# *THE 2004 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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This document has been reviewed and approved by the staff of the
California Air Resources Board. Approval does not signify that the contents necessarily
reflect the views and policies of the Air Resources Board.

# *A Note from the Chairman ....*

Welcome to the California Air Resources Board's 2004 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*.

Alan C. Lloyd

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, Steve Gouze, Anna Komorniczak, Vivian Lerch, Darryl Look, Marci Nystrom, Ravi Ramalingam, Michael Redgrave, Carolyn Suer, Dr. Patricia Velasco, Robert Weller, and Xijie Zhang. 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, Robert Effa, Chief of the Air Quality Data Branch, Dr. Michael Benjamin, Manager of the Emission Inventory Systems Section, Mena Shah, Manager of the Statistical and Analytical Services Section, Gayle Sweigert, Manager of the Air Quality Analysis Section, and Karen Magliano, Manager of the Particulate Matter Analysis Section.

This is the fifth 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 Paul Cox at (916) 327-7609 or *pcox@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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# 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 2003 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 2003 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 2003, 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*.

Both historical and current air quality data can be accessed on the web at *www.arb.ca.gov/aqd/aqd.htm*. The most current air quality and meteoroligical data can be accessed directly from the ARB's air quality database. Using the "Most Recent Air Quality" option, near real-time preliminary data can be accessed from ARB's Air Quality and Meteorological Information System (AQMIS). Using the "Historical Air Quality" option, the official data for record can be accessed from the Aerometric Data Analysis and Management System (ADAM). Because of the time required for sample collection, analysis, and subsequent review of the data for general use, the historical air quality data on the web lags behind the current data available on the web. However, the historical 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 ARB. The CD contains multiple years of California air quality data: 1980 through 2002 criteria pollutant data and 1990 through 2002 toxic air contaminant data. The data are stored in several formats that analysts can use. The CD is available free upon request by visiting our site at *www.arb.ca.gov/aqd/aqdcd/aqdcd.htm*.

The emission and air quality information in 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 emission 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) consisting of both $PM_{10}$ 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: ozone, PM, and CO. Ozone and PM remain California's most challenging air quality problems. 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. In addition to data for 2002, the most current year with complete data statewide, this years almanac also includes available ozone data for the year 2003, for California's five largest 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, $PM_{10}$, 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 1983 through 2002 (1988 through 2002 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, hexavalent chromium, formaldehyde, methylene chloride, *para*-dichlorobenzene, perchloroethylene, and diesel particulate matter (die-

sel 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 2003. In contrast, the air quality and health risk trends are based on ambient data collected during 1990 through 2002. 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 has participated in several studies to address localized impacts and community health issues. More information is available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*.

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 1980 through 2010.

*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 more 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 4th highest 1-hour ozone concentration in 3 years and the average of the 4th highest 8-hour ozone concentration in 3 years are also calculated values, and are presented in this almanac at both the air basin and county level. These values may not be the same as the national ozone design values, which are used to determine attainment status. This is because these calculations do not reflect data completeness requirements or the boundaries of nonattainment areas, which may differ from county or air basin boundaries in some parts of California. Design values are available at *www.arb.ca.gov/airqualitytoday* under "current years air quality."

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.

Consistent with last year's almanac, the calculated number of days above the State and national $PM_{10}$ standards in the air basin tables (Chapter 4 and Appendix B) represent composite basinwide values. 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. The $PM_{10}$ statistics also reflect changes made to the $PM_{10}$ standard by the Board in 2002 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 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.

New to this year's almanac is the reporting of both State and national annual averages for $PM_{10}$ and $PM_{2.5}$. State and national annual averages may differ for several reasons: 1)the State and national criteria for assessing data completeness are different, 2)different monitors are approved for assessing compliance with each standard, and 3)the State standard uses local conditions while the national standard uses standard conditions for data reporting.

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 - 2003"* (October 2003). 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) 322-5350.

***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, which can cause large differences from year to year, 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 statistics in this almanac are for the period 1983 to 2002 for all the criteria pollutants except $PM_{10}$. Because $PM_{10}$ monitoring did not begin until 1988, $PM_{10}$ data covers the years 1988 to 2002. Available 2003 ozone data have also been included for California's five largest urban areas. The emission estimates are presented at five year intervals from 1975 to 2010.

***Interpreting the Toxic Air Contaminant Statistics.*** This almanac includes a number of statistics for the ten toxic air contaminants that generally pose the greatest health risk to the public. 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. However, 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. Because the summary statistics are based on limited data, this information should be used with caution. The ARB has also been involved in efforts to better characterize local or community-wide exposures, and more information is available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm.*

***Interpreting the Toxic Air Contaminant Emission and Air Quality Trends.*** A number of TAC emissions 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. The most important factors are summarized below. Chapter 5 and Appendix C include emissions data, ambient concentrations, and health risk

estimates for the ten TACs that pose the greatest risk statewide. 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.

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 from the AB 2588 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 emissions were estimated 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 categories 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. It is important to note that the health risk estimates reflect the estimated number of excess cancer cases per million people exposed over a 70-year period, and 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 PM, dioxins, and other TACs that may pose a substantial health risk. However, the data are very useful for comparing relative health risks for the ten compounds considered (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. The ARB staff developed correction factors for these two TACs, and the pre-1999 data presented in this almanac reflect the correction. Finally, variations in meteorology affect the trends. For example, the latter years of the trend period had 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), each month during the year must have at least one valid measurement. 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 may be available. In addition, some TAC measurements are below the level of detection (LOD) of the instruments. Such concentrations are not zero, however, and when estimating an annual average, we assign a value of one-half the LOD to these measurements.

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 sites. Therefore, they 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 exposures 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 1980, California's population has increased about 67 percent, from about 23.7 million to nearly 36 million in the year 2003. The increase in the average number of vehicle miles traveled (VMT) each day on our roadways has been even more dramatic. VMT has increased 116 percent, from about 389 million miles per day in 1980 to 840 million miles per day in 2003. 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 ARB, 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 TACs 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, hexavalent chromium, *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 ARB 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 ARB 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. However, for most 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.

On April 15, 2004 U.S. EPA designated as nonattainment areas of the country that exceed the 8-hour ozone standard. The designations incorporate air quality data for the years 2001-2003, and can be accessed at U.S. EPA's website at *www.epa.gov/oar/oaqps/glo/designations/index.htm*. These designations will trigger new planning requirements for the 8-hour standard.

**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 ARB 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 U.S. EPA promulgated new national ambient air quality standards for $PM_{2.5}$ in 1997 to complement the national $PM_{10}$ standards. In early 2004, the ARB transmitted recommendations for area designations for the national $PM_{2.5}$ standards to U.S. EPA. U.S. EPA is scheduled to issue final designations by the end of 2004.

**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, not to be exceeded.

**National $PM_{2.5}$ Standards:**

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

15 µg/m$^3$ annual arithmetic mean averaged over 3 years, not to be exceeded.

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. This year two new areas have been designated as attainment: San Luis Obispo County and the Northern Sonoma Air Quality Management District. 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, Ventura, San Francisco, 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: unclassified/attainment and nonattainment. 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 still designated as nonattainment, Sacramento, Mammoth Lakes, Indian Wells (northeastern Kern County), Trona (northwestern San Bernardino County), and the portion of San Bernardino County outside of the South Coast air basin 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. Three years of $PM_{2.5}$ data are now available and California submitted area designation recommendations to U.S. EPA early this year. U.S. EPA will promulgate nonattainment designations for $PM_{2.5}$ at the end of 2004. State Implementation Plans for $PM_{2.5}$ are scheduled for 2007. Until then, actions taken to reduce ozone and $PM_{10}$ should also help in reducing $PM_{2.5}$.

Figure 1-6

## $PM_{2.5}$ - State Area Designations

Since California adopted the new $PM_{2.5}$ standard in 2002, these are first time area designations for the State $PM_{2.5}$ standard. Approximately half of California is designated as nonattainment for the State $PM_{2.5}$ standard, with Lake County Air Basin as the only attainment area. Nonattainment areas include all of the major urban areas as well as a few rural areas. Secondary formation of $PM_{2.5}$ and particles directly emitted from combustion processes are major contributors to high $PM_{2.5}$ concentrations in these areas.

California's programs to reduce ozone, $PM_{10}$, and diesel PM risk are helping reduce $PM_{2.5}$. In addition, as required by a new regulation enacted in 2003 (Senate Bill 656), ARB and local air districts are putting together a list of measures that can be used to further reduce PM and PM precursor emissions as well as developing measure implementation schedules.

Figure 1-7

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## 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. Currently, Los Angeles County is Nonattainment-Transitional and is expected to attain the State CO standard within 3 years. 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 1-8

## 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. 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 1-9

# *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 hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to 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 pollutant program in the 1960s. For many years, the criteria pollutant control program has been effective at reducing TACs since many volatile organic compounds and PM 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 for 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 PM from diesel-fueled engines (diesel particulate matter or diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM 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 PM because no routine measurement method currently exists. However, the ARB has made preliminary concentration estimates for the State and its 15 air basins using a PM-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 on chemical speciation of ambient data. These data were used, along with receptor modeling techniques, to estimate outdoor concentrations of diesel PM. 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). In addition to diesel PM, 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, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel PM. These ten compounds pose the greatest risk based on air quality data, or concentration estimates in the case of diesel PM. Note that other TACs, for example dioxins, may also pose a significant health risk. However, sufficient air quality data are not yet available for these compounds. In order to provide information on ambient levels of dioxins and dioxin-like compounds, the Air Resources Board is conducting the California Ambient Dioxin Air Monitoring Program (CADAMP). Nine sampling sites have been deployed in CADAMP, five in the San Francisco Bay Area and four in the Los Angeles basin. Monitoring will continue for approximately two years at the nine sites with over 300 samples to be analyzed. More information on the dioxin monitoring program, including results, can be found at *www.arb.ca.gov/aaqm/qmosopas/dioxins/overview.htm.*

Most of 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 available data represent 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 or lower concentrations than those represented by the ambient monitoring data. ARB participated in several studies to address localized impacts and community health issues, and these studies examined community health issues and cumulative exposures to learn which communities are the most impacted and who in those communities are the most vulnerable. More information on these studies is available on the web at *www.arb.ca.gov/ch/ch.htm*.

The ARB has substantially increased its knowledge about TACs in the last 15 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.

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 1-10

# *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.amadorapcd.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) 749-5000
*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
*www.co.calaveras.ca.us/departments/env.html*

### 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) 934-6503
*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
*jb1@greatbasinapcd.org*

**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
*www.lcaqmd.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
*www.mariposacounty.org/healthdepartment/index.html*

**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.ncuaqmd.org*

### 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.

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

## Upcoming Milestones:

**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, agricultural processes, residential wood combustion, 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 2002, CO concentrations were below the levels of the State standards in all areas except Calexico and a localized area in the South Coast Air Basin. 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 2000 to 2002. The design values in all these areas exceed the national 1-hour standard of 0.12 ppm. Five of the top 15 areas are located in California, with the Los Angeles South Coast Air Basin and San Joaquin Valley 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 2000 to 2002, the San Joaquin Valley area would rank first (16.9 days) while the Houston-Galveston-Brazoria, Texas area would rank fourth (5.4 days.) Overall, as ozone concentrations in California decline, our air quality continues to improve relative to other areas of the nation.

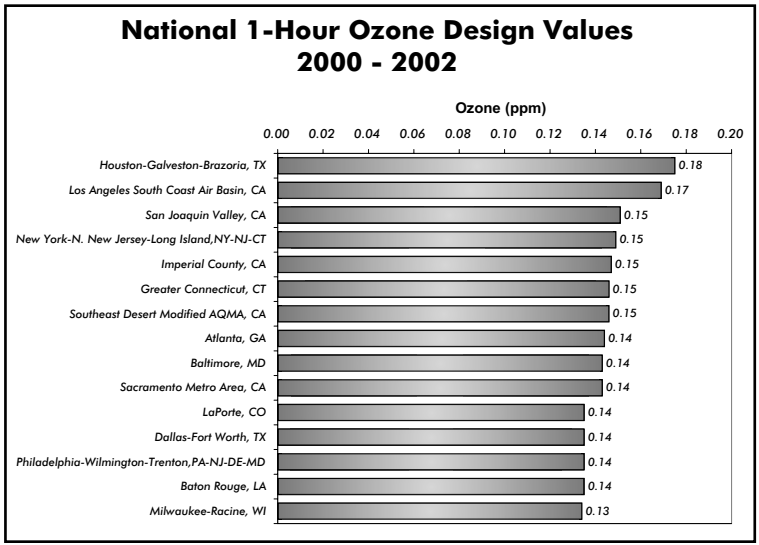

Figure 2-1

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 prevalent in both the eastern United States and in California. Because of the complex nature of the PM problem, it will be many years before the standards are attained.

Carbon monoxide 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 2000 to 2002. The Calexico (Imperial County) and Lynwood (Los Angeles County) areas rank second and fourth, respectively. Calexico is the only area in California where the national CO standard is still violated. Los Angeles County now qualifies for attainment of the standard. 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.

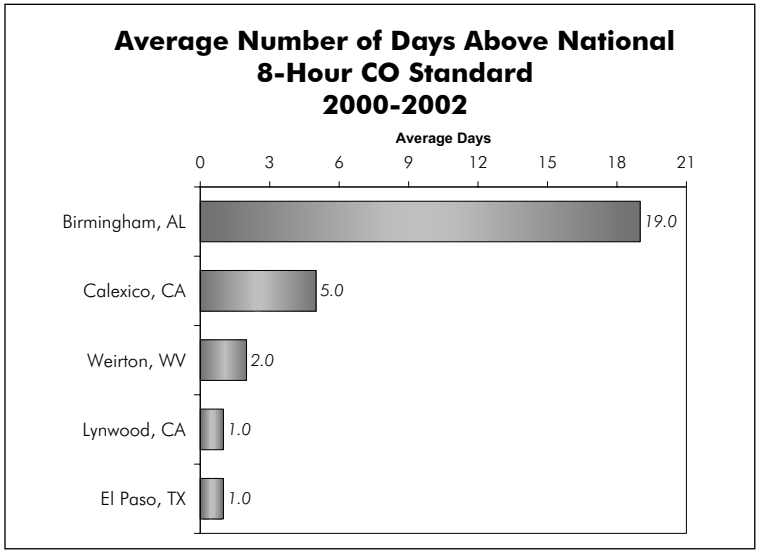


Figure 2-2

# 2003 Statewide Emission Inventory Summary

| Division<br>Major Category | Emissions (tons/day, annual average)<br>TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
|---|---|---|---|---|---|---|---|
| **Stationary Sources** | **2455** | **511** | **386** | **512** | **134** | **128** | **83** |
| Fuel Combustion | 194 | 53 | 323 | 403 | 40 | 39 | 34 |
| Waste Disposal | 1404 | 24 | 2 | 3 | 0 | 1 | 1 |
| Cleaning And Surface Coatings | 300 | 215 | 1 | 0 | 0 | 0 | 0 |
| Petroleum Production And Marketing | 486 | 159 | 10 | 11 | 62 | 3 | 2 |
| Industrial Processes | 71 | 60 | 50 | 95 | 31 | 85 | 46 |
| **Area-Wide Sources** | **2275** | **709** | **2129** | **92** | **5** | **1833** | **585** |
| Solvent Evaporation | 503 | 449 | 0 | 0 | 0 | 0 | 0 |
| Miscellaneous Processes | 1772 | 260 | 2129 | 92 | 5 | 1833 | 585 |
| **Mobile Sources** | **1512** | **1389** | **11915** | **2705** | **116** | **125** | **102** |
| On-Road Motor Vehicles | 956 | 880 | 8757 | 1674 | 12 | 49 | 34 |
| Other Mobile Sources | 556 | 509 | 3158 | 1031 | 104 | 76 | 68 |
| **Natural Sources**** | **146** | **55** | **513** | **21** | **0** | **102** | **91** |
| ***Total Statewide - All Sources*** | ***6387*** | ***2664*** | ***14942*** | ***3331*** | ***254*** | ***2188*** | ***860*** |

