075	0.071	0.099	0.090	0.063	0.078
Days Above State Standard	0	4	8	3	0	6	1	2	0	3	0	2	0	4	0	0	3	4	0	1
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	2	1	0	0	1	1	0	0	0	0	0	1	0	0	1	1	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							109	97	117	100	74	70	86	69	57	78	60	66	45	91
Max. Avg. of Quarters								31.5	32.7	33.4	27.1	25.3	23.6	20.2	20.4	18.1	16.9	18.5	16.1	24.0
Calc Days Above State 24-Hr Std							45	50	43	66	30	17	12	6	6	11	6	12	0	12
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	8.2	6.7	7.0	6.9	6.9	6.4	6.4	6.4	6.3	6.2	6.0	5.7	5.2	4.9	4.5	4.1	4.1	4.0	3.7	3.5
Max. 1-Hr. Concentration	10.0	10.0	11.0	10.0	11.0	12.0	11.0	12.0	10.0	9.0	8.0	7.0	7.4	7.6	5.6	5.7	5.8	5.5	4.7	5.7
Max. 8-Hr. Concentration	6.7	6.5	7.1	6.6	6.8	5.6	6.0	5.4	7.1	5.8	5.3	4.4	4.6	3.5	3.8	3.9	3.9	4.2	2.8	3.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.102	0.084	0.081	0.080	0.091	0.093	0.095	0.090	0.085	0.087	0.082	0.083	0.072	0.071	0.065	0.063	0.058	0.066	0.061	0.064
Max. 1-Hr. Concentration	0.090	0.080	0.090	0.090	0.090	0.090	0.080	0.090	0.070	0.090	0.060	0.080	0.065	0.059	0.077	0.075	0.061	0.086	0.054	0.059
Max. Annual Average	0.017	0.017	0.018	0.017	0.018	0.018	0.018	0.017	0.017	0.017	0.015	0.015	0.015	0.014	0.014	0.012	0.012	0.014	0.012	0.013

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Francisco Bay Area Air Basin

County: San Francisco

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.067	0.071	0.078	0.080	0.076	0.073	0.074	0.075	0.071	0.063	0.058	0.060	0.062	0.065	0.064	0.067	0.059	0.059	0.057	0.060
4th High 1-Hr in 3 Yrs	0.080	0.080	0.090	0.090	0.090	0.070	0.080	0.080	0.070	0.070	0.060	0.060	0.060	0.080	0.071	0.071	0.061	0.067	0.061	0.063
Avg of 4th Hi 8-Hr in 3 Yrs	0.043	0.041	0.044	0.048	0.048	0.037	0.052	0.051	0.049	0.045	0.043	0.042	0.042	0.044	0.046	0.045	0.043	0.044	0.044	0.046
Maximum 1-Hr. Concentration	0.080	0.130	0.100	0.090	0.070	0.090	0.090	0.080	0.060	0.050	0.080	0.080	0.055	0.088	0.071	0.068	0.053	0.079	0.058	0.082
Max. 8-Hr. Concentration	0.051	0.073	0.067	0.065	0.056	0.070	0.070	0.063	0.051	0.047	0.052	0.052	0.045	0.067	0.050	0.059	0.046	0.057	0.043	0.054
Days Above State Standard	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 1-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							117	101	165	109	81	69	93	50	71	81	52	78	63	67
Max. Avg. of Quarters								36.1	33.3	35.5	31.6	28.3	28.2	24.6	24.7	24.3	21.7	25.8	24.1	25.8
Calc Days Above State 24-Hr Std							34	78	67	90	54	29	36	0	12	14	6	36	12	36
Calc Days Above Nat 24-Hr Std							0	0	6	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	7.4	7.8	8.4	8.8	9.1	8.6	8.3	7.7	7.8	7.2	6.7	6.4	5.8	5.6	4.7	4.4	4.2	4.2	3.8	3.7
Max. 1-Hr. Concentration	18.0	14.0	15.0	21.0	20.0	17.0	15.0	14.0	12.0	14.0	10.0	10.0	7.5	8.5	8.6	8.0	7.1	8.6	5.5	5.2
Max. 8-Hr. Concentration	14.5	8.0	10.8	15.0	12.6	10.0	12.8	9.0	6.9	8.4	7.4	6.9	5.3	5.3	5.6	5.7	4.0	4.6	3.2	3.3
Days Above State 8-Hr. Std.	2	0	1	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	1	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.148	0.125	0.131	0.141	0.143	0.112	0.117	0.123	0.120	0.112	0.108	0.100	0.092	0.089	0.088	0.083	0.077	0.083	0.084	0.083
Max. 1-Hr. Concentration	0.130	0.130	0.140	0.180	0.110	0.150	0.120	0.140	0.110	0.100	0.090	0.080	0.091	0.088	0.081	0.067	0.080	0.103	0.074	0.073
Max. Annual Average		0.026	0.029		0.024	0.024	0.026			0.024	0.022	0.024	0.022	0.021	0.021	0.020	0.020	0.021	0.020	0.019

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.05	0.04	0.07	0.07	0.08	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.02	0.02	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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San Francisco Bay Area Air Basin

County: San Mateo

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.102	0.110	0.116	0.121	0.104	0.099	0.097	0.098	0.089	0.078	0.071	0.076	0.076	0.092	0.099	0.100	0.078	0.071	0.071	0.074
4th High 1-Hr in 3 Yrs	0.120	0.110	0.110	0.110	0.110	0.110	0.100	0.100	0.090	0.080	0.070	0.080	0.084	0.103	0.103	0.103	0.090	0.079	0.080	0.081
Avg of 4th Hi 8-Hr in 3 Yrs	0.059	0.058	0.063	0.068	0.061	0.060	0.060	0.065	0.058	0.053	0.049	0.050	0.049	0.058	0.061	0.062	0.053	0.049	0.047	0.049
Maximum 1-Hr. Concentration	0.100	0.170	0.110	0.130	0.100	0.120	0.100	0.100	0.080	0.080	0.090	0.100	0.084	0.140	0.097	0.090	0.066	0.082	0.083	0.105
Max. 8-Hr. Concentration	0.060	0.088	0.080	0.077	0.071	0.074	0.076	0.072	0.050	0.056	0.065	0.076	0.066	0.099	0.067	0.073	0.053	0.063	0.063	0.067
Days Above State Standard	1	8	9	5	1	2	2	1	0	0	0	1	0	5	1	0	0	0	0	1
Days Above Nat. 1-Hr. Std.	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							94	90	137	90	80	76	76	48	48	70	49	85	53	65
Max. Avg. of Quarters								33.2	27.6	32.5	28.7	26.1	25.0	21.0	21.4	23.4	22.4	24.3	21.3	22.4
Calc Days Above State 24-Hr Std							36	60	43	69	42	29	36	0	0	8	0	15	6	24
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	7.4	7.0	7.1	7.3	7.0	6.9	6.1	5.8	5.9	5.9	5.8	5.8	5.4	4.9	4.4	3.9	4.2	4.3	4.3	4.2
Max. 1-Hr. Concentration	14.0	15.0	13.0	14.0	12.0	13.0	13.0	13.0	12.0	11.0	12.0	10.0	12.0	10.1	8.6	10.7	8.7	8.0	9.8	7.1
Max. 8-Hr. Concentration	6.0	9.6	5.6	6.4	6.4	5.5	5.4	5.3	5.9	6.5	4.8	5.8	5.4	3.9	3.6	4.2	4.1	3.8	4.4	3.9
Days Above State 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.117	0.080	0.092	0.116	0.130	0.137	0.140	0.132	0.128	0.122	0.116	0.110	0.101	0.096	0.092	0.081	0.077	0.080	0.076	0.078
Max. 1-Hr. Concentration	0.080	0.100	0.090	0.130	0.130	0.120	0.130	0.120	0.120	0.120	0.100	0.090	0.106	0.077	0.090	0.084	0.063	0.104	0.065	0.074
Max. Annual Average	0.015	0.016	0.021	0.022	0.024		0.024	0.024	0.022	0.023	0.021	0.022	0.021	0.019	0.020	0.018	0.018	0.019	0.018	0.017

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Francisco Bay Area Air Basin

County: Santa Clara

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.154	0.153	0.164	0.173	0.155	0.149	0.147	0.148	0.130	0.117	0.117	0.119	0.115	0.125	0.126	0.125	0.127	0.126	0.130	0.121
4th High 1-Hr in 3 Yrs	0.180	0.150	0.160	0.160	0.150	0.140	0.140	0.140	0.120	0.120	0.120	0.120	0.118	0.130	0.129	0.129	0.118	0.125	0.125	0.113
Avg of 4th Hi 8-Hr in 3 Yrs	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.082	0.078	0.080	0.080	0.086	0.088	0.085	0.085	0.080	0.081	0.076
Maximum 1-Hr. Concentration	0.150	0.200	0.170	0.160	0.140	0.170	0.140	0.130	0.130	0.130	0.130	0.130	0.130	0.145	0.129	0.114	0.147	0.125	0.113	0.123
Max. 8-Hr. Concentration	0.100	0.150	0.124	0.127	0.105	0.108	0.101	0.102	0.096	0.108	0.101	0.112	0.095	0.109	0.103	0.084	0.111	0.102	0.101	0.096
Days Above State Standard	26	48	50	40	32	41	34	17	10	12	15	14	8	22	24	3	22	12	4	9
Days Above Nat. 1-Hr. Std.	3	18	19	7	1	12	2	3	1	1	1	1	1	6	1	0	3	1	0	0
Days Above Nat. 8-Hr. Std.	7	26	28	14	10	25	19	7	4	5	3	4	2	14	8	0	8	4	1	3

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							146	150	173	153	112	101	93	60	76	95	92	114	76	77
Max. Avg. of Quarters							38.1	41.1	39.7	38.7	34.0				25.1	25.3	25.1	28.6	26.7	28.8
Calc Days Above State 24-Hr Std							64	87	61	84	78	47	42	24	12	14	18	30	42	24
Calc Days Above Nat 24-Hr Std							0	0	6	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9
Max. 1-Hr. Concentration	16.0	17.0	20.0	21.0	16.0	13.0	15.0	19.0	18.0	15.0	11.0	14.0	12.0	8.9	8.8	9.9	8.6	9.0	8.9	7.6
Max. 8-Hr. Concentration	12.3	10.6	12.1	16.1	11.3	7.4	10.4	12.0	11.0	11.0	7.8	6.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0	5.1
Days Above State 8-Hr. Std.	9	2	5	20	5	0	3	8	4	4	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	7	2	5	18	5	0	3	7	2	3	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.225	0.183	0.186	0.196	0.189	0.188	0.167	0.162	0.156	0.160	0.155	0.141	0.117	0.119	0.114	0.111	0.101	0.108	0.105	0.109
Max. 1-Hr. Concentration	0.160	0.180	0.180	0.190	0.160	0.170	0.160	0.150	0.150	0.140	0.100	0.120	0.107	0.116	0.108	0.118	0.083	0.128	0.114	0.108
Max. Annual Average	0.032	0.030	0.032	0.035	0.033	0.031	0.032	0.032	0.030	0.031	0.027	0.027	0.028	0.027	0.025	0.025	0.025	0.026	0.025	0.024

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Francisco Bay Area Air Basin

County: Solano

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.113	0.109	0.118	0.119	0.112	0.113	0.111	0.117	0.107	0.103	0.100	0.103	0.102	0.111	0.114	0.114	0.115	0.122	0.124	0.117
4th High 1-Hr in 3 Yrs	0.120	0.120	0.130	0.130	0.120	0.110	0.110	0.110	0.110	0.100	0.100	0.100	0.100	0.109	0.113	0.113	0.110	0.117	0.117	0.111
Avg of 4th Hi 8-Hr in 3 Yrs	0.074	0.072	0.074	0.075	0.073	0.077	0.077	0.078	0.074	0.074	0.074	0.074	0.073	0.077	0.079	0.078	0.077	0.081	0.080	0.075
Maximum 1-Hr. Concentration	0.110	0.130	0.140	0.120	0.090	0.120	0.130	0.120	0.110	0.110	0.100	0.130	0.107	0.133	0.113	0.103	0.121	0.129	0.096	0.102
Max. 8-Hr. Concentration	0.088	0.097	0.095	0.087	0.076	0.092	0.093	0.086	0.087	0.087	0.086	0.096	0.082	0.099	0.095	0.083	0.097	0.101	0.076	0.084
Days Above State Standard	4	7	13	7	0	14	6	4	2	5	4	4	3	13	8	1	9	9	1	3
Days Above Nat. 1-Hr. Std.	0	2	4	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0
Days Above Nat. 8-Hr. Std.	1	1	5	1	0	5	2	1	1	1	2	2	0	5	3	0	3	4	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration													63	59	49	85	71	84	53	86
Max. Avg. of Quarters														18.7	17.5	17.6	17.2	19.3	15.0	19.4
Calc Days Above State 24-Hr Std													6	6	0	14	6	18	6	18
Calc Days Above Nat 24-Hr Std														0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	11.3	10.9	11.4	10.8	10.9	10.3	10.3	10.1	10.4	10.3	9.3	8.4	7.4	7.1	6.1	5.6	5.4	5.6	5.5	5.3
Max. 1-Hr. Concentration	13.0	13.0	15.0	12.0	13.0	13.0	14.0	13.0	12.0	13.0	11.0	12.0	8.7	7.0	6.4	6.5	7.2	6.6	6.5	5.6
Max. 8-Hr. Concentration	10.9	9.9	9.8	8.6	10.8	9.4	10.6	11.5	9.0	9.6	6.6	7.9	6.5	5.3	4.9	4.9	5.3	5.5	5.1	4.1
Days Above State 8-Hr. Std.	5	1	4	0	4	1	1	2	0	1	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	5	1	2	0	4	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.102	0.096	0.095	0.093	0.097	0.090	0.090	0.094	0.094	0.096	0.090	0.087	0.075	0.072	0.069	0.065	0.064	0.068	0.067	0.066
Max. 1-Hr. Concentration	0.100	0.100	0.110	0.090	0.100	0.080	0.090	0.130	0.080	0.090	0.070	0.070	0.066	0.070	0.071	0.068	0.064	0.083	0.064	0.057
Max. Annual Average	0.020	0.018	0.019	0.018		0.018	0.019	0.018	0.018	0.018	0.017	0.016	0.016	0.015	0.015	0.013	0.014	0.014	0.013	0.013

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.06	0.04	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-82

A portion of Solano County lies within the Sacramento Valley Air Basin.

San Francisco Bay Area Air Basin

County: Sonoma

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.106	0.090	0.100	0.106	0.105	0.102	0.101	0.105	0.102	0.103	0.095	0.091	0.081	0.086	0.086	0.084	0.079	0.085	0.082	0.083
4th High 1-Hr in 3 Yrs	0.110	0.090	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.090	0.090	0.080	0.084	0.084	0.085	0.077	0.090	0.086	0.086
Avg of 4th Hi 8-Hr in 3 Yrs	0.072	0.062	0.066	0.068	0.068	0.069	0.071	0.076	0.072	0.072	0.067	0.063	0.058	0.057	0.058	0.054	0.052	0.054	0.055	0.055
Maximum 1-Hr. Concentration	0.090	0.120	0.110	0.110	0.100	0.110	0.110	0.100	0.090	0.100	0.090	0.080	0.086	0.097	0.089	0.093	0.068	0.095	0.078	0.086
Max. 8-Hr. Concentration	0.071	0.088	0.087	0.091	0.078	0.097	0.096	0.083	0.073	0.078	0.080	0.062	0.072	0.077	0.077	0.080	0.054	0.076	0.056	0.063
Days Above State Standard	0	2	3	3	1	2	2	3	0	3	0	0	0	1	0	0	0	1	0	0
Days Above Nat. 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	2	2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration													61	46	38	85	53	54	46	74
Max. Avg. of Quarters														15.5	17.2	17.9	18.2		17.6	21.0
Calc Days Above State 24-Hr Std													6	0	0	8	6	6	0	12
Calc Days Above Nat 24-Hr Std														0	0	0	0		0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	5.4	5.2	5.1	5.3	5.6	5.5	5.2	5.5	5.6	5.2	4.4	4.2	3.8	3.6	3.1	3.0	3.1	3.3	3.2	3.1
Max. 1-Hr. Concentration	9.0	8.0	10.0	9.0	9.0	7.0	9.0	9.0	7.0	6.0	6.0	6.0	5.1	4.9	5.6	5.4	5.2	5.7	4.5	4.8
Max. 8-Hr. Concentration	5.8	4.6	4.9	5.9	5.3	4.3	5.1	6.1	5.1	4.0	4.0	3.8	3.4	2.8	3.0	3.3	3.2	3.5	3.1	2.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.083	0.097	0.106	0.120	0.119	0.110	0.103	0.097	0.094	0.083	0.083	0.082	0.080	0.076	0.067	0.064	0.057	0.062	0.060	0.061
Max. 1-Hr. Concentration	0.090	0.110	0.140	0.160	0.110	0.090	0.120	0.090	0.090	0.090	0.100	0.090	0.084	0.066	0.062	0.061	0.057	0.074	0.054	0.057
Max. Annual Average	0.016	0.016	0.017	0.017	0.016	0.016	0.016		0.014	0.015	0.015		0.015	0.015	0.014	0.013	0.015	0.014	0.013	0.013

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-83

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin

County: Fresno

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.187	0.184	0.164	0.162	0.172	0.172	0.168	0.170	0.158	0.167	0.162	0.162	0.156	0.152	0.154	0.153	0.162	0.159	0.158	0.146
4th High 1-Hr in 3 Yrs	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.160	0.150	0.160	0.160	0.160	0.150	0.144	0.146	0.146	0.161	0.161	0.161	0.146
Avg of 4th Hi 8-Hr in 3 Yrs	0.123	0.116	0.114	0.110	0.117	0.118	0.121	0.115	0.110	0.110	0.108	0.111	0.107	0.108	0.107	0.111	0.115	0.113	0.111	0.108
Maximum 1-Hr. Concentration	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.150	0.150	0.180	0.160	0.160	0.144	0.173	0.154	0.147	0.169	0.155	0.165	0.149
Max. 8-Hr. Concentration	0.127	0.122	0.125	0.131	0.135	0.150	0.125	0.121	0.117	0.130	0.121	0.121	0.111	0.126	0.123	0.127	0.134	0.123	0.131	0.120
Days Above State Standard	79	82	109	112	118	127	130	109	79	94	86	81	65	81	96	95	79	95	92	108
Days Above Nat. 1-Hr. Std.	26	27	42	34	39	43	47	24	14	30	25	19	14	22	31	13	30	18	23	21
Days Above Nat. 8-Hr. Std.	66	72	100	85	94	112	113	92	55	81	69	59	55	63	78	75	69	83	79	94

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							162	250	297	152	125	190	127	126	144	124	141	162	138	193
Max. Avg. of Quarters											52.3	52.4	50.3	48.9	39.3	46.0	38.4			
Calc Days Above State 24-Hr Std							204	164	187	174	162	149	150	138	84	104	79	114	114	156
Calc Days Above Nat 24-Hr Std							7	12	26	0	0	6	0	0	0	0	0	0	0	6

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	15.7	13.9	13.6	13.4	13.9	13.5	13.8	13.7	13.9	10.2	10.2	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	5.8
Max. 1-Hr. Concentration	18.0	17.0	24.0	18.0	21.0	15.0	19.0	23.0	15.0	15.0	13.0	13.0	15.0	12.0	10.1	9.9	10.3	11.9	9.0	6.7
Max. 8-Hr. Concentration	14.8	14.3	15.7	10.7	16.3	10.9	16.5	12.6	10.3	10.4	7.6	9.3	8.9	9.1	6.8	7.5	8.0	7.7	6.2	4.6
Days Above State 8-Hr. Std.	7	9	7	6	12	3	3	17	3	1	0	2	0	1	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	6	6	6	6	8	3	4	13	3	1	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.173	0.135	0.115	0.144	0.148	0.145	0.144	0.151	0.156	0.129	0.123	0.122	0.124	0.124	0.115	0.107	0.100	0.107	0.106	0.102
Max. 1-Hr. Concentration	0.150	0.150	0.190	0.150	0.190	0.150	0.210	0.190	0.160	0.120	0.110	0.120	0.119	0.111	0.109	0.103	0.112	0.108	0.094	0.090
Max. Annual Average	0.021	0.025	0.027	0.031	0.019	0.030	0.032	0.032	0.026	0.025	0.023	0.023	0.023	0.022	0.021	0.021	0.020	0.024	0.021	0.021

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02				
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00				
Max. Annual Average	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

Table A-84

San Joaquin Valley Air Basin

County: Kern

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.176	0.171	0.164	0.163	0.162	0.166	0.169	0.168	0.164	0.166	0.160	0.154	0.154	0.163	0.164	0.167	0.161	0.152	0.150	0.141
4th High 1-Hr in 3 Yrs	0.170	0.170	0.160	0.160	0.160	0.160	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.158	0.154	0.154	0.138
Avg of 4th Hi 8-Hr in 3 Yrs	0.119	0.114	0.109	0.111	0.114	0.118	0.118	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.111	0.111	0.109
Maximum 1-Hr. Concentration	0.180	0.160	0.170	0.160	0.160	0.170	0.170	0.180	0.170	0.160	0.150	0.160	0.175	0.168	0.165	0.146	0.165	0.140	0.151	0.138
Max. 8-Hr. Concentration	0.133	0.113	0.121	0.121	0.126	0.131	0.127	0.136	0.123	0.120	0.115	0.125	0.129	0.134	0.137	0.118	0.136	0.112	0.117	0.115
Days Above State Standard	76	66	81	112	99	124	134	132	120	119	106	110	114	115	114	66	81	105	95	95
Days Above Nat. 1-Hr. Std.	21	20	26	27	33	46	56	42	37	37	10	37	37	38	44	8	29	12	16	16
Days Above Nat. 8-Hr. Std.	64	61	71	90	94	112	124	112	96	107	100	98	101	104	109	55	75	88	82	85

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							244	237	287	189	183	130	190	195	153	137	159	183	145	205
Max. Avg. of Quarters								80.0			63.3	53.7		58.6	53.8	46.3		59.2	52.7	
Calc Days Above State 24-Hr Std							243	230	262	225	216	146	106	186	204	84	109	168	156	174
Calc Days Above Nat 24-Hr Std							31	23	31	18	8	0	0	3	0	0	0	8	0	9

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	10.0	8.5	8.2	7.4	7.3	7.0	7.4	8.7	9.4	9.5	8.5	6.8	5.4	5.3	5.1	4.7	4.1	4.8	6.0	5.4
Max. 1-Hr. Concentration	14.0	14.0	11.0	10.0	14.0	10.0	12.0	14.0	13.0	13.0	11.0	8.0	8.8	7.8	8.7	6.1	5.7	10.5	10.1	16.0
Max. 8-Hr. Concentration	11.3	9.7	6.9	6.0	8.8	6.9	8.9	11.0	8.6	8.1	5.8	6.1	6.4	6.2	7.7	3.4	3.9	5.0	5.4	3.5
Days Above State 8-Hr. Std.	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.138	0.133	0.119	0.127	0.125	0.125	0.128	0.133	0.136	0.131	0.120	0.114	0.110	0.109	0.105	0.103	0.096	0.098	0.100	0.107
Max. 1-Hr. Concentration	0.110	0.140	0.140	0.160	0.120	0.100	0.120	0.130	0.140	0.110	0.110	0.100	0.089	0.109	0.110	0.081	0.100	0.107	0.089	0.115
Max. Annual Average	0.030	0.030	0.028	0.031	0.030	0.029	0.032	0.033	0.031	0.030	0.027			0.029	0.029	0.024		0.027	0.024	

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.14	0.12	0.09	0.09	0.09	0.08	0.07	0.06	0.06	0.04	0.04	0.03	0.02	0.02	0.03	0.03		0.01	0.02	0.02
Max. 24-Hr. Concentration	0.04	0.05	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01		0.01	0.00	0.01
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00

Table A-85

A portion of Kern County lies within the Mojave Desert Air Basin.