* 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

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Stationary Sources (division total)** | **2455** | **511** | **386** | **512** | **134** | **128** | **83** |
| Fuel Combustion (major category total) | 194 | 53 | 323 | 403 | 40 | 39 | 34 |
| - Electric Utilities | 26 | 4 | 51 | 41 | 3 | 6 | 6 |
| - Cogeneration | 17 | 9 | 47 | 31 | 2 | 4 | 4 |
| - Oil And Gas Production (Combustion) | 39 | 9 | 22 | 29 | 2 | 1 | 1 |
| - Petroleum Refining (Combustion) | 2 | 2 | 17 | 35 | 13 | 3 | 3 |
| - Manufacturing And Industrial | 59 | 9 | 68 | 132 | 14 | 7 | 7 |
| - Food And Agricultural Processing | 6 | 5 | 56 | 36 | 3 | 3 | 3 |
| - Service And Commercial | 40 | 13 | 42 | 71 | 3 | 6 | 5 |
| - Other (Fuel Combustion) | 5 | 2 | 20 | 28 | 1 | 8 | 4 |
| Waste Disposal (major category total) | 1404 | 24 | 2 | 3 | 0 | 1 | 1 |
| - Sewage Treatment | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| - Landfills | 1357 | 17 | 1 | 1 | 0 | 0 | 0 |
| - Incinerators | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| - Soil Remediation | 3 | 2 | - | 0 | - | 0 | 0 |
| - Other (Waste Disposal) | 42 | 3 | 0 | 0 | - | 0 | 0 |
| Cleaning And Surface Coatings (major category total) | 300 | 215 | 1 | 0 | 0 | 0 | 0 |
| - Laundering | 7 | 1 | 0 | 0 | - | - | - |
| - Degreasing | 111 | 45 | - | - | - | - | - |
| - Coatings And Related Process Solvents (sub-category total) | 134 | 126 | 0 | 0 | 0 | 0 | 0 |
| *- Auto Marine, & Aircraft* | *23* | *22* | *0* | *0* | *0* | *0* | *0* |
| *- Paper & Fabric* | *3* | *3* | *0* | *0* | *0* | *0* | *0* |
| *- Metal, Wood, & Plastic* | *36* | *34* | *0* | *0* | *0* | *0* | *0* |
| *- Other* | *72* | *67* | *0* | *0* | *0* | *0* | *0* |

* Includes directly emitted particulate matter only.

Table 2-2

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Stationary Sources (division total) (continued)** | | | | | | | |
| Cleaning And Surface Coatings (major category) (continued) | | | | | | | |
| - Printing | 18 | 18 | 1 | 0 | - | 0 | 0 |
| - Adhesives And Sealants | 22 | 20 | - | - | - | 0 | 0 |
| - Other (Cleaning And Surface Coatings) | 8 | 6 | - | 0 | - | 0 | 0 |
| Petroleum Production And Marketing (major category total) | 486 | 159 | 10 | 11 | 62 | 3 | 2 |
| - Oil And Gas Production | 101 | 51 | 1 | 3 | 0 | 0 | 0 |
| - Petroleum Refining | 30 | 22 | 8 | 8 | 62 | 2 | 2 |
| - Petroleum Marketing (sub-category total) | 354 | 85 | 0 | 0 | - | 0 | 0 |
| *- Fuel Distribution Losses* | *273* | *4* | *0* | *0* | *0* | *0* | *0* |
| *- Fuel Storage Losses* | *4* | *4* | *0* | *0* | *0* | *0* | *0* |
| *- Vehicle Refueling* | *52* | *52* | *0* | *0* | *0* | *0* | *0* |
| *- Other* | *26* | *26* | *0* | *0* | *0* | *0* | *0* |
| - Other (Petroleum Production And Marketing) | 0 | 0 | - | - | - | - | - |
| Industrial Processes (major category total) | 71 | 60 | 50 | 95 | 31 | 85 | 46 |
| - Chemical | 25 | 21 | 1 | 2 | 4 | 4 | 3 |
| - Food And Agriculture | 22 | 20 | 3 | 9 | 1 | 15 | 7 |
| - Mineral Processes | 8 | 6 | 40 | 63 | 20 | 44 | 21 |
| - Metal Processes | 2 | 2 | 2 | 1 | 0 | 1 | 1 |
| - Wood And Paper | 4 | 3 | 1 | 2 | 0 | 10 | 6 |
| - Glass And Related Products | 1 | 0 | 0 | 12 | 5 | 2 | 2 |
| - Electronics | 1 | 1 | 0 | 0 | - | 0 | 0 |
| - Other (Industrial Processes) | 10 | 7 | 4 | 6 | 1 | 9 | 6 |

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Area-Wide Sources (division total)** | **2275** | **709** | **2129** | **92** | **5** | **1833** | **585** |
| Solvent Evaporation (major category total) | 503 | 449 | 0 | 0 | 0 | 0 | 0 |
| - Consumer Products | 303 | 253 | - | - | - | - | - |
| - Architectural Coatings And Related Process Solvent (sub-category total) | 108 | 105 | - | - | - | - | - |
| *- Architectural Coating* | *92* | *90* | *0* | *0* | *0* | *0* | *0* |
| *- Thinning & Cleanup Solvents* | *16* | *15* | *0* | *0* | *0* | *0* | *0* |
| - Pesticides/Fertilizers (sub-category total) | 58 | 58 | - | - | - | - | - |
| *- Farm Use* | *56* | *56* | *0* | *0* | *0* | *0* | *0* |
| *- Commercial Use* | *2* | *2* | *0* | *0* | *0* | *0* | *0* |
| - Asphalt Paving / Roofing | 33 | 33 | - | - | - | 0 | 0 |
| Miscellaneous Processes (major category total) | 1772 | 260 | 2129 | 92 | 5 | 1833 | 585 |
| - Residential Fuel Combustion (sub-category total) | 128 | 56 | 820 | 74 | 4 | 119 | 115 |
| *- Wood Combustion* | *120* | *53* | *792* | *10* | *2* | *114* | *109* |
| *- Cooking And Space Heating* | *7* | *3* | *24* | *54* | *2* | *5* | *5* |
| *- Other* | *1* | *1* | *4* | *10* | *0* | *1* | *1* |
| - Farming Operations (sub-category total) | 1495 | 120 | - | - | - | 179 | 43 |
| *- Tilling,Harvesting, & Growing* | *0* | *0* | *0* | *0* | *0* | *146* | *32* |
| *- Livestock* | *1495* | *120* | *0* | *0* | *0* | *33* | *11* |

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Area-Wide Sources (division total) (continued)** | | | | | | | |
| Miscellaneous Processes (major category) (continued) | | | | | | | |
| - Construction And Demolition (sub-category total) | - | - | - | - | - | 198 | 41 |
| *- Building* | *0* | *0* | *0* | *0* | *0* | *112* | *23* |
| *- Road Construction Dust* | *0* | *0* | *0* | *0* | *0* | *86* | *18* |
| - Paved Road Dust | - | - | - | - | - | 400 | 78 |
| - Unpaved Road Dust | - | - | - | - | - | 470 | 103 |
| - Fugitive Windblown Dust (sub-category total) | - | - | - | - | - | 313 | 68 |
| *- Farm Lands* | *0* | *0* | *0* | *0* | *0* | *180* | *40* |
| *- 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) | 140 | 78 | 1298 | 17 | 1 | 132 | 122 |
| *- Agricultural Burning* | *34* | *19* | *216* | *6* | *0* | *26* | *24* |
| *- Non-Agricultural Burning* | *106* | *58* | *1082* | *11* | *0* | *106* | *98* |
| *- Other* | *0* | *0* | *0* | *0* | *0* | *0* | *0* |
| - Cooking | 8 | 6 | - | - | - | 21 | 13 |
| - Other (Miscellaneous Processes) | 0 | 0 | 1 | 0 | - | 1 | 1 |

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Mobile Sources (division total)** | **1512** | **1389** | **11915** | **2705** | **116** | **125** | **102** |
| On-Road Motor Vehicles (major category total) | 956 | 880 | 8757 | 1674 | 12 | 49 | 34 |
| - Light Duty Passenger (sub-category total) | 449 | 415 | 3879 | 364 | 2 | 17 | 10 |
| *- Combustion and other non-evaporative* | *270* | *236* | *3877* | *361* | *2* | *16* | *9* |
| *- Evaporative* | *179* | *178* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *1* | *1* | *2* | *3* | *0* | *0* | *0* |
| - Light Duty Trucks(<3750 lbs.) (sub-category total) | 158 | 146 | 1624 | 147 | 1 | 5 | 3 |
| *- Combustion and other non-evaporative* | *96* | *84* | *1621* | *143* | *1* | *4* | *3* |
| *- Evaporative* | *62* | *62* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *1* | *1* | *2* | *5* | *0* | *0* | *0* |
| - Light Duty Trucks (>3750 lbs) (sub-category total) | 123 | 113 | 1292 | 167 | 1 | 6 | 4 |
| *- Combustion and other non-evaporative* | *80* | *70* | *1291* | *164* | *1* | *6* | *4* |
| *- Evaporative* | *43* | *43* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *0* | *0* | *1* | *3* | *0* | *0* | *0* |
| - Medium Duty Trucks (sub-category total) | 68 | 62 | 666 | 97 | 0 | 3 | 2 |
| *- Combusion and other non-evaporative* | *46* | *41* | *665* | *94* | *0* | *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) | 25 | 23 | 154 | 17 | 0 | 0 | 0 |
| *- Combustion and other non-evaporative* | *15* | *13* | *154* | *17* | *0* | *0* | *0* |
| *- Evaporative* | *10* | *10* | *0* | *0* | *0* | *0* | *0* |
| - Light Heavy Duty Gas Trucks (>10000 lbs) (sub-category total) | 5 | 5 | 39 | 6 | 0 | 0 | 0 |
| *-Combustion and other non-evaporative* | *3* | *3* | *39* | *6* | *0* | *0* | *0* |
| *- Evaporative* | *2* | *2* | *0* | *0* | *0* | *0* | *0* |
| - Medium Heavy Duty Gas Trucks (sub-category total) | 31 | 29 | 236 | 22 | 0 | 0 | 0 |
| *- Combustion and other non-evaporative* | *22* | *20* | *236* | *22* | *0* | *0* | *0* |
| *- Evaporative* | *10* | *10* | *0* | *0* | *0* | *0* | *0* |

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Mobile Sources (division total) (continued)** | | | | | | | |
| On-Road Motor Vehicles (major category) (continued) | | | | | | | |
| - Heavy Heavy Duty Gas Trucks (sub-category total) | 24 | 21 | 298 | 45 | 0 | 0 | 0 |
| *- Combustion and other non-evaporative* | *19* | *17* | *298* | *45* | *0* | *0* | *0* |
| *- Evaporative* | *4* | *4* | *0* | *0* | *0* | *0* | *0* |
| - Light Heavy Duty Gas Trucks (<10000 lbs) | 1 | 1 | 3 | 19 | 0 | 0 | 0 |
| - Light Heavy Duty Gas Trucks (>10000 lbs) | 1 | 1 | 3 | 16 | 0 | 0 | 0 |
| - Medium Heavy Duty Diesel Trucks | 4 | 4 | 24 | 144 | 1 | 4 | 3 |
| - Heavy Heavy Duty Diesel Trucks | 26 | 22 | 98 | 540 | 5 | 12 | 10 |
| - Motorcycles (Mcy) (sub-category total) | 22 | 21 | 163 | 5 | - | 0 | 0 |
| *- Combustion and other non-evaporative* | *15* | *14* | *163* | *5* | *0* | *0* | *0* |
| *- Evaporative* | *7* | *7* | *0* | *0* | *0* | *0* | *0* |
| - Heavy Duty Diesel Urban Buses | 3 | 2 | 9 | 47 | 0 | 1 | 1 |
| - Heavy Duty Gas Urban Buses (sub-category total) | 7 | 6 | 72 | 8 | 0 | 0 | 0 |
| *- Combustion and other non-evaporative* | *7* | *6* | *72* | *8* | *0* | *0* | *0* |
| *- Evaporative* | *0* | *0* | *0* | *0* | *0* | *0* | *0* |
| - School Buses (sub-category total) | 2 | 2 | 22 | 14 | 0 | 1 | 0 |
| *- Combustion and other non-evaporative* | *1* | *1* | *18* | *1* | *0* | *0* | *0* |
| *- Evaporative* | *0* | *0* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *1* | *0* | *3* | *13* | *0* | *1* | *0* |
| - Motor Homes (sub-category total) | 7 | 6 | 178 | 16 | 0 | 0 | 0 |
| *- Combustion and other non-evaporative* | *7* | *6* | *177* | *13* | *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)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Mobile Sources (division total) (continued)** | | | | | | | |
| Other Mobile Sources (major category total) | 556 | 509 | 3158 | 1031 | 104 | 76 | 68 |
| - Aircraft | 41 | 36 | 261 | 53 | 3 | 7 | 7 |
| - Trains | 10 | 9 | 32 | 184 | 16 | 5 | 5 |
| - Ships And Commercial Boats | 11 | 9 | 25 | 145 | 83 | 12 | 11 |
| - Recreational Boats | 132 | 123 | 667 | 28 | 1 | 8 | 6 |
| *- Combustion and other non-evaporative* | *122* | *112* | *666* | *25* | *1* | *8* | *6* |
| *- Evaporative* | *10* | *10* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *1* | *1* | *1* | *3* | *0* | *0* | *0* |
| - Off-Road Recreational Vehicles (sub-category total) | 55 | 50 | 257 | 4 | 0 | 0 | 0 |
| *- Snowmobiles* | *46* | *42* | *135* | *3* | *0* | *0* | *0* |
| *- Motorcycles* | *3* | *3* | *45* | *0* | *0* | *0* | *0* |
| *- All-Terrain Vehicles* | *3* | *2* | *42* | *0* | *0* | *0* | *0* |
| *- Four-Wheel Drive Vehicles* | *3* | *3* | *35* | *1* | *0* | *0* | *0* |
| - Off-Road Equipment (sub-category total) | 226 | 202 | 1790 | 485 | 1 | 34 | 31 |
| *- Lawn And Garden Equipment* | *130* | *122* | *866* | *15* | *0* | *4* | *3* |
| *- Combustion and other non-evaporative* | *98* | *90* | *862* | *8* | *0* | *3* | *2* |
| *- Evaporative* | *32* | *32* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *1* | *1* | *3* | *6* | *0* | *0* | *0* |
| *- Commercial & Industrial Equipment* | *95* | *80* | *924* | *471* | *1* | *31* | *28* |
| *- Combustion and other non-evaporative* | *33* | *31* | *667* | *32* | *0* | *2* | *1* |
| *- Evaporative* | *3* | *3* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *51* | *45* | *175* | *408* | *0* | *28* | *26* |
| *- Natural Gas* | *8* | *1* | *82* | *31* | *0* | *0* | *0* |
| - Farm Equipment (sub-category total) | 21 | 19 | 127 | 131 | 1 | 9 | 8 |
| *- Combustion and other non-evaporative* | *3* | *3* | *68* | *2* | *0* | *0* | *0* |
| *- Evaporative* | *1* | *1* | *0* | *0* | *0* | *0* | *0* |
| *- Diesel* | *18* | *16* | *59* | *129* | *1* | *9* | *8* |
| - Fuel Storage and Handling | 60 | 60 | - | - | - | - | - |

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

# 2003 Statewide Emission Inventory by Sub-Category

| Division<br>Major Category<br>Sub-Category | Emissions (tons/day, annual average) | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOG | ROG | CO | NOx | SOx | $PM_{10}$* | $PM_{2.5}$* |
| **Natural (Non-Anthropogenic) Sources (division total)** | **146** | **55** | **513** | **21** | **0** | **102** | **91** |
| Natural Sources** (major category total) | 146 | 55 | 513 | 21 | 0 | 102 | 91 |
| - Geogenic Sources | 102 | 29 | - | - | - | - | - |
| - Wildfires*** | 44 | 25 | 513 | 21 | - | 102 | 91 |
| ***Total Statewide - All Sources*** | ***6387*** | ***2664*** | ***14942*** | ***3331*** | ***254*** | ***2188*** | ***860*** |

* 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.
*** Wildfire emissions reflect 2002 data.