San Joaquin Valley Air Basin

County: Kings

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.113	0.120	0.122	0.127	0.125	0.128	0.127	0.124	0.119	0.112	0.106	0.109	0.111	0.106	0.137	0.137	0.137	0.124	0.127	0.124
4th High 1-Hr in 3 Yrs	0.110	0.120	0.120	0.120	0.120	0.130	0.130	0.130	0.130	0.110	0.100	0.110	0.109	0.109	0.138	0.138	0.138	0.128	0.128	0.124
Avg of 4th Hi 8-Hr in 3 Yrs	0.082	0.087	0.095	0.098	0.088	0.088	0.088	0.096	0.091	0.088	0.080	0.080	0.093	0.086	0.096	0.097	0.105	0.099	0.102	0.098
Maximum 1-Hr. Concentration	0.110	0.130	0.120	0.140	0.110	0.130	0.150	0.130	0.100	0.110	0.100	0.110	0.119	0.096	0.144	0.126	0.143	0.140	0.124	0.127
Max. 8-Hr. Concentration	0.096	0.105	0.102	0.101	0.096	0.104	0.107	0.112	0.092	0.093	0.078	0.093	0.102	0.085	0.121	0.106	0.113	0.111	0.110	0.107
Days Above State Standard	13	20	20	14	1	19	34	13	4	15	1	2	9	2	78	23	27	28	48	21
Days Above Nat. 1-Hr. Std.	0	1	0	2	0	2	3	1	0	0	0	0	0	0	8	2	3	2	0	1
Days Above Nat. 8-Hr. Std.	8	14	20	14	1	14	28	10	3	9	0	2	12	1	81	26	31	25	51	18

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							159	202	439	279	167	239	125	279	143	199	146	174	128	185
Max. Avg. of Quarters								66.5	64.1		54.6		50.2	53.4		47.7				57.6
Calc Days Above State 24-Hr Std							138	194	157	180	162	161	156	171	111	98	85	132	120	156
Calc Days Above Nat 24-Hr Std							7	29	14	14	6	20	0	12	0	6		9	0	14

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator													0.087	0.094	0.091	0.091	0.081	0.084	0.074	0.068
Max. 1-Hr. Concentration													0.082	0.094	0.066	0.080	0.086	0.086	0.072	0.096
Max. Annual Average													0.015	0.015		0.014	0.014		0.014	

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

Table A-86

San Joaquin Valley Air Basin

County: Madera

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator								0.118	0.113	0.117	0.114	0.125	0.121	0.124	0.122		0.122	0.115	0.111	0.104
4th High 1-Hr in 3 Yrs							0.110	0.120	0.120	0.120	0.110	0.130	0.130	0.130	0.121	0.084	0.110	0.117	0.117	0.104
Avg of 4th Hi 8-Hr in 3 Yrs							0.097	0.096	0.093	0.093	0.091	0.096	0.091	0.093	0.093	0.070	0.081	0.083	0.089	0.088
Maximum 1-Hr. Concentration							0.130	0.120	0.110	0.130	0.120	0.150	0.103	0.117	0.134	0.085	0.127	0.118	0.104	0.115
Max. 8-Hr. Concentration							0.106	0.101	0.098	0.101	0.097	0.110	0.086	0.102	0.111	0.080	0.116	0.095	0.096	0.093
Days Above State Standard							11	15	6	24	15	28	4	16	28	0	15	12	8	15
Days Above Nat. 1-Hr. Std.							1	0	0	2	0	6	0	0	2	0	1	0	0	0
Days Above Nat. 8-Hr. Std.							8	15	13	17	12	26	1	15	28	0	12	10	9	13

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							108	162	174	118	96	128	105	111	89					
Max. Avg. of Quarters							52.4	53.9	53.6	52.5	43.9	46.4	40.5	41.9						
Calc Days Above State 24-Hr Std							153	146	138	162	108	131	72	117	42					
Calc Days Above Nat 24-Hr Std							0	6	7	0	0	0	0	0						

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. 8-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				

No Monitoring Data Available

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																0.088	0.053	0.068	0.066	0.066
Max. 1-Hr. Concentration																0.077	0.060	0.084	0.060	0.060
Max. Annual Average																	0.011	0.014	0.013	0.012

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Joaquin Valley Air Basin

County: Merced

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.137										0.124	0.122	0.122	0.124	0.127	0.130	0.132	0.134	0.132	0.122
4th High 1-Hr in 3 Yrs	0.130									0.120	0.120	0.120	0.120	0.125	0.125	0.125	0.131	0.132	0.132	0.120
Avg of 4th Hi 8-Hr in 3 Yrs	0.107									0.097	0.099	0.098	0.098	0.100	0.102	0.094	0.096	0.097	0.106	0.101
Maximum 1-Hr. Concentration	0.140									0.130	0.120	0.130	0.123	0.130	0.131	0.102	0.143	0.132	0.120	0.113
Max. 8-Hr. Concentration	0.118									0.111	0.107	0.110	0.107	0.114	0.116	0.095	0.129	0.117	0.112	0.105
Days Above State Standard	48									13	39	22	31	38	44	1	37	42	32	26
Days Above Nat. 1-Hr. Std.	6									2	0	1	0	3	1	0	3	2	0	0
Days Above Nat. 8-Hr. Std.	46									12	40	19	26	36	44	1	35	40	37	29

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							114	148	211	145	98	121	131	100	61			134	104	113
Max. Avg. of Quarters								52.0	52.3	52.7	46.2	41.9	39.5	38.8					34.7	39.1
Calc Days Above State 24-Hr Std							138	104	139	144	132	101	60	90	24			75	54	59
Calc Days Above Nat 24-Hr Std								0	6	0	0	0	0	0					0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator																				
Max. 1-Hr. Concentration	7.0									10.0	9.0									
Max. 8-Hr. Concentration	4.0									5.4	4.8									
Days Above State 8-Hr. Std.	0									0	0									
Days Above Nat. 8-Hr. Std.	0									0	0									

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator											0.075	0.080	0.080	0.079	0.076	0.076	0.075	0.074		0.076
Max. 1-Hr. Concentration	0.070									0.090	0.070	0.090	0.076	0.073	0.071	0.072	0.063	0.078		0.066
Max. Annual Average												0.014	0.013	0.012	0.012	0.013	0.012			

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator																				
Max. 24-Hr. Concentration																				
Max. Annual Average																				

No Monitoring Data Available

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San Joaquin Valley Air Basin

County: San Joaquin

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.139	0.151	0.145	0.141	0.136	0.134	0.134	0.133	0.132	0.119	0.117	0.117	0.117	0.122	0.123	0.122	0.124	0.123	0.121	0.118
4th High 1-Hr in 3 Yrs	0.130	0.130	0.130	0.140	0.140	0.130	0.130	0.130	0.130	0.120	0.120	0.110	0.119	0.124	0.120	0.119	0.116	0.118	0.118	0.118
Avg of 4th Hi 8-Hr in 3 Yrs	0.091	0.106	0.107	0.104	0.101	0.097	0.098	0.093	0.090	0.087	0.088	0.088	0.087	0.091	0.092	0.087	0.087	0.087	0.088	0.084
Maximum 1-Hr. Concentration	0.130	0.150	0.150	0.140	0.140	0.160	0.130	0.120	0.130	0.120	0.110	0.130	0.128	0.134	0.140	0.119	0.126	0.144	0.122	0.114
Max. 8-Hr. Concentration	0.102	0.115	0.114	0.112	0.115	0.110	0.103	0.103	0.102	0.095	0.090	0.097	0.101	0.107	0.096	0.099	0.100	0.113	0.094	0.092
Days Above State Standard	15	32	49	35	31	54	37	10	17	26	21	12	16	16	26	6	19	16	9	9
Days Above Nat. 1-Hr. Std.	1	9	4	5	3	1	4	0	1	0	0	1	1	2	2	0	1	3	0	0
Days Above Nat. 8-Hr. Std.	4	26	35	24	17	30	21	4	7	10	10	4	6	9	14	3	7	10	3	2

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							153	146	251	140	145	104	109	109	127	130	106	150	104	140
Max. Avg. of Quarters							50.4	50.3	50.5	52.6	44.6		37.2			28.9	28.4	36.3	32.1	35.9
Calc Days Above State 24-Hr Std							117	104	124	126	108	78	60	18	18	26	43	60	51	60
Calc Days Above Nat 24-Hr Std							0	0	6	0	0	0	0		0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	9.2	9.9	10.5	10.3	13.6	13.9	14.1	12.2	13.7	13.2	11.5	9.2	7.5	7.5	7.3	6.2	6.1	6.2	6.9	4.8
Max. 1-Hr. Concentration	18.0	17.0	16.0	13.0	19.0	16.0	14.0	16.0	17.0	15.0	11.0	10.0	11.3	10.3	11.0	7.7	10.2	11.3	8.1	8.4
Max. 8-Hr. Concentration	11.5	12.1	7.8	8.4	12.1	12.9	11.4	11.0	11.5	11.4	8.3	6.9	7.8	6.2	7.6	4.2	7.9	7.8	6.6	6.0
Days Above State 8-Hr. Std.	2	3	0	0	9	1	1	6	7	2	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	2	3	0	0	8	1	1	4	6	2	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.131	0.112	0.107	0.111	0.122	0.122	0.126	0.122	0.130	0.134	0.132	0.132	0.131	0.127	0.113	0.102	0.097	0.103	0.102	0.100
Max. 1-Hr. Concentration	0.120	0.100	0.090	0.110	0.160	0.100	0.110	0.130	0.120	0.110	0.190	0.160	0.144	0.119	0.088	0.090	0.102	0.106	0.099	0.087
Max. Annual Average	0.022	0.022		0.020	0.023	0.025	0.026	0.025	0.026	0.025	0.023	0.024	0.024	0.022	0.023	0.022	0.023		0.021	0.019

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04												
Max. 24-Hr. Concentration	0.01	0.02	0.01	0.01	0.01	0.02	0.01	0.01												
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00												

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San Joaquin Valley Air Basin

County: Stanislaus

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.142	0.140	0.144	0.148	0.152	0.149	0.143	0.142	0.131	0.126	0.122	0.119	0.120	0.127	0.129	0.132	0.132	0.130	0.127	0.117
4th High 1-Hr in 3 Yrs	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.130	0.120	0.120	0.110	0.114	0.125	0.125	0.125	0.129	0.127	0.131	0.111
Avg of 4th Hi 8-Hr in 3 Yrs	0.097	0.099	0.102	0.109	0.102	0.100	0.099	0.102	0.099	0.095	0.095	0.095	0.093	0.095	0.096	0.096	0.098	0.095	0.096	0.091
Maximum 1-Hr. Concentration	0.110	0.140	0.160	0.150	0.130	0.150	0.140	0.130	0.150	0.120	0.120	0.130	0.123	0.131	0.129	0.120	0.153	0.119	0.131	0.124
Max. 8-Hr. Concentration	0.100	0.108	0.136	0.122	0.102	0.127	0.126	0.120	0.110	0.102	0.102	0.108	0.100	0.111	0.111	0.100	0.125	0.104	0.107	0.100
Days Above State Standard	37	47	56	57	39	77	64	41	32	33	27	19	28	28	39	15	35	19	16	16
Days Above Nat. 1-Hr. Std.	0	5	13	10	2	18	5	3	3	0	0	2	0	2	2	0	4	0	1	0
Days Above Nat. 8-Hr. Std.	11	36	47	43	21	68	44	26	22	13	11	13	12	21	20	8	29	12	10	11

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							175	148	180	157	150	154	160	120	133	119	125	157	112	158
Max. Avg. of Quarters							47.7		48.1	54.0	43.8		41.4	41.4	32.1	36.4			34.7	39.7
Calc Days Above State 24-Hr Std							126	128	127	144	108	101	90	90	45	50	43	84	60	60
Calc Days Above Nat 24-Hr Std							7	0	6	6	0	0	6	0	0	0	0	0	0	3

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	7.6	8.1	8.5	9.5	10.4	10.5	10.6	11.9	12.4	12.4	10.1	9.0	7.7	7.4	7.0	6.0	5.5	6.1	7.0	6.4
Max. 1-Hr. Concentration	11.0	14.0	15.0	15.0	18.0	12.0	17.0	17.0	17.0	19.0	10.0	11.0	9.5	11.4	9.2	7.1	9.4	11.4	8.0	7.8
Max. 8-Hr. Concentration	7.2	8.8	8.4	11.0	11.3	8.6	13.1	13.4	10.9	10.8	6.5	8.6	6.4	5.7	6.5	5.0	7.3	6.4	6.0	6.0
Days Above State 8-Hr. Std.	0	0	0	2	4	0	2	11	2	2	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	1	4	0	1	8	2	1	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.116	0.117	0.107	0.111	0.121	0.126	0.129	0.126	0.128	0.119	0.109	0.108	0.102	0.102	0.095	0.096	0.089	0.103	0.099	0.100
Max. 1-Hr. Concentration	0.130	0.110	0.080	0.120	0.130	0.120	0.130	0.140	0.100	0.110	0.100	0.110	0.093	0.093	0.087	0.093	0.088	0.103	0.079	0.087
Max. Annual Average	0.026		0.020	0.022	0.024	0.024	0.027		0.026	0.024	0.022	0.023	0.023	0.022	0.022	0.021	0.018	0.022	0.019	0.018

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.02										
Max. 24-Hr. Concentration	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.01										
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										

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San Joaquin Valley Air Basin

County: Tulare

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.145	0.140	0.140	0.133	0.140	0.144	0.144	0.142	0.135	0.133	0.124	0.135	0.144	0.143	0.139	0.131	0.134	0.134	0.130	0.123
4th High 1-Hr in 3 Yrs	0.140	0.130	0.130	0.130	0.140	0.150	0.150	0.150	0.140	0.140	0.130	0.140	0.150	0.150	0.140	0.132	0.139	0.127	0.129	0.126
Avg of 4th Hi 8-Hr in 3 Yrs	0.121	0.112	0.108	0.105	0.108	0.112	0.111	0.111	0.106	0.104	0.101	0.104	0.106	0.107	0.105	0.101	0.102	0.105	0.105	0.104
Maximum 1-Hr. Concentration	0.150	0.140	0.140	0.140	0.160	0.180	0.150	0.160	0.140	0.130	0.130	0.150	0.154	0.132	0.140	0.125	0.148	0.127	0.129	0.135
Max. 8-Hr. Concentration	0.128	0.112	0.117	0.113	0.121	0.133	0.117	0.121	0.115	0.111	0.106	0.125	0.119	0.112	0.111	0.106	0.122	0.112	0.108	0.111
Days Above State Standard	81	64	73	93	98	121	100	76	63	65	63	76	78	66	81	50	63	84	78	73
Days Above Nat. 1-Hr. Std.	13	4	3	6	13	10	4	10	1	1	2	10	12	3	4	1	6	3	1	2
Days Above Nat. 8-Hr. Std.	85	66	68	96	99	120	97	71	65	66	65	72	82	59	78	54	58	88	76	71

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							141	204	285	175	122	108	104	125	115	96	160	152	130	143
Max. Avg. of Quarters							66.6	67.2	78.9	66.1		52.3	48.8	52.7	44.8	41.0	38.6	54.7	52.1	51.8
Calc Days Above State 24-Hr Std							207	224	232	195	144	179	138	153	150	62	97	174	180	162
Calc Days Above Nat 24-Hr Std							0	12	29	7		0	0	0	0	0	6	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	7.0	5.8	5.5	5.5	5.7	5.8	6.1	6.4	6.5	6.5	6.0	5.2	4.4	4.5	4.4	4.2	4.0	4.1	4.1	4.0
Max. 1-Hr. Concentration	10.0	9.0	13.0	9.0	12.0	13.0	14.0	12.0	11.0	14.0	10.0	7.0	8.7	9.3	5.3	7.3	7.4	7.9	5.9	5.7
Max. 8-Hr. Concentration	5.1	5.8	5.4	5.5	6.9	5.8	8.0	6.4	6.0	6.1	4.8	4.0	4.4	4.4	4.0	4.1	3.8	4.1	4.2	3.7
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.110	0.113	0.114	0.120	0.117	0.114	0.119	0.138	0.137	0.130	0.110	0.111	0.113	0.115	0.119	0.115	0.089	0.100	0.099	0.097
Max. 1-Hr. Concentration	0.130	0.110	0.110	0.140	0.110	0.110	0.170	0.210	0.100	0.130	0.100	0.120	0.142	0.112	0.077	0.095	0.081	0.092	0.079	0.075
Max. Annual Average	0.020	0.021	0.023	0.022	0.025	0.019	0.022	0.020	0.021	0.022	0.020	0.023		0.023	0.018	0.019	0.017	0.021	0.018	0.018

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.03	0.03	0.06	0.05	0.06												
Max. 24-Hr. Concentration	0.01	0.01	0.02	0.05	0.01	0.02	0.01	0.01												
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00												

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South Central Coast Air Basin

County: San Luis Obispo

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.095	0.099	0.099	0.101	0.098	0.097	0.099	0.108	0.105	0.104	0.100	0.099	0.096	0.098	0.108	0.109	0.116	0.114	0.114	0.093
4th High 1-Hr in 3 Yrs	0.100	0.100	0.100	0.110	0.100	0.100	0.100	0.100	0.100	0.110	0.100	0.100	0.098	0.097	0.107	0.107	0.114	0.113	0.113	0.092
Avg of 4th Hi 8-Hr in 3 Yrs	0.072	0.072	0.075	0.075	0.072	0.072	0.075	0.073	0.075	0.083	0.078	0.075	0.074	0.074	0.080	0.079	0.086	0.082	0.081	0.072
Maximum 1-Hr. Concentration	0.100	0.110	0.160	0.110	0.100	0.130	0.100	0.150	0.100	0.110	0.110	0.100	0.101	0.108	0.141	0.090	0.129	0.099	0.084	0.094
Max. 8-Hr. Concentration	0.082	0.093	0.093	0.088	0.096	0.111	0.086	0.122	0.082	0.101	0.098	0.088	0.089	0.087	0.117	0.077	0.113	0.083	0.080	0.081
Days Above State Standard	2	7	2	3	5	3	6	8	2	4	3	4	2	7	14	0	25	2	0	0
Days Above Nat. 1-Hr. Std.	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0
Days Above Nat. 8-Hr. Std.	0	3	2	1	3	2	1	8	0	2	1	2	1	1	10	0	21	0	0	0

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							63	84	86	119	135	141	78	73	98	99	70	90	113	152
Max. Avg. of Quarters									29.6			43.0	22.5					26.8		43.6
Calc Days Above State 24-Hr Std							12	39	43	42	48	114	6	18	78	48	43	30	84	102
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	5.0	5.0	4.7	5.2	5.2	5.2	4.7	4.9	5.1	4.8	4.2	3.6	3.2	2.9	2.9	2.6	2.6	2.7	2.7	2.7
Max. 1-Hr. Concentration	12.0	13.0	11.0	11.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	9.0	6.1	5.7	5.0	6.4	4.4	5.3	3.9	8.3
Max. 8-Hr. Concentration	5.3	4.8	4.7	4.7	4.9	3.9	4.3	6.3	4.1	3.3	3.1	3.2	3.2	3.1	2.9	2.6	2.3	3.1	2.4	2.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.096	0.084	0.081	0.088	0.089	0.090	0.085	0.085	0.084	0.079	0.074	0.072	0.070	0.070	0.065	0.064	0.064	0.073	0.070	0.069
Max. 1-Hr. Concentration	0.070	0.090	0.090	0.100	0.090	0.080	0.090	0.090	0.070	0.080	0.060	0.070	0.069	0.069	0.060	0.071	0.061	0.070	0.059	0.061
Max. Annual Average	0.015	0.013	0.015	0.017	0.015	0.015	0.016	0.016			0.015	0.014	0.014	0.013	0.013		0.012	0.014	0.012	0.012

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.15	0.12	0.10	0.34	0.32	0.29	0.22	0.16	0.16	0.14	0.13	0.13	0.03	0.16	0.17	0.16	0.16	0.14	0.14	0.14
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.07	0.06	0.03	0.04	0.02	0.09	0.02	0.02	0.05	0.01	0.04	0.03	0.03	0.04	0.03	0.03	0.04
Max. Annual Average	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01

Table A-92

South Central Coast Air Basin

County: Santa Barbara

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.130	0.132	0.143	0.142	0.137	0.134	0.129	0.140	0.140	0.137	0.131	0.121	0.123	0.122	0.128	0.122	0.117	0.104	0.103	0.100
4th High 1-Hr in 3 Yrs	0.140	0.140	0.150	0.150	0.150	0.140	0.130	0.147	0.153	0.153	0.137	0.123	0.129	0.126	0.130	0.130	0.130	0.108	0.108	0.101
Avg of 4th Hi 8-Hr in 3 Yrs	0.088	0.091	0.093	0.096	0.098	0.095	0.095	0.097	0.099	0.099	0.096	0.091	0.092	0.090	0.094	0.089	0.087	0.082	0.081	0.080
Maximum 1-Hr. Concentration	0.150	0.160	0.160	0.230	0.160	0.185	0.130	0.220	0.165	0.134	0.140	0.135	0.142	0.143	0.134	0.137	0.130	0.135	0.128	0.117
Max. 8-Hr. Concentration	0.131	0.118	0.118	0.140	0.128	0.141	0.102	0.176	0.141	0.113	0.125	0.110	0.116	0.118	0.122	0.108	0.120	0.110	0.087	0.106
Days Above State Standard	23	20	21	15	36	37	43	42	40	38	27	23	23	24	23	10	15	3	6	5
Days Above Nat. 1-Hr. Std.	2	7	4	3	7	4	3	9	4	6	5	1	5	3	4	1	2	1	1	0
Days Above Nat. 8-Hr. Std.	7	10	12	9	26	25	28	28	27	25	17	13	11	16	19	4	6	2	2	3

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							132	119	96	96	89	90	139	129	78	168	73	51	53	66
Max. Avg. of Quarters							33.3		36.3	37.0	32.6		32.5	31.4	28.8		24.8	28.8		26.1
Calc Days Above State 24-Hr Std							30	78	24	48	54	42	30	12	24	12	18	6	12	12
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	6	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	12.0	11.3	9.6	10.2	9.9	10.1	9.0	8.8	8.2	7.5	6.4	5.5	5.9	5.9	5.8	5.0	4.8	4.5	4.7	1.6
Max. 1-Hr. Concentration	14.0	16.0	16.0	17.0	18.0	14.0	15.0	11.0	11.0	9.0	12.0	9.0	10.7	7.8	12.6	8.2	8.5	8.2	5.8	5.4
Max. 8-Hr. Concentration	8.7	9.0	10.0	10.5	8.6	7.5	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	3.1	1.9
Days Above State 8-Hr. Std.	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.135	0.117	0.113	0.116	0.113	0.108	0.094	0.119	0.119	0.120	0.104	0.099	0.089	0.091	0.091	0.085	0.081	0.078	0.081	0.058
Max. 1-Hr. Concentration	0.140	0.130	0.170	0.160	0.150	0.140	0.160	0.120	0.110	0.160	0.100	0.090	0.100	0.113	0.107	0.065	0.089	0.096	0.124	0.113
Max. Annual Average	0.024		0.031	0.030	0.022	0.017		0.027		0.024	0.022	0.022	0.022	0.021	0.019	0.019	0.021	0.022		0.010

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.06	0.05	0.05	0.05	0.08	0.09	0.07	0.07	0.06	0.05	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.01
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.03	0.04	0.04	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Max. Annual Average	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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South Central Coast Air Basin

County: Ventura

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.198	0.195	0.188	0.181	0.177	0.172	0.176	0.173	0.172	0.164	0.159	0.157	0.147	0.162	0.161	0.154	0.143	0.135	0.132	0.126
4th High 1-Hr in 3 Yrs	0.200	0.220	0.210	0.190	0.180	0.180	0.180	0.170	0.170	0.170	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132	0.128
Avg of 4th Hi 8-Hr in 3 Yrs	0.144	0.143	0.137	0.132	0.131	0.129	0.131	0.132	0.130	0.127	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105	0.101
Maximum 1-Hr. Concentration	0.230	0.230	0.190	0.200	0.180	0.180	0.180	0.230	0.170	0.170	0.150	0.146	0.164	0.169	0.158	0.134	0.174	0.132	0.128	0.129
Max. 8-Hr. Concentration	0.168	0.165	0.158	0.156	0.145	0.153	0.142	0.166	0.143	0.140	0.123	0.129	0.132	0.144	0.127	0.114	0.151	0.112	0.108	0.113
Days Above State Standard	142	125	132	136	149	123	135	116	99	107	68	58	88	90	80	59	41	33	38	34
Days Above Nat. 1-Hr. Std.	70	58	45	44	59	31	55	46	18	33	10	13	17	23	17	2	5	2	1	2
Days Above Nat. 8-Hr. Std.	123	109	108	111	120	88	110	94	70	92	57	46	64	67	65	46	30	23	30	24

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							118	92	133	90	84	118	78	94	93	321	110	84	100	78
Max. Avg. of Quarters							41.5	41.5	36.0	40.1	33.4	29.0	30.9	28.6	29.0	37.2	24.1	31.2	30.7	31.5
Calc Days Above State 24-Hr Std							114	132	66	96	42	30	24	48	30	48	12	36	36	24
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	6	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	6.5	6.3	6.0	5.9	6.2	5.7	5.7	4.9	4.9	4.7	4.5	3.9	3.6	4.0	4.0	3.9	3.6	3.3	3.4	3.1
Max. 1-Hr. Concentration	13.0	15.0	12.0	12.0	15.0	12.0	9.0	10.0	10.0	9.0	7.0	9.0	7.7	8.9	7.8	7.4	7.2	6.8	6.2	4.4
Max. 8-Hr. Concentration	6.0	6.0	5.0	6.0	7.0	5.7	4.4	4.1	5.0	4.3	3.0	3.7	4.2	4.3	3.4	3.8	3.5	3.6	4.3	3.4
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.150	0.139	0.140	0.136	0.132	0.130	0.123	0.117	0.119	0.120	0.114	0.104	0.105	0.112	0.114	0.110	0.097	0.089	0.086	0.083
Max. 1-Hr. Concentration	0.180	0.160	0.200	0.120	0.130	0.150	0.110	0.120	0.160	0.110	0.100	0.110	0.133	0.127	0.110	0.115	0.097	0.099	0.095	0.080
Max. Annual Average	0.023	0.018					0.024	0.027	0.025	0.024		0.023		0.024		0.020	0.019		0.020	0.019

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-94

South Coast Air Basin

County: Los Angeles

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.373	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.230	0.229	0.217	0.193	0.193	0.164
4th High 1-Hr in 3 Yrs	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.223	0.209	0.200	0.188	0.188	0.169
Avg of 4th Hi 8-Hr in 3 Yrs	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.179	0.177	0.177	0.168	0.156	0.145	0.135	0.133	0.118	0.115	0.112
Maximum 1-Hr. Concentration	0.400	0.390	0.340	0.390	0.350	0.330	0.340	0.340	0.290	0.320	0.300	0.280	0.300	0.216	0.205	0.170	0.222	0.154	0.174	0.190
Max. 8-Hr. Concentration	0.265	0.258	0.226	0.288	0.251	0.210	0.258	0.235	0.177	0.183	0.218	0.185	0.208	0.158	0.150	0.130	0.171	0.108	0.146	0.134
Days Above State Standard	180	178	196	201	209	190	205	192	168	159	174	158	142	127	109	89	68	43	57	70
Days Above Nat. 1-Hr. Std.	142	146	153	154	162	147	165	140	120	111	129	102	102	79	55	27	35	6	12	17
Days Above Nat. 8-Hr. Std.	153	154	160	164	177	158	181	150	131	128	139	108	118	92	68	43	46	19	27	35

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							149	172	161	151	222	104	127	157	138	116	87	103	105	106
Max. Avg. of Quarters							62.7		54.9	66.6	49.4	46.9	45.5	48.2	45.4	46.2	40.2	56.4	46.0	45.1
Calc Days Above State 24-Hr Std							246	236	186	234	144	155	144	138	144	144	91	210	144	132
Calc Days Above Nat 24-Hr Std							0	6	6	0	11	0	0	6	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6	11.2
Max. 1-Hr. Concentration	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.5	11.7
Max. 8-Hr. Concentration	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	16.1	13.8	17.5	17.1	13.3	11.2	10.1	7.6
Days Above State 8-Hr. Std.	79	65	77	62	57	50	70	70	49	51	39	29	27	17	26	18	13	11	6	0
Days Above Nat. 8-Hr. Std.	68	56	63	53	49	40	63	67	41	41	34	19	19	14	19	13	10	7	3	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.414	0.378	0.325	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.203	0.180	0.168	0.167
Max. 1-Hr. Concentration	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.170	0.212	0.173	0.251
Max. Annual Average	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044	0.041

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.10	0.10	0.11	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.11	0.10	0.10	0.06	0.05	0.06	0.05	0.05	0.05	0.05
Max. 24-Hr. Concentration	0.04	0.04	0.06	0.04	0.04	0.02	0.04	0.02	0.04	0.02	0.04	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.02
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table A-95

A portion of Los Angeles County lies within the Mojave Desert Air Basin.