Table 2-2 (continued)

# *Ozone*

## 2003 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 ARB. 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 82 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** | 512 | 15% |
| **Area-Wide Sources** | 92 | 3% |
| **On-Road Mobile** | 1674 | 51% |
| Gasoline Vehicles | 913 | 28% |
| Diesel Vehicles | 761 | 23% |
| **Other Mobile** | 1031 | 31% |
| ***Total Statewide*** | ***3309*** | ***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** | 511 | 20% |
| **Area-Wide Sources** | 709 | 27% |
| **On-Road Mobile** | 880 | 34% |
| Gasoline Vehicles | 849 | 33% |
| Diesel Vehicles | 30 | 1% |
| **Other Mobile** | 509 | 20% |
| ***Total Statewide*** | ***2609*** | ***100%*** |

Table 2-4

# Largest Stationary Sources Statewide

## Largest Stationary Sources of $NO_x$ Statewide

| Air Basin | Facility Name | City | Tons/Year |
|---|---|---|---|
| Mojave Desert | TXI Riverside Cement Company | Oro Grande | 4496 |
| Mojave Desert | Cemex - Black Mountain Quarry | Apple Valley | 4483 |
| San Francisco Bay Area | Mirant Delta (Electric Services) | Pittsburg | 3459 |
| Mojave Desert | California Portland Cement. | Mojave | 3026 |
| San Francisco Bay Area | Shell Martinez Refinery | Martinez | 2898 |
| San Francisco Bay Area | Tesoro Refining And Marketing | Martinez | 2307 |
| San Francisco Bay Area | Valero Refining Company | Benicia | 2289 |
| Mojave Desert | Mitsubishi Cement 2000 | Lucerne Valley | 2245 |
| San Francisco Bay Area | Chevron Products Company | Richmond | 2063 |
| Mojave Desert | IMC Chemicals | 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 | Tesoro Refining And Marketing | Martinez | 2040 |
| San Francisco Bay Area | Chevron Products Company | Richmond | 1637 |
| San Francisco Bay Area | Shell Martinez Refinery | Martinez | 1462 |
| South Coast | Chevron USA. Inc. | El Segundo | 881 |
| San Francisco Bay Area | Conoco Phillips | Rodeo | 769 |
| San Francisco Bay Area | New United Motor Manufacturing | Fremont | 581 |
| South Coast | Mobil Oil Corp | Torrance | 576 |
| San Joaquin Valley | Crimson Resource Management (Natural Gas) | Taft | 448 |
| South Coast | West Coast Products | Carson | 413 |
| San Francisco Bay Area | Valero Refining Company | Benicia | 388 |

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 - 2002 Air Quality

Air quality as it relates to ozone has improved greatly in California over the last several decades, although not uniformly throughout the State. However, despite aggressive emission controls, maximum measured ozone concentrations are still above the level of the State standard in 11 of the 15 air basins. Maximum measured values exceed the national 1-hour standard in eight air basins and exceed the national 8-hour standard in 12 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. 2003 air quality data for California's five largest air basins can be found in Chapter 4, along with information on 8-hour ozone concentrations.

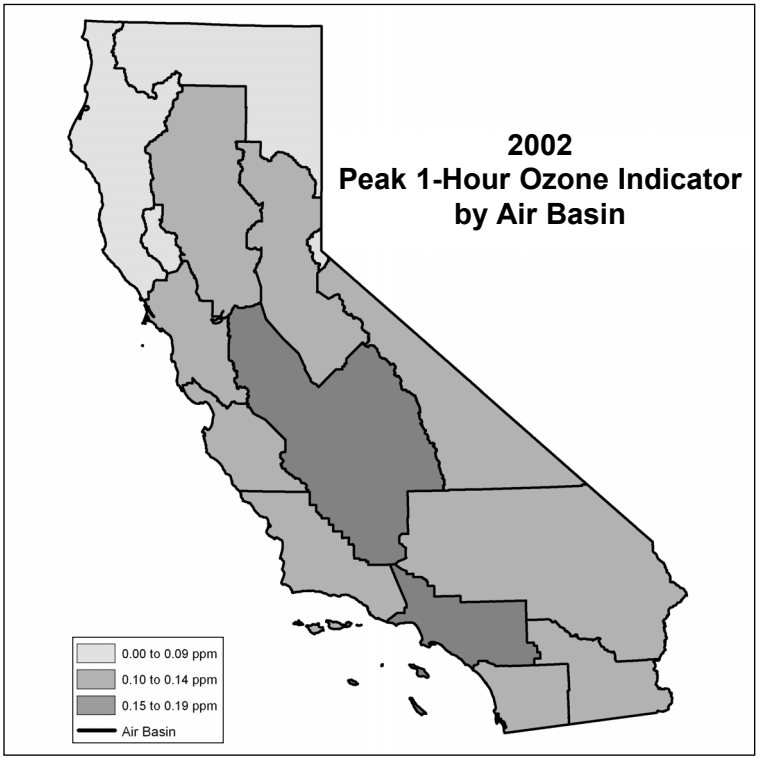


Figure 2-3

# Ozone - 2002 Air Quality Tables

## Maximum Peak 1-Hour Indicator and Exceedance Days by Air Basin

| AIR BASIN | 2002 Maximum Peak 1-Hour Indicator in parts per million | Number of Days in 2002 above State 1-Hour Standard | Number of Days in 2002 above National 1-Hour Standard |
|---|---|---|---|
| Great Basin Valleys Air Basin | 0.10 | 8 | 0 |
| Lake County Air Basin | 0.08 | 0 | 0 |
| Lake Tahoe Air Basin | 0.09 | 1 | 0 |
| Mojave Desert Air Basin | 0.14 | 75 | 16 |
| Mountain Counties Air Basin | 0.14 | 62 | 8 |
| North Central Coast Air Basin | 0.10 | 8 | 0 |
| North Coast Air Basin | 0.08 | 0 | 0 |
| Northeast Plateau Air Basin | 0.09 | 0 | 0 |
| Sacramento Valley Air Basin | 0.14 | 47 | 7 |
| Salton Sea Air Basin | 0.14 | 68 | 5 |
| San Diego Air Basin | 0.12 | 15 | 0 |
| San Francisco Bay Area Air Basin | 0.13 | 16 | 2 |
| San Joaquin Valley Air Basin | 0.15 | 127 | 31 |
| South Central Coast Air Basin | 0.13 | 24 | 1 |
| South Coast Air Basin | 0.17 | 116 | 45 |

For statistics on the 8-Hour Ozone Standard, see Appendix B.

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
- Lancaster-43301 Division Street
- Hesperia-Olive Street.
- Phelan-Beekley Rd. & Phelan Rd.
- Victorville-14306 Park Avenue
- Joshua Tree-National Monument

### Mountain Counties Air Basin
- Cool-Highway 193
- Colfax-City Hall
- Placerville-Gold Nugget Way
- Grass Valley-Litton Building
- San Andreas-Gold Strike Road

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

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

### 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

### San Francisco Bay Area Air Basin
- Livermore-793 Rincon Avenue
- San Martin-Murphy Avenue
- Gilroy-9th Street
- Fairfield-Chadbourne Road
- Concord-2975 Treat Blvd.

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

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
- Ojai-Ojai Avenue
- Piru-3301 Pacific Avenue
- Ventura County-W Casitas Pass Rd.
- Paradise Rd.-Los Padres Nat'l Forest

### South Coast Air Basin

- Crestline
- Santa Clarita
- Glendora-Laurel
- Redlands-Dearborn
- Upland

Sites with 1-hour peak indicator values above the level of the State ozone standard during 2002. 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)

# 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 ($PM_{2.5\text{-}10}$), 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 the discussion on PM 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.

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# *Directly Emitted Particulate Matter ($PM_{10}$)*

## 2003 Statewide Emission Inventory - Directly Emitted $PM_{10}$ by Category

The $PM_{10}$ emission inventory includes only directly emitted particulate emissions. However, PM 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 PM 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 state-wide 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 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 Emissions 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** | 128 | 6% |
| **Area-Wide Sources** | 1833 | 88% |
| **On-Road Mobile** | 49 | 2% |
| Gasoline Vehicles | 31 | 1% |
| Diesel Vehicles | 18 | 1% |
| **Other Mobile** | 76 | 4% |
| ***Total Statewide*** | ***2086*** | ***100%*** |

Table 2-9

# *Largest Stationary Sources Statewide*

## Largest Stationary Sources of Directly Emitted $PM_{10}$ Statewide

| Air Basin | Facility Name | City | Tons/Year |
|---|---|---|---|
| Mojave Desert | TXI Riverside Cement Company | Oro Grande | 1470 |
| Mojave Desert | Antelope Valley Aggregate | Littlerock | 691 |
| Mojave Desert | Mitsubishi Cement 2000 | Lucerne Valley | 600 |
| Mountain Counties | Sierrapine - Ampine Division | Martell | 518 |
| South Coast | AES Alamitos (Electric Power) | Long Beach | 405 |
| San Francisco Bay Area | Shell Martinez Refinery | Martinez | 357 |
| Mojave Desert | Lehigh Southwest Cement. | Monolith | 354 |
| Mojave Desert | IMC Chemicals | Trona | 326 |
| Mojave Desert | Granite Construction | Littlerock | 297 |
| Mojave Desert | Cemex - Black Mountain Quarry | Apple Valley | 277 |

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 2-10

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

## 2003 Statewide Emission Inventory - Directly Emitted $PM_{2.5}$ by Category

The $PM_{2.5}$ emission inventory includes only directly emitted particulate emissions. However, PM 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 PM 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 Emissions Sources with Air Quality* describes how emissions from specific sources are linked to measured $PM_{2.5}$ levels

| Directly Emittied $PM_{2.5}$ Emissions (annual average) | | |
|---|---|---|
| **Emissions Source** | **tons/day** | **Percent** |
| **Stationary Sources** | 83 | 11% |
| **Area-wide Sources** | 585 | 76% |
| **On-Road Mobile** | 34 | 4% |
| Gasoline Vehicles | 18 | 2% |
| Diesel Vehicles | 16 | 2% |
| **Other Mobile** | 68 | 9% |
| ***Total Statewide*** | ***770*** | ***100%*** |

Table 2-11

# *Largest Stationary Sources Statewide*

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

| Air Basin | Facility Name | City | Tons/Year |
|---|---|---|---|
| Mountain Counties | Sierrapine - Ampine Division | Martell | 414 |
| South Coast | AES Alamitos (Electric Power) | Long Beach | 405 |
| San Francisco Bay Area | Shell Martinez Refinery | Martinez | 346 |
| Mojave Desert | TXI Riverside Cement Company | Oro Grande | 316 |
| Mojave Desert | Mitsubishi Cement 2000 | Lucerne Valley | 277 |
| Mojave Desert | Antelope Valley Aggregate Inc | Littlerock | 257 |
| South Coast | West Coast Products | Carson | 246 |
| South Coast | Chevron USA | El Segundo | 239 |
| Mojave Desert | IMC Chemicals | Trona | 226 |
| Sacramento Valley | Johns-Manville | Willows | 220 |

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 2-12

# $PM_{10}$ - 2002 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 2002 occurred in the Salton Sea, Great Basin Valleys, South Coast, San Joaquin Valley, and San Diego 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.

# $PM_{10}$ - 2002 Air Quality Tables

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

| AIR BASIN | 2002 Maximum 24-Hour Concentration in micrograms/cubic meter | | 2002 Maximum Annual Average of Quarters in micrograms/cubic meter | |
|---|---|---|---|---|
| | State | National | State | National |
| Great Basin Valleys Air Basin | 7401 | 3089 | 159.3 | 114.5 |
| Lake County Air Basin | 85 | | 13.1 | |
| Lake Tahoe Air Basin | 46 | 51 | 17.1 | 19.9 |
| Mojave Desert Air Basin | 194 | 208 | 24.2 | 34.6 |
| Mountain Counties Air Basin | 72 | 76 | 25.9 | 28.5 |
| North Central Coast Air Basin | 81 | 77 | 28.9 | 27.9 |
| North Coast Air Basin | 72 | 74 | 22.9 | 22.7 |
| Northeast Plateau Air Basin | 73 | 86 | 17.5 | 20.3 |
| Sacramento Valley Air Basin | 96 | 92 | 31.8 | 30.9 |
| Salton Sea Air Basin | 361 | 373 | 82.5 | 81.3 |
| San Diego Air Basin | 131 | 130 | 52.4 | 54.9 |
| San Francisco Bay Area Air Basin | 84 | 80 | | 30.6 |
| San Joaquin Valley Air Basin | 194 | 189 | 59.9 | 59.7 |
| South Central Coast Air Basin | 100 | 178 | 28.6 | 43.2 |
| South Coast Air Basin | 130 | 130 | 58.4 | 60.2 |

**24-hour data** - The table may include data from extreme, exceptional, or unusual concentration events: however, there is a mechanism in place to review for these types of events during the area designation process.
**Annual average data** - Extreme, exceptional, or unusual concentration events do not generally significantly influence the annual average. However, their exclusion can be considered on a case-by-case basis.
*For additional discussion regarding differences between State and national annual averages please see the discussion in Chapter 1 - Interpreting the Emission and Air Quality Statistics.*

Table 2-13

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

### Great Basin Valleys Air Basin
- Dirty Sox
- Shell Cut-Highway 190
- Mono Lake Shore
- Flat Rock-Highway 190
- Lone Pine-East Locust Street

### Lake County Air Basin
- Lakeport-Lakeport Blvd.

### Mojave Desert Air Basin
- Mojave-923 Poole Street
- Ridgecrest-100 W. California Ave.
- China Lake-Powerline Road

### Mountain Counties Air Basin
- Yosemite Village-Visitor Center

### North Central Coast Air Basin
- Davenport
- Moss Landing-Sandholt Road
- Hollister-Fairview Road

### North Coast Air Basin
- Willits-Firehouse
- Ukiah-County Library
- Fort Bragg-North Franklin Street
- Weaverville-Courthouse

### Northeast Plateau Air Basin
- Lava Beds National Monument
- Yreka-Foothill Drive

### Sacramento Valley Air Basin
- Chico-Manzanita Avenue
- Sacramento-Del Paso Manor
- Sacto.-Health Dept. Stockton Blvd.
- West Sacramento-15th Street
- Woodland-Gibson Road

### Salton Sea Air Basin
- Calexico-Ethel Street
- Westmorland-West 1st Street
- Indio-Jackson Street
- El Centro-9th Street
- Brawley-Main Street

### San Diego Air Basin
- Otay Mesa-Paseo International
- San Diego-12th Avenue
- El Cajon-Redwood Avenue
- Chula Vista

### San Francisco Bay Area Air Basin
- Vallejo-304 Tuolumne Street
- San Francisco-Arkansas Street
- Pittsburg-10th Street
- San Jose-Jackson Street
- San Jose-Tully Street

Table 2-14

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

### San Joaquin Valley Air Basin

- Bakersfield-Golden State Highway
- Corcoran-Patterson Avenue
- Hanford-South Irwin Street
- Bakersfield-5558 California Avenue
- Fresno-Drummond Street
- Visalia-North Church Street

### South Central Coast Air Basin

- El Rio-Rio Mesa School #2
- Simi Valley-Cochran Street

### South Coast Air Basin

- Riverside-Rubidoux
- Hawthorne
- Fontana-Arrow Highway
- Perris
- San Bernardino-4th Street

Sites with 24-hour $PM_{10}$ concentrations above the level of the State $PM_{10}$ standard during 2002. 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 2-14 (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/pmfnet02.htm*.

The majority of sites in California's $PM_{2.5}$ network began sampling in early 1999. The 1999, 2000, 2001, and 2002 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 for State and national, the maximum 98$^{th}$ percentile 24-hour concentration, and the maximum annual average of quarters (annual average) for State and national. Sites in the South Coast and San Joaquin Valley Air Basins recorded the highest 24-hour concentrations, valid 98$^{th}$ 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/m$^3$)** | Average of Quarterly Means (µg/m3)** | |
|---|---|---|---|---|---|---|
| | | State | National | | State | National |
| Great Basin Valleys | 1999 | 40.7 | 40.7 | | 6.4 | |
| | 2000 | 68.0 | 68.0 | 67.0 | 7.7 | |
| | 2001 | 76.0 | 76.0 | 23.0 | 5.6 | 5.5 |
| | 2002 | 68.0 | 68.0 | 64.0 | 8.7 | 8.4 |
| Lake County | 1999 | 14.5 | 14.5 | | | |
| | 2000 | 9.4 | 9.4 | | | |
| | 2001 | 15.1 | 15.1 | 11.3 | 4.1 | 4.2 |
| | 2002 | 74.7 | 74.7 | 46.3 | 6.3 | 6.3 |
| Lake Tahoe | 1999 | 21.0 | 21.0 | 21.0 | 8.3 | 8.3 |
| | 2000 | 23.0 | 23.0 | 22.0 | 7.8 | 7.8 |
| | 2001 | 31.0 | 31.0 | 26.0 | 8.2 | 8.2 |
| | 2002 | 27.0 | 27.0 | | 6.4 | |
| Mojave Desert | 1999 | 47.6 | 47.6 | 23.5 | 11.2 | 11.9 |
| | 2000 | 38.6 | 38.6 | 23.0 | 13.1 | 12.0 |
| | 2001 | 35.0 | 35.0 | 21.0 | 12.0 | 11.5 |
| | 2002 | 38.0 | 38.0 | 34.0 | 13.9 | 13.9 |
| Mountain Counties | 1999 | 92.0 | 92.0 | 84.0 | 11.1 | 11.1 |
| | 2000 | 48.0 | 48.0 | 30.0 | 9.0 | 9.0 |
| | 2001 | 120.0 | 120.0 | 43.0 | 8.1 | 15.6 |
| | 2002 | 41.0 | 41.0 | 30.0 | 10.0 | 9.9 |

* 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 2-15

# $PM_{2.5}$ Air Quality Data

| Air Basin* | Year | Maximum 24-Hour Concentration (µg/m$^3$) | | 98th Percentile 24-Hour Concentration (µg/m$^3$)** | Average of Quarterly Means (µg/m3)** | |
|---|---|---|---|---|---|---|
| | | State | National | | State | National |
| North Central Coast | 1999 | 31.3 | 31.4 | 25.0 | | |
| | 2000 | 26.4 | 26.4 | 21.5 | 7.9 | |
| | 2001 | 25.6 | 25.6 | 23.1 | 9.1 | |
| | 2002 | 23.5 | 23.5 | 22.8 | 9.1 | |
| North Coast | 1999 | 36.9 | 36.9 | 27.7 | 9.1 | 9.1 |
| | 2000 | 24.0 | 24.0 | 21.5 | | 9.1 |
| | 2001 | 38.3 | 38.3 | 29.0 | 9.4 | 9.4 |
| | 2002 | 59.7 | 23.7 | 22.6 | 11.4 | 7.9 |
| Northeast Plateau | 1999 | 40.0 | 40.0 | 27.0 | | 7.9 |
| | 2000 | 38.0 | 38.0 | 37.0 | 8.5 | 8.5 |
| | 2001 | 35.0 | 35.0 | | | |
| | 2002 | 5.0 | 5.0 | | | |
| Sacramento Valley | 1999 | 108.0 | 108.0 | 84.0 | 17.5 | 17.5 |
| | 2000 | 98.0 | 98.0 | 81.0 | 15.8 | 15.8 |
| | 2001 | 78.0 | 72.0 | 78.0 | 21.1 | 13.0 |
| | 2002 | 96.1 | 91.0 | 77.0 | 19.9 | 15.1 |
| Salton Sea | 1999 | 52.5 | 52.5 | 39.5 | | 15.2 |
| | 2000 | 84.2 | 84.2 | 56.0 | 11.2 | 16.9 |
| | 2001 | 60.2 | 60.2 | 33.0 | | 12.2 |
| | 2002 | 142.7 | 46.5 | 44.1 | 19.6 | 15.1 |

* 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 2-15 (continued)

# $PM_{2.5}$ Air Quality Data

| Air Basin* | Year | Maximum 24-Hour Concentration (µg/m$^3$) | | 98th Percentile 24-Hour Concentration (µg/m$^3$)** | Average of Quarterly Means (µg/m3)** | |
|---|---|---|---|---|---|---|
| | | State | National | | State | National |
| San Diego | 1999 | 64.3 | 64.3 | 35.7 | | 18.0 |
| | 2000 | 66.3 | 66.3 | 32.5 | | 15.8 |
| | 2001 | 60.0 | 60.0 | 40.8 | | 17.7 |
| | 2002 | 53.6 | 53.6 | 36.0 | 15.5 | 16.0 |
| San Francisco Bay Area | 1999 | 90.5 | 90.5 | | | |
| | 2000 | 67.2 | 67.2 | 55.3 | 11.6 | 13.6 |
| | 2001 | 107.5 | 107.5 | 56.0 | 12.5 | 12.5 |
| | 2002 | 84.5 | 76.7 | 57.5 | 13.8 | 13.8 |
| San Joaquin Valley | 1999 | 136.0 | 136.0 | 120.0 | 31.2 | 27.7 |
| | 2000 | 160.0 | 160.0 | 108.0 | 25.5 | 23.9 |
| | 2001 | 154.7 | 154.7 | 96.0 | 37.9 | 22.5 |
| | 2002 | 104.3 | 90.8 | 80.4 | 30.5 | 24.1 |
| South Central Coast | 1999 | 64.6 | 64.6 | 35.4 | 13.8 | 13.8 |
| | 2000 | 55.3 | 55.3 | 41.0 | 12.9 | 10.3 |
| | 2001 | 57.7 | 57.6 | 50.7 | 14.9 | 14.9 |
| | 2002 | 46.4 | 46.4 | 35.2 | 15.2 | 14.6 |
| South Coast | 1999 | 121.4 | 121.4 | 111.2 | 22.0 | 31.0 |
| | 2000 | 119.6 | 119.6 | 83.0 | 24.0 | 28.3 |
| | 2001 | 98.0 | 98.0 | 74.3 | 46.3 | 31.0 |
| | 2002 | 82.1 | 82.1 | 66.3 | 31.0 | 27.4 |

* 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 2-15 (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 ($PM_{2.5\text{-}10}$) drives the PM concentrations.

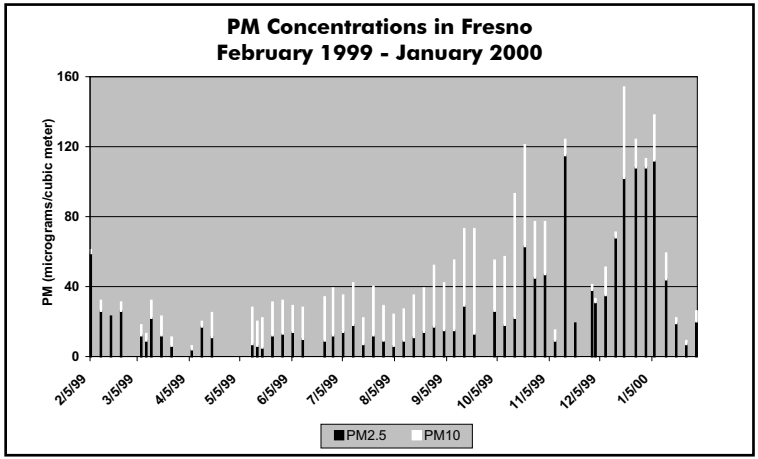


Figure 2-4

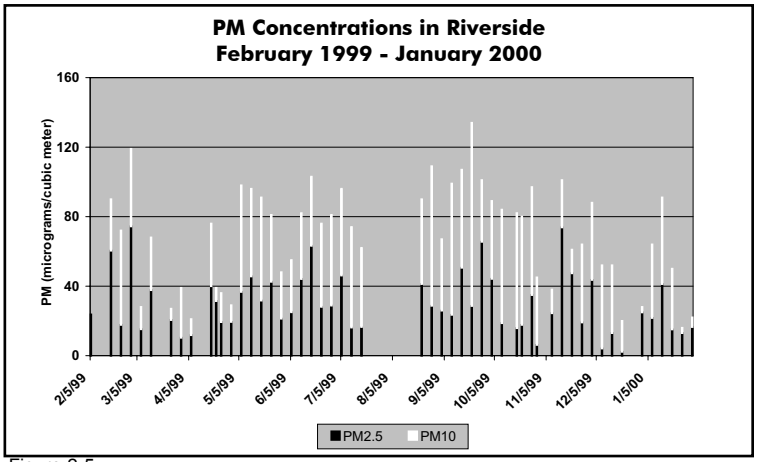

Figure 2-5

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 $PM_{10}$.

Analysis of PM chemical composition data collected from a variety of routine and special monitoring programs provides insight into the fraction of $PM_{2.5}$ that is secondary. Data were obtained from the California $PM_{2.5}$ and $PM_{10}$ monitoring networks, California Regional $PM_{10}$/$PM_{2.5}$ Air Quality Study, Children's Health Study, Integrated Monitoring and Protected Visual Environments Program, and South Coast Air Quality Management District's PM Technical Enhancement Programs of 1995 and 1998-1999. Secondary $PM_{2.5}$ estimates include ammonium nitrate and ammonium sulfate components, which form through reactions in the atmosphere of nitrogen oxides and sulfur oxides emitted by motor vehicles and other combustion processes. $PM_{2.5}$ also includes secondary organic aerosols (SOA) resulting from atmospheric reactions of organic compounds emitted from combustion sources and biogenic pro-

cesses. Since only limited information is available on how much of the measured $PM_{2.5}$ organic carbon component is secondary, SOA are not included in the secondary $PM_{2.5}$ estimates. However, available studies suggest that in the South Coast, on an annual average basis, SOA may constitute 6 to 16 percent of $PM_{2.5}$ (Schauer et. al. 1996) and in urban areas of the San Joaquin Valley, during the winter, SOA may contribute up to an average of 8 percent of $PM_{2.5}$ (Schauer and Cass, 1998).

| Estimated Secondary Portion of $PM_{2.5}$ (annual average) | |
|---|---|
| Air Basin | Secondary $PM_{2.5}$ (%) |
| Great Basin Valleys | 30 |
| Lake County | 30 |
| Lake Tahoe | 40 |
| Mojave Desert | 40 |
| Mountain Counties | 30 |
| North Central Coast | 40 |
| North Coast | 30 |
| Northeast Plateau | 30 |
| Sacramento Valley | 30 |
| Salton Sea | 40 |
| San Diego | 50 |
| San Francisco Bay Area | 40 |
| San Joaquin Valley | 40 |
| South Central Coast | 50 |
| South Coast | 60 |

Table 2-16

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. 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.

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## San Joaquin Valley Air Basin

Figures 2-6 and 2-7 illustrate contributions to ambient PM in the San Joaquin Valley during the winter and on an annual average basis. These are the results from analysis of data collected during the California Regional $PM_{10}/PM_{2.5}$ Air Quality Study. (San Joaquin Valley Air Pollution Control District, 2003)

During the winter in Fresno secondary ammonium nitrate was the largest contributor to $PM_{10}$, formed from NOx emissions from mobile and stationary combustion sources, combined with ammonium. Emissions from wood smoke, vehicle exhaust, and road and agricultural sources also contribute significantly to $PM_{10}$ levels. On an annual average basis, elevated concentrations of $PM_{10}$ were associated with high levels of road and agricultural dust. Secondary ammonium nitrate, wood smoke, and vehicle exhaust particles also contributed significantly to annual $PM_{10}$ concentrations.

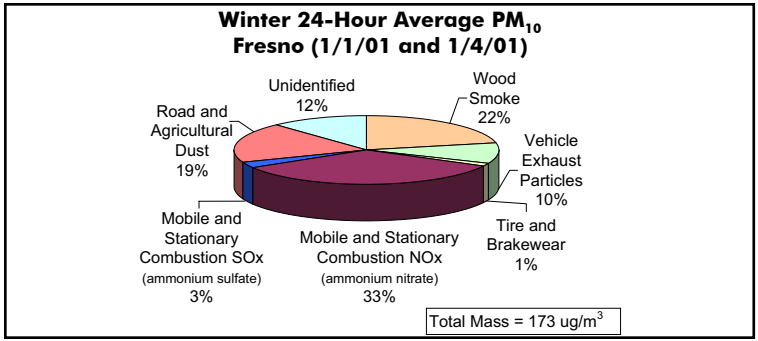


Figure 2-6

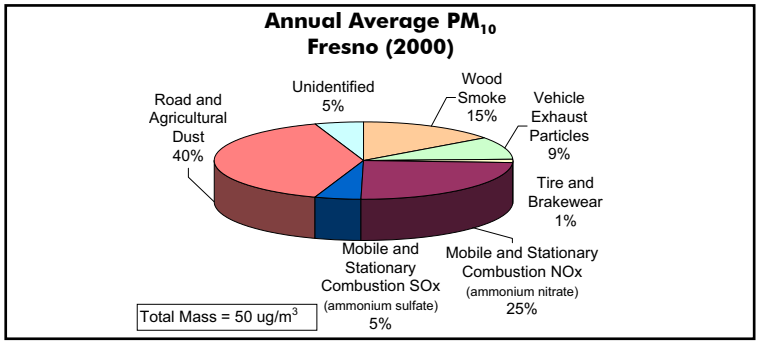


Figure 2-7

## San Francisco Bay Area Air Basin

Figures 2-8 and 2-9 illustrate the sources of PM during the winter in the San Franciso 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 in the form of ammonium nitrate. 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 $PM_{2.5}$.

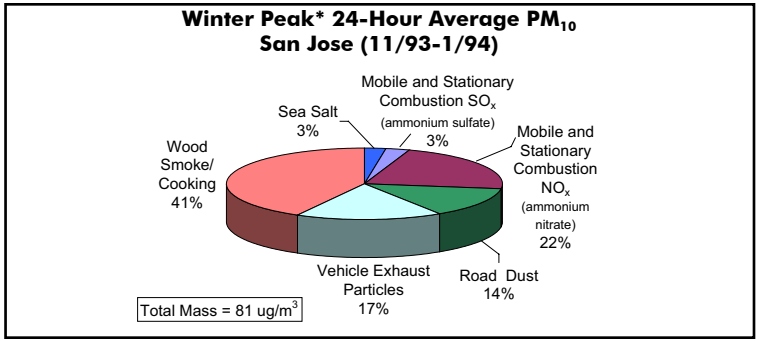


Figure 2-8

* Average of days with $PM_{10}$ > 50 ug/m$^3$

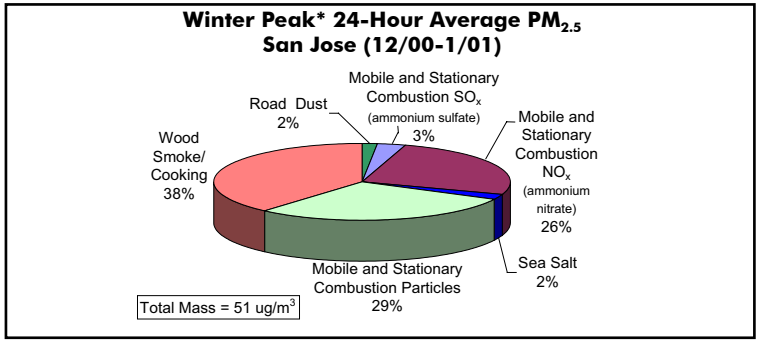


Figure 2-9

* 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 to form ammonium nitrate, is the largest contributor 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.