South Coast Air Basin

County: Orange

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.288	0.290	0.297	0.295	0.274	0.267	0.246	0.235	0.227	0.219	0.205	0.197	0.189	0.163	0.156	0.137	0.141	0.131	0.131	0.115
4th High 1-Hr in 3 Yrs	0.290	0.280	0.290	0.280	0.270	0.260	0.240	0.240	0.240	0.220	0.210	0.190	0.190	0.170	0.156	0.138	0.144	0.130	0.127	0.114
Avg of 4th Hi 8-Hr in 3 Yrs	0.155	0.166	0.163	0.166	0.157	0.152	0.142	0.141	0.138	0.127	0.120	0.114	0.117	0.107	0.100	0.088	0.088	0.084	0.084	0.080
Maximum 1-Hr. Concentration	0.320	0.300	0.320	0.340	0.250	0.240	0.290	0.260	0.210	0.250	0.220	0.190	0.252	0.160	0.150	0.134	0.182	0.116	0.137	0.125
Max. 8-Hr. Concentration	0.211	0.196	0.177	0.208	0.158	0.165	0.195	0.167	0.142	0.145	0.158	0.122	0.172	0.109	0.103	0.100	0.115	0.091	0.110	0.097
Days Above State Standard	79	110	107	101	101	81	96	81	80	71	63	59	46	39	27	13	22	8	14	12
Days Above Nat. 1-Hr. Std.	42	65	65	63	53	42	45	38	37	32	35	17	9	4	6	3	6	0	2	1
Days Above Nat. 8-Hr. Std.	48	73	75	66	62	54	50	44	39	36	35	25	15	8	9	3	6	1	6	4

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							132	138	158	146	88	115	106	172	101	91	81	122	126	93
Max. Avg. of Quarters							45.9	47.0	47.9	46.3	40.4		37.7	43.4	35.4	38.7	35.8		38.2	
Calc Days Above State 24-Hr Std							90	126	112	84	66	78	66	75	36	62	72	90	45	53
Calc Days Above Nat 24-Hr Std							0	0	6	0	0	0	0	7	0	0	0	0	0	0

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	16.8	13.2	11.8	11.6	11.0	11.3	10.9	11.5	11.5	10.8	9.4	8.8	8.7	8.2	8.5	7.3	6.7	6.4	6.7	6.6
Max. 1-Hr. Concentration	21.0	22.0	21.0	22.0	20.0	21.0	20.0	24.0	19.0	21.0	21.0	15.0	16.1	12.7	12.9	11.9	15.0	11.4	13.8	10.7
Max. 8-Hr. Concentration	11.9	11.7	14.4	17.0	10.4	10.6	12.0	12.1	11.7	8.6	9.4	7.7	8.6	8.0	7.4	5.9	7.1	6.4	6.7	4.7
Days Above State 8-Hr. Std.	13	8	7	9	4	3	9	13	6	0	3	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	9	8	5	7	4	2	7	12	5	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.345	0.302	0.266	0.252	0.236	0.240	0.238	0.241	0.236	0.231	0.221	0.220	0.201	0.196	0.189	0.171	0.141	0.143	0.149	0.150
Max. 1-Hr. Concentration	0.280	0.330	0.250	0.300	0.210	0.220	0.280	0.280	0.220	0.200	0.210	0.200	0.230	0.192	0.160	0.145	0.135	0.165	0.139	0.130
Max. Annual Average	0.048	0.045	0.046	0.043	0.045	0.042	0.046	0.047	0.047	0.045	0.039	0.039	0.041	0.039	0.035	0.033	0.034	0.035	0.029	0.027

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.10	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.02	0.01	0.01	0.01	0.01
Max. Annual Average	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-96

South Coast Air Basin

County: Riverside

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.357	0.335	0.333	0.332	0.308	0.297	0.276	0.269	0.263	0.261	0.251	0.240	0.222	0.207	0.192	0.188	0.188	0.176	0.171	0.154
4th High 1-Hr in 3 Yrs	0.350	0.340	0.330	0.330	0.320	0.290	0.270	0.270	0.270	0.270	0.250	0.240	0.240	0.220	0.200	0.187	0.187	0.170	0.166	0.149
Avg of 4th Hi 8-Hr in 3 Yrs	0.212	0.199	0.201	0.209	0.197	0.191	0.180	0.180	0.177	0.175	0.169	0.165	0.157	0.149	0.140	0.135	0.129	0.124	0.114	0.111
Maximum 1-Hr. Concentration	0.350	0.360	0.320	0.350	0.270	0.290	0.280	0.270	0.290	0.240	0.260	0.260	0.253	0.213	0.203	0.187	0.195	0.144	0.164	0.152
Max. 8-Hr. Concentration	0.211	0.230	0.202	0.230	0.217	0.186	0.241	0.213	0.181	0.196	0.193	0.195	0.208	0.161	0.162	0.148	0.169	0.123	0.126	0.135
Days Above State Standard	157	163	182	177	174	175	191	182	150	155	159	157	144	134	107	128	80	83	93	97
Days Above Nat. 1-Hr. Std.	116	123	132	132	118	125	133	119	97	99	99	86	90	69	50	40	40	9	23	28
Days Above Nat. 8-Hr. Std.	138	136	156	159	146	151	152	148	122	132	135	124	127	99	84	106	65	56	70	73

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							252	252	250	179	126	231	161	219	162	163	116	153	139	219
Max. Avg. of Quarters							94.2	93.5	78.3	76.6	63.1	71.2	65.8	69.1	62.8	65.5		72.4	59.1	62.6
Calc Days Above State 24-Hr Std							306	300	271	246	234	252	246	225	252	242	181	258	246	237
Calc Days Above Nat 24-Hr Std							30	34	18	12	0	18	6	25	6	6	0	0	0	6

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	8.9	9.0	8.3	7.9	8.4	8.7	8.7	8.5	8.1	8.0	6.9	6.6	6.3	6.2	6.2	5.9	5.3	4.7	4.7	4.4
Max. 1-Hr. Concentration	13.0	15.0	16.0	14.0	18.0	13.0	17.0	14.0	15.0	14.0	11.0	10.0	11.0	9.0	9.1	10.7	6.4	7.4	8.8	5.8
Max. 8-Hr. Concentration	8.6	7.9	8.9	9.1	8.3	7.6	10.0	10.3	7.3	7.4	6.1	7.1	7.3	6.3	5.3	5.6	4.8	4.4	4.2	4.5
Days Above State 8-Hr. Std.	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.250	0.174	0.161	0.162	0.160	0.163	0.170	0.176	0.174	0.172	0.168	0.159	0.138	0.134	0.133	0.127	0.167	0.185	0.213	0.216
Max. 1-Hr. Concentration	0.160	0.190	0.170	0.160	0.160	0.210	0.190	0.160	0.160	0.210	0.230	0.140	0.181	0.147	0.110	0.200	0.255	0.307	0.214	0.237
Max. Annual Average	0.034	0.034	0.035	0.035	0.032	0.027		0.036	0.034	0.035	0.030		0.031	0.030	0.029	0.026		0.025	0.022	0.024

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.03	0.03
Max. 24-Hr. Concentration	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-97

Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

South Coast Air Basin

County: San Bernardino

OZONE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hour Indicator	0.385	0.322	0.328	0.330	0.321	0.304	0.284	0.277	0.273	0.266	0.266	0.252	0.252	0.232	0.233	0.222	0.224	0.211	0.213	0.172
4th High 1-Hr in 3 Yrs	0.360	0.320	0.320	0.320	0.320	0.320	0.290	0.280	0.280	0.270	0.270	0.250	0.250	0.234	0.231	0.215	0.217	0.211	0.211	0.170
Avg of 4th Hi 8-Hr in 3 Yrs	0.222	0.214	0.210	0.211	0.211	0.200	0.195	0.188	0.185	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129
Maximum 1-Hr. Concentration	0.320	0.360	0.340	0.340	0.310	0.290	0.350	0.320	0.330	0.290	0.280	0.270	0.265	0.256	0.239	0.205	0.244	0.174	0.184	0.184
Max. 8-Hr. Concentration	0.255	0.236	0.248	0.252	0.240	0.198	0.250	0.252	0.193	0.203	0.211	0.185	0.192	0.203	0.173	0.143	0.206	0.142	0.149	0.144
Days Above State Standard	175	169	197	184	179	179	193	192	161	160	176	170	158	135	132	122	100	98	101	99
Days Above Nat. 1-Hr. Std.	136	137	162	138	145	141	153	143	115	109	123	112	115	91	79	53	58	37	25	32
Days Above Nat. 8-Hr. Std.	152	147	178	166	167	163	174	169	145	143	164	157	142	110	110	93	88	87	75	79

PM_{10} (ug/m3)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Max. 24-Hour Concentration							289	271	475	163	649	143	147	178	136	208	114	183	124	166
Max. Avg. of Quarters							80.5	79.8	77.1	68.9	79.5	58.0	60.1	61.4	54.9	53.6	49.7	66.1	52.2	51.9
Calc Days Above State 24-Hr Std							282	294	253	246	234	227	225	207	210	174	163	222	192	203
Calc Days Above Nat 24-Hr Std							19	18	19	6	12	0	0	21	0	6	0	6	0	6

CARBON MONOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 8-Hr. Indicator	8.0	6.4	6.2	5.8	7.2	7.1	7.5	7.8	7.7	7.4	6.7	6.1	5.5	6.4	6.3	6.1	5.1	4.9	4.9	4.1
Max. 1-Hr. Concentration	10.0	17.0	9.0	10.0	9.0	11.0	9.0	11.0	9.0	8.0	7.0	7.0	7.6	7.7	5.8	7.6	6.3	5.5	4.8	4.1
Max. 8-Hr. Concentration	6.9	12.5	5.6	6.3	6.7	6.7	7.6	8.1	6.6	7.0	5.9	6.0	6.4	6.3	4.5	5.9	4.7	4.1	4.1	3.3
Days Above State 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.223	0.214	0.180	0.171	0.172	0.183	0.193	0.195	0.192	0.187	0.174	0.167	0.160	0.178	0.180	0.178	0.143	0.139	0.137	0.131
Max. 1-Hr. Concentration	0.200	0.250	0.200	0.180	0.240	0.200	0.210	0.200	0.200	0.210	0.140	0.160	0.177	0.199	0.163	0.153	0.154	0.149	0.143	0.129
Max. Annual Average	0.044	0.042	0.040	0.040	0.042	0.047	0.047	0.045	0.041	0.043	0.040	0.042	0.041	0.046	0.038	0.036	0.036	0.039	0.038	0.037

SULFUR DIOXIDE (ppm)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Peak 1-Hr. Indicator	0.11	0.07	0.05	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02
Max. 24-Hr. Concentration	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Max. Annual Average	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A-98

A portion of San Bernardino County lies within the Mojave Desert Air Basin.

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APPENDIX B

Air Quality Trend Data by Pollutant:

Ozone, PM_{10}, CO, NO_2, SO_2

Appendix B: *Air Quality Trend Data by Pollutant: Ozone, PM_{10}, CO, NO_2, SO_2*

List of Tables

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Introduction

This appendix contains air quality trend data for each of California's 15 air basins, organized by pollutant. The five pollutants included are ozone, particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). The statistics are the same as those presented in Chapter 4, and the time period covered is 1982 through 2001 for ozone, CO, NO_2, and SO_2, and 1988 through 2001 for PM_{10}. (Note: $PM_{2.5}$ air quality data are not included in Appendix B because the data are limited and not yet adequate for developing trends. However, available $PM_{2.5}$ air quality data are summarized by air basin in Chapter 2.)

Air quality statistics can fluctuate from year-to-year because of the influence of meteorology and/or changes in emissions. However, the statistics can also vary because of a change in monitoring site. The peak and maximum value statistics listed here reflect the highest value for the statistic at any site in the area. As a result, the statistic may not reflect the same site during the entire trend period. For example, the maximum 8-hour carbon monoxide concentrations in Imperial County in the Salton Sea Air Basin are below the levels of the State and national standards from 1982 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards are violated. The CO concentrations in the Salton Sea Air Basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing sites in the air basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available on the web at: *www.arb.ca.gov/aqd/namslams/namslams.htm*.

Since the peak and maximum air quality statistics reflect the highest values in the area, the monitoring sites represented also may not be consistent among the various statistics during a particular year. For example, the monitoring site reflected in the maximum 1-hour ozone concentration may not be the same as the monitoring site reflected in the maximum 8-hour ozone concentration. In contrast to the peak and maximum statistics, the counts of days above a standard reflect composite, basin-wide values (in other words, a count of the total number of days an exceedance occurred at any site in the air basin).

Ozone

Peak 1-Hour Indicator (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0.094	0.091	0.096	0.095	0.100	0.099	0.100	0.099	0.100	0.099	0.115	0.110	0.108	0.097	0.099	0.096	0.095	0.090	0.090	0.105
LAKE COUNTY	0.083	0.077	0.080	0.075	0.081	0.081	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.076	0.076	0.087	0.084	0.080
LAKE TAHOE	0.088	0.086	0.080	0.081	0.082	0.085	0.089	0.091	0.092	0.093	0.089	0.079	0.082	0.084	0.084	0.083	0.082	0.081	0.089	0.090
MOJAVE DESERT	0.220	0.205	0.193	0.200	0.235	0.231	0.234	0.204	0.215	0.224	0.220	0.194	0.191	0.194	0.186	0.171	0.176	0.162	0.154	0.136
MOUNTAIN COUNTIES					0.090	0.129	0.155	0.138	0.134	0.118	0.128	0.122	0.127	0.131	0.137	0.140	0.147	0.144	0.144	0.137
NORTH CENTRAL COAST	0.119	0.108	0.104	0.113	0.109	0.146	0.136	0.131	0.115	0.114	0.115	0.111	0.107	0.106	0.111	0.112	0.113	0.103	0.104	0.100
NORTH COAST	0.079	0.076	0.076	0.073	0.074	0.083	0.062	0.059	0.066	0.063	0.085	0.088	0.089	0.090	0.088	0.091	0.103	0.109	0.105	0.093
NORTHEAST PLATEAU	0.071	0.072	0.074	0.076	0.079	0.081	0.082	0.083	0.082	0.084	0.081	0.073	0.075	0.074	0.075	0.074	0.079	0.078	0.081	0.086
SACRAMENTO VALLEY	0.174	0.163	0.162	0.173	0.173	0.168	0.171	0.166	0.162	0.153	0.158	0.159	0.148	0.149	0.154	0.141	0.161	0.155	0.153	0.139
SALTON SEA	0.209	0.194	0.202	0.204	0.197	0.185	0.182	0.180	0.181	0.175	0.168	0.159	0.154	0.163	0.155	0.157	0.153	0.147	0.149	0.152
SAN DIEGO	0.203	0.188	0.197	0.189	0.179	0.179	0.179	0.186	0.180	0.172	0.164	0.150	0.147	0.148	0.142	0.132	0.134	0.134	0.132	0.117
SAN FRANCISCO BAY AREA	0.154	0.153	0.164	0.173	0.155	0.149	0.147	0.148	0.136	0.129	0.130	0.126	0.118	0.135	0.151	0.149	0.151	0.144	0.143	0.122
SAN JOAQUIN VALLEY	0.187	0.184	0.164	0.163	0.172	0.172	0.169	0.170	0.164	0.167	0.162	0.162	0.156	0.163	0.164	0.167	0.162	0.159	0.158	0.146
SOUTH CENTRAL COAST	0.198	0.195	0.188	0.181	0.177	0.172	0.176	0.173	0.172	0.164	0.159	0.157	0.147	0.162	0.161	0.154	0.143	0.135	0.132	0.126
SOUTH COAST	0.385	0.365	0.354	0.375	0.360	0.344	0.319	0.320	0.310	0.304	0.286	0.297	0.279	0.249	0.233	0.229	0.224	0.211	0.213	0.172

Table B-1

4th Highest 1-Hour Concentration in 3 Years (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0.080	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.100	0.090	0.120	0.120	0.120	0.100	0.100	0.091	0.090	0.089	0.090	0.097
LAKE COUNTY	0.080	0.080	0.080	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
LAKE TAHOE	0.090	0.080	0.080	0.080	0.080	0.090	0.090	0.090	0.090	0.090	0.090	0.070	0.081	0.086	0.083	0.083	0.081	0.081	0.086	0.087
MOJAVE DESERT	0.220	0.210	0.220	0.220	0.230	0.230	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.188	0.182	0.175	0.167	0.166	0.164	0.135
MOUNTAIN COUNTIES					0.080	0.116	0.140	0.140	0.140	0.110	0.120	0.120	0.124	0.124	0.129	0.130	0.143	0.144	0.143	0.128
NORTH CENTRAL COAST	0.120	0.110	0.100	0.100	0.100	0.134	0.134	0.139	0.120	0.110	0.110	0.110	0.110	0.104	0.114	0.114	0.114	0.109	0.107	0.100
NORTH COAST	0.080	0.080	0.070	0.070	0.070	0.080	0.080	0.059	0.060	0.060	0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100
NORTHEAST PLATEAU	0.070	0.070	0.070	0.070	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.075	0.075	0.078	0.091
SACRAMENTO VALLEY	0.160	0.160	0.180	0.180	0.180	0.160	0.160	0.160	0.160	0.150	0.150	0.150	0.143	0.145	0.145	0.133	0.148	0.148	0.148	0.133
SALTON SEA	0.200	0.190	0.190	0.190	0.190	0.180	0.180	0.180	0.180	0.180	0.170	0.170	0.152	0.180	0.180	0.160	0.155	0.143	0.157	0.166
SAN DIEGO	0.210	0.200	0.200	0.210	0.190	0.180	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.138	0.135	0.135	0.131	0.118
SAN FRANCISCO BAY AREA	0.180	0.160	0.160	0.160	0.150	0.140	0.140	0.140	0.130	0.130	0.120	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126
SAN JOAQUIN VALLEY	0.170	0.170	0.160	0.160	0.170	0.170	0.170	0.170	0.160	0.160	0.160	0.160	0.160	0.165	0.165	0.164	0.161	0.161	0.161	0.146
SOUTH CENTRAL COAST	0.200	0.220	0.210	0.190	0.180	0.180	0.180	0.170	0.170	0.170	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132	0.128
SOUTH COAST	0.390	0.360	0.360	0.360	0.350	0.350	0.340	0.330	0.330	0.310	0.300	0.300	0.280	0.250	0.231	0.215	0.217	0.211	0.211	0.170

Table B-2

Ozone

Average of 4th Highest 8-Hour Concentration in 3 Years (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0.072	0.076	0.078	0.079	0.082	0.084	0.086	0.081	0.081	0.076	0.081	0.078	0.082	0.079	0.079	0.077	0.079	0.079	0.080	0.083
LAKE COUNTY	0.063	0.059	0.063	0.059	0.064	0.065	0.065	0.058	0.054	0.055	0.055	0.057	0.059	0.061	0.060	0.058	0.057	0.061	0.062	0.063
LAKE TAHOE	0.070	0.069	0.067	0.068	0.069	0.071	0.074	0.076	0.075	0.076	0.075	0.056	0.061	0.070	0.071	0.068	0.069	0.069	0.074	0.075
MOJAVE DESERT	0.145	0.141	0.132	0.150	0.168	0.163	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.137	0.131	0.124	0.127	0.118	0.110	0.102
MOUNTAIN COUNTIES					0.073	0.093	0.108	0.103	0.094	0.092	0.098	0.096	0.099	0.099	0.103	0.099	0.103	0.103	0.107	0.104
NORTH CENTRAL COAST	0.083	0.081	0.077	0.081	0.078	0.103	0.095	0.090	0.084	0.083	0.084	0.083	0.081	0.081	0.085	0.084	0.086	0.082	0.082	0.079
NORTH COAST	0.055	0.053	0.051	0.050	0.052	0.056	0.066	0.042	0.053	0.051	0.063	0.065	0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069
NORTHEAST PLATEAU	0.056	0.056	0.059	0.061	0.064	0.069	0.069	0.069	0.067	0.059	0.057	0.051	0.058	0.057	0.059	0.058	0.061	0.062	0.063	0.056
SACRAMENTO VALLEY	0.112	0.114	0.115	0.118	0.118	0.114	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.097	0.101	0.105	0.099
SALTON SEA	0.144	0.134	0.134	0.134	0.135	0.131	0.130	0.129	0.126	0.125	0.121	0.118	0.113	0.110	0.111	0.107	0.107	0.100	0.099	0.100
SAN DIEGO	0.137	0.130	0.126	0.132	0.125	0.124	0.121	0.125	0.129	0.125	0.118	0.112	0.109	0.108	0.104	0.099	0.102	0.099	0.100	0.094
SAN FRANCISCO BAY AREA	0.094	0.095	0.100	0.103	0.097	0.092	0.092	0.097	0.088	0.084	0.082	0.081	0.082	0.087	0.093	0.090	0.089	0.086	0.087	0.082
SAN JOAQUIN VALLEY	0.123	0.116	0.114	0.111	0.117	0.118	0.121	0.120	0.119	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.113	0.111	0.109
SOUTH CENTRAL COAST	0.144	0.143	0.137	0.132	0.131	0.129	0.131	0.132	0.130	0.127	0.118	0.115	0.112	0.117	0.119	0.115	0.112	0.106	0.105	0.101
SOUTH COAST	0.233	0.229	0.225	0.226	0.222	0.217	0.205	0.192	0.186	0.182	0.180	0.177	0.171	0.165	0.161	0.148	0.154	0.147	0.146	0.129

Table B-3

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0.090	0.090	0.090	0.100	0.100	0.100	0.100	0.080	0.100	0.090	0.150	0.090	0.120	0.110	0.095	0.092	0.092	0.094	0.090	0.100
LAKE COUNTY	0.080	0.070	0.080	0.080	0.080	0.090	0.070	0.060	0.090	0.080	0.080	0.080	0.090	0.070	0.090	0.080	0.080	0.090	0.080	0.070
LAKE TAHOE	0.090	0.080	0.080	0.100	0.090	0.090	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.089	0.095
MOJAVE DESERT	0.200	0.230	0.230	0.210	0.260	0.220	0.270	0.220	0.270	0.240	0.230	0.200	0.188	0.240	0.175	0.187	0.202	0.137	0.163	0.146
MOUNTAIN COUNTIES					0.090	0.145	0.160	0.130	0.150	0.110	0.130	0.120	0.130	0.146	0.138	0.145	0.163	0.165	0.134	0.148
NORTH CENTRAL COAST	0.110	0.110	0.100	0.110	0.100	0.146	0.127	0.140	0.120	0.140	0.110	0.110	0.101	0.138	0.120	0.112	0.124	0.107	0.098	0.108
NORTH COAST	0.080	0.070	0.070	0.070	0.070	0.090	0.090	0.050	0.070	0.060	0.090	0.090	0.100	0.100	0.080	0.100	0.130	0.100	0.090	0.090
NORTHEAST PLATEAU	0.070	0.070	0.080	0.080	0.080	0.090	0.080	0.080	0.080	0.050	0.080	0.070	0.080	0.070	0.070	0.082	0.078	0.070	0.082	0.056
SACRAMENTO VALLEY	0.160	0.170	0.210	0.200	0.170	0.180	0.180	0.170	0.150	0.190	0.170	0.150	0.145	0.156	0.157	0.143	0.160	0.160	0.138	0.142
SALTON SEA	0.190	0.190	0.200	0.240	0.180	0.170	0.200	0.190	0.170	0.180	0.170	0.210	0.180	0.232	0.180	0.160	0.236	0.171	0.169	0.167
SAN DIEGO	0.230	0.280	0.280	0.220	0.190	0.290	0.250	0.250	0.200	0.210	0.170	0.187	0.147	0.162	0.138	0.136	0.164	0.124	0.124	0.141
SAN FRANCISCO BAY AREA	0.150	0.200	0.170	0.160	0.140	0.170	0.150	0.140	0.130	0.140	0.130	0.130	0.130	0.155	0.138	0.114	0.147	0.156	0.152	0.134
SAN JOAQUIN VALLEY	0.180	0.170	0.170	0.160	0.180	0.200	0.190	0.180	0.170	0.180	0.160	0.160	0.175	0.173	0.165	0.147	0.169	0.155	0.165	0.149
SOUTH CENTRAL COAST	0.230	0.230	0.190	0.230	0.180	0.185	0.180	0.230	0.170	0.170	0.150	0.146	0.164	0.169	0.158	0.137	0.174	0.135	0.128	0.129
SOUTH COAST	0.400	0.390	0.340	0.390	0.350	0.330	0.350	0.340	0.330	0.320	0.300	0.280	0.300	0.256	0.239	0.205	0.244	0.174	0.184	0.190