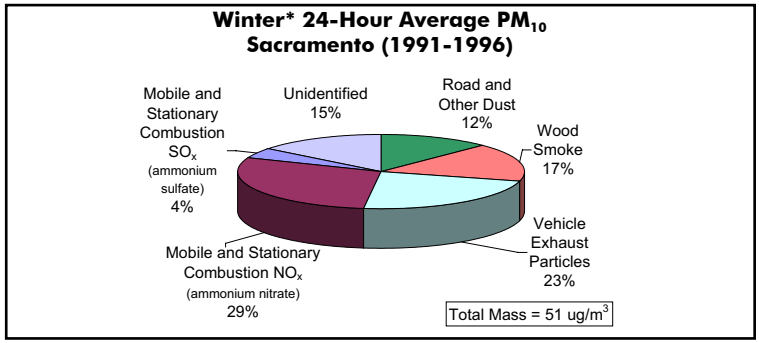


Figure 2-10

* Average of days with $PM_{10}$ > 40 ug/m³

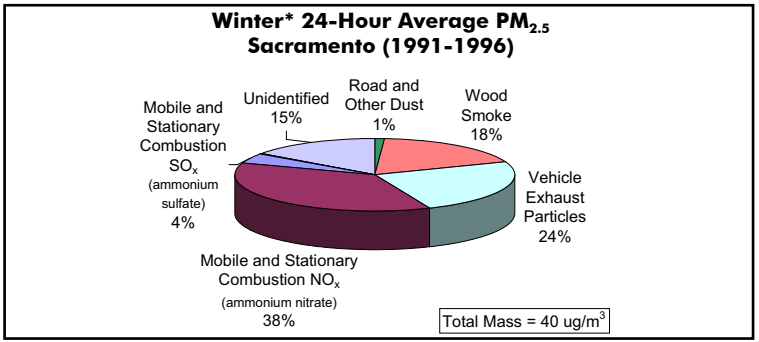


Figure 2-11

* Average of days with $PM_{10}$ > 40 ug/m³

## 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 in the form of ammonium nitrate and sulfate. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient $PM_{10}$ levels.

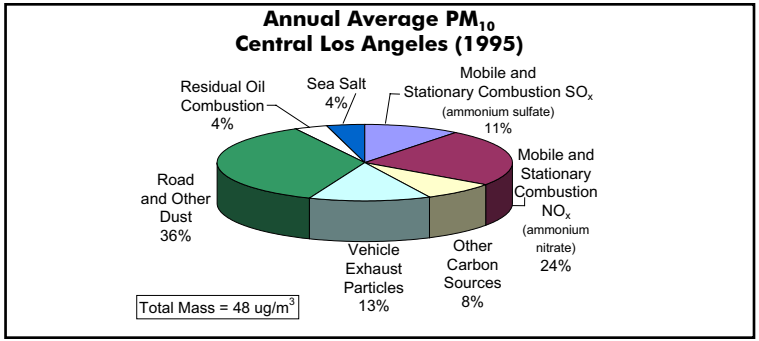


Figure 2-12

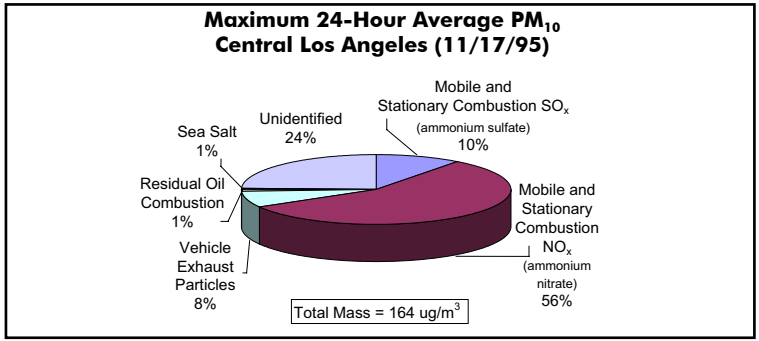


Figure 2-13

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, ammonium nitrate formed from $NO_x$ 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.

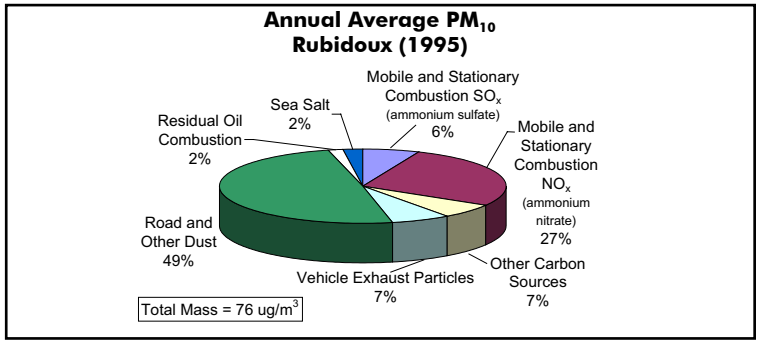


Figure 2-14

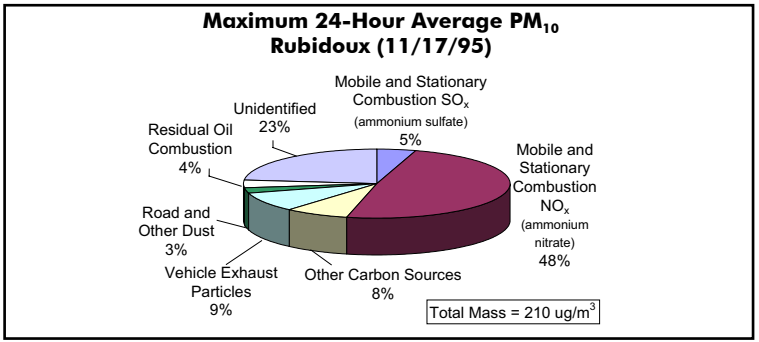


Figure 2-15

## References for Particulate Matter:

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.

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.

Schauer, J. J., Rogge, W. F., Hidemann, L. M., Mazurek, M. A., and Cass, G. R. *Source Apportionment of Airborne Particulate Matter Using Organic Compounds as Tracers.* Atmospheric Environment; 30: 22, 3837-3855, 1996.

San Joaquin Valley Air Pollution Control District. *2003 $PM_{10}$ Plan: San Joaquin Valley Plan to Attain Federal Standards for Particulate Matter 10 Microns and Smaller.* Appendix N.

# *Carbon Monoxide*

## 2003 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 82 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** | 386 | 3% |
| **Area-wide Sources** | 2129 | 15% |
| **On-Road Mobile** | 8757 | 61% |
| Gasoline Vehicles | 8616 | 60% |
| Diesel Vehicles | 141 | 1% |
| **Other Mobile** | 3158 | 22% |
| ***Total Statewide*** | ***14429*** | ***100%*** |

Table 2-17

# Carbon Monoxide - 2002 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 - 2002 Air Quality Tables

## Maximum Peak 8-Hour Indicator by Air Basin

| AIR BASIN | 2002 Maximum Peak 8-Hour Indicator in parts per million | Number of Days in 2002 above State 8-Hour Standard | Number of Days in 2002 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 | 2.0 | 0 | 0 |
| Mountain Counties Air Basin | 1.6 | 0 | 0 |
| North Central Coast Air Basin | 1.5 | 0 | 0 |
| North Coast Air Basin | 2.6 | 0 | 0 |
| Northeast Plateau Air Basin | Incomplete Data | Incomplete Data | Incomplete Data |
| Sacramento Valley Air Basin | 6.0 | 0 | 0 |
| Salton Sea Air Basin | 12.8 | 4 | 3 |
| San Diego Air Basin | 5.3 | 0 | 0 |
| San Francisco Bay Area Air Basin | 6.0 | 0 | 0 |
| San Joaquin Valley Air Basin | 5.3 | 0 | 0 |
| South Central Coast Air Basin | 2.7 | 0 | 0 |
| South Coast Air Basin | 9.4 | 1 | 1 |

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 2002. 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 2003. Any data prior to this year are derived from historical emissions data. Future year data are forecasted from the 2003 base year and control measures reported through September 2003. 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 decreased steadily 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. Direct $PM_{2.5}$ emissions decreased from 1975 to 1985, increased from 1985 to 1990, decreased slightly betwwen 1990 and 1995, and have increased from 1995 to 2010.

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 Emissions (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
| NOx | 4815 | 4986 | 4949 | 4850 | 4142 | 3663 | 3040 | 2519 |
| ROG | 7046 | 6612 | 6043 | 4606 | 3599 | 2978 | 2403 | 2146 |
| PM10 | 1899 | 1927 | 2001 | 2132 | 2039 | 2042 | 2101 | 2164 |
| PM2.5 | 802 | 782 | 775 | 810 | 755 | 753 | 772 | 788 |
| CO | 41292 | 37605 | 35584 | 29599 | 22210 | 16887 | 13197 | 10835 |

Table 3-1

# 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 1983 through 2002, statewide maximum 1-hour ozone values decreased 57 percent, and maximum 8-hour carbon monoxide values dropped 45 percent. These air quality improvements occurred at the same time the State's population increased 39 percent and the average daily number of vehicle miles traveled (VMT) increased 86 percent. Ambient annual average $PM_{10}$ values in the non-desert areas also show improvement: a 36 percent decrease from 1989 to 2002. While the air quality improvements are impressive, additional emission controls will be needed to offset future growth.

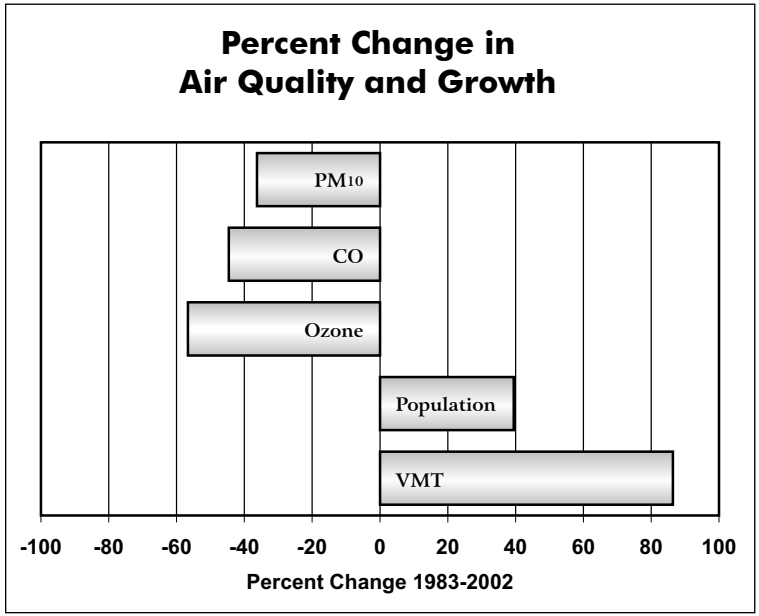


Figure 3-1

# *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 28 percent from 1990 to 2000, and $NO_x$ emissions are projected to decrease by an additional 41 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 43 percent between 1980 and 1995. This decrease has been largely due to a switch from fuel oil to natural gas and 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*.

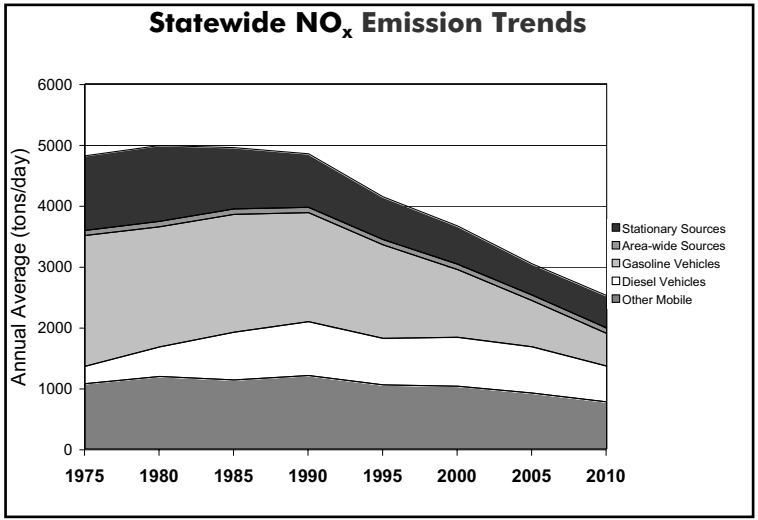


Figure 3-2

## 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, 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 1990 and 2010 as more stringent emission standards are adopted and implemented. Emissions from other mobile sources are significantly higher than previous editions of the almanac due to methodology improvements for small off-road engines. 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*.

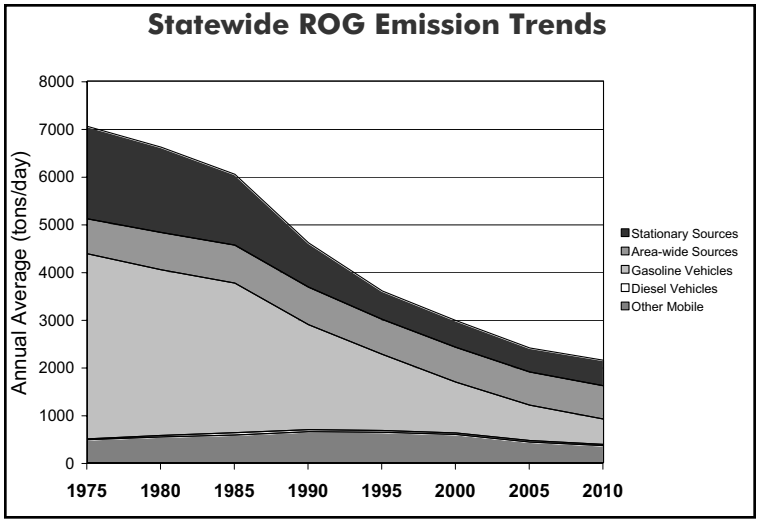


Figure 3-3

# 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** | **4815** | **4986** | **4949** | **4850** | **4142** | **3663** | **3040** | **2519** |
| **Stationary Sources** | 1226 | 1247 | 1004 | 881 | 703 | 627 | 511 | 531 |
| **Area-wide Sources** | 83 | 88 | 91 | 87 | 87 | 90 | 93 | 89 |
| **On-Road Mobile** | 2435 | 2459 | 2721 | 2675 | 2301 | 1915 | 1518 | 1127 |
| Gasoline Vehicles | 2149 | 1975 | 1936 | 1789 | 1535 | 1113 | 757 | 536 |
| Diesel Vehicles | 286 | 484 | 784 | 885 | 766 | 802 | 761 | 590 |
| **Other Mobile** | 1072 | 1192 | 1133 | 1207 | 1052 | 1031 | 918 | 772 |

| ROG Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| **All Sources** | **7046** | **6612** | **6043** | **4606** | **3599** | **2978** | **2403** | **2146** |
| **Stationary Sources** | 1935 | 1789 | 1484 | 927 | 597 | 560 | 502 | 535 |
| **Area-wide Sources** | 735 | 780 | 797 | 790 | 733 | 733 | 698 | 700 |
| **On-Road Mobile** | 3896 | 3506 | 3186 | 2243 | 1634 | 1096 | 772 | 557 |
| Gasoline Vehicles | 3880 | 3475 | 3138 | 2198 | 1597 | 1064 | 741 | 530 |
| Diesel Vehicles | 17 | 31 | 48 | 45 | 36 | 32 | 31 | 27 |
| **Other Mobile** | 480 | 537 | 577 | 646 | 635 | 589 | 430 | 354 |

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 51 percent from 1983 to 2003. During 1983 to 2002, the statewide population grew by 39 percent and the number of vehicle miles traveled each day was up more than 86 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.

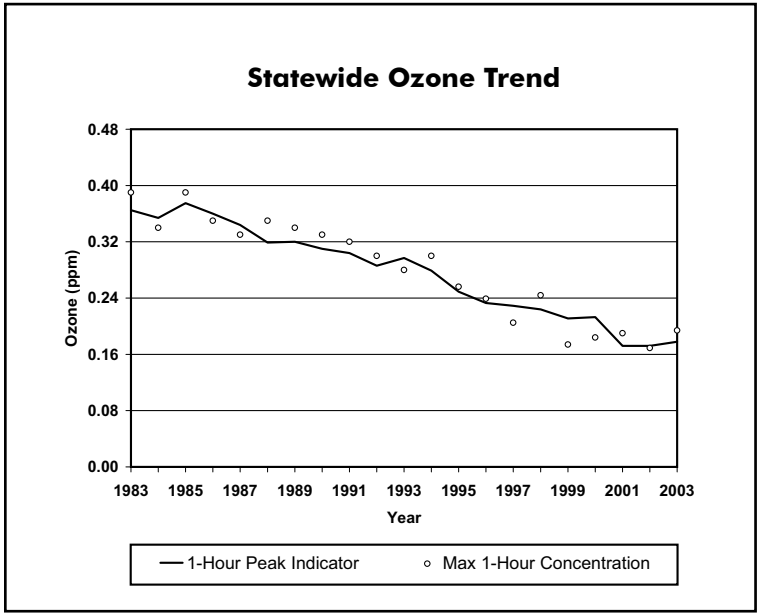


Figure 3-4

# 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 (outdoor) 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. The population associated with these "zero" exposures are not included in the exposure calculations in this almanac because including population with 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 2002, 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 and a portion of the Mountain Counties 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 subarea. 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. The population is based on census tract data, and the calculation is performed at the census tract level and then aggregated to the regional level. Exposures for the years 1982 through 1999 use census information for 1990, while exposures for the years 2000, 2001, and 2002 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** | **2002** |
| **South Coast Air Basin** | | | | | | | | | | | | | | | | | | | | | |
| Exposure | 32.85 | 41.61 | 36.58 | 36.90 | 35.68 | 31.41 | 34.28 | 29.58 | 22.10 | 22.21 | 21.99 | 17.96 | 18.90 | 13.26 | 10.67 | 6.28 | 8.88 | 3.27 | 5.31 | 6.90 | 7.09 |
| % Pop. Represented* | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 97% | 100% | 92% | 98% | 99% | 100% | 88% | 78% |
| **San Francisco Bay Area Air Basin** | | | | | | | | | | | | | | | | | | | | | |
| Exposure | 0.81 | 2.28 | 2.28 | 1.45 | 0.85 | 1.81 | 1.24 | 0.67 | 0.46 | 0.48 | 0.54 | 0.41 | 0.26 | 1.06 | 1.03 | 0.10 | 0.95 | 0.62 | 0.33 | 0.34 | 0.35 |
| % Pop. Represented | 57% | 97% | 100% | 73% | 46% | 72% | 73% | 53% | 41% | 45% | 50% | 72% | 39% | 81% | 60% | 48% | 54% | 65% | 25% | 48% | 29% |
| **San Joaquin Valley Air Basin** | | | | | | | | | | | | | | | | | | | | | |
| Exposure | 7.85 | 5.61 | 7.25 | 8.09 | 10.00 | 10.09 | 9.38 | 7.12 | 5.21 | 6.09 | 5.64 | 6.18 | 6.43 | 6.10 | 6.96 | 3.73 | 6.60 | 4.47 | 4.59 | 4.70 | 5.81 |
| % Pop. Represented | 98% | 97% | 97% | 97% | 95% | 98% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% | 99% |
| **San Diego Air Basin** | | | | | | | | | | | | | | | | | | | | | |
| Exposure | 7.15 | 9.60 | 6.94 | 8.17 | 5.16 | 5.64 | 7.40 | 7.29 | 6.35 | 3.92 | 3.31 | 2.74 | 2.28 | 2.41 | 1.19 | 0.83 | 1.92 | 0.60 | 0.52 | 0.70 | 0.38 |
| % Pop. Represented | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 79% | 100% | 98% | 100% | 83% | 70% | 72% | 95% | 75% |
| **Sacramento Metropolitan Area** | | | | | | | | | | | | | | | | | | | | | |
| Exposure | 2.29 | 2.32 | 3.11 | 2.88 | 2.57 | 3.19 | 4.22 | 1.83 | 2.14 | 2.47 | 2.35 | 1.10 | 1.76 | 2.20 | 1.85 | 0.51 | 1.97 | 1.44 | 1.14 | 1.07 | 1.51 |
| % Pop. Represented | 100% | 94% | 100% | 93% | 94% | 100% | 100% | 100% | 100% | 99% | 100% | 100% | 95% | 100% | 100% | 98% | 100% | 100% | 99% | 100% | 99% |

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

Some results changed for the time period 1998 to 2001 as compared with those in the 2003 Almanac. This is due to the correction of a calculation error.

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 upwind areas that impact downwind areas 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*.

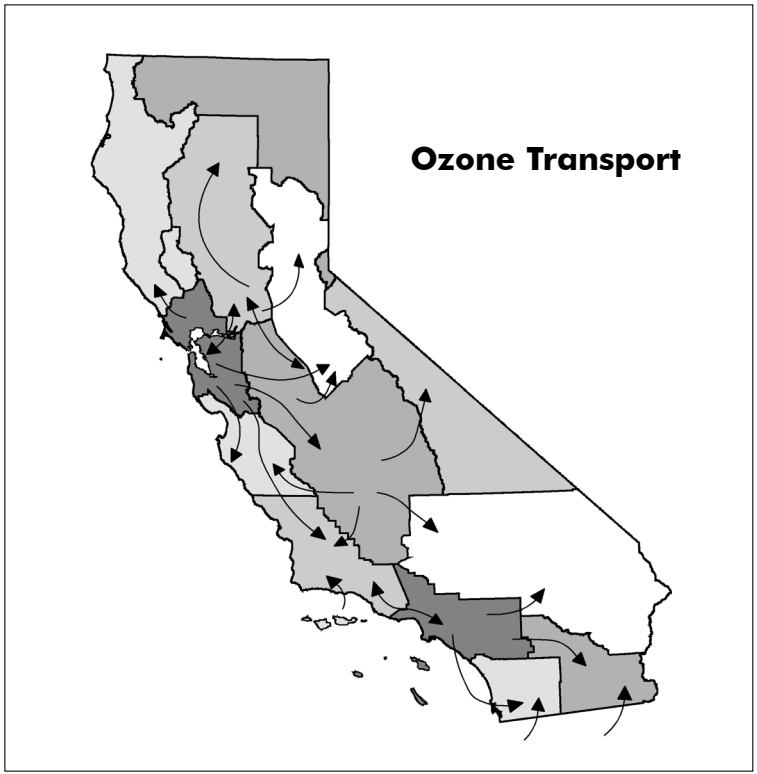


Figure 3-5

# *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 52 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.

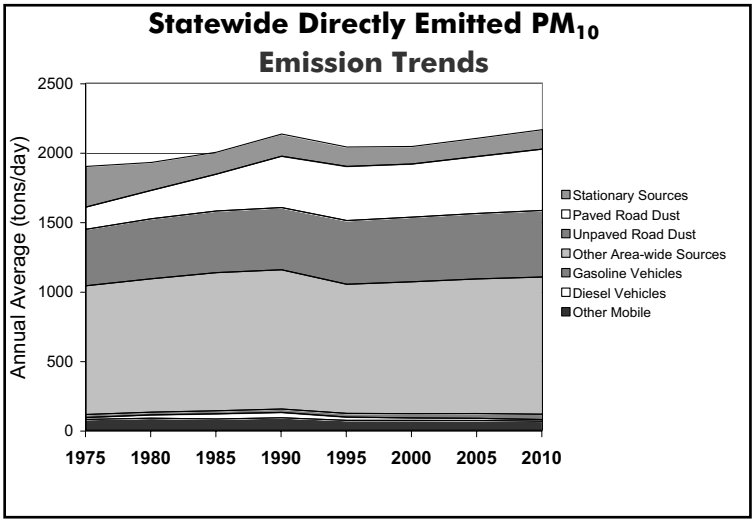


Figure 3-6

# 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** | **1899** | **1927** | **2001** | **2132** | **2039** | **2042** | **2101** | **2164** |
| **Stationary Sources** | 293 | 201 | 157 | 159 | 140 | 125 | 130 | 140 |
| **Area-wide Sources** | 1493 | 1597 | 1704 | 1819 | 1778 | 1798 | 1851 | 1908 |
| Paved Road Dust | 160 | 204 | 266 | 370 | 390 | 383 | 411 | 441 |
| Unpaved Road Dust | 407 | 432 | 444 | 447 | 458 | 465 | 471 | 480 |
| Other Area-wide Sources | 926 | 961 | 994 | 1002 | 930 | 950 | 969 | 987 |
| **On-Road Mobile** | 36 | 43 | 60 | 63 | 51 | 49 | 50 | 51 |
| Gasoline Vehicles | 22 | 19 | 21 | 25 | 27 | 30 | 34 | 39 |
| Diesel Vehicles | 14 | 24 | 38 | 38 | 24 | 18 | 16 | 12 |
| **Other Mobile** | 78 | 86 | 80 | 90 | 71 | 71 | 70 | 65 |

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 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 52 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.

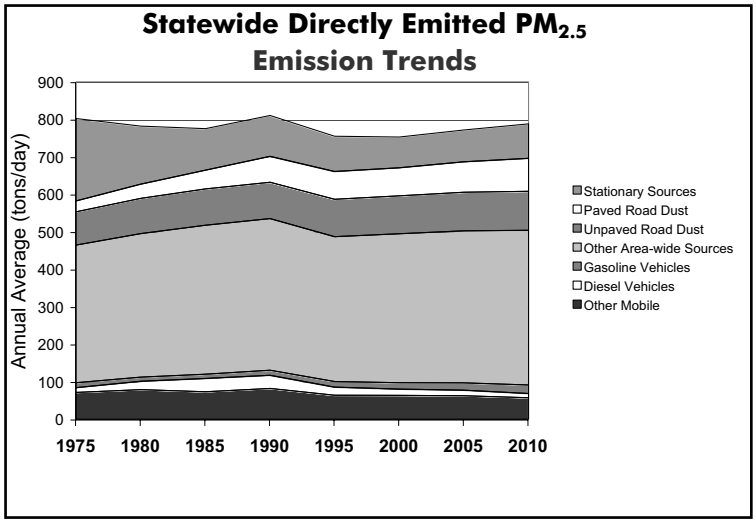


Figure 3-7

# 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** | **802** | **782** | **775** | **810** | **755** | **753** | **772** | **788** |
| **Stationary Sources** | 220 | 155 | 111 | 109 | 94 | 82 | 85 | 92 |
| **Area-wide Sources** | 485 | 515 | 544 | 571 | 560 | 573 | 590 | 605 |
| Paved Road Dust | 29 | 38 | 50 | 69 | 74 | 75 | 81 | 88 |
| Unpaved Road Dust | 89 | 94 | 97 | 97 | 100 | 101 | 103 | 104 |
| Other Area-wide Sources | 367 | 383 | 397 | 405 | 386 | 397 | 406 | 413 |
| **On-Road Mobile** | 26 | 33 | 47 | 48 | 37 | 34 | 34 | 34 |
| Gasoline Vehicles | 13 | 11 | 12 | 13 | 15 | 17 | 20 | 23 |
| Diesel Vehicles | 12 | 22 | 35 | 35 | 22 | 17 | 15 | 11 |
| **Other Mobile** | 72 | 79 | 73 | 82 | 64 | 63 | 63 | 57 |

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 many areas. Figure 3-8 shows the maximum statewide annual average of quarters $PM_{10}$ concentrations for a non-desert area. The trend line reflects, for the most part, the South Coast Air Basin. The low value for the maximum annual average of quarters in 1988 is due to the limited number of monitors with complete data for this year during the startup of the $PM_{10}$ monitoring network. The period between 1989 and 2002 provides a better indication of trends. Over this period, the maximum annual average of quarters shows a decrease of about 36 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, PM is commanding greater attention, and much effort will be needed to attain the standards for this pollutant.

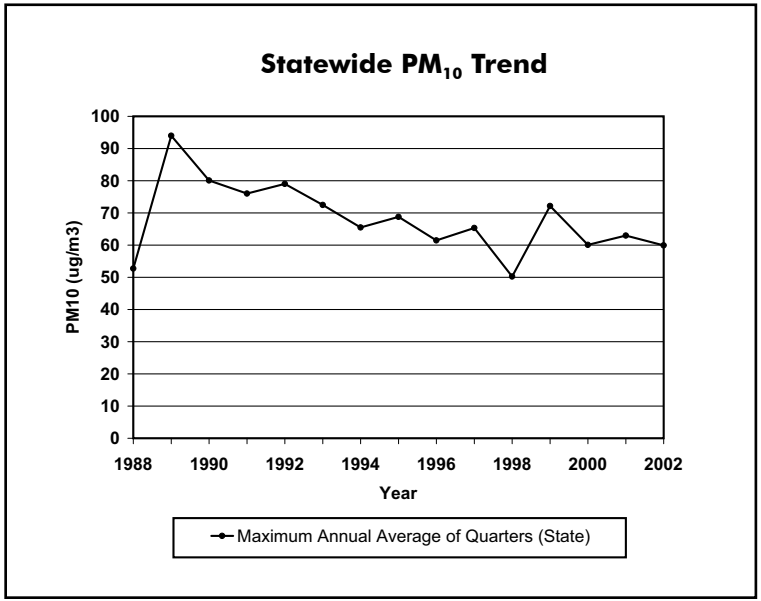


Figure 3-8

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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 zero emission vehicles (ZEVs), 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. Emissions from other mobile sources are significantly higher than previous editions of the almanac due to methodology improvements for small off-road engines. 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.