Table B-4

Ozone

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0.082	0.087	0.087	0.090	0.093	0.091	0.098	0.077	0.091	0.073	0.103	0.077	0.092	0.101	0.090	0.080	0.085	0.089	0.080	0.095
LAKE COUNTY	0.073	0.061	0.077	0.070	0.080	0.080	0.061	0.053	0.063	0.066	0.057	0.072	0.075	0.063	0.070	0.065	0.076	0.072	0.073	0.065
LAKE TAHOE	0.080	0.071	0.072	0.086	0.080	0.082	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.077	0.084
MOJAVE DESERT	0.145	0.182	0.158	0.167	0.225	0.161	0.167	0.161	0.198	0.173	0.165	0.147	0.155	0.170	0.146	0.133	0.144	0.122	0.132	0.117
MOUNTAIN COUNTIES					0.078	0.111	0.138	0.110	0.115	0.102	0.112	0.111	0.108	0.113	0.113	0.112	0.127	0.118	0.113	0.109
NORTH CENTRAL COAST	0.077	0.088	0.083	0.091	0.083	0.113	0.096	0.100	0.095	0.108	0.090	0.087	0.092	0.102	0.101	0.091	0.097	0.085	0.084	0.088
NORTH COAST	0.065	0.057	0.062	0.056	0.062	0.076	0.076	0.042	0.060	0.051	0.072	0.073	0.080	0.090	0.071	0.091	0.106	0.087	0.077	0.073
NORTHEAST PLATEAU	0.066	0.062	0.066	0.075	0.070	0.081	0.071	0.076	0.076	0.046	0.073	0.070	0.068	0.062	0.063	0.074	0.071	0.067	0.071	0.050
SACRAMENTO VALLEY	0.133	0.125	0.138	0.161	0.125	0.127	0.130	0.133	0.127	0.140	0.122	0.120	0.121	0.128	0.126	0.107	0.137	0.129	0.108	0.108
SALTON SEA	0.142	0.150	0.165	0.160	0.142	0.141	0.137	0.160	0.130	0.148	0.128	0.128	0.130	0.132	0.125	0.120	0.136	0.110	0.113	0.113
SAN DIEGO	0.162	0.176	0.207	0.168	0.143	0.196	0.156	0.193	0.145	0.145	0.133	0.154	0.121	0.122	0.117	0.112	0.141	0.100	0.106	0.116
SAN FRANCISCO BAY AREA	0.108	0.150	0.124	0.127	0.106	0.116	0.101	0.102	0.105	0.108	0.101	0.112	0.097	0.115	0.112	0.084	0.111	0.122	0.114	0.102
SAN JOAQUIN VALLEY	0.133	0.122	0.136	0.131	0.135	0.150	0.127	0.136	0.123	0.130	0.121	0.125	0.129	0.134	0.137	0.127	0.136	0.123	0.131	0.120
SOUTH CENTRAL COAST	0.168	0.165	0.158	0.156	0.145	0.153	0.142	0.176	0.143	0.140	0.125	0.129	0.132	0.144	0.127	0.114	0.151	0.112	0.108	0.113
SOUTH COAST	0.265	0.258	0.248	0.288	0.251	0.210	0.258	0.252	0.193	0.203	0.218	0.195	0.208	0.203	0.173	0.148	0.206	0.142	0.149	0.144

Table B-5

Days Above State Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0	0	0	1	5	4	3	0	2	0	5	0	4	2	1	0	0	0	0	4
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	1	0	1
MOJAVE DESERT	120	120	131	147	156	158	152	158	136	135	150	135	137	119	108	101	77	83	86	72
MOUNTAIN COUNTIES					0	27	51	39	22	23	54	35	57	49	65	29	52	66	51	49
NORTH CENTRAL COAST	2	7	6	12	1	37	14	10	11	12	9	12	6	8	16	1	10	3	3	3
NORTH COAST	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	7	4	0	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	66	62	64	59	66	94	98	68	50	68	74	34	60	50	58	25	62	59	42	46
SALTON SEA	96	96	100	96	80	85	107	119	83	86	100	113	126	124	98	91	72	88	54	81
SAN DIEGO	120	125	146	148	131	127	160	159	139	106	97	90	79	96	51	43	54	27	24	29
SAN FRANCISCO BAY AREA	36	53	55	45	39	46	41	22	14	23	23	19	13	28	34	8	29	20	12	15
SAN JOAQUIN VALLEY	113	105	135	149	147	156	156	148	131	133	127	125	118	124	120	110	90	123	114	123
SOUTH CENTRAL COAST	145	126	133	137	150	126	138	117	105	112	75	63	90	95	82	59	54	33	38	34
SOUTH COAST	198	192	209	207	217	196	216	211	185	184	190	185	165	153	141	144	107	111	115	121

Table B-6

Ozone

Days Above National 1-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOJAVE DESERT	38	66	66	93	105	82	108	93	76	70	77	69	77	60	39	22	26	4	11	6
MOUNTAIN COUNTIES					0	3	7	2	2	0	1	0	2	3	7	2	8	7	4	1
NORTH CENTRAL COAST	0	0	0	0	0	5	1	1	0	1	0	0	0	1	0	0	0	0	0	0
NORTH COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	17	15	23	19	24	24	35	8	16	14	14	7	9	11	9	3	14	7	5	2
SALTON SEA	38	50	40	29	31	40	35	38	27	27	31	36	20	33	21	13	13	25	5	15
SAN DIEGO	47	61	51	50	42	40	45	56	39	27	19	14	9	12	2	1	9	0	0	2
SAN FRANCISCO BAY AREA	5	21	22	9	5	14	5	4	2	2	2	3	2	11	8	0	8	3	3	1
SAN JOAQUIN VALLEY	43	41	61	53	59	65	74	54	45	51	29	43	43	44	56	16	39	28	30	32
SOUTH CENTRAL COAST	72	58	46	44	60	31	56	48	20	35	12	14	17	25	19	3	6	2	2	2
SOUTH COAST	151	153	175	158	167	161	178	157	131	130	142	124	118	98	85	64	60	39	33	36

Table B-7

Days Above National 8-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	0	1	2	2	13	2	6	0	3	0	9	0	6	2	1	0	1	1	0	4
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE	0	0	0	1	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0
MOJAVE DESERT	104	105	109	129	146	144	142	137	120	122	134	124	129	109	91	78	68	73	72	65
MOUNTAIN COUNTIES					0	22	43	38	22	33	47	34	49	47	59	28	54	65	56	43
NORTH CENTRAL COAST	0	3	0	5	0	26	6	3	5	3	4	4	1	3	9	1	6	1	0	2
NORTH COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5	2	0	0
NORTHEAST PLATEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	46	44	46	42	50	73	68	37	44	60	56	22	48	40	44	15	60	43	35	37
SALTON SEA	80	77	79	70	62	72	70	90	56	65	75	80	75	79	62	63	40	35	33	54
SAN DIEGO	83	101	98	109	81	99	119	122	96	67	66	58	46	48	31	16	35	16	16	17
SAN FRANCISCO BAY AREA	13	26	32	17	13	29	20	13	7	6	6	5	4	18	14	0	16	9	4	7
SAN JOAQUIN VALLEY	108	100	120	127	134	148	140	133	104	121	119	104	108	109	114	95	84	117	103	109
SOUTH CENTRAL COAST	124	109	109	111	122	91	113	97	76	94	63	53	65	70	68	46	41	24	30	25
SOUTH COAST	166	169	190	181	191	179	194	181	161	160	173	161	148	120	115	118	93	93	94	92

Table B-8

PM_{10}

Maximum 24-Hour Concentration (ug/m^3)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS							394	1861	866	181	526	981	388	2668	491	402	1116	514	3059	4482
LAKE COUNTY							28	29	30	31	22	30	21	30	26	18	35	43	22	21
LAKE TAHOE							95	73	84	78	85	92	78	71	72	55	59	41	50	58
MOJAVE DESERT							150	191	462	780	242	79	140	235	138	130	165	109	90	115
MOUNTAIN COUNTIES							180	144	209	350	120	130	115	118	114	138	92	125	98	312
NORTH CENTRAL COAST							71	58	57	55	45	102	106	152	115	113	76	103	74	72
NORTH COAST							125	92	266	78	58	54	77	68	87	66	50	100	51	73
NORTHEAST PLATEAU							92	59	63	60	74	60	101	78	188	97	66	100	80	105
SACRAMENTO VALLEY							115	139	153	136	111	110	154	145	98	126	130	179	86	105
SALTON SEA							368	712	520	340	175	175	258	229	359	532	176	227	268	647
SAN DIEGO							81	90	115	81	67	159	129	121	93	125	89	121	139	107
SAN FRANCISCO BAY AREA							146	150	173	155	112	101	97	74	76	95	92	114	76	109
SAN JOAQUIN VALLEY							244	250	439	279	183	239	190	279	153	199	160	183	145	205
SOUTH CENTRAL COAST							132	119	133	119	135	141	139	129	98	321	110	90	113	152
SOUTH COAST							289	271	475	179	649	231	161	219	162	208	116	183	139	219

Table B-9

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Maximum Annual Average of Quarters (ug/m^3)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS							36.9	73.7	48.3	28.6	37.3	34.8	29.9	47.3	49.7	32.9	53.8	30.6	39.5	69.8
LAKE COUNTY							12.0	12.9	10.8	12.6	11.8	11.3	10.9	10.7	10.2	8.6	7.8	12.5	10.8	7.6
LAKE TAHOE							32.3	28.1	30.7	28.3	26.5	25.5	27.1	22.5	23.4	21.6	23.4	19.9	20.4	19.8
MOJAVE DESERT							39.2	48.6	49.5	58.0	39.4	35.6	42.1	25.5	29.0	29.2	27.8	32.1	33.6	29.8
MOUNTAIN COUNTIES							50.1	77.9	40.9	47.8	37.5	35.4	34.6	28.0	29.6	32.0	25.3	27.9	26.3	33.3
NORTH CENTRAL COAST							23.6	25.4	29.1	24.3	19.7	35.6	31.1	36.4	32.8	37.0	28.5	30.9	29.9	29.4
NORTH COAST							36.2	31.4	28.0	25.3	21.8	22.6	24.3	26.1	24.6	23.4	24.7	24.3	22.4	24.1
NORTHEAST PLATEAU							25.0	24.8	23.5	21.4	23.6	21.4	26.7	30.3	16.2	19.9	14.7	32.9	27.9	25.1
SACRAMENTO VALLEY							51.2	41.9	48.7	46.4	42.3	36.9	34.5	33.4	29.8	28.6	29.0	38.4	27.9	30.2
SALTON SEA							60.4	89.9	80.3	69.3	47.5	53.3	75.1	71.9	73.6	77.7	66.1	77.8	95.2	86.2
SAN DIEGO							40.0	43.8	37.6	40.6	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1
SAN FRANCISCO BAY AREA							38.3	40.8	40.4	38.3	33.7	28.8	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9
SAN JOAQUIN VALLEY							70.8	79.3	79.3	74.3	62.9	56.3	50.1	58.2	54.1	48.2	39.9	59.5	53.1	57.4
SOUTH CENTRAL COAST							41.6	41.5	36.6	39.9	43.1	42.8	32.5	39.9	31.7	37.0	25.2	31.3	33.8	44.4
SOUTH COAST							94.5	93.0	78.2	76.1	79.0	72.5	65.5	68.8	62.8	65.6	55.3	72.2	59.1	63.3

Table B-10

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

PM_{10}

Calculated Days Above State 24-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS							195	170	116	101	132	128	105	117	120	90	117	19	90	90
LAKE COUNTY							0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAKE TAHOE							57	26	55	36	36	30	42	18	24	12	12	0	0	18
MOJAVE DESERT							204	230	241	186	153	131	132	60	87	36	43	72	63	84
MOUNTAIN COUNTIES							159	116	155	132	102	113	93	42	42	128	63	60	57	60
NORTH CENTRAL COAST							24	18	18	12	0	59	30	72	72	96	30	54	24	51
NORTH COAST							126	71	40	38	15	15	48	18	23	20	0	54	9	42
NORTHEAST PLATEAU							21	26	25	12	24	6	24	54	18	18	24	66	60	36
SACRAMENTO VALLEY							183	134	175	189	177	92	108	108	129	65	97	144	81	96
SALTON SEA							252	294	286	294	186	239	274	306	312	320	265	324	330	341
SAN DIEGO							105	146	60	90	42	144	131	117	96	125	108	140	144	146
SAN FRANCISCO BAY AREA							123	137	93	125	108	59	54	42	18	20	25	63	42	51
SAN JOAQUIN VALLEY							300	302	313	285	273	233	253	246	225	188	185	216	237	236
SOUTH CENTRAL COAST							198	212	151	204	138	174	81	108	138	144	88	108	135	138
SOUTH COAST							345	338	301	294	282	293	276	252	276	290	238	288	300	278

Table B-11

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Calculated Days Above National 24-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS							12	12	14	8	30	22	9	16	27	15	32	4	19	18
LAKE COUNTY								0	0	0	0	0	0	0	0	0	0		0	
LAKE TAHOE								0	0	0	0		0	0	0	0	0	0	0	0
MOJAVE DESERT							0	8	21	30	6	0	0	3	0	0	6	0	0	0
MOUNTAIN COUNTIES							7	0	6	19	0	0	0	0	0	0	0	0	0	6
NORTH CENTRAL COAST							0	0	0	0		0	0	0	0	0	0	0	0	0
NORTH COAST							0	0	6	0	0	0	0	0	0	0	0	0	0	0
NORTHEAST PLATEAU							0	0	0		0		0	0	3	0	0	0	0	0
SACRAMENTO VALLEY							0	0	0	0	0	0	0	0	0	0	0	6	0	0
SALTON SEA							12	37	21	18	6	18	18	26	37	35	19	29	36	29
SAN DIEGO							0	0	0	0	0	6	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA							0	0	4	1	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY							40	40	56	40	3	11	8	8	0	3	6	12	0	12
SOUTH CENTRAL COAST							0	0	0	0	0	0	0	0	0	14	0	0	0	0
SOUTH COAST							44	32	33	15	24	12	3	31	6	17	0	6	0	5

Table B-12

** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

Carbon Monoxide

Peak 8-Hour Indicator (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	8.6	7.7		7.3	7.2	7.0	5.9	5.8	5.7	5.6	3.5	5.0	4.7	4.6	4.0	4.0	3.9		2.9	2.5
LAKE COUNTY								1.9	2.9	2.9										
LAKE TAHOE	15.6	16.1	16.1	16.4	15.5	14.9	13.2	12.6	11.9	11.1	10.2	8.7	8.3	7.8	7.0	5.6	5.0	2.3	2.1	2.0
MOJAVE DESERT	7.6	5.4	5.4	5.6	5.2	4.9	4.6	5.5	7.7	7.6	6.5	6.2	6.1	5.8	7.4	4.8	4.4	4.4	4.6	4.8
MOUNTAIN COUNTIES					4.5	4.5		4.1	4.3		2.9	2.9	2.8	2.8	2.7	2.4	5.1	5.4	5.7	2.4
NORTH CENTRAL COAST	2.9	2.7	2.6	2.4	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.0	2.0	1.9	1.6	1.6
NORTH COAST				5.2	5.2	3.4		4.6	4.6			2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.2
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	13.4	13.2	13.0	13.1	14.6	14.4	13.4	14.0	14.7	14.8	12.9	10.7	9.6	9.3	8.5	7.7	7.3	7.0	7.0	7.3
SALTON SEA	3.6	3.1	2.5	2.5	2.6	2.6	2.5	2.3	2.3	2.3	2.2	2.1	17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3
SAN DIEGO	9.5	9.2	9.4	10.6	10.2	10.4	10.2	10.3	10.2	10.0	8.5	7.8	7.7	7.3	7.3	6.3	6.3	5.6	5.3	5.4
SAN FRANCISCO BAY AREA	14.0	11.9	11.9	13.9	14.0	13.4	10.7	11.8	12.6	12.4	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9
SAN JOAQUIN VALLEY	15.7	13.9	13.6	13.4	13.9	13.9	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	6.4
SOUTH CENTRAL COAST	12.0	11.3	9.6	10.2	9.9	10.1	9.0	8.8	8.2	7.5	6.4	5.5	5.9	5.9	5.8	5.0	4.8	4.5	4.7	3.1
SOUTH COAST	24.1	21.0	20.2	21.1	21.1	21.7	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.4	15.4	13.7	12.6	11.2

Table B-13

Carbon Monoxide

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	18.0	14.0	13.0	16.0	11.0	9.0	13.0	12.0	10.0	11.0	11.0	13.0	9.0	10.0	6.0	8.2	6.7		4.2	15.4
LAKE COUNTY								3.0	6.0	7.0										
LAKE TAHOE	27.0	30.0	23.0	23.0	20.0	19.0	19.0	17.0	18.0	14.0	15.0	13.0	11.6	9.5	10.4	7.7	7.5	3.2	16.1	3.1
MOJAVE DESERT	10.0	13.0	10.0	12.0	9.0	12.0	11.0	13.0	11.0	10.0	9.0	8.0	9.1	7.5	8.4	5.9	5.4	10.3	6.0	6.1
MOUNTAIN COUNTIES					6.0	3.0		6.0	5.0	1.0	6.2	10.0	9.3	9.3	4.5	6.6	6.7	4.1	5.0	6.2
NORTH CENTRAL COAST	6.0	3.0	5.0	6.0	4.0	5.0	6.0	5.0	5.0	4.0	4.0	4.0	4.6	3.2	5.5	4.4	3.8	3.8	3.5	3.3
NORTH COAST			6.0	8.0	6.0	4.0	1.0	10.0	9.0		1.0	6.0		5.4	4.8	7.4	4.8	5.2	3.1	1.6
NORTHEAST PLATEAU						12.0	4.0													
SACRAMENTO VALLEY	17.0	19.0	18.0	17.0	20.0	15.0	17.0	18.0	17.0	15.0	14.0	12.0	10.8	9.8	8.7	9.5	7.9	7.7	10.0	19.1
SALTON SEA	5.0	7.0	4.0	5.0	5.0	5.0	4.0	6.0	5.0	5.0	5.0	6.0	30.6	32.0	27.0	24.0	23.5	22.9	19.9	17.4
SAN DIEGO	15.0	16.0	16.0	17.0	16.0	14.0	17.0	17.0	18.0	14.0	14.0	11.4	11.0	9.9	12.4	9.3	10.2	9.9	9.3	8.5
SAN FRANCISCO BAY AREA	18.0	17.0	20.0	21.0	20.0	17.0	15.0	19.0	18.0	15.0	12.0	14.0	12.0	10.1	8.8	10.7	8.7	9.0	9.8	7.6
SAN JOAQUIN VALLEY	18.0	17.0	24.0	18.0	21.0	16.0	19.0	23.0	17.0	19.0	13.0	13.0	15.0	12.0	11.0	9.9	10.3	11.9	10.1	16.0
SOUTH CENTRAL COAST	14.0	16.0	16.0	17.0	18.0	14.0	15.0	11.0	11.0	9.0	12.0	9.0	10.7	8.9	12.6	8.2	8.5	8.2	6.2	8.3
SOUTH COAST	27.0	31.0	29.0	33.0	27.0	26.0	32.0	31.0	24.0	30.0	28.0	21.0	24.9	16.8	22.5	19.2	17.0	19.0	13.8	11.7

Table B-14

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	10.8	7.9	7.3	7.4	6.0	6.3	5.0	5.4	4.4	5.0	4.4	4.5	5.4	5.4	3.0	3.4	3.0		2.5	2.5
LAKE COUNTY								2.2	2.6	3.1										
LAKE TAHOE	18.3	17.4	14.8	16.3	12.5	13.0	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	2.8	1.9
MOJAVE DESERT	5.0	6.3	4.9	5.7	4.6	4.0	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.1	7.5	4.0	3.6	5.4	4.3	3.3
MOUNTAIN COUNTIES					4.2	2.3		4.6	3.5	0.1	4.5	5.4	5.4	3.4	2.6	1.9	5.5	3.0	1.6	4.3
NORTH CENTRAL COAST	2.6	2.1	3.0	3.3	2.3	2.3	2.4	2.4	2.5	2.5	2.9	2.7	2.1	2.1	2.6	1.8	2.2	1.8	1.4	1.6
NORTH COAST			4.1	5.5	3.1	3.0	1.0	4.5	3.5		0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.4	1.1
NORTHEAST PLATEAU						10.4	1.8													
SACRAMENTO VALLEY	15.1	14.1	12.4	13.3	13.9	10.0	12.3	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3
SALTON SEA	2.6	2.8	2.1	2.6	3.6	2.9	2.1	2.9	2.3	2.5	2.4	2.0	13.1	22.9	22.1	17.8	14.4	17.9	15.5	12.3
SAN DIEGO	10.3	12.1	8.5	13.0	10.4	9.4	10.3	10.5	9.1	7.9	7.9	7.5	7.5	6.3	7.1	5.4	4.8	6.0	5.9	5.1
SAN FRANCISCO BAY AREA	14.5	10.6	12.1	16.1	12.6	10.0	12.8	12.0	11.0	11.0	7.8	7.9	8.8	5.8	7.0	6.1	6.3	6.3	7.0	5.1
SAN JOAQUIN VALLEY	14.8	14.3	15.7	11.0	16.3	12.9	16.5	13.4	11.5	11.4	8.3	9.3	8.9	9.1	7.7	7.5	8.0	7.8	6.6	6.0
SOUTH CENTRAL COAST	8.7	9.0	10.0	10.5	8.6	7.5	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	4.3	3.4
SOUTH COAST	21.3	20.9	19.7	27.7	19.7	19.6	27.5	21.8	16.8	17.4	18.8	14.6	16.1	13.8	17.5	17.1	13.3	11.2	10.1	7.6

Table B-15

Carbon Monoxide

Days Above State 8-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
LAKE COUNTY								0	0	0										
LAKE TAHOE*	161	139	139	121	96	87	80	67	39	24	13	12	9	1	0	0	0	0	0	0
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES					0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST			0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0
NORTHEAST PLATEAU						1	0													
SACRAMENTO VALLEY	11	6	6	12	13	5	12	22	14	9	0	2	0	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	0	0	0	0	0	0	10	17	11	15	12	13	7	6
SAN DIEGO	1	1	0	5	2	1	5	6	1	0	0	0	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA	15	4	8	24	8	2	4	10	4	5	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	9	12	7	7	13	4	5	24	10	3	0	2	0	1	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	79	67	79	64	58	50	73	71	50	51	39	29	27	17	26	18	13	11	6	0

Table B-16

** Data for Lake Tahoe reflects the number of days above the State 8-Hr. Lake Tahoe Standard of 6 parts per million.*

Days Above National 8-Hour Standard

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
LAKE COUNTY								0	0	0										
LAKE TAHOE	40	24	28	28	10	12	9	5	5	0	1	0	0	0	0	0	0	0	0	0
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES					0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST			0	0	0	0	0	0	0		0	0		0	0	0	0	0	0	0
NORTHEAST PLATEAU						1	0													
SACRAMENTO VALLEY	9	4	5	12	12	3	9	22	12	6	0	0	0	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	0	0	0	0	0	0	9	15	9	10	8	11	6	6
SAN DIEGO	1	1	0	3	1	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0
SAN FRANCISCO BAY AREA	12	4	7	21	8	1	4	9	2	4	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	8	9	6	7	11	4	6	18	9	3	0	0	0	0	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	68	57	66	54	49	40	65	67	42	41	34	19	19	14	19	13	10	7	3	0

Table B-17

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Nitrogen Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	0.073	0.085	0.079	0.079	0.073	0.076	0.073	0.074	0.078	0.076	0.078	0.062	0.062	0.062	0.062	0.061	0.060	0.057	0.058	0.068
MOJAVE DESERT	0.141	0.148	0.138	0.136	0.131	0.134	0.112	0.100	0.181	0.259	0.277	0.289	0.202	0.124	0.119	0.097	0.102	0.105	0.106	0.099
MOUNTAIN COUNTIES					0.046	0.046														
NORTH CENTRAL COAST	0.100	0.099	0.091	0.072	0.083	0.083	0.077	0.072	0.071	0.068	0.062	0.064	0.064	0.062	0.059	0.059	0.059	0.054	0.046	0.045
NORTH COAST												0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053	0.052
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.119	0.114	0.103	0.109	0.112	0.115	0.123	0.117	0.115	0.122	0.128	0.126	0.115	0.106	0.101	0.095	0.091	0.107	0.097	0.095
SALTON SEA	0.141	0.150	0.150	0.124	0.085	0.083	0.084	0.089	0.092	0.092	0.088	0.088	0.153	0.182	0.179	0.179	0.150	0.145	0.170	0.071
SAN DIEGO	0.233	0.225	0.183	0.193	0.193	0.203	0.217	0.233	0.210	0.189	0.169	0.155	0.145	0.130	0.129	0.126	0.116	0.122	0.117	0.126
SAN FRANCISCO BAY AREA	0.225	0.183	0.186	0.196	0.189	0.188	0.167	0.162	0.156	0.160	0.155	0.141	0.116	0.119	0.114	0.111	0.101	0.108	0.105	0.109
SAN JOAQUIN VALLEY	0.173	0.135	0.119	0.144	0.148	0.145	0.144	0.151	0.156	0.134	0.132	0.132	0.131	0.127	0.119	0.115	0.100	0.107	0.106	0.107
SOUTH CENTRAL COAST	0.150	0.139	0.140	0.136	0.132	0.130	0.123	0.119	0.119	0.120	0.114	0.104	0.105	0.112	0.114	0.110	0.097	0.089	0.086	0.083
SOUTH COAST	0.414	0.378	0.325	0.317	0.303	0.311	0.335	0.322	0.324	0.312	0.311	0.285	0.241	0.229	0.242	0.237	0.203	0.185	0.213	0.216