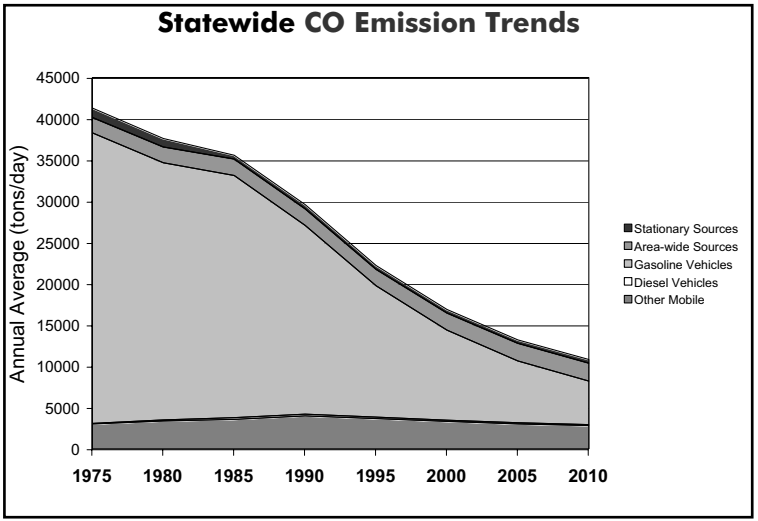


Figure 3-9

# 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** | **41292** | **37605** | **35584** | **29599** | **22210** | **16887** | **13197** | **10835** |
| **Stationary Sources** | 1135 | 1010 | 453 | 495 | 443 | 414 | 402 | 436 |
| **Area-wide Sources** | 1871 | 1923 | 1995 | 2015 | 2009 | 2089 | 2145 | 2180 |
| **On-Road Mobile** | 35269 | 31295 | 29565 | 23087 | 16090 | 11059 | 7629 | 5397 |
| Gasoline Vehicles | 35199 | 31171 | 29359 | 22878 | 15915 | 10909 | 7487 | 5272 |
| Diesel Vehicles | 69 | 124 | 205 | 209 | 174 | 150 | 143 | 125 |
| **Other Mobile** | 3017 | 3378 | 3571 | 4002 | 3668 | 3325 | 3021 | 2821 |

Table 3-6

# Statewide Air Quality - Carbon Monoxide

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 39 percent from 1983 to 2002. During 2002, measured carbon monoxide concentrations exceeded the level of the State and national standards only in Los Angeles County and the city of Calexico, in Imperial County. 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.

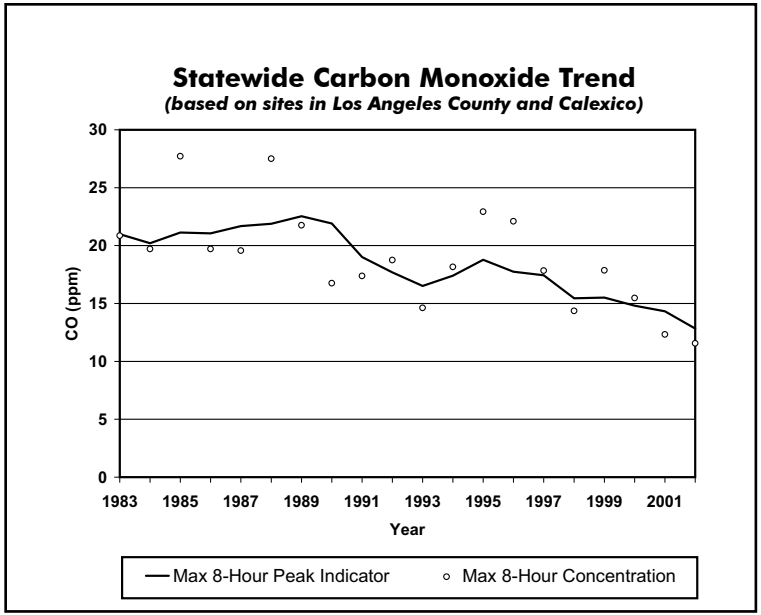


Figure 3-10

# *Success Stories*

## Statewide Air Quality - Lead

The decrease in lead emissions and ambient lead concentrations over the past 20 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.

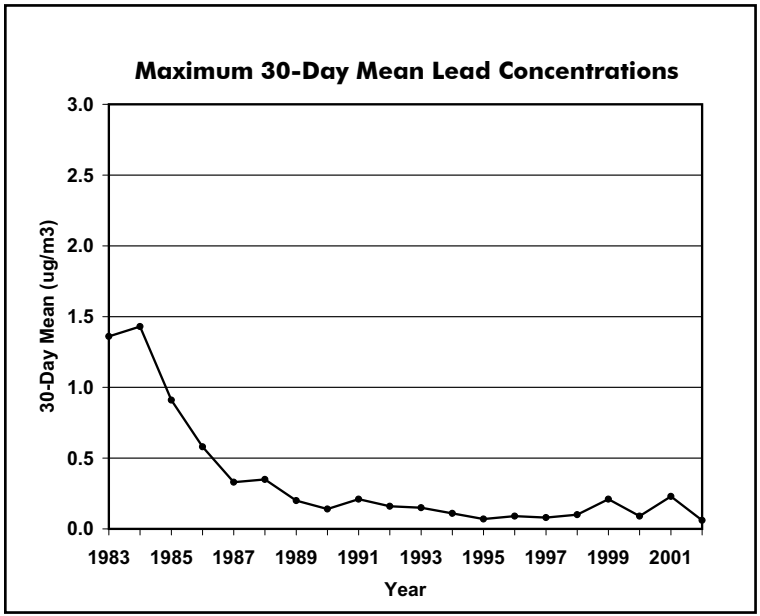


Figure 3-11

# 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.

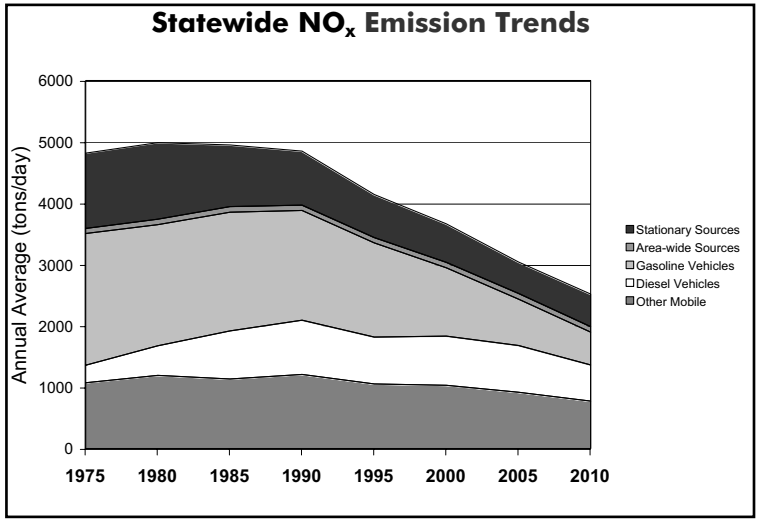


Figure 3-12

## 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** | **4815** | **4986** | **4949** | **4850** | **4142** | **3663** | **3040** | **2519** |
| **Stationary Sources** | 1226 | 1247 | 1004 | 881 | 703 | 627 | 511 | 531 |
| **Area-wide Sources** | 83 | 88 | 91 | 87 | 87 | 90 | 93 | 89 |
| **On-Road Mobile** | 2435 | 2459 | 2721 | 2675 | 2301 | 1915 | 1518 | 1127 |
| Gasoline Vehicles | 2149 | 1975 | 1936 | 1789 | 1535 | 1113 | 757 | 536 |
| Diesel Vehicles | 286 | 484 | 784 | 885 | 766 | 802 | 761 | 590 |
| **Other Mobile** | 1072 | 1192 | 1133 | 1207 | 1052 | 1031 | 918 | 772 |

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 1983, maximum $NO_2$ concentrations have decreased 45 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.

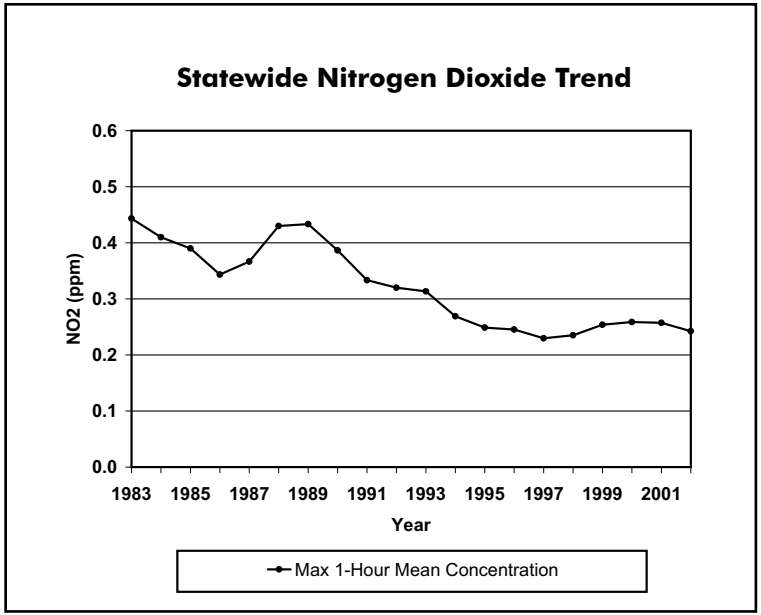


Figure 3-13

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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 83 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.

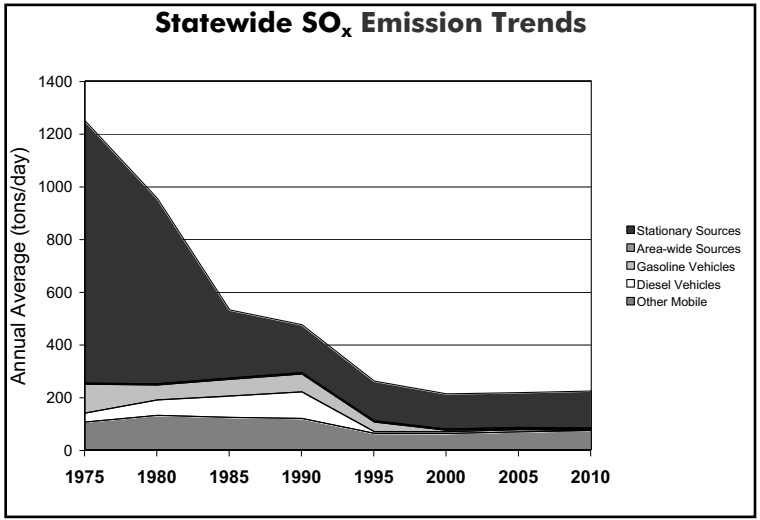


Figure 3-14

## 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** | **1248** | **954** | **530** | **474** | **260** | **212** | **216** | **222** |
| **Stationary Sources** | 995 | 704 | 258 | 182 | 150 | 133 | 132 | 141 |
| **Area-wide Sources** | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |
| **On-Road Mobile** | 144 | 115 | 144 | 169 | 43 | 13 | 12 | 5 |
| Gasoline Vehicles | 110 | 57 | 64 | 68 | 36 | 6 | 4 | 4 |
| Diesel Vehicles | 34 | 59 | 81 | 101 | 7 | 7 | 8 | 1 |
| **Other Mobile** | 104 | 130 | 122 | 118 | 61 | 61 | 67 | 72 |

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 $SO_2$.

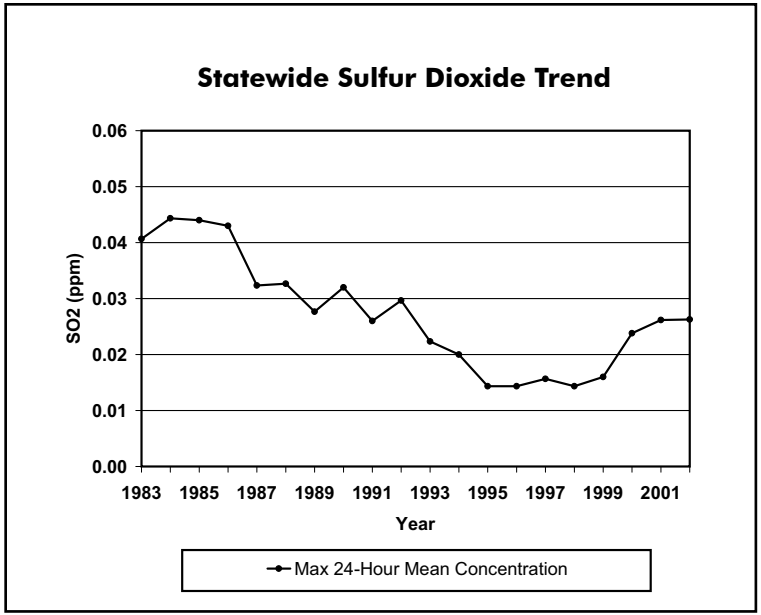


Figure 3-15

# 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

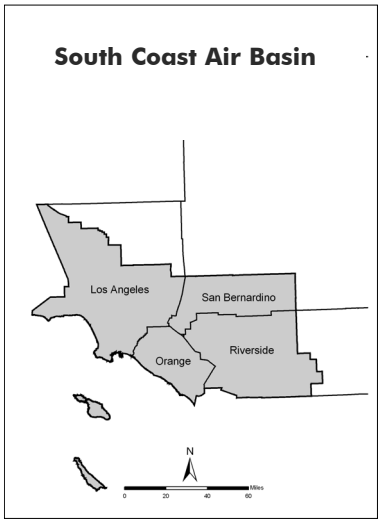


Figure 4-1

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 6,480 square miles, is home to more than 43 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/sip/sip.htm*.

# *South Coast Air Basin*
## Population and VMT

Both population and the daily number of vehicle miles traveled, or VMT, will grow at high rates in the South Coast Air Basin from 1980 to 2010. The population is projected to increase almost 60 percent -- from about 10.6 million in 1980 to almost 17 million in 2010. During the same general period, the number of vehicle miles traveled each day is projected to increase 127 percent -- from 158 million miles per day in 1980 to almost 359 million miles per day in 2010. 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.

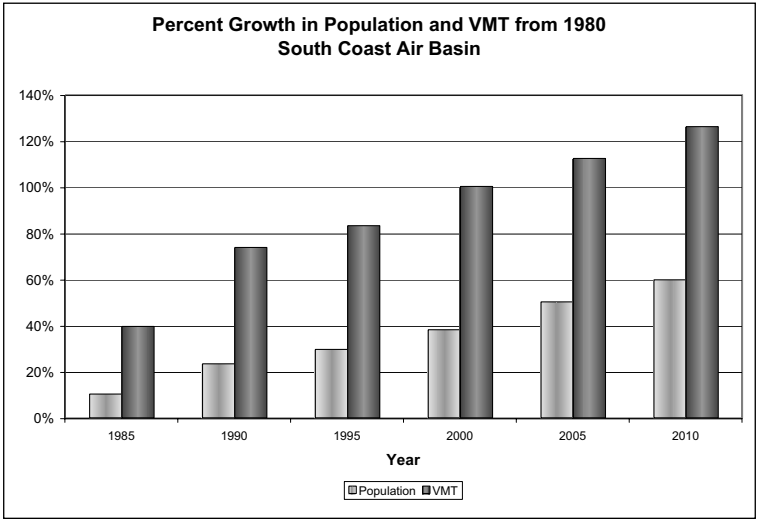


Figure 4-2

# *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.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***1724*** | ***1642*** | ***1742*** | ***1565*** | ***1341*** | ***1182*** | ***968*** | ***762*** |
| **Stationary Sources** | 328 | 292 | 255 | 164 | 131 | 91 | 68 | 65 |
| **Area-wide Sources** | 31 | 34 | 35 | 28 | 27 | 30 | 32 | 27 |
| **On-Road Mobile** | 1026 | 954 | 1094 | 1000 | 869 | 751 | 581 | 426 |
| Gasoline Vehicles | 921 | 768 | 788 | 700 | 594 | 432 | 270 | 186 |
| Diesel Vehicles | 105 | 186 | 306 | 299 | 275 | 319 | 311 | 239 |
| **Other Mobile** | 339 | 362 | 358 | 373 | 314 | 309 | 287 | 243 |

Table 4-1

| ROG Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***2636*** | ***2232*** | ***2187*** | ***1639*** | ***1201*** | ***995*** | ***714*** | ***607*** |
| **Stationary Sources** | 572 | 439 | 428 | 349 | 184 | 195 | 139 | 148 |
| **Area-wide Sources** | 192 | 208 | 230 | 203 | 184 | 191 | 168 | 158 |
| **On-Road Mobile** | 1684 | 1387 | 1317 | 860 | 618 | 413 | 276 | 196 |
| Gasoline Vehicles | 1678 | 1376 | 1299 | 845 | 606 | 402 | 265 | 187 |
| Diesel Vehicles | 6 | 12 | 18 | 15 | 12 | 11 | 11 | 9 |
| **Other Mobile** | 188 | 198 | 212 | 228 | 215 | 196 | 131 | 104 |