Table B-18

Nitrogen Dioxide

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	0.090	0.080	0.060	0.080	0.080	0.080	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.086	0.090
MOJAVE DESERT	0.200	0.150	0.160	0.140	0.150	0.130	0.100	0.120	0.190	0.350	0.240	0.360	0.138	0.140	0.087	0.107	0.196	0.113	0.105	0.102
MOUNTAIN COUNTIES					0.050	0.040														
NORTH CENTRAL COAST	0.070	0.110	0.060	0.090	0.110	0.070	0.070	0.070	0.060	0.060	0.070	0.070	0.067	0.054	0.060	0.056	0.085	0.054	0.071	0.042
NORTH COAST							0.030				0.080	0.050	0.079	0.078	0.044	0.061	0.052	0.066	0.042	0.052
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.120	0.110	0.160	0.130	0.120	0.100	0.180	0.130	0.160	0.240	0.190	0.120	0.111	0.099	0.145	0.092	0.101	0.110	0.085	0.172
SALTON SEA	0.150	0.160	0.090	0.080	0.080	0.080	0.110	0.090	0.090	0.090	0.090	0.090	0.227	0.217	0.164	0.128	0.257	0.286	0.192	0.086
SAN DIEGO	0.200	0.200	0.230	0.210	0.220	0.260	0.280	0.230	0.180	0.160	0.190	0.130	0.157	0.140	0.124	0.142	0.132	0.172	0.117	0.148
SAN FRANCISCO BAY AREA	0.160	0.180	0.180	0.190	0.160	0.170	0.160	0.150	0.150	0.150	0.110	0.120	0.107	0.116	0.108	0.118	0.098	0.128	0.114	0.108
SAN JOAQUIN VALLEY	0.150	0.150	0.190	0.160	0.190	0.150	0.210	0.210	0.160	0.130	0.190	0.160	0.144	0.119	0.110	0.103	0.112	0.108	0.099	0.115
SOUTH CENTRAL COAST	0.180	0.160	0.200	0.160	0.150	0.150	0.160	0.120	0.160	0.160	0.100	0.110	0.133	0.127	0.110	0.115	0.097	0.099	0.124	0.113
SOUTH COAST	0.410	0.470	0.350	0.350	0.330	0.420	0.540	0.340	0.280	0.380	0.300	0.260	0.247	0.239	0.250	0.200	0.255	0.307	0.214	0.251

Table B-19

Maximum Annual Average (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE		0.010	0.012	0.011	0.010	0.012	0.012		0.012	0.012		0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011	0.011
MOJAVE DESERT	0.025			0.025	0.021	0.016		0.026						0.023	0.021		0.022	0.024	0.025	0.024
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.012	0.011	0.014	0.015	0.014		0.014	0.014	0.012	0.011	0.012	0.012	0.012		0.011	0.010	0.010		0.007	0.007
NORTH COAST														0.009		0.010	0.010	0.010	0.011	0.010
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.018	0.016	0.019	0.021	0.022	0.022	0.025		0.023	0.024	0.021		0.022	0.022	0.022	0.019	0.021	0.021	0.019	0.019
SALTON SEA	0.025	0.027	0.014	0.020		0.019	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020		0.016	0.018		0.017
SAN DIEGO	0.030	0.027	0.031			0.032	0.035	0.031	0.029	0.029	0.027	0.023	0.024	0.026	0.022	0.024	0.023	0.026	0.024	0.022
SAN FRANCISCO BAY AREA	0.032	0.030	0.032	0.035	0.033	0.031	0.032	0.032	0.030	0.031	0.027	0.027	0.028	0.027	0.025	0.025	0.025	0.026	0.025	0.024
SAN JOAQUIN VALLEY	0.030	0.030	0.028	0.031	0.030	0.030	0.032	0.033	0.031	0.030	0.027		0.024	0.029	0.029	0.024		0.027	0.024	
SOUTH CENTRAL COAST	0.024		0.031	0.030			0.024	0.027	0.025	0.024	0.022	0.023		0.024		0.020	0.021	0.022	0.020	0.019
SOUTH COAST	0.062	0.059	0.057	0.060	0.061	0.055	0.061	0.057	0.055	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.051	0.044	0.041

Table B-20

Sulfur Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.02	0.03	0.04	0.04	0.03	0.03	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.03	0.04	0.05	0.04	0.03	0.01	0.01	0.01	0.02
NORTH COAST												0.01	0.01							
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.02	0.02	0.02	0.03	0.03		0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
SALTON SEA	0.03	0.02	0.02												0.04	0.04	0.04	0.04	0.03	
SAN DIEGO	0.12	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.06
SAN FRANCISCO BAY AREA	0.11	0.08	0.07	0.07	0.08	0.08	0.08	0.07	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06
SAN JOAQUIN VALLEY	0.14	0.12	0.09	0.09	0.09	0.08	0.07	0.06	0.06	0.04	0.04	0.03	0.02	0.02	0.03	0.03		0.01	0.02	0.02
SOUTH CENTRAL COAST	0.15	0.12	0.10	0.34	0.32	0.29	0.22	0.16	0.16	0.14	0.13	0.13	0.03	0.16	0.17	0.16	0.16	0.14	0.14	0.14
SOUTH COAST	0.11	0.10	0.11	0.10	0.09	0.07	0.06	0.06	0.06	0.06	0.11	0.10	0.10	0.06	0.05	0.06	0.05	0.05	0.05	0.05

Table B-21

Sulfur Dioxide

Maximum 24-Hour Concentration (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.01	0.00	0.00	0.01	0.01	0.00	0.02	0.03	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01
NORTH COAST							0.01				0.01	0.00	0.00							
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.01	0.01	0.01	0.01	0.01		0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02
SALTON SEA	0.01	0.01	0.00										0.02	0.02	0.02	0.02	0.02	0.02	0.01	
SAN DIEGO	0.04	0.02	0.04	0.02	0.03	0.04	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
SAN FRANCISCO BAY AREA	0.03	0.04	0.05	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.03	0.02
SAN JOAQUIN VALLEY	0.04	0.05	0.03	0.05	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01		0.01	0.00	0.01
SOUTH CENTRAL COAST	0.02	0.02	0.02	0.07	0.06	0.04	0.04	0.02	0.09	0.02	0.02	0.05	0.01	0.04	0.03	0.03	0.04	0.03	0.03	0.04
SOUTH COAST	0.04	0.04	0.06	0.04	0.04	0.02	0.04	0.02	0.04	0.02	0.04	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.04	0.02

Table B-22

Maximum Annual Average (ppm)

AIR BASIN	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NORTH COAST							0.00				0.00	0.00	0.00							
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.00	0.00	0.00	0.00	0.00		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
SALTON SEA	0.00	0.00	0.00										0.01	0.01	0.00	0.00	0.00	0.00	0.00	
SAN DIEGO	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
SAN FRANCISCO BAY AREA	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN VALLEY	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
SOUTH CENTRAL COAST	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01
SOUTH COAST	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table B-23

APPENDIX C

Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants

Appendix C: *Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants*

List of Tables

List of Tables (continued)

List of Tables (continued)

Introduction

This appendix contains TAC emissions data for all counties in California. It also contains air quality and health risk data for counties and individual sites within California's five most populated air basins: South Coast Air Basin, San Francisco Bay Area Air Basin, San Joaquin Valley Air Basin, San Diego Air Basin, and Sacramento Valley Air Basin. It is important to note that some counties are located in more than one air basin. For these counties, the data are for that portion of the county located in each air basin. As in Chapter 5, ten toxic air contaminants are included: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). These are the ten TACs for which ambient air quality data, primarily, indicate the most substantial health risk in California. There may be other TACs that pose a substantial risk, but for which data are not available, or which have not been identified as a concern.

The countywide emissions data represent tons per year for the 2002 emission inventory year. The data for stationary sources include emissions data associated with the air toxics "Hot Spots" Program. The toxic air contaminant emissions for each area-wide and mobile source category are calculated by applying a speciation profile, maintained by ARB staff, to the total organic gas and total particulate matter criteria pollutant emissions associated with that category.

For all source categories associated with diesel fuel combustion, all "PM" emitted from these sources was considered "diesel PM." The area-wide source emission estimates were made by either the local air pollution control districts or the ARB staff. These estimates have been speciated for toxics. The other mobile source emission estimates are primarily from ARB's OFFROAD model, speciated for toxics. For the categories not currently included in the model, the emission estimates have been developed by either local districts or ARB staff. Districts may also provide estimates for categories usually developed by ARB staff. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC 2002, version 2.2. Again, the emission estimates have been speciated for toxics.

Readers may note that the diesel PM emission estimates differ from those presented in the ARB's October 2000 report titled: "*Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*" (Diesel Risk Reduction Plan). This is because they incorporate more recent data. We will continue to refine estimates of diesel PM emissions as we develop the regulations identified in the Diesel Risk Reduction Plan. Even with these differences, the statewide emission estimates for diesel PM compare favorably.

In addition to the emissions data, the air quality and health risk data cover the time period of 1990 through 2001. It is important to note that the data reflect concentrations measured at a specific location or, in the case of the air basin summary data, spatially averaged concentrations. Therefore, the ambient concentrations and health risks for other locations may be higher or lower. Furthermore, the information reflect data collected only at monitoring sites operated by the Air Resources Board.

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Great Basin Valleys Air Basin

TAC	Alpine	Inyo	Mono
Acetaldehyde	7	15	31
Benzene	24	17	55
1,3-Butadiene	6	4	14
Carbon Tetrachloride	0	0	0
Chromium (Hexavalent)	< .01	0 .02	0.02
para-DiChlorobenzene	< 1	< 1	< 1
Formaldehyde	24	28	72
Methylene Chloride	< 1	2	1
Perchloroethylene	< 1	4	3
Diesel PM	0	18	14

Table C-1

Lake County Air Basin

TAC	Lake
Acetaldehyde	41
Benzene	80
1,3-Butadiene	20
Carbon Tetrachloride	0
Chromium (Hexavalent)	< .01
para-DiChlorobenzene	3
Formaldehyde	93
Methylene Chloride	8
Perchloroethylene	12
Diesel PM	54

Table C-2

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Lake Tahoe Air Basin

TAC	El Dorado[1]	Placer[1]
Acetaldehyde	38	18
Benzene	37	13
1,3-Butadiene	10	3
Carbon Tetrachloride	< .01	0
Chromium (Hexavalent)	< .01	< .01
para-DiChlorobenzene	2	< 1
Formaldehyde	75	28
Methylene Chloride	5	3
Perchloroethylene	6	2
Diesel PM	32	5

1. This Air Basin includes only a portion of this county.

Table C-3

Mojave Desert Air Basin

TAC	Kern[1]	Los Angeles[1]	Riverside[1]	San Bernardino[1]
Acetaldehyde	110	64	7	149
Benzene	95	90	9	249
1,3-Butadiene	42	21	2	52
Carbon Tetrachloride	< .01	0	0	< .01
Chromium (Hexavalent)	0.30	0.04	< .01	0.05
para-DiChlorobenzene	6	18	1	23
Formaldehyde	333	170	18	426
Methylene Chloride	14	95	4	76
Perchloroethylene	14	51	5	112
Diesel PM	132	241	13	398

1. This Air Basin includes only a portion of this county.

Table C-4

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Mountain Counties Air Basin

TAC	Amador	Calaveras	El Dorado[1]	Mariposa	Nevada	Placer[1]	Plumas	Sierra	Tuolumne
Acetaldehyde	34	45	81	25	106	17	66	12	58
Benzene	52	79	90	44	89	23	149	38	103
1,3-Butadiene	17	24	21	11	22	6	47	11	27
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0
Chromium (Hexavalent)	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01	0.09
para-DiChlorobenzene	2	2	7	< 1	5	1	1	< 1	3
Formaldehyde	71	100	145	56	176	35	174	38	137
Methylene Chloride	5	5	16	2	20	6	3	< 1	9
Perchloroethylene	5	7	18	3	15	5	4	< 1	9
Diesel PM	34	38	60	17	70	28	49	4	55

1. This Air Basin includes only a portion of this county.

Table C-5

North Central Coast Air Basin

TAC	Monterey	San Benito	Santa Cruz
Acetaldehyde	103	16	64
Benzene	204	22	94
1,3-Butadiene	61	13	18
Carbon Tetrachloride	< .01	0	0
Chromium (Hexavalent)	0.02	< .01	< .01
para-DiChlorobenzene	21	3	13
Formaldehyde	267	37	133
Methylene Chloride	75	8	53
Perchloroethylene	88	10	75
Diesel PM	302	62	146

Table C-6

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

North Coast Air Basin

TAC	Del Norte	Humboldt	Mendocino	Sonoma[1]	Trinity
Acetaldehyde	22	91	67	29	20
Benzene	16	90	73	64	31
1,3-Butadiene	16	25	17	13	14
Carbon Tetrachloride	0	0	0	0	0
Chromium (Hexavalent)	< .01	0.01	0.01	0.04	< .01
para-DiChlorobenzene	2	7	5	3	< 1
Formaldehyde	36	164	127	71	41
Methylene Chloride	4	18	14	12	2
Perchloroethylene	6	29	21	14	3
Diesel PM	40	222	166	86	12

1. This Air Basin includes only a portion of this county.

Table C-7

Northeast Plateau Air Basin

TAC	Lassen	Modoc	Siskiyou
Acetaldehyde	60	21	80
Benzene	98	11	99
1,3-Butadiene	23	5	64
Carbon Tetrachloride	0	0	0
Chromium (Hexavalent)	< .01	< .01	< .01
para-DiChlorobenzene	2	< 1	2
Formaldehyde	133	34	156
Methylene Chloride	4	1	6
Perchloroethylene	6	2	9
Diesel PM	56	49	105

Table C-8

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Sacramento Valley Air Basin

TAC	Butte	Colusa	Glenn	Placer[1]	Sacramento	Shasta	Solano[1]	Sutter	Tehama	Yolo	Yuba
Acetaldehyde	101	16	24	81	221	140	32	40	48	63	44
Benzene	135	35	41	118	372	157	88	68	38	73	53
1,3-Butadiene	39	19	17	25	75	44	13	11	11	15	20
Carbon Tetrachloride	0	0	0	0	0.06	0	< .01	0	< .01	0	0
Chromium (Hexavalent)	< .01	< .01	0.03	< .01	0.04	0.03	< .01	0.03	< .01	0.02	0.02
para-DiChlorobenzene	11	1	1	11	65	9	6	4	3	9	3
Formaldehyde	256	59	87	195	537	274	82	108	80	134	117
Methylene Chloride	33	2	3	48	182	22	16	10	7	25	8
Perchloroethylene	32	3	4	34	197	32	14	12	10	25	9
Diesel PM	230	75	89	182	784	211	129	206	112	320	79

1. This Air Basin includes only a portion of this county.

Table C-9

Salton Sea Air Basin

TAC	Imperial	Riverside[1]
Acetaldehyde	95	39
Benzene	129	76
1,3-Butadiene	39	17
Carbon Tetrachloride	0	0
Chromium (Hexavalent)	0.04	< .01
para-DiChlorobenzene	8	17
Formaldehyde	280	102
Methylene Chloride	19	62
Perchloroethylene	26	43
Diesel PM	240	153

1. This Air Basin includes only a portion of this county.

Table C-10

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

San Diego Air Basin

TAC	San Diego
Acetaldehyde	526
Benzene	947
1,3-Butadiene	224
Carbon Tetrachloride	0.09
Chromium (Hexavalent)	0.22
para-DiChlorobenzene	154
Formaldehyde	1362
Methylene Chloride	393
Perchloroethylene	624
Diesel PM	1800

Table C-11

San Francisco Bay Area Air Basin

TAC	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano[1]	Sonoma[1]
Acetaldehyde	280	172	55	35	150	162	268	174	95
Benzene	438	353	127	69	214	260	545	153	142
1,3-Butadiene	90	66	27	14	40	65	107	67	28
Carbon Tetrachloride	< .01	1.31	< .01	< .01	0	< .01	< .01	0	< .01
Chromium (Hexavalent)	0.06	0.02	0.01	< .01	< .01	0.05	0.04	0.20	< .01
para-DiChlorobenzene	76	49	13	7	42	38	91	15	21
Formaldehyde	631	480	143	87	351	435	720	527	205
Methylene Chloride	265	142	37	20	130	140	458	51	57
Perchloroethylene	191	108	39	13	114	109	226	26	45
Diesel PM	976	732	176	117	848	429	971	169	317

1. This Air Basin includes only a portion of this county.

Table C-12

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

San Joaquin Valley Air Basin

TAC	Fresno	Kern	Kings	Madera	Merced	San Joaquin	Stanislaus	Tulare
Acetaldehyde	254	283	109	63	81	169	127	149
Benzene	342	821	74	89	107	252	173	171
1,3-Butadiene	84	90	40	25	38	57	53	109
Carbon Tetrachloride	< .01	< .01	0	0	0	0	0	0
Chromium (Hexavalent)	0.08	0.05	0.02	0.08	< .01	0.04	0.03	0.03
para-DiChlorobenzene	44	35	7	7	12	31	25	20
Formaldehyde	599	1530	320	169	191	415	298	351
Methylene Chloride	150	74	15	18	31	93	72	54
Perchloroethylene	136	83	20	20	38	92	74	60
Diesel PM	1157	898	232	244	342	734	494	566

1. This Air Basin includes only a portion of this county.

Table C-13

South Central Coast Air Basin

TAC	San Luis Obispo	Santa Barbara	Ventura
Acetaldehyde	84	115	127
Benzene	127	352	290
1,3-Butadiene	36	44	47
Carbon Tetrachloride	0	< .01	0.05
Chromium (Hexavalent)	< .01	0.02	0.03
para-DiChlorobenzene	13	22	40
Formaldehyde	206	597	385
Methylene Chloride	43	104	169
Perchloroethylene	61	81	109
Diesel PM	270	354	500

Table C-14

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

South Coast Air Basin

TAC	Los Angeles[1]	Orange	Riverside[1]	San Bernardino[1]
Acetaldehyde	923	327	187	196
Benzene	2628	883	403	431
1,3-Butadiene	509	159	87	97
Carbon Tetrachloride	1.83	0.08	0.02	< .01
Chromium (Hexavalent)	0.45	0.06	0.04	0.02
para-DiChlorobenzene	489	153	66	70
Formaldehyde	3173	1019	567	561
Methylene Chloride	2580	1021	253	456
Perchloroethylene	1783	625	173	199
Diesel PM	4563	1822	907	741

1. This Air Basin includes only a portion of this county.

Table C-15

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Air Quality and Health Risk

The air quality and health risk data in the following tables cover the time period of 1990 through 2001. Annual average concentrations and health risks are listed by site for California's five most populated air basins. Data are included for the ten TACs posing the most substantial health risk in California, based primarily on ambient air quality data. These compounds are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, chromium (hexavalent), *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter.

The ambient data for all TACs except diesel particulate matter are based on concentrations measured at sites in California's TAC monitoring network. For diesel particulate matter, the ARB made a preliminary estimation of concentrations for the State's fifteen air basins using a particulate matter-based exposure method. The method uses the ARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies with chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate statewide outdoor concentrations of diesel particulate matter. Details on the method and the resulting estimates can be found in the ARB report entitled: *"Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant -- Appendix III Part A Exposure Assessment,"* (April 1998).

Numerous factors influence the ambient measurements, and a number of assumptions are embodied in the summary statistics. These factors are described in Chapter 1 under the heading *"Interpreting the Emission and Air Quality Statistics."* These factors must be considered when using the statistics presented here. Finally, it is important to note that the data provided reflect concentrations measured at a specific location or, in the case of the air basin summary data, spatially averaged concentrations. Therefore, the ambient concentrations and health risks for other locations may be higher or lower.

South Coast Air Basin

Los Angeles County: Azusa

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg											1.10	1.31
	Health Risk											5	
Benzene	Annual Avg											0.69	
	Health Risk											64	
1,3-Butadiene	Annual Avg											0.14	
	Health Risk											55	
Carbon Tetrachloride	Annual Avg											0.09	
	Health Risk											24	
Chromium (Hexavalent)	Annual Avg											0.12	
	Health Risk											19	
para-Dichlorobenzene	Annual Avg											0.10	
	Health Risk											7	
Formaldehyde	Annual Avg											3.05	3.80
	Health Risk											22	28
Methylene Chloride	Annual Avg											1.32	
	Health Risk											5	
Perchloroethylene	Annual Avg											0.18	
	Health Risk											7	
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk												**208**	**34**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-16

South Coast Air Basin

Los Angeles County: Burbank - West Palm Avenue

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	3.16	3.89		3.06	2.46	0.79			1.94	2.70	1.70	1.93
	Health Risk	15	19		15	12	4			9	13	8	9
Benzene	Annual Avg	4.79	3.91	3.44	2.63	3.33	2.45	1.91	1.48	1.66	1.64	1.27	1.06
	Health Risk	444	362	319	244	308	227	177	137	154	151	117	98
1,3-Butadiene	Annual Avg	0.78	0.62	0.73	0.75	0.75	0.61	0.51	0.42	0.48	0.48	0.35	0.33
	Health Risk	294	234	272	282	283	227	192	158	182	181	130	123
Carbon Tetrachloride	Annual Avg	0.14	0.13				0.10	0.08		0.11		0.09	0.09
	Health Risk	37	35				28	22		30		25	23
Chromium (Hexavalent)	Annual Avg			0.65	0.37	0.43	1.24			0.23	0.20	0.19	
	Health Risk			97	55	64	186			34	29	28	
para-Dichlorobenzene	Annual Avg		0.23	0.22	0.19	0.14	0.20	0.10	0.11			0.13	0.15
	Health Risk		15	15	12	9	13	7	7			8	10
Formaldehyde	Annual Avg	4.05	3.59		3.66	3.92	4.58			4.72	6.07	4.14	4.87
	Health Risk	30	26		27	29	34			35	45	30	36
Methylene Chloride	Annual Avg	3.25	1.69	1.42	2.01	1.94	1.82	1.41	1.11	1.07		0.80	0.60
	Health Risk	11	6	5	7	7	6	5	4	4		3	2
Perchloroethylene	Annual Avg	1.19	0.79	0.61	0.62	0.66	0.49	0.44	0.37	0.50		0.37	0.30
	Health Risk	48	31	24	25	26	19	18	15	20		15	12
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**879**	**728**	**732**	**667**	**738**	**744**	**421**	**321**	**468**	**419**	**364**	**313**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-17

South Coast Air Basin

Los Angeles County: North Main Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	2.68	2.78	2.50	2.89	2.35	1.28	2.33			1.43	0.84	1.45
	Health Risk	13	13	12	14	11	6	11			7	4	7
Benzene	Annual Avg	3.50	3.25	2.97	2.54	2.45	2.24	1.86		1.36	1.50	1.04	1.03
	Health Risk	324	301	275	235	227	207	173		126	139	97	95
1,3-Butadiene	Annual Avg	0.60	0.55	0.64	0.73	0.59	0.60	0.54		0.42	0.43	0.30	0.31
	Health Risk	226	206	242	276	221	225	204		158	162	111	118
Carbon Tetrachloride	Annual Avg	0.14	0.13				0.10	0.08		0.11		0.10	0.09
	Health Risk	36	35				27	21		30		26	23
Chromium (Hexavalent)	Annual Avg				0.24	0.27	0.23	0.17			0.11	0.13	
	Health Risk				36	40	35	25			16	19	
para-Dichlorobenzene	Annual Avg		0.19	0.22	0.19	0.16	0.19	0.12				0.16	0.17
	Health Risk		13	14	12	10	13	8				11	11
Formaldehyde	Annual Avg	3.50	3.00	2.30	3.23	3.54	4.13	5.87			3.88	2.42	4.30
	Health Risk	26	22	17	24	26	30	43			29	18	32
Methylene Chloride	Annual Avg	1.28	2.72	0.68	1.05	1.06	1.51	1.10		0.80	1.20	0.68	0.74
	Health Risk	4	9	2	4	4	5	4		3	4	2	3
Perchloroethylene	Annual Avg	0.55	0.60	0.54	0.59	0.50	0.57	0.50		0.23		0.19	0.18
	Health Risk	22	24	21	24	20	23	20		9		7	7
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**651**	**623**	**583**	**625**	**559**	**571**	**509**		**326**	**357**	**295**	**296**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-18

South Coast Air Basin

Los Angeles County: North Long Beach

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	2.49	2.52		2.36	2.18	0.81		1.43			1.16	1.11
	Health Risk	12	12		11	11	4		7			6	5
Benzene	Annual Avg	3.53	2.45	2.60	1.99	2.04	1.69		1.24	1.16	1.11	1.00	
	Health Risk	327	227	241	185	188	157		115	108	103	92	
1,3-Butadiene	Annual Avg	0.59	0.44	0.52	0.58	0.45	0.45		0.36	0.34	0.32	0.28	
	Health Risk	223	165	197	216	168	169		137	127	121	104	
Carbon Tetrachloride	Annual Avg	0.14	0.13				0.10			0.12		0.10	
	Health Risk	37	34				26			31		26	
Chromium (Hexavalent)	Annual Avg			0.44	0.34	0.22	0.25		0.15	0.11	0.12	0.12	
	Health Risk			66	51	33	38		22	16	18	18	
para-Dichlorobenzene	Annual Avg		0.17	0.26	0.19	0.12	0.17		0.16			0.13	
	Health Risk		11	17	13	8	11		10			8	
Formaldehyde	Annual Avg	2.97	2.76		3.22	3.06	3.29		3.68			2.88	2.96
	Health Risk	22	20		24	23	24		27			21	22
Methylene Chloride	Annual Avg	2.05	0.88	1.00	1.15	0.84	0.98		0.74	0.60		0.65	
	Health Risk	7	3	3	4	3	3		3	2		2	
Perchloroethylene	Annual Avg	0.48	0.36	0.35	0.43	0.32	0.32		0.23	0.19		0.17	
	Health Risk	19	14	14	17	13	13		9	8		7	
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**647**	**486**	**538**	**521**	**447**	**445**		**330**	**292**	**242**	**284**	**27**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-19

South Coast Air Basin

Riverside County: Riverside - Rubidoux

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.87	2.54	1.86	2.19	2.08	0.89	1.84			1.36	1.49	1.58
	Health Risk	9	12	9	11	10	4	9			7	7	8
Benzene	Annual Avg	2.55	2.22	1.90	1.77	2.01	1.45	1.03			0.87	0.85	0.69
	Health Risk	236	206	176	164	186	134	95			80	79	63
1,3-Butadiene	Annual Avg	0.34	0.31	0.29	0.38	0.36	0.33	0.27			0.21	0.19	0.18
	Health Risk	128	117	110	143	136	125	100			78	72	66
Carbon Tetrachloride	Annual Avg	0.13	0.14				0.10	0.08				0.10	0.09
	Health Risk	34	36				27	21				25	23
Chromium (Hexavalent)	Annual Avg			0.33	0.33	0.36	0.38	0.22			0.19	0.35	
	Health Risk			50	50	55	56	33			29	52	
para-Dichlorobenzene	Annual Avg		0.13	0.13	0.16	0.12	0.17	0.11				0.14	0.15
	Health Risk		9	8	10	8	11	7				9	10
Formaldehyde	Annual Avg	1.75	2.70	1.53	2.73	2.50	2.65	4.15			3.55	3.17	4.73
	Health Risk	13	20	11	20	18	19	31			26	23	35
Methylene Chloride	Annual Avg		0.69	0.60	1.10	0.93	0.98	0.83			0.58	0.69	0.44
	Health Risk		2	2	4	3	3	3			2	2	2
Perchloroethylene	Annual Avg	0.24	0.28	0.20	0.20	0.19	0.18	0.18				0.13	0.11
	Health Risk	9	11	8	8	8	7	7				5	4
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**429**	**413**	**374**	**410**	**424**	**386**	**306**			**222**	**274**	**211**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-20

South Coast Air Basin

San Bernardino County: Fontana - Arrow Highway

Annual Average Concentrations and Health Risks													
TAC	Conc.*/ Risk**	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Acetaldehyde	Annual Avg												
	Health Risk												
Benzene	Annual Avg									0.98			
	Health Risk									91			
1,3-Butadiene	Annual Avg									0.24			
	Health Risk									92			
Carbon Tetrachloride	Annual Avg									0.11			
	Health Risk									30			
Chromium (Hexavalent)	Annual Avg												
	Health Risk												
para-Dichlorobenzene	Annual Avg												
	Health Risk												
Formaldehyde	Annual Avg												
	Health Risk												
Methylene Chloride	Annual Avg									0.59			
	Health Risk									2			
Perchloroethylene	Annual Avg									0.18			
	Health Risk									7			
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk										**222**			

*   Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-21

South Coast Air Basin

San Bernardino County: Upland - San Bernardino Road

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	2.12	3.28	2.36	2.84	2.42	1.09	2.13					
	Health Risk	10	16	11	14	12	5	10					
Benzene	Annual Avg	2.73	2.70	2.14	1.92	2.15	1.62	1.11	1.11				
	Health Risk	253	250	198	178	199	150	103	103				
1,3-Butadiene	Annual Avg	0.35	0.34	0.31	0.39	0.34	0.31	0.26	0.25				
	Health Risk	131	128	116	147	126	117	97	95				
Carbon Tetrachloride	Annual Avg	0.13	0.14		0.10		0.10	0.08					
	Health Risk	35	36		27		26	20					
Chromium (Hexavalent)	Annual Avg			0.22	0.16	0.16	0.20	0.12					
	Health Risk			33	24	24	30	17					
para-Dichlorobenzene	Annual Avg		0.13	0.14	0.14	0.10	0.13	0.10	0.14				
	Health Risk		9	9	9	7	9	7	9				
Formaldehyde	Annual Avg	2.35	3.34	1.98	3.25	2.67	3.21	5.20					
	Health Risk	17	25	15	24	20	24	38					
Methylene Chloride	Annual Avg	1.41	1.59	0.82	0.87	0.72	1.13	0.66	1.70				
	Health Risk	5	6	3	3	3	4	2	6				
Perchloroethylene	Annual Avg	0.42	0.72	0.36	0.40	0.29	0.26	0.20	0.21				
	Health Risk	17	29	15	16	11	11	8	8				
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**468**	**499**	**400**	**442**	**402**	**376**	**302**	**221**				

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3, and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-22

South Coast Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	2.46	3.00	2.46	2.67	2.30	0.97	2.08	1.77	1.54	1.63	1.26	1.47
	Health Risk	12	15	12	13	11	5	10	9	7	8	6	7
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.40	1.89	1.45	1.34	1.25	1.20	0.97	0.86
	Health Risk	317	269	242	201	222	175	134	124	116	111	90	80
1,3-Butadiene	Annual Avg	0.53	0.45	0.50	0.57	0.50	0.46	0.39	0.38	0.35	0.33	0.25	0.25
	Health Risk	200	170	187	212	187	173	146	142	133	123	94	94
Carbon Tetrachloride	Annual Avg	0.14	0.13		0.11		0.10	0.08		0.11		0.10	0.09
	Health Risk	36	35		28		27	21		30		25	23
Chromium (Hexavalent)	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18	
	Health Risk			59	43	43	69	27	25	22	22	27	
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13	0.15
	Health Risk		11	13	11	8	11	7	9			9	10
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	4.13
	Health Risk	22	23	16	24	23	26	37	33	28	30	23	30
Methylene Chloride	Annual Avg	1.86	1.51	0.90	1.23	1.10	1.28	0.95	1.14	0.85	0.92	0.83	0.63
	Health Risk	6	5	3	4	4	4	3	4	3	3	3	2
Perchloroethylene	Annual Avg	0.58	0.55	0.41	0.45	0.39	0.36	0.32	0.27	0.26		0.21	0.18
	Health Risk	23	22	16	18	16	15	13	11	10		8	7
Diesel PM***	Annual Avg	*(3.6)*					*(2.7)*					*(2.4)*	
	Health Risk	*(1080)*					*(810)*					*(720)*	
Average Basin Health Risk		**616**	**550**	**548**	**554**	**514**	**505**	**398**	**357**	**349**	**297**	**285**	**253**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3, and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-23

San Francisco Bay Area Air Basin

Alameda County: Fremont - Chapel Way

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.28	1.60	1.02	1.28	1.23	0.35	0.88	0.65	0.72			
	Health Risk	6	8	5	6	6	2	4	3	4			
Benzene	Annual Avg	1.92	1.67	1.21	1.35	1.25	1.24	0.58		0.76	0.61	0.53	0.44
	Health Risk	178	155	112	125	116	115	54		71	57	49	41
1,3-Butadiene	Annual Avg	0.28	0.26	0.19	0.32	0.25	0.27	0.20		0.24	0.18	0.14	0.13
	Health Risk	106	97	72	120	95	101	75		90	66	51	50
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08				0.10	0.09
	Health Risk	35	34		28		27	20				25	23
Chromium (Hexavalent)	Annual Avg			0.20	0.19	0.21	0.20	0.11		0.10	0.10	0.10	
	Health Risk			30	28	32	30	16		15	15	16	
para-Dichlorobenzene	Annual Avg			0.11	0.11	0.10	0.12	0.10				0.10	0.13
	Health Risk			7	7	7	8	7				7	9
Formaldehyde	Annual Avg	1.84	1.98	1.30	1.37	1.78	2.02	2.16	1.79	1.96			
	Health Risk	14	15	10	10	13	15	16	13	14			
Methylene Chloride	Annual Avg	0.76	0.58	0.52	0.83	0.50	0.62	0.50				0.50	0.28
	Health Risk	3	2	2	3	2	2	2				2	1
Perchloroethylene	Annual Avg	0.19	0.21	0.13	0.11	0.09	0.12	0.07				0.08	0.06
	Health Risk	8	8	5	5	3	5	3				3	2
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**350**	**319**	**243**	**332**	**274**	**305**	**197**	**16**	**194**	**138**	**153**	**126**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-24

San Francisco Bay Area Air Basin

Contra Costa County: Concord - 2975 Treat Boulevard

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.41			1.39	1.46	0.62	0.86	0.76		0.87		
	Health Risk	7			7	7	3	4	4		4		
Benzene	Annual Avg	1.84	1.58	1.41	1.13	1.08	1.09	0.48	0.56	0.57	0.57		
	Health Risk	171	147	130	105	100	101	44	52	53	53		
1,3-Butadiene	Annual Avg	0.32	0.27	0.25	0.31	0.23	0.24	0.15	0.18	0.19	0.16		
	Health Risk	118	100	95	114	87	91	56	66	72	58		
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08					
	Health Risk	34	33		29		27	22					
Chromium (Hexavalent)	Annual Avg				0.19	0.18	0.21	0.11	0.11		0.10		
	Health Risk				28	27	32	16	17		15		
para-Dichlorobenzene	Annual Avg			0.15	0.13	0.14	0.13	0.13	0.14				
	Health Risk			10	8	9	9	8	9				
Formaldehyde	Annual Avg	1.99			1.99	1.69	2.21	2.30	2.05		2.64		
	Health Risk	15			15	12	16	17	15		19		
Methylene Chloride	Annual Avg	0.67	0.51	0.66	0.54	0.54	0.55	0.55	0.50				
	Health Risk	2	2	2	2	2	2	2	2				
Perchloroethylene	Annual Avg	0.34	0.42	0.39	0.20	0.10	0.15	0.08	0.10				
	Health Risk	13	17	16	8	4	6	3	4				
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**360**	**299**	**253**	**316**	**248**	**287**	**172**	**169**	**125**	**149**		

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-25

San Francisco Bay Area Air Basin

Contra Costa County: Richmond - 13th Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg			0.78		0.92	0.36	0.59					
	Health Risk			4		4	2	3					
Benzene	Annual Avg		1.92	1.54	1.76	1.70	1.44	1.00					
	Health Risk		177	143	163	157	133	92					
1,3-Butadiene	Annual Avg		0.27	0.26	0.39	0.31	0.30	0.25					
	Health Risk		102	98	148	116	113	94					
Carbon Tetrachloride	Annual Avg		0.12		0.11		0.10	0.08					
	Health Risk		33		29		25	21					
Chromium (Hexavalent)	Annual Avg			0.19		0.15	0.26	0.13					
	Health Risk			28		23	39	19					
para-Dichlorobenzene	Annual Avg		0.14	0.12	0.12	0.10	0.12	0.19					
	Health Risk		9	8	8	7	8	13					
Formaldehyde	Annual Avg			1.08		1.32	2.22	4.27					
	Health Risk			8		10	16	31					
Methylene Chloride	Annual Avg		0.62	0.54	0.67	0.50	0.54	0.65					
	Health Risk		2	2	2	2	2	2					
Perchloroethylene	Annual Avg		0.15	0.09	0.09	0.06	0.04	0.03					
	Health Risk		6	4	4	2	2	1					
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk			**329**	**295**	**354**	**321**	**340**	**276**					

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-26

San Francisco Bay Area Air Basin

Contra Costa County: San Pablo - El Portal

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg										0.55		
	Health Risk										3		
Benzene	Annual Avg									0.56	0.42		
	Health Risk									52	39		
1,3-Butadiene	Annual Avg									0.15	0.12		
	Health Risk									56	45		
Carbon Tetrachloride	Annual Avg												
	Health Risk												
Chromium (Hexavalent)	Annual Avg										0.10		
	Health Risk										15		
para-Dichlorobenzene	Annual Avg												
	Health Risk												
Formaldehyde	Annual Avg										1.24		
	Health Risk										9		
Methylene Chloride	Annual Avg												
	Health Risk												
Perchloroethylene	Annual Avg												
	Health Risk												
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk										**108**	**111**		

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-27

San Francisco Bay Area Air Basin

San Francisco County: San Francisco - Arkansas Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.32				0.98	0.40		0.75	0.54			0.57
	Health Risk	6				5	2		4	3			3
Benzene	Annual Avg		1.49	1.25		1.07	0.95	0.53	0.51	0.63	0.65	0.48	0.38
	Health Risk		138	116		99	88	49	48	59	61	45	35
1,3-Butadiene	Annual Avg		0.25	0.23		0.26	0.23	0.18	0.17	0.22	0.17	0.13	0.11
	Health Risk		95	88		97	85	68	62	81	65	48	42
Carbon Tetrachloride	Annual Avg		0.12				0.10	0.08				0.10	0.09
	Health Risk		33				26	21				25	23
Chromium (Hexavalent)	Annual Avg				0.19	0.18	0.25	0.12	0.13	0.10		0.12	
	Health Risk				29	26	37	18	19	15		18	
para-Dichlorobenzene	Annual Avg		0.15	0.13		0.10	0.15	0.12	0.12			0.11	0.14
	Health Risk		10	9		7	10	8	8			7	9
Formaldehyde	Annual Avg	1.71				1.33	1.58		1.62	1.45			1.51
	Health Risk	13				10	12		12	11			11
Methylene Chloride	Annual Avg		3.22	0.88		0.60	0.63	0.66	0.50			0.60	0.26
	Health Risk		11	3		2	2	2	2			2	1
Perchloroethylene	Annual Avg		0.23	0.13		0.11	0.09	0.08	0.07			0.07	0.07
	Health Risk		9	5		4	4	3	3			3	3
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**19**	**296**	**221**	**29**	**250**	**266**	**169**	**158**	**169**	**126**	**148**	**127**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-28

San Francisco Bay Area Air Basin

Santa Clara County: San Jose - 4th Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.53	1.55	1.41	1.58	1.27	0.35	1.04	0.97	0.77	0.93	0.79	0.76
	Health Risk	7	8	7	8	6	2	5	5	4	4	4	4
Benzene	Annual Avg	3.02	2.44	2.03	1.89	1.88	1.55	0.97	0.93	1.04	0.73	0.70	
	Health Risk	280	226	188	175	174	144	89	86	97	68	65	
1,3-Butadiene	Annual Avg	0.55	0.39	0.44	0.49	0.39	0.35	0.31	0.29	0.29	0.23	0.19	
	Health Risk	207	145	164	182	145	131	117	108	110	85	72	
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08				0.10	
	Health Risk	33	34		28		27	20				25	
Chromium (Hexavalent)	Annual Avg			0.29	0.25	0.25	0.33	0.17	0.13	0.11	0.10	0.13	
	Health Risk			43	37	38	49	25	20	17	15	19	
para-Dichlorobenzene	Annual Avg			0.12	0.12	0.10	0.12	0.14	0.12			0.12	
	Health Risk			8	8	7	8	10	8			8	
Formaldehyde	Annual Avg	2.27	2.00	2.09	1.83	2.16	2.28	2.70	2.56	2.24	2.69	2.24	2.27
	Health Risk	17	15	15	13	16	17	20	19	16	20	16	17
Methylene Chloride	Annual Avg	0.83	6.65	0.66	0.58	0.80	0.69	0.55	0.75			0.50	
	Health Risk	3	23	2	2	3	2	2	3			2	
Perchloroethylene	Annual Avg	0.16	0.15	0.10	0.09	0.06	0.07	0.07	0.10			0.09	
	Health Risk	6	6	4	4	3	3	3	4			4	
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**553**	**457**	**431**	**457**	**392**	**383**	**291**	**253**	**244**	**192**	**215**	**21**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-29

San Francisco Bay Area Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks													
TAC	Conc.*/ Risk**	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Acetaldehyde	Annual Avg	1.30	1.40	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68	0.73
	Health Risk	6	7	5	6	6	2	4	4	3	4	3	4
Benzene	Annual Avg	2.18	1.82	1.49	1.49	1.40	1.26	0.71	0.61	0.71	0.60	0.56	0.43
	Health Risk	202	169	138	138	129	116	66	56	66	55	52	39
1,3-Butadiene	Annual Avg	0.36	0.29	0.28	0.37	0.29	0.28	0.22	0.19	0.22	0.17	0.15	0.13
	Health Risk	135	108	103	138	108	104	82	70	82	64	56	50
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08				0.09	0.09
	Health Risk	34	33		29		26	21				25	23
Chromium (Hexavalent)	Annual Avg			0.23	0.20	0.19	0.25	0.13	0.12	0.10	0.10	0.12	
	Health Risk			34	29	29	37	19	17	15	15	18	
para-Dichlorobenzene	Annual Avg		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11	0.14
	Health Risk		8	8	8	7	8	9	8			7	9
Formaldehyde	Annual Avg	1.87	1.73	1.43	1.56	1.66	2.06	2.62	1.85	1.76	2.09	1.77	2.32
	Health Risk	14	13	11	11	12	15	19	14	13	15	13	17
Methylene Chloride	Annual Avg	1.04	2.32	0.65	0.72	0.59	0.60	0.58	0.55			0.53	0.27
	Health Risk	4	8	2	2	2	2	2	2			2	1
Perchloroethylene	Annual Avg	0.20	0.23	0.17	0.13	0.08	0.09	0.07	0.07			0.08	0.06
	Health Risk	8	9	7	5	3	4	3	3			3	2
Diesel PM***	Annual Avg	*(2.5)*					*(1.9)*					*(1.6)*	
	Health Risk	*(750)*					*(570)*					*(480)*	
Average Basin Health Risk		**403**	**355**	**308**	**366**	**296**	**314**	**225**	**174**	**179**	**153**	**179**	**145**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-30

San Joaquin Valley Air Basin

Kern County: Bakersfield - Chester Avenue

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.87	1.83	1.60	2.00								
	Health Risk	9	9	8	10								
Benzene	Annual Avg	2.68	2.22	1.54	1.47								
	Health Risk	248	205	143	136								
1,3-Butadiene	Annual Avg	0.39	0.31	0.24	0.33								
	Health Risk	146	115	90	123								
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.10								
	Health Risk	33	33		27								
Chromium (Hexavalent)	Annual Avg			0.21	0.21								
	Health Risk			31	31								
para-Dichlorobenzene	Annual Avg			0.12	0.17								
	Health Risk			8	11								
Formaldehyde	Annual Avg	2.44	1.62	1.36	1.85								
	Health Risk	18	12	10	14								
Methylene Chloride	Annual Avg	0.92	0.65	0.52	0.99								
	Health Risk	3	2	2	3								
Perchloroethylene	Annual Avg	0.09	0.13	0.08	1.48								
	Health Risk	3	5	3	59								
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**460**	**381**	**295**	**414**								

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-31

San Joaquin Valley Air Basin

Kern County: Bakersfield - 5558 California Avenue

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg						0.49	1.59	1.22	1.27	1.69	1.19	1.27
	Health Risk						2	8	6	6	8	6	6
Benzene	Annual Avg						1.14	0.78	0.57	0.70	0.71	0.58	0.55
	Health Risk						106	72	53	65	66	54	51
1,3-Butadiene	Annual Avg						0.21	0.21	0.16	0.20	0.15	0.13	0.14
	Health Risk						78	79	60	75	58	47	52
Carbon Tetrachloride	Annual Avg						0.10	0.08				0.09	0.09
	Health Risk						26	21				25	23
Chromium (Hexavalent)	Annual Avg						0.26	0.13	0.10	0.10	0.10	0.10	
	Health Risk						39	19	15	15	16	16	
para-Dichlorobenzene	Annual Avg						0.11	0.11	0.12			0.11	0.13
	Health Risk						7	7	8			7	9
Formaldehyde	Annual Avg						1.92	3.48	3.12	2.99	3.67	2.79	3.44
	Health Risk						14	26	23	22	27	21	25
Methylene Chloride	Annual Avg						0.54	0.64	0.50		0.50	0.58	0.26
	Health Risk						2	2	2		2	2	1
Perchloroethylene	Annual Avg						0.09	0.12	0.04			0.07	0.06
	Health Risk						4	5	2			3	2
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk							**278**	**239**	**169**	**183**	**177**	**181**	**169**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m3, and concentrations for Diesel PM are expressed as ug/m3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-32

San Joaquin Valley Air Basin

Fresno County: Fresno - 1st Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg		2.29		1.89	1.40	0.67			1.50		1.43	1.60
	Health Risk		11		9	7	3			7		7	8
Benzene	Annual Avg		2.42	1.34	1.35	1.44	1.24	0.79	1.00	0.83	0.80	0.73	0.61
	Health Risk		224	124	125	133	115	73	92	76	74	68	56
1,3-Butadiene	Annual Avg		0.46	0.26	0.34	0.36	0.30	0.23	0.23	0.27	0.21	0.20	0.18
	Health Risk		173	99	129	134	113	88	87	100	80	73	68
Carbon Tetrachloride	Annual Avg		0.12		0.11		0.10	0.08				0.10	0.09
	Health Risk		32		28		26	21				25	23
Chromium (Hexavalent)	Annual Avg			0.21	0.15	0.14	0.22	0.10	0.11	0.10	0.10	0.13	
	Health Risk			31	22	21	33	16	16	15	15	20	
para-Dichlorobenzene	Annual Avg			0.10	0.10	0.14	0.13	0.11	0.14			0.10	0.14
	Health Risk			7	7	9	8	7	9			7	9
Formaldehyde	Annual Avg		2.32		1.64	2.01	2.41			3.42		3.56	4.32
	Health Risk		17		12	15	18			25		26	32
Methylene Chloride	Annual Avg		0.62	0.54	0.69	0.59	0.58	0.50	0.52			0.50	0.27
	Health Risk		2	2	2	2	2	2	2			2	1
Perchloroethylene	Annual Avg		0.14	0.10	0.10	0.06	0.07	0.04	0.04			0.06	0.05
	Health Risk		6	4	4	2	3	2	2			2	2
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk			**465**	**267**	**338**	**323**	**321**	**209**	**208**	**223**	**169**	**230**	**199**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-33

San Joaquin Valley Air Basin

Stanislaus County: Modesto - I Street (Courthouse)

Annual Average Concentrations and Health Risks													
TAC	Conc.*/ Risk**	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Acetaldehyde	Annual Avg		1.51	1.37	1.75	1.44	0.51	1.17	1.25				
	Health Risk		7	7	8	7	2	6	6				
Benzene	Annual Avg												
	Health Risk												
1,3-Butadiene	Annual Avg												
	Health Risk												
Carbon Tetrachloride	Annual Avg												
	Health Risk												
Chromium (Hexavalent)	Annual Avg			0.27	0.23	0.22	0.32	0.16	0.11				
	Health Risk			40	34	33	48	25	17				
para-Dichlorobenzene	Annual Avg												
	Health Risk												
Formaldehyde	Annual Avg		1.43	1.32	1.82	1.86	2.16	2.58	2.43				
	Health Risk		11	10	13	14	16	19	18				
Methylene Chloride	Annual Avg												
	Health Risk												
Perchloroethylene	Annual Avg												
	Health Risk												
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk			**18**	**57**	**55**	**54**	**66**	**50**	**41**				

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-34

San Joaquin Valley Air Basin

Stanislaus County: Modesto - 14th Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg										1.65		
	Health Risk										8		
Benzene	Annual Avg	2.25	1.86	1.20	1.23	1.14	1.20	0.70	0.77	0.85	0.61		
	Health Risk	208	172	111	114	105	111	65	71	78	56		
1,3-Butadiene	Annual Avg	0.38	0.35	0.22	0.35	0.30	0.30	0.24	0.21	0.26	0.16		
	Health Risk	142	133	84	131	110	112	89	78	98	61		
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.09	0.07		0.11			
	Health Risk	34	35		30		25	20		30			
Chromium (Hexavalent)	Annual Avg										0.10		
	Health Risk										15		
para-Dichlorobenzene	Annual Avg		0.11	0.10	0.12	0.10	0.11	0.10	0.15				
	Health Risk		7	7	8	7	7	7	10				
Formaldehyde	Annual Avg										3.09		
	Health Risk										23		
Methylene Chloride	Annual Avg	0.65	0.61	0.55	0.65	0.62	0.58	0.50	0.59	0.51			
	Health Risk	2	2	2	2	2	2	2	2	2			
Perchloroethylene	Annual Avg	0.15	0.15	0.12	0.11	0.09	0.05	0.04	0.05	0.04			
	Health Risk	6	6	5	4	3	2	2	2	1			
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**392**	**355**	**209**	**289**	**227**	**259**	**185**	**163**	**209**	**163**		

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-35

San Joaquin Valley Air Basin

San Joaquin County: Stockton - Hazelton Street

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.47	1.75	1.07	1.31	1.10		0.90	0.90	1.00	1.07	0.64	0.59
	Health Risk	7	9	5	6	5		4	4	5	5	3	3
Benzene	Annual Avg	2.01	1.95	1.37		1.23	1.05	0.64	0.52	0.69	0.65	0.58	0.45
	Health Risk	186	181	127		113	97	60	48	64	60	54	42
1,3-Butadiene	Annual Avg	0.34	0.32	0.22		0.28	0.25	0.21	0.18	0.21	0.18	0.16	0.13
	Health Risk	126	121	82		106	94	77	68	77	68	58	49
Carbon Tetrachloride	Annual Avg	0.13	0.14				0.10	0.08		0.12		0.10	0.09
	Health Risk	35	36				26	20		30		26	23
Chromium (Hexavalent)	Annual Avg			0.22	0.25	0.25		0.14			0.10	0.12	
	Health Risk			33	37	37		21			15	18	
para-Dichlorobenzene	Annual Avg		0.10	0.10		0.10	0.11	0.10	0.11			0.11	0.13
	Health Risk		7	7		7	7	7	7			7	9
Formaldehyde	Annual Avg	1.81	1.88	1.24	1.38	1.56		2.35	2.24	2.33	2.68	1.61	1.48
	Health Risk	13	14	9	10	12		17	16	17	20	12	11
Methylene Chloride	Annual Avg	0.63	0.50	0.60		0.50	0.75	0.53	0.50	0.50	0.50	0.53	0.27
	Health Risk	2	2	2		2	3	2	2	2	2	2	1
Perchloroethylene	Annual Avg	0.13	0.11	0.12		0.07	0.06	0.07	0.09	0.03		0.11	0.05
	Health Risk	5	5	5		3	2	3	4	1		4	2
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**374**	**375**	**270**	**53**	**285**	**229**	**211**	**149**	**196**	**170**	**184**	**140**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-36

San Joaquin Valley Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.30	1.56	1.09	1.15
	Health Risk	9	9	7	8	6	3	6	6	6	8	5	6
Benzene	Annual Avg	2.45	2.11	1.36	1.32	1.33	1.16	0.73	0.71	0.76	0.69	0.63	0.54
	Health Risk	227	196	126	122	123	107	68	66	71	64	58	50
1,3-Butadiene	Annual Avg	0.41	0.36	0.24	0.34	0.32	0.26	0.22	0.20	0.23	0.18	0.16	0.15
	Health Risk	154	135	89	127	121	99	83	73	88	67	59	56
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.11		0.10	0.08		0.11		0.10	0.09
	Health Risk	34	34		29		26	20		30		25	23
Chromium (Hexavalent)	Annual Avg			0.23	0.21	0.19	0.28	0.13	0.11	0.10	0.10	0.12	
	Health Risk			34	31	29	42	20	16	15	15	18	
para-Dichlorobenzene	Annual Avg		0.11	0.11	0.13	0.11	0.11	0.10	0.13			0.11	0.13
	Health Risk		7	7	9	7	8	7	9			7	9
Formaldehyde	Annual Avg	2.45	1.81	1.46	1.67	1.80	2.10	2.96	2.77	2.86	3.44	2.61	3.08
	Health Risk	18	13	11	12	13	15	22	20	21	25	19	23
Methylene Chloride	Annual Avg	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.50	0.53	0.27
	Health Risk	3	2	2	3	2	2	2	2	2	2	2	1
Perchloroethylene	Annual Avg	0.13	0.13	0.10	0.47	0.07	0.07	0.07	0.06	0.04		0.08	0.05
	Health Risk	5	5	4	19	3	3	3	2	2		3	2
Diesel PM***	Annual Avg	*(2.6)*					*(1.7)*					*(1.3)*	
	Health Risk	*(780)*					*(510)*					*(390)*	
Average Basin Health Risk		**450**	**401**	**280**	**360**	**304**	**305**	**231**	**194**	**235**	**181**	**196**	**170**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-37

San Diego Air Basin

San Diego County: Chula Vista

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.10	1.21	0.99	1.16	1.32	0.64	0.83	0.91	0.70	0.91	0.75	0.78
	Health Risk	5	6	5	6	6	3	4	4	3	4	4	4
Benzene	Annual Avg	2.00	1.21	1.03	0.80	1.08	0.81		0.63	0.61		0.55	0.42
	Health Risk	186	112	95	74	100	75		58	56		51	39
1,3-Butadiene	Annual Avg	0.28	0.18	0.18	0.23	0.26	0.21		0.16	0.15		0.14	0.11
	Health Risk	105	69	69	85	98	77		61	57		51	41
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.10		0.10					0.09	0.09
	Health Risk	35	34		27		26					25	23
Chromium (Hexavalent)	Annual Avg			0.24	0.20	0.17	0.20	0.11	0.10	0.10	0.11	0.10	
	Health Risk			37	30	25	29	16	15	15	16	16	
para-Dichlorobenzene	Annual Avg		0.10	0.11	0.13	0.12	0.11		0.13				0.15
	Health Risk		7	7	8	8	7		8				10
Formaldehyde	Annual Avg	1.26	1.30	1.10	1.46	2.08	1.81	2.10	2.37	2.00	2.49	2.14	2.54
	Health Risk	9	10	8	11	15	13	15	17	15	18	16	19
Methylene Chloride	Annual Avg	0.58	0.59	0.81	1.01	0.57	0.57		0.62			0.65	0.16
	Health Risk	2	2	3	3	2	2		2			2	1
Perchloroethylene	Annual Avg	0.24	0.23	0.21	0.14	0.13	0.15		0.10			0.08	0.06
	Health Risk	9	9	8	6	5	6		4			3	2
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**351**	**249**	**232**	**250**	**259**	**238**	**35**	**169**	**146**	**38**	**168**	**139**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-38

San Diego Air Basin

San Diego County: El Cajon - Redwood Avenue

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.56	1.78	1.46	1.66			1.23			1.17	0.92	1.11
	Health Risk	8	9	7	8			6			6	4	5
Benzene	Annual Avg	2.50	2.20	1.94	1.51		1.14	0.86	0.89	0.91	0.98	0.74	0.59
	Health Risk	231	203	179	140		106	79	82	84	91	69	54
1,3-Butadiene	Annual Avg	0.39	0.33	0.33	0.40		0.28	0.25	0.24	0.24	0.24	0.18	0.16
	Health Risk	145	125	125	150		105	95	88	90	90	68	61
Carbon Tetrachloride	Annual Avg	0.13	0.13				0.10	0.08				0.10	0.09
	Health Risk	35	33				27	21				25	23
Chromium (Hexavalent)	Annual Avg			0.24	0.18			0.10	0.11		0.10	0.10	
	Health Risk			36	26			16	17		15	15	
para-Dichlorobenzene	Annual Avg			0.12	0.13		0.12	0.11	0.13				0.15
	Health Risk			8	8		8	7	8				10
Formaldehyde	Annual Avg	2.01	1.76	1.42	2.06			3.14			2.84	2.32	2.63
	Health Risk	15	13	10	15			23			21	17	19
Methylene Chloride	Annual Avg	0.59	1.07	1.87	1.25		0.70	0.61	0.52		0.52	0.87	0.19
	Health Risk	2	4	7	4		2	2	2		2	3	1
Perchloroethylene	Annual Avg	0.33	0.31	0.32	0.26		0.35	0.17	0.15			0.10	0.07
	Health Risk	13	12	13	10		14	7	6			4	3
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**449**	**399**	**385**	**361**		**262**	**256**	**203**	**174**	**225**	**205**	**176**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-39

San Diego Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.33	1.50	1.22	1.41	1.48	0.64	1.03	1.00	0.86	1.04	0.84	0.95
	Health Risk	6	7	6	7	7	3	5	5	4	5	4	5
Benzene	Annual Avg	2.25	1.70	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65	0.50
	Health Risk	208	158	137	107	129	90	71	70	70	79	60	47
1,3-Butadiene	Annual Avg	0.33	0.26	0.26	0.31	0.31	0.24	0.21	0.20	0.20	0.22	0.16	0.14
	Health Risk	125	97	97	117	115	91	78	75	74	83	60	51
Carbon Tetrachloride	Annual Avg	0.13	0.13		0.10		0.10	0.08				0.10	0.09
	Health Risk	35	34		27		26	20				25	23
Chromium (Hexavalent)	Annual Avg			0.24	0.19	0.16	0.18	0.11	0.11	0.10	0.10	0.10	
	Health Risk			36	28	23	27	16	16	15	15	15	
para-Dichlorobenzene	Annual Avg		0.10	0.11	0.13	0.15	0.12	0.11	0.13				0.15
	Health Risk		7	8	8	10	8	7	8				10
Formaldehyde	Annual Avg	1.64	1.53	1.26	1.76	2.25	2.13	2.62	2.62	2.27	2.67	2.23	2.59
	Health Risk	12	11	9	13	17	16	19	19	17	20	16	19
Methylene Chloride	Annual Avg	0.59	0.83	1.34	1.13	0.73	0.63	0.59	0.57		0.53	0.76	0.17
	Health Risk	2	3	5	4	3	2	2	2		2	3	1
Perchloroethylene	Annual Avg	0.28	0.27	0.26	0.20	0.21	0.25	0.15	0.13			0.09	0.06
	Health Risk	11	11	11	8	8	10	6	5			4	2
Diesel PM***	Annual Avg	*(2.9)*					*(1.9)*					*(1.4)*	
	Health Risk	*(870)*					*(570)*					*(420)*	
Average Basin Health Risk		**399**	**328**	**309**	**319**	**312**	**273**	**224**	**200**	**180**	**204**	**187**	**158**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-40

Sacramento Valley Air Basin

Butte County: Chico - Manzanita Avenue

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg				1.55	1.11	0.54	1.15	1.17	0.96	1.41	0.89	1.10
	Health Risk				8	5	3	6	6	5	7	4	5
Benzene	Annual Avg				1.10	1.14	0.85	0.67		0.55	0.64	0.52	0.50
	Health Risk				102	106	78	62		51	59	48	46
1,3-Butadiene	Annual Avg				0.30	0.25	0.21	0.22		0.17	0.15	0.14	0.16
	Health Risk				111	94	77	81		64	56	54	59
Carbon Tetrachloride	Annual Avg				0.11		0.10	0.08					0.09
	Health Risk				29		26	21					23
Chromium (Hexavalent)	Annual Avg				0.15	0.13	0.16	0.10	0.10	0.10	0.10	0.10	0.10
	Health Risk				23	19	24	16	15	15	15	15	15
para-Dichlorobenzene	Annual Avg				0.10	0.13	0.10	0.12					0.13
	Health Risk				7	8	7	8					9
Formaldehyde	Annual Avg				2.08	1.78	2.04	2.99	3.42	2.63	4.15	2.76	3.25
	Health Risk				15	13	15	22	25	19	31	20	24
Methylene Chloride	Annual Avg				0.81	0.50	0.53	0.58					0.36
	Health Risk				3	2	2	2					1
Perchloroethylene	Annual Avg				0.06	0.27	0.05	0.05					0.02
	Health Risk				2	11	2	2					1
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk					**300**	**258**	**234**	**220**	**46**	**154**	**168**	**141**	**183**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-41

Sacramento Valley Air Basin

Butte County: Chico - Salem Street

		Annual Average Concentrations and Health Risks											
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.27											
	Health Risk	6											
Benzene	Annual Avg	1.96	1.91										
	Health Risk	182	177										
1,3-Butadiene	Annual Avg	0.40	0.36										
	Health Risk	151	136										
Carbon Tetrachloride	Annual Avg	0.12	0.12										
	Health Risk	32	33										
Chromium (Hexavalent)	Annual Avg												
	Health Risk												
para-Dichlorobenzene	Annual Avg												
	Health Risk												
Formaldehyde	Annual Avg	1.49											
	Health Risk	11											
Methylene Chloride	Annual Avg	0.53	0.57										
	Health Risk	2	2										
Perchloroethylene	Annual Avg	0.05	0.05										
	Health Risk	2	2										
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**386**	**350**										

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-42

Sacramento Valley Air Basin

Placer County: Roseville - North Sunrise Boulevard

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg					0.96	0.25	0.90	0.93	0.88		0.77	0.39
	Health Risk					5	1	4	4	4		4	2
Benzene	Annual Avg					0.91	0.75	0.44	0.46	0.45	0.48	0.39	0.34
	Health Risk					84	70	40	42	42	44	36	32
1,3-Butadiene	Annual Avg					0.19	0.17	0.14	0.12	0.14	0.11	0.10	0.09
	Health Risk					73	63	51	46	52	40	36	35
Carbon Tetrachloride	Annual Avg						0.10	0.08				0.09	0.09
	Health Risk						26	20				25	23
Chromium (Hexavalent)	Annual Avg					0.13	0.19	0.11	0.10	0.10	0.10	0.10	
	Health Risk					19	29	16	15	15	15	15	
para-Dichlorobenzene	Annual Avg					0.28	0.17	0.10	0.15			0.10	0.13
	Health Risk					19	11	7	10			7	9
Formaldehyde	Annual Avg					1.71	1.78	2.52	2.42	2.42		2.25	1.57
	Health Risk					13	13	19	18	18		17	12
Methylene Chloride	Annual Avg					0.82	0.54	0.50	0.50			0.52	0.23
	Health Risk					3	2	2	2			2	1
Perchloroethylene	Annual Avg					0.07	0.05	0.06	0.06			0.05	0.03
	Health Risk					3	2	2	3			2	1
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk						**219**	**217**	**161**	**140**	**131**	**99**	**144**	**115**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-43

Sacramento Valley Air Basin

Sacramento County: Citrus Heights - Sunrise Boulevard

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.32											
	Health Risk	6											
Benzene	Annual Avg	2.08	1.85	1.41									
	Health Risk	192	171	130									
1,3-Butadiene	Annual Avg	0.35	0.30	0.31									
	Health Risk	133	114	115									
Carbon Tetrachloride	Annual Avg	0.12	0.12										
	Health Risk	33	32										
Chromium (Hexavalent)	Annual Avg												
	Health Risk												
para-Dichlorobenzene	Annual Avg			0.11									
	Health Risk			7									
Formaldehyde	Annual Avg	1.66											
	Health Risk	12											
Methylene Chloride	Annual Avg	0.76	0.54	0.50									
	Health Risk	3	2	2									
Perchloroethylene	Annual Avg	0.10	0.10	0.08									
	Health Risk	4	4	3									
Diesel PM	Annual Avg	No Monitoring Data Available											
	Health Risk												
Total Health Risk		**383**	**323**	**257**									

* Concentrations for Chromium (Hexavalent) are expressed as ng/m³, and concentrations for Diesel PM are expressed as ug/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.

Table C-44

Sacramento Valley Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks													
TAC	**Conc.*/ Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Acetaldehyde	Annual Avg	1.29			1.37	1.04	0.39	1.03	1.05	0.92	1.23	0.83	0.74
	Health Risk	6			7	5	2	5	5	4	6	4	4
Benzene	Annual Avg	2.02	1.88	1.35	1.00	1.02	0.80	0.56	0.55	0.50	0.56	0.45	0.42
	Health Risk	187	174	125	92	95	74	51	51	47	52	42	39
1,3-Butadiene	Annual Avg	0.38	0.33	0.28	0.29	0.22	0.19	0.18	0.16	0.15	0.13	0.12	0.13
	Health Risk	142	125	106	108	83	70	66	60	58	48	45	47
Carbon Tetrachloride	Annual Avg	0.12	0.12		0.11		0.10	0.08				0.09	0.09
	Health Risk	33	32		29		26	21				25	23
Chromium (Hexavalent)	Annual Avg			0.17	0.14	0.13	0.18	0.11	0.10	0.10	0.10	0.10	0.10
	Health Risk			26	21	19	26	16	15	15	15	15	15
para-Dichlorobenzene	Annual Avg			0.11	0.10	0.20	0.14	0.11	0.14			0.10	0.13
	Health Risk			7	7	14	9	7	10			7	9
Formaldehyde	Annual Avg	1.57			1.77	1.75	1.91	2.76	2.92	2.52	3.61	2.51	2.41
	Health Risk	12			13	13	14	20	22	19	27	18	18
Methylene Chloride	Annual Avg	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.60	0.57	0.29
	Health Risk	2	2	2	3	2	2	2	2		2	2	1
Perchloroethylene	Annual Avg	0.07	0.07	0.06	0.05	0.17	0.05	0.06	0.05			0.06	0.03
	Health Risk	3	3	3	2	7	2	2	2			2	1
Diesel PM***	Annual Avg	*(2.5)*					*(1.6)*					*(1.2)*	
	Health Risk	*(750)*					*(480)*					*(360)*	
Average Basin Health Risk		**385**	**336**	**269**	**282**	**238**	**225**	**190**	**167**	**143**	**150**	**160**	**157**

* Concentrations for Chromium (Hexavalent) are expressed as ng/m^3, and concentrations for Diesel PM are expressed as ug/m^3. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table C-45

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APPENDIX D

Surface Area, Population, and Average Daily Vehicle Miles Traveled

Appendix D: *Surface Area, Population, and Average Daily Vehicle Miles Traveled*

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Introduction

This appendix provides information on the square mile surface area, population, and average number of vehicle miles traveled (VMT) each day in California. The trend data for population and daily VMT cover the period 1982 through 2001. Data are listed for each air basin, for each county within each air basin, and for the State as a whole. In cases where a county is split between two or more air basins, the data reflect only that portion of the county within the respective air basin. It is important to note that the average daily VMT listed in the following tables has been divided by 1000.

The population data were derived from reports developed by the California Department of Finance (DOF), Demographic Research Unit. Split county fractions for 1990 and 2000 were derived using census 1990 and 2000 data. County and air basin fractions for years not listed above were interpolated. The population data do not reflect any adjustment for the estimated census undercount.

The estimates of daily vehicle miles traveled (VMT) for the years 1982 through 2001 are found in ARB's revised motor vehicle emissions inventory model, EMFAC2002 version 2.2 (refer to: *http://www.arb.ca.gov/msei/msei.htm*). The VMT estimates have been revised from those published in last year's Almanac (from EMFAC2001 version 2.08), based on changes in vehicle population, mileage accrual rates, and the data provided by regional transportation planning agencies (RTPAs). For recent calendar years, the VMT estimates in large urbanized areas are provided by RTPAs as an output of their travel demand models. For historical years (pre-2000), the VMT is calculated as the product of vehicle population backcast from Department of Motor Vehicles data and mileage accrual rates (annual miles traveled by type and age of vehicle) calculated from the Bureau of Automotive Repair database for the Smog Check program. In this case, lower estimates of vehicle population and lower mileage accrual rates, along with subtle changes in the vehicle age distribution, combine to generate lower VMT estimates for all but the most recent years. More detailed information about the methodologies used in developing both the population and VMT trends is available from the ARB staff (916/322-6021).

Great Basin Valleys Air Basin

Surface Area = 13880 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	28800	28700	28000	27900	27700	27700	28100	28400	29390	29670	29880	30480	31020	30870	31210	31440	31590	31820	32250	32540
Avg. Daily VMT/1000	709	704	750	763	858	855	908	933	935	918	880	898	900	899	901	891	885	910	937	964

Table D-1

Alpine County

Surface Area = 723 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1100	1100	1100	1100	1100	1100	1100	1100	1090	1120	1130	1130	1120	1170	1210	1240	1190	1170	1200	1190
Avg. Daily VMT/1000	26	26	26	27	30	31	33	35	36	36	35	36	37	37	39	40	40	40	41	42

Table D-2

Inyo County

Surface Area = 10130 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	18400	18400	18100	18000	17800	17700	17900	18000	18200	18300	18250	18300	18450	18300	18300	18350	18300	18050	18200	18200
Avg. Daily VMT/1000	423	423	427	418	488	482	518	533	547	535	519	532	534	536	541	540	535	549	565	581

Table D-3

Mono County

Surface Area = 3027 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	9300	9200	8800	8800	8800	8900	9100	9300	10100	10250	10500	11050	11450	11400	11700	11850	12100	12600	12850	13150
Avg. Daily VMT/1000	260	255	297	318	340	342	357	365	352	347	326	330	329	326	321	311	310	321	331	341

Table D-4

Lake County Air Basin

Surface Area = 1260 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	39900	41700	43800	45600	46300	47300	48200	49200	51000	53000	54500	55500	56100	56600	56600	57000	56900	57600	58800	60200
Avg. Daily VMT/1000	919	968	986	1090	1159	1140	1196	1251	1276	1323	1377	1427	1462	1495	1498	1489	1469	1498	1545	1597

Table D-5

Lake County

Surface Area = 1260 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	39900	41700	43800	45600	46300	47300	48200	49200	51000	53000	54500	55500	56100	56600	56600	57000	56900	57600	58800	60200
Avg. Daily VMT/1000	919	968	986	1090	1159	1140	1196	1251	1276	1323	1377	1427	1462	1495	1498	1489	1469	1498	1545	1597

Table D-6

Lake Tahoe Air Basin
Surface Area = 500 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	36700	36100	36000	36200	36500	37000	37800	38300	39400	40800	41800	42700	43100	43700	44100	44800	45200	45900	47000	48500
Avg. Daily VMT/1000	582	610	624	695	739	753	807	837	856	910	934	970	995	1024	1031	1030	1025	1057	1082	1111

Table D-7

El Dorado County
Surface Area = 350 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	28000	27500	27300	27500	27700	28100	28800	29200	30000	31100	31700	32400	32600	32800	33000	33400	33600	33900	34800	35700
Avg. Daily VMT/1000	396	412	421	447	474	491	523	535	535	575	583	599	611	625	623	617	612	629	643	659

Table D-8

A portion of El Dorado County lies within the Mountain Counties Air Basin.

Placer County
Surface Area = 150 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	8700	8600	8700	8700	8800	8900	9000	9100	9400	9700	10100	10300	10500	10900	11100	11400	11600	12000	12200	12800
Avg. Daily VMT/1000	186	198	203	248	265	262	284	302	321	335	351	371	384	399	408	413	413	428	439	452

Table D-9

Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Mojave Desert Air Basin

Surface Area = 25966 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	405900	430800	456700	485700	518600	554700	593300	634500	676400	702900	721900	732600	741200	749300	758800	771900	784800	802100	822000	841200
Avg. Daily VMT/1000	5704	6361	8405	9087	10236	12395	13308	14282	18237	18700	18977	19471	19838	20231	20623	20901	21291	21946	22576	23447

Table D-10

Kern County

Surface Area = 2570 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	88200	90900	93400	96300	98800	101200	103900	106800	111400	114300	116100	116200	116200	115400	114600	114300	112900	113000	113000	115600
Avg. Daily VMT/1000	1675	1761	2312	2473	2627	2889	3065	3206	3218	3426	3410	3555	3560	3607	3643	3610	3691	3851	4022	4197

Table D-11

A portion of Kern County lies within the San Joaquin Valley Air Basin.

Los Angeles County

Surface Area = 1300 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	121200	133900	147200	160500	175000	189300	203000	217500	231300	239100	246400	251600	256800	262100	266900	273700	281700	290300	300800	306100
Avg. Daily VMT/1000	2076	2474	3043	3240	3813	5405	5789	6117	6300	6247	6216	6199	6176	6147	6176	6181	6317	6502	6567	6845

Table D-12

A portion of Los Angeles County lies within the South Coast Air Basin.

Riverside County

Surface Area = 3116 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	11400	11800	12400	13100	13900	14800	15900	17100	18500	19800	20600	21300	21800	22200	22800	23600	24200	25000	25800	26900
Avg. Daily VMT/1000	82	86	115	123	134	146	161	169	245	258	272	289	305	322	337	351	362	373	390	403

Table D-13

Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

San Bernardino County
Surface Area = 18980 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	185100	194200	203700	215800	230900	249400	270500	293100	315200	329700	338800	343500	346400	349600	354500	360300	366000	373800	382400	392600
Avg. Daily VMT/1000	1871	2040	2935	3251	3662	3955	4293	4790	8474	8769	9079	9433	9797	10155	10467	10759	10921	11220	11597	12002

Table D-14

A portion of San Bernardino County lies within the South Coast Air Basin.

Mountain Counties Air Basin

Surface Area = 12497 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	248900	254600	261900	272800	283500	296900	312400	326800	345920	360180	368760	377080	381500	385760	389900	396850	400200	404430	411460	420300
Avg. Daily VMT/1000	5442	5702	6235	6739	7329	7784	8553	8962	9171	9386	9607	9941	10181	10431	10496	10469	10512	10767	11084	11528

Table D-15

Amador County

Surface Area = 593 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	20400	20800	21400	22200	22800	24000	26400	28300	30450	31650	32200	32900	33200	33400	33800	34500	34100	34750	35350	35850
Avg. Daily VMT/1000	605	626	656	700	762	826	885	912	983	995	1044	1081	1102	1127	1121	1098	1088	1110	1149	1202

Table D-16

Calaveras County

Surface Area = 1032 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	22800	23500	24200	25000	26100	27600	28800	30600	32450	34500	35950	36750	37600	38350	38600	39950	39700	40300	40700	41500
Avg. Daily VMT/1000	604	624	684	689	750	823	890	936	985	979	1056	1101	1137	1172	1153	1126	1127	1156	1209	1272

Table D-17

El Dorado County

Surface Area = 1476 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	64300	65800	68000	71600	75200	79500	85200	90500	97300	102000	105000	108500	110200	112100	114000	116400	118400	120600	124900	128200
Avg. Daily VMT/1000	1297	1378	1501	1661	1827	2006	2244	2422	2204	2314	2388	2494	2588	2685	2772	2842	2909	2898	2874	3019

Table D-18

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mariposa County
Surface Area = 1455 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	11700	11900	12200	12500	12700	12900	13300	13600	14400	15050	15600	16050	16300	16450	16550	16700	16900	16950	17050	17000
Avg. Daily VMT/1000	263	282	294	310	333	344	362	394	449	458	470	482	493	503	485	466	464	473	487	501

Table D-19

Nevada County
Surface Area = 1160 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	58800	60400	62300	64700	67100	69900	72800	75300	79000	82100	83500	84900	85800	87100	88100	89400	90300	90900	92200	94200
Avg. Daily VMT/1000	1176	1207	1418	1582	1645	1616	1763	1880	2062	2115	2129	2190	2232	2273	2292	2289	2302	2365	2434	2511

Table D-20

Placer County
Surface Area = 958 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	13200	13700	14400	15100	16000	16900	17900	19000	20500	21000	21300	21400	21500	21800	21900	22000	22100	22300	22100	23200
Avg. Daily VMT/1000	243	257	310	344	375	399	431	419	412	431	446	468	485	504	522	536	536	633	746	783

Table D-21

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Plumas County
Surface Area = 975 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	18200	18000	18100	18600	18700	19000	19300	19300	19800	20150	20750	20900	20800	20800	20750	21000	20850	20750	20750	21000
Avg. Daily VMT/1000	349	376	389	403	451	470	512	535	562	574	583	604	608	615	634	648	641	654	667	679

Table D-22

Sierra County
Surface Area = 2569 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	3200	3200	3200	3200	3200	3200	3300	3200	3320	3330	3360	3480	3500	3560	3600	3600	3850	3780	3610	3550
Avg. Daily VMT/1000	69	71	75	77	82	86	94	98	100	97	93	94	93	92	96	97	94	96	99	101

Table D-23

Tuolumne County
Surface Area = 2279 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	36300	37300	38100	39900	41700	43900	45400	47000	48700	50400	51100	52200	52600	52200	52600	53300	54000	54100	54800	55800
Avg. Daily VMT/1000	836	881	908	973	1104	1214	1372	1366	1414	1423	1398	1427	1443	1460	1421	1367	1351	1382	1419	1460

Table D-24

North Central Coast Air Basin

Surface Area = 5160 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	529400	542000	553700	565800	578000	588300	598100	610200	623000	634900	646050	649950	640800	645950	650150	674750	686500	700000	713900	721700
Avg. Daily VMT/1000	9600	10370	11033	12267	13107	13667	14647	15509	16058	16040	16040	16379	16477	16656	16872	16886	17237	17731	18324	18618

Table D-25

Monterey County

Surface Area = 3320 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	306600	314400	321700	327400	333700	338400	343000	346600	356800	365700	372300	372700	359900	360400	360700	379300	386400	394600	403100	408000
Avg. Daily VMT/1000	6096	6537	6992	7645	8061	8458	9057	9588	9911	9912	9868	10051	10061	10123	10308	10377	10595	10942	11346	11519

Table D-26

San Benito County

Surface Area = 1400 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	26700	27500	28600	29900	31400	32700	34100	35900	36900	37900	39850	41050	42300	44350	46050	48450	50200	52200	53800	55200
Avg. Daily VMT/1000	615	667	733	830	884	949	1033	1130	1188	1206	1239	1292	1315	1353	1368	1360	1408	1451	1498	1538

Table D-27

Santa Cruz County

Surface Area = 440 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	196100	200100	203400	208500	212900	217200	221000	227700	229300	231300	233900	236200	238600	241200	243400	247000	249900	253200	257000	258500
Avg. Daily VMT/1000	2889	3166	3308	3792	4162	4260	4557	4791	4959	4922	4933	5036	5101	5180	5196	5149	5234	5338	5480	5561

Table D-28

North Coast Air Basin

Surface Area = 12270 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	250500	252300	254700	258200	261900	265700	271700	276700	286750	293250	297600	300850	301850	303250	304550	308100	307250	308950	311700	313900
Avg. Daily VMT/1000	5456	5825	6042	6531	7025	7307	7771	8238	8691	8645	8613	8855	8961	9098	9076	8934	8858	9032	9210	9387

Table D-29

Del Norte County

Surface Area = 1000 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	18700	18900	18800	19100	19500	20000	20900	20400	24450	26550	27250	27600	27800	27850	27800	28650	27950	27500	27700	27650
Avg. Daily VMT/1000	327	353	360	406	437	454	503	548	575	582	563	580	586	594	575	548	537	547	565	586

Table D-30

Humboldt County

Surface Area = 3590 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	109900	109600	110200	110600	111700	112700	114700	117000	119400	121400	123400	124700	124500	125000	125300	126300	125500	126400	127000	127800
Avg. Daily VMT/1000	2098	2221	2265	2418	2604	2700	2820	2985	3152	3155	3111	3171	3179	3207	3208	3159	3102	3150	3194	3239

Table D-31

Mendocino County

Surface Area = 3510 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	69800	70800	71800	73400	74500	75600	76800	78500	80600	81800	82400	83000	83400	83800	84300	85300	85200	85800	86900	87500
Avg. Daily VMT/1000	1301	1395	1439	1549	1631	1745	1897	2005	2142	2103	2108	2194	2247	2302	2305	2275	2260	2305	2363	2425

Table D-32

Sonoma County
Surface Area = 980 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	39800	40600	41300	42300	43500	44800	46300	47800	49300	50400	51300	52200	52600	53100	53700	54600	55400	56200	57100	57900
Avg. Daily VMT/1000	1499	1618	1729	1886	2039	2099	2205	2337	2452	2455	2477	2546	2590	2638	2627	2597	2617	2682	2734	2776

Table D-33

A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

Trinity County
Surface Area = 3190 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	12300	12400	12600	12800	12700	12600	13000	13000	13000	13100	13250	13350	13550	13500	13450	13250	13200	13050	13000	13050
Avg. Daily VMT/1000	231	238	249	272	314	309	346	363	370	350	354	364	359	357	361	355	342	348	354	361

Table D-34

Northeast Plateau Air Basin

Surface Area = 14920 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	73900	74200	74800	75200	75200	77000	78400	79100	81025	82025	82600	83475	83800	83875	86775	89000	87600	87325	88425	88450
Avg. Daily VMT/1000	1524	1616	1627	1707	1795	1912	2073	2229	2291	2322	2396	2500	2496	2518	2394	2210	2157	2205	2251	2300

Table D-35

Lassen County

Surface Area = 4560 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	23500	23700	24100	24300	24900	26500	27200	26900	27700	28200	28400	28750	28700	28900	32300	34050	33500	33650	34300	34350
Avg. Daily VMT/1000	385	429	427	450	462	497	546	586	609	618	693	713	716	721	716	700	687	703	720	737

Table D-36

Modoc County

Surface Area = 4100 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	9200	9400	9500	9400	9200	9200	9200	9400	9675	9775	9950	9975	10050	9975	9925	10050	9650	9425	9375	9450
Avg. Daily VMT/1000	181	190	194	197	201	211	217	225	241	239	243	253	256	259	257	247	237	242	250	259

Table D-37

Siskiyou County

Surface Area = 6260 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	41200	41100	41200	41500	41100	41300	42000	42800	43650	44050	44250	44750	45050	45000	44550	44900	44450	44250	44750	44650
Avg. Daily VMT/1000	958	997	1006	1060	1132	1204	1310	1418	1441	1465	1460	1534	1524	1538	1421	1263	1233	1260	1281	1304

Table D-38

Sacramento Valley Air Basin
Surface Area = 15043 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1582400	1616600	1646600	1688200	1732600	1788600	1847400	1904000	1977600	2044500	2083650	2114200	2133700	2155550	2180600	2213400	2242250	2299700	2347200	2411750
Avg. Daily VMT/1000	29065	31538	32853	35762	38578	41928	45090	47880	47540	48559	49264	50660	51334	52178	52979	53124	54040	54355	54681	56166

Table D-39

Butte County
Surface Area = 1670 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	152500	154900	157600	161600	164400	168100	173400	176900	183200	187600	190700	192800	195300	197500	197800	199600	200400	201600	204500	206800
Avg. Daily VMT/1000	2591	2742	2896	3140	3308	3560	3847	4059	4320	4312	4283	4401	4477	4549	4450	4324	4312	4402	4496	4570

Table D-40

Colusa County
Surface Area = 1150 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	13800	14000	14000	14600	14800	14800	15300	15900	16300	16700	17000	17300	17550	17850	18150	18450	18450	18600	19050	19300
Avg. Daily VMT/1000	379	402	417	441	461	464	493	518	531	557	550	562	552	547	541	523	518	533	550	568

Table D-41

Glenn County
Surface Area = 1320 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	22200	22700	22600	22900	23000	23000	23500	24200	24850	25300	25750	25900	25950	26400	26350	26450	26300	26300	26750	26850
Avg. Daily VMT/1000	552	597	623	651	696	707	752	789	725	734	763	788	774	772	727	662	653	668	685	706

Table D-42

Placer County
Surface Area = 420 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	105200	107400	111000	114900	119500	124800	130500	136500	145000	152900	159500	165500	170800	179000	185500	192700	199600	209000	214600	225400
Avg. Daily VMT/1000	2327	2467	2520	2783	3104	3316	3651	3878	3736	3940	4105	4326	4493	4672	4842	4978	5208	5597	6034	6341

Table D-43 Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento County
Surface Area = 970 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	832200	852900	869800	890700	918200	951400	981700	1011800	1046900	1080100	1096600	1111100	1116400	1120700	1134700	1149100	1165800	1204600	1230600	1267800
Avg. Daily VMT/1000	15369	16934	17533	18996	20379	22424	23964	25421	24774	25346	25691	26310	26645	27057	27621	27815	28343	27756	27090	27721

Table D-44

Shasta County
Surface Area = 3793 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	121800	123200	125800	129100	131200	134200	138200	141800	148000	153800	156500	158100	159000	159700	160000	161200	161900	162200	165200	168600
Avg. Daily VMT/1000	2210	2377	2547	2728	2942	3104	3350	3572	3802	3855	3954	4027	4010	4009	4002	3937	3902	3985	4068	4164

Table D-45

Solano County
Surface Area = 470 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	69500	71800	73400	76000	79700	83900	88000	92700	98300	103000	105300	107600	108700	109100	110100	112500	115000	118400	121200	123700
Avg. Daily VMT/1000	1011	1071	1146	1258	1398	1540	1698	1868	2085	2106	2135	2222	2274	2334	2424	2496	2570	2643	2703	2783

Table D-46 A portion of Solano County lies within the San Francisco Bay Area Air Basin.

Sutter County
Surface Area = 600 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	55300	56900	56800	57800	58600	59900	61200	62400	64800	67500	69700	71500	72900	74200	75000	76400	76900	78000	79400	81000
Avg. Daily VMT/1000	938	992	1078	1164	1247	1329	1422	1500	1616	1644	1636	1687	1727	1769	1793	1797	1807	1854	1921	1999

Table D-47

Tehama County
Surface Area = 2980 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	41200	42100	43000	44000	44600	45700	46900	48000	49850	51600	52800	53200	53800	54600	54600	55200	55400	55500	55800	56500
Avg. Daily VMT/1000	736	788	776	823	977	1054	1159	1239	1295	1305	1290	1331	1322	1325	1289	1231	1230	1257	1279	1304

Table D-48

Yolo County
Surface Area = 1030 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	117600	119000	120300	123500	125000	128200	132900	137100	141800	145900	148500	149500	151300	154600	156800	159800	161700	165300	169400	174500
Avg. Daily VMT/1000	2268	2423	2553	2932	3156	3460	3703	3942	3519	3621	3643	3785	3840	3924	4060	4135	4282	4419	4577	4690

Table D-49

Yuba County
Surface Area = 640 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	51100	51700	52300	53100	53600	54600	55800	56700	58600	60100	61300	61700	62000	61900	61600	62000	60800	60200	60700	61300
Avg. Daily VMT/1000	684	745	764	846	910	970	1051	1094	1137	1139	1214	1221	1220	1220	1230	1226	1215	1241	1278	1320

Table D-50

Salton Sea Air Basin
Surface Area = 6374 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	244300	251500	259800	270400	282300	296400	312700	331300	354200	373400	390100	404600	413400	422200	430000	438000	445100	457400	472000	488500
Avg. Daily VMT/1000	5523	6060	6520	7060	7739	8292	9399	10552	11284	11633	11989	12379	12675	13002	13305	13499	13824	14226	11392	11707

Table D-51

Imperial County
Surface Area = 4240 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	95300	96400	96900	98600	99800	101300	103600	106100	110100	115200	122800	130200	133500	136200	138100	139000	139200	140800	147000	149900
Avg. Daily VMT/1000	2425	2599	2623	2695	2898	3081	3366	3684	3800	3869	3941	4028	4018	4019	4038	3956	3906	3971	4090	4215

Table D-52

Riverside County
Surface Area = 2134 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	149000	155100	162900	171800	182500	195100	209100	225200	244100	258200	267300	274400	279900	286000	291900	299000	305900	316600	325000	338600
Avg. Daily VMT/1000	3098	3461	3897	4365	4841	5211	6033	6868	7484	7764	8048	8351	8657	8983	9267	9543	9918	10255	7302	7492

Table D-53

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin

Surface Area = 4260 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1965100	2003500	2055700	2109300	2182900	2260700	2341000	2432800	2504900	2554600	2590200	2597900	2611000	2615200	2627000	2680000	2725700	2776300	2835600	2890600
Avg. Daily VMT/1000	34110	36298	39958	43517	48417	52911	57207	60128	63591	64339	65063	66110	67033	67943	68651	69218	71398	73277	73909	75379

Table D-54

San Diego County

Surface Area = 4260 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1965100	2003500	2055700	2109300	2182900	2260700	2341000	2432800	2504900	2554600	2590200	2597900	2611000	2615200	2627000	2680000	2725700	2776300	2835600	2890600
Avg. Daily VMT/1000	34110	36298	39958	43517	48417	52911	57207	60128	63591	64339	65063	66110	67033	67943	68651	69218	71398	73277	73909	75379

Table D-55

San Francisco Bay Area Air Basin

Surface Area = 5545 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	5235100	5322200	5388200	5473900	5548100	5614500	5702500	5805500	5874400	5952000	6038400	6118200	6153600	6182500	6242700	6351600	6443300	6528300	6647600	6730200
Avg. Daily VMT/1000	95067	99003	104080	109789	116645	120793	125576	130001	133990	136064	137886	140124	142311	144854	146789	148249	153056	157359	159271	161639

Table D-56

Alameda County

Surface Area = 730 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1141400	1160500	1177200	1196000	1215200	1228800	1250600	1271000	1276100	1293300	1312000	1324200	1330700	1335100	1345700	1376800	1400900	1423300	1453200	1475800
Avg. Daily VMT/1000	20889	21794	23063	24193	25528	26294	27282	28137	28991	29075	29142	29329	29479	29721	30169	30451	31526	32404	32844	33026

Table D-57

Contra Costa County

Surface Area = 730 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	678500	689700	698000	710900	725800	740800	760800	785000	806300	823700	840800	856400	865600	872800	883400	901900	919700	937200	955300	977000
Avg. Daily VMT/1000	12944	13668	14609	15390	16564	17304	18046	18778	19335	19834	20178	20595	20981	21371	21754	22078	22811	23423	23780	24334

Table D-58

Marin County

Surface Area = 520 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	222600	222600	221200	220200	221400	221800	223000	227000	229900	233100	235700	237000	237700	238400	237900	241400	242600	244900	247700	248900
Avg. Daily VMT/1000	3595	4083	4277	4521	4818	5001	5194	5408	5620	5704	5763	5863	5941	6028	6106	6214	6391	6575	6652	6824

Table D-59

Napa County
Surface Area = 790 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	101300	101700	102000	102900	104100	104800	106100	108100	111000	112500	114400	115700	116400	117300	118200	120100	121000	122800	125400	128100
Avg. Daily VMT/1000	1553	1609	1651	1739	1922	1979	2048	2122	2184	2285	2382	2490	2590	2693	2758	2807	2850	2923	3000	3095

Table D-60

San Francisco County
Surface Area = 45 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	695200	704200	713000	727500	737500	735900	730100	724500	723200	725900	731000	742200	743300	739900	744100	749400	758200	766500	783600	789600
Avg. Daily VMT/1000	8806	9112	9462	10041	10508	10737	11077	11341	11687	11742	11789	11774	11812	11939	11948	11916	12324	12630	12661	12648

Table D-61

San Mateo County
Surface Area = 450 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	594500	604500	611200	617300	619400	625700	633700	642600	648200	653900	662000	666800	670600	675900	679900	690400	695800	700800	711700	714500
Avg. Daily VMT/1000	12703	13183	13797	14516	15598	16197	16867	17455	17965	18383	18796	19252	19734	20271	20396	20474	20899	21554	21677	22060

Table D-62

Santa Clara County
Surface Area = 1300 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1341600	1369000	1389100	1410500	1419600	1433800	1456600	1485400	1495300	1508000	1530200	1553900	1563000	1573500	1599300	1626200	1650400	1665600	1692800	1706400
Avg. Daily VMT/1000	25886	26756	28141	29689	31224	32296	33496	34596	35537	36093	36668	37370	38049	38834	39399	39837	41415	42601	43103	43758

Table D-63

Solano County
Surface Area = 360 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	185500	189800	192200	197300	205100	213900	222400	232500	244200	253300	256600	259600	259900	258400	258200	261400	264700	269900	273800	279400
Avg. Daily VMT/1000	3667	3870	4021	4282	4614	4853	5138	5435	5656	5675	5673	5692	5711	5725	5868	5994	6145	6307	6469	6661

Table D-64

A portion of Solano County lies within the Sacramento Valley Air Basin.

Sonoma County
Surface Area = 620 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	274500	280200	284300	291300	300000	309000	319200	329400	340200	348300	355700	362400	366400	371200	376000	384000	390000	397300	404100	410500
Avg. Daily VMT/1000	4684	4928	5059	5418	5869	6132	6428	6729	7015	7263	7495	7759	8014	8272	8391	8478	8695	8942	9085	9233

Table D-65

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin

Surface Area = 24850 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	2092100	2154600	2212000	2275800	2333300	2400200	2475600	2550300	2645200	2746000	2822000	2880100	2925600	2972600	3006600	3054000	3089800	3146600	3216100	3299700
Avg. Daily VMT/1000	34831	37208	38633	42075	45153	48681	52156	54895	60357	62418	64341	66859	69249	71772	73858	75562	76188	78482	81055	83407

Table D-66

Fresno County

Surface Area = 5970 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	541600	555900	571300	582800	593300	609100	627500	649000	670200	695400	716100	730700	740900	756000	766300	774800	780300	789700	806100	822000
Avg. Daily VMT/1000	8684	9402	9633	10288	10928	12101	12864	13527	14149	14793	15286	15987	16450	16980	17320	17790	17868	18370	18920	19479

Table D-67

Kern County

Surface Area = 5580 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	345400	356000	365800	377500	387100	396700	407300	418300	436600	457400	474300	485400	496000	503600	511300	521500	527700	540400	553900	566300
Avg. Daily VMT/1000	6619	7040	7365	8024	8527	8962	9518	9940	11219	11320	11461	11635	12150	12695	13216	13621	13876	14343	14819	15299

Table D-68

A portion of Kern County lies within the Mojave Desert Air Basin.

Kings County

Surface Area = 1400 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	77800	80300	81900	83900	84500	86200	92800	98300	101900	105800	108700	111500	113800	115900	116200	117900	123400	127400	130300	132700
Avg. Daily VMT/1000	1070	1135	1166	1249	1332	1517	1607	1694	1828	2046	2236	2463	2671	2887	2930	2935	2969	3040	3114	3189

Table D-69

Madera County
Surface Area = 2150 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	68900	71000	72800	74800	76000	78600	81300	83000	88500	95300	99800	104800	107700	109900	113400	117300	118900	121700	127400	130000
Avg. Daily VMT/1000	1663	1697	1802	1957	2080	2054	2246	2413	2512	2571	2620	2687	2755	2819	2907	2935	2927	3218	3553	3719

Table D-70

Merced County
Surface Area = 1980 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	143000	148000	152100	157000	159500	162900	167800	172000	179400	186200	190300	194800	198500	199000	198100	202000	204300	207500	210200	216400
Avg. Daily VMT/1000	2528	2613	2674	2963	3174	3378	3652	3794	4849	4961	5111	5288	5463	5640	5787	5890	5914	6098	6331	6469

Table D-71

San Joaquin County
Surface Area = 1420 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	374100	386700	399800	417200	433700	448800	461400	471500	481900	494000	503300	508300	513800	522100	528700	536500	543700	554700	567600	590900
Avg. Daily VMT/1000	6175	6578	7036	7691	8506	9252	10016	10522	10881	11287	11706	12193	12699	13190	13625	14059	14259	14256	14866	15216

Table D-72

Stanislaus County
Surface Area = 1510 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	281100	289100	294500	302000	312600	325200	338300	354200	373600	388100	397300	405900	410700	415300	419600	426700	431400	440900	450900	465600
Avg. Daily VMT/1000	3964	4318	4446	4823	5281	5763	6263	6719	8291	8493	8763	9068	9330	9585	9831	9967	9995	10249	10549	10855

Table D-73

Tulare County
Surface Area = 4840 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	260200	267600	273800	280600	286600	292700	299200	304000	313100	323800	332200	338700	344200	350800	353000	357300	360100	364300	369700	375800
Avg. Daily VMT/1000	4128	4425	4511	5080	5325	5654	5990	6286	6628	6947	7158	7538	7731	7976	8242	8376	8380	8638	8903	9181

Table D-74

South Central Coast Air Basin

Surface Area = 7780 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	1039200	1065700	1090100	1119300	1147000	1175300	1201000	1237200	1255900	1272500	1287900	1298200	1309700	1319000	1328900	1350100	1361500	1381400	1407500	1431600
Avg. Daily VMT/1000	15085	16563	17736	19051	20803	22351	23672	25111	26992	27207	27572	27906	28034	28218	28485	28710	29510	30276	30885	31359

Table D-75

San Luis Obispo County

Surface Area = 3180 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	166200	170800	176700	184200	190700	197100	201400	210500	217800	220800	223100	226000	228100	230200	233500	237900	240400	243700	247900	252000
Avg. Daily VMT/1000	2879	3101	3377	3735	4025	4326	4671	5016	5200	5238	5484	5515	5458	5418	5522	5572	5692	5849	5974	6099

Table D-76

Santa Barbara County

Surface Area = 2740 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	313500	322800	329200	338200	345100	351200	354600	364700	369000	374800	378500	378400	381000	383700	384900	390500	392000	394900	401500	405700
Avg. Daily VMT/1000	5396	5747	5984	6496	6990	7425	7804	8297	9216	9187	9095	9133	9052	9004	8972	8990	9209	9460	9585	9705

Table D-77

Ventura County

Surface Area = 1860 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	559500	572100	584200	596900	611200	627000	645000	662000	669100	676900	686300	693800	700600	705100	710500	721700	729100	742800	758100	773900
Avg. Daily VMT/1000	6810	7715	8375	8820	9788	10600	11197	11798	12576	12782	12993	13258	13524	13796	13991	14148	14609	14967	15326	15555

Table D-78

South Coast Air Basin
Surface Area = 6729 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	11032700	11261600	11454700	11698000	11998500	12286600	12544800	12837600	13083500	13319500	13531800	13628200	13697300	13744900	13824200	13990900	14155000	14389300	14676400	14978200
Avg. Daily VMT/1000	168425	183725	210401	221550	234724	235967	250548	265090	275902	278151	280755	284405	287852	290888	293013	293869	301999	309067	317873	321535

Table D-79

Los Angeles County
Surface Area = 2770 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	7645100	7788000	7898000	8030400	8198100	8338100	8436400	8551200	8629000	8717100	8813800	8832100	8849700	8839000	8841200	8911900	8985000	9103900	9279800	9442400
Avg. Daily VMT/1000	117589	128014	146685	152496	159335	159086	166751	174275	178897	178939	179252	180050	180726	181009	180851	179783	183782	187267	190484	191270

Table D-80

A portion of Los Angeles County lies within the Mojave Desert Air Basin.

Orange County
Surface Area = 770 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	2043500	2086000	2119100	2166300	2218400	2268300	2316500	2372400	2412000	2458800	2511800	2550400	2575700	2604500	2646100	2699600	2749500	2802800	2856800	2910000
Avg. Daily VMT/1000	30566	33355	38460	41177	44496	44563	47396	50264	53543	54362	55201	56345	57436	58532	59419	60135	62707	64725	65356	66365

Table D-81

Riverside County
Surface Area = 2049 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	565200	588300	617800	651500	692100	739700	792900	854100	925600	976800	1008700	1032800	1050700	1070600	1090200	1113900	1136500	1173100	1202000	1252300
Avg. Daily VMT/1000	8955	10000	11269	12671	14237	15366	17859	20424	22304	23110	23947	24916	25867	26846	27704	28458	29436	30291	34479	35619

Table D-82

Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

San Bernardino County
Surface Area = 1140 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	778900	799300	819800	849800	889900	940500	999000	1059900	1116900	1166800	1197500	1212900	1221200	1230800	1246700	1265500	1284000	1309500	1337800	1373500
Avg. Daily VMT/1000	11315	12356	13987	15206	16656	16952	18542	20127	21158	21740	22355	23094	23823	24501	25039	25493	26074	26784	27554	28281

Table D-83

A portion of San Bernardino County lies within the Mojave Desert Air Basin.

California

Surface Area = 157034 square miles

Parameter	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Population	24804900	25336100	25816700	26402300	27052400	27716900	28393000	29141900	29828585	30459225	30987140	31314035	31523670	31711255	31962085	32451840	32862690	33417125	34087935	34757340
Avg. Daily VMT/1000	412042	442551	485883	517683	554307	576736	612911	645898	677171	686615	695694	708884	719798	731207	739971	745041	763449	782188	796075	810144

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