Table 4-2

# *South Coast Air Basin*
## Ozone Precursor Emission Trends and Forecasts

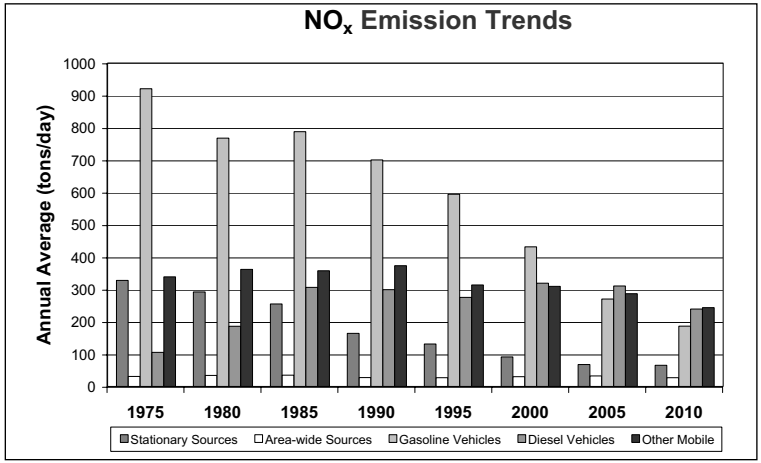


Figure 4-3

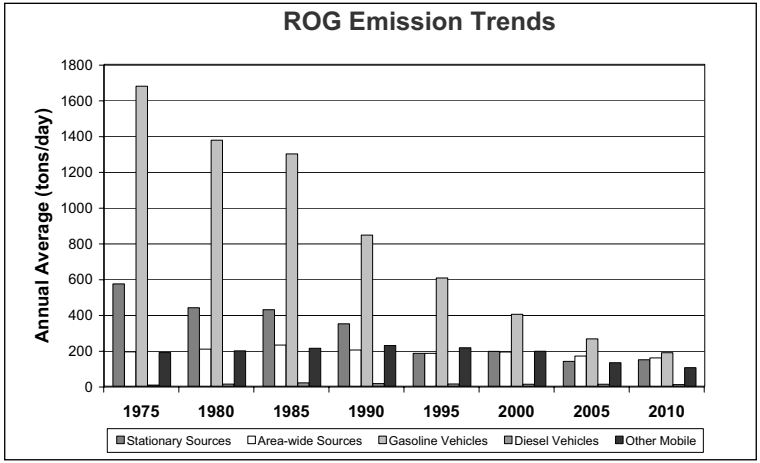


Figure 4-4

# *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 2003 peak 1-hour indicator value is more than 51 percent lower than the 1983 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.

In July 2003, the South Coast Air Basin experienced its first Stage 1 smog alert since 1998. The Basin also had a greater number of days exceeding the ozone standards than in the previous five years. An analysis of the weather indicated that there were more days in 2003 with the potential to produce high ozone than in any of the last 24 years. This increased potential contributed to the severity of the 2003 ozone season.

The ARB has identified the South Coast Air 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.

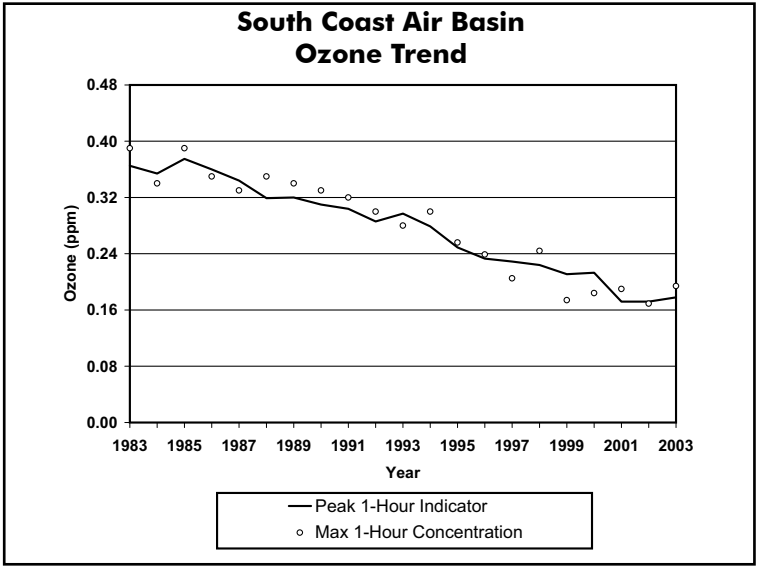


Figure 4-5

# *South Coast Air Basin*
## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.172 | 0.178 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.169 | 0.180 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 0.229 | 0.225 | 0.226 | 0.222 | 0.217 | 0.205 | 0.192 | 0.186 | 0.182 | 0.18 | 0.177 | 0.171 | 0.165 | 0.161 | 0.148 | 0.154 | 0.147 | 0.146 | 0.129 | 0.128 | 0.131 |
| Maximum 1-Hr. Concentration | 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 | 0.169 | 0.194 |
| Max. 8-Hr. Concentration | 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 | 0.144 | 0.153 |
| Days Above State Standard | 192 | 209 | 207 | 217 | 196 | 216 | 211 | 185 | 184 | 190 | 185 | 165 | 153 | 141 | 144 | 107 | 111 | 115 | 121 | 116 | 125 |
| Days Above Nat. 1-Hr. Std. | 153 | 175 | 158 | 167 | 161 | 178 | 157 | 131 | 130 | 142 | 124 | 118 | 98 | 85 | 64 | 60 | 39 | 33 | 36 | 45 | 64 |
| Days Above Nat. 8-Hr. Std. | 169 | 190 | 181 | 191 | 179 | 194 | 181 | 161 | 160 | 173 | 161 | 148 | 120 | 115 | 118 | 93 | 93 | 94 | 92 | 96 | 109 |

[1]The data do not reflect the Stage 1 smog alert of 0.220 ppm that occurred at Rim of the World monitoring site on July 11, 2003. This is a special purpose monitoring site, and is not part of the official data used for regulatory purposes.

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 65 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*** | ***233*** | ***243*** | ***271*** | ***338*** | ***320*** | ***288*** | ***291*** | ***297*** |
| **Stationary Sources** | 55 | 38 | 26 | 26 | 17 | 16 | 16 | 17 |
| **Area-wide Sources** | 140 | 162 | 196 | 264 | 264 | 233 | 235 | 242 |
| **On-Road Mobile** | 15 | 17 | 24 | 22 | 19 | 19 | 19 | 19 |
| Gasoline Vehicles | 10 | 8 | 9 | 10 | 11 | 12 | 13 | 15 |
| Diesel Vehicles | 5 | 9 | 15 | 12 | 8 | 6 | 6 | 4 |
| **Other Mobile** | 24 | 25 | 25 | 26 | 21 | 21 | 21 | 19 |

Table 4-4

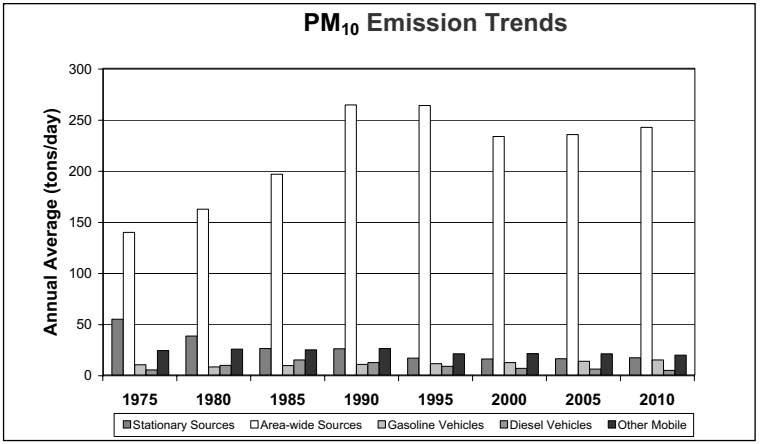


Figure 4-6

# *South Coast Air Basin*
## Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ are increasing 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 40 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*** | ***118*** | ***108*** | ***110*** | ***120*** | ***106*** | ***104*** | ***106*** | ***107*** |
| **Stationary Sources** | 51 | 32 | 21 | 22 | 14 | 13 | 13 | 14 |
| **Area-wide Sources** | 35 | 40 | 48 | 59 | 59 | 60 | 61 | 63 |
| **On-Road Mobile** | 11 | 13 | 19 | 17 | 14 | 13 | 13 | 13 |
| **Gasoline Vehicles** | 6 | 5 | 5 | 6 | 6 | 7 | 8 | 9 |
| **Diesel Vehicles** | 5 | 9 | 14 | 11 | 8 | 6 | 5 | 4 |
| **Other Mobile** | 22 | 23 | 22 | 23 | 18 | 19 | 18 | 17 |

Table 4-5

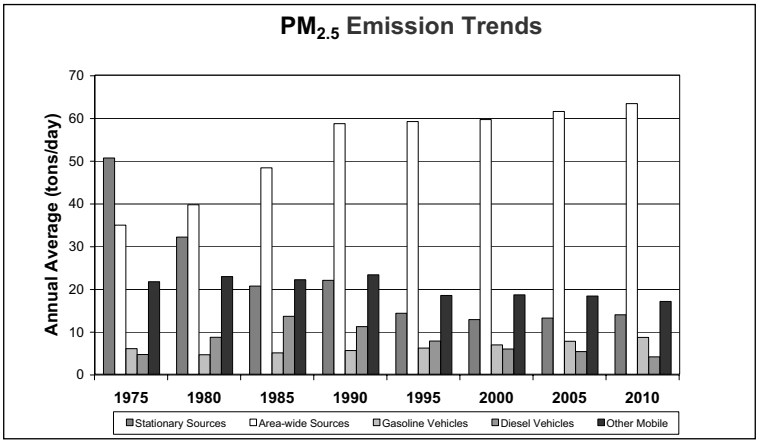


Figure 4-7

# *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 (state) decreased about 37 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 2002, there were still 297 calculated State standard exceedance days. In contrast, there were no national standard exceedance days.

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.

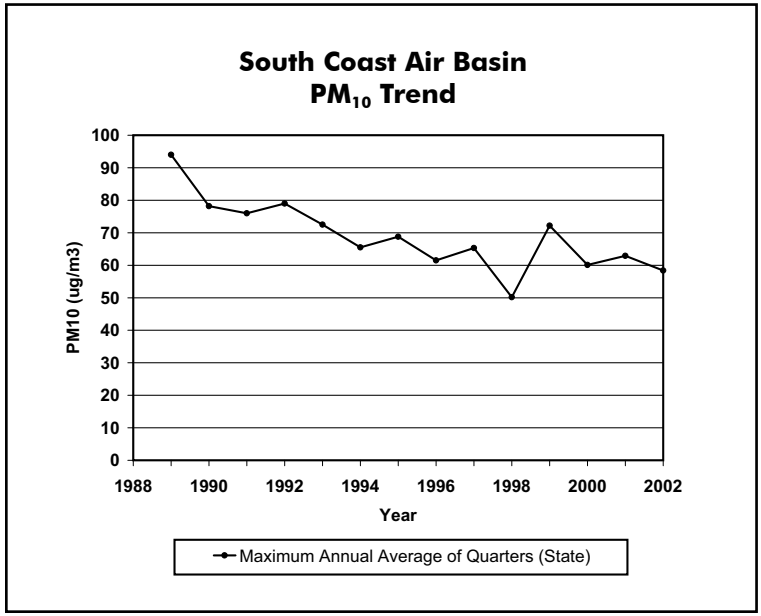


Figure 4-8

# *South Coast Air Basin*

## $PM_{10}$ Air Quality Table

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 287 | 271 | 475 | 179 | 649 | 231 | 161 | 219 | 162 | 208 | 116 | 183 | 139 | 219 | 130 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 289 | 271 | 475 | 179 | 649 | 231 | 161 | 219 | 162 | 208 | 116 | 183 | 139 | 219 | 130 |
| Max. Annual Avg of Qrtrs (State) | | | | | | | 94.0 | 78.2 | 76.0 | 79.0 | 72.5 | 65.5 | 68.8 | 61.5 | 65.3 | 50.2 | 72.2 | 60.1 | 62.9 | 58.4 |
| Max. Annual Avg of Qrtrs (Nat) | | | | | | 94.5 | 93.0 | 78.2 | 76.1 | 79.0 | 72.5 | 65.5 | 68.8 | 62.8 | 65.6 | 50.2 | 72.2 | 59.1 | 63.3 | 58.1 |
| Calc Days Above State 24-Hr Std | | | | | | 345 | 338 | 301 | 294 | 282 | 293 | 276 | 252 | 276 | 290 | 238 | 288 | 300 | 278 | 297 |
| Calc Days Above Nat 24-Hr Std | | | | | | 44 | 32 | 33 | 15 | 24 | 12 | 3 | 31 | 6 | 17 | 0 | 6 | 0 | 5 | 0 |

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*** | ***16154*** | ***13381*** | ***13139*** | ***10322*** | ***7606*** | ***5552*** | ***3941*** | ***3051*** |
| **Stationary Sources** | 295 | 286 | 74 | 99 | 96 | 70 | 75 | 78 |
| **Area-wide Sources** | 54 | 51 | 82 | 70 | 87 | 142 | 158 | 161 |
| **On-Road Mobile** | 14571 | 11754 | 11622 | 8690 | 6153 | 4207 | 2705 | 1883 |
| **Gasoline Vehicles** | 14546 | 11708 | 11545 | 8623 | 6093 | 4154 | 2654 | 1839 |
| **Diesel Vehicles** | 25 | 47 | 78 | 67 | 60 | 52 | 51 | 44 |
| **Other Mobile** | 1233 | 1290 | 1361 | 1463 | 1269 | 1133 | 1004 | 929 |

Table 4-7

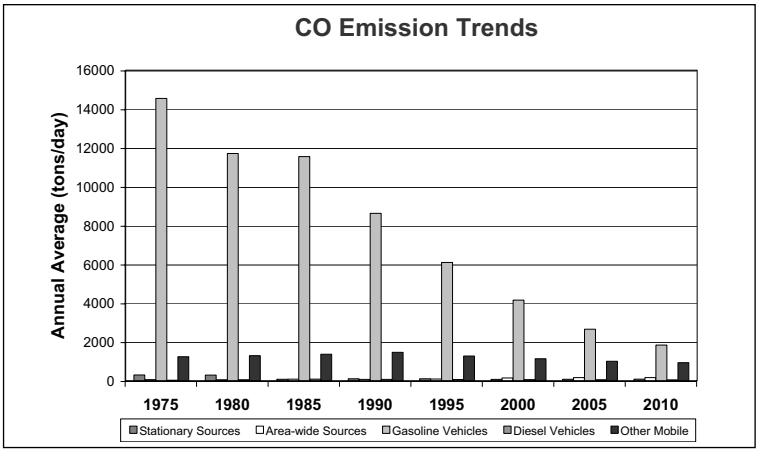


Figure 4-9

# *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 55 percent in the maximum peak 8-hour indicator since 1983. The number of standard exceedance days has also declined. There were 67 days above the State standard and 57 days above the national standard during 1983. However, during 2002, there was only one exceedance day for each.

While the entire South Coast Air Basin is designated as non-attainment 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. The South Coast Air Basin now qualifies as attainment for the national CO standard, and is expected to reach attainment of the State CO standard within the next three years. No violations have occurred in the other three counties since 1992. Continuing reductions in motor vehicle emissions should continue reducing ambient CO concentrations.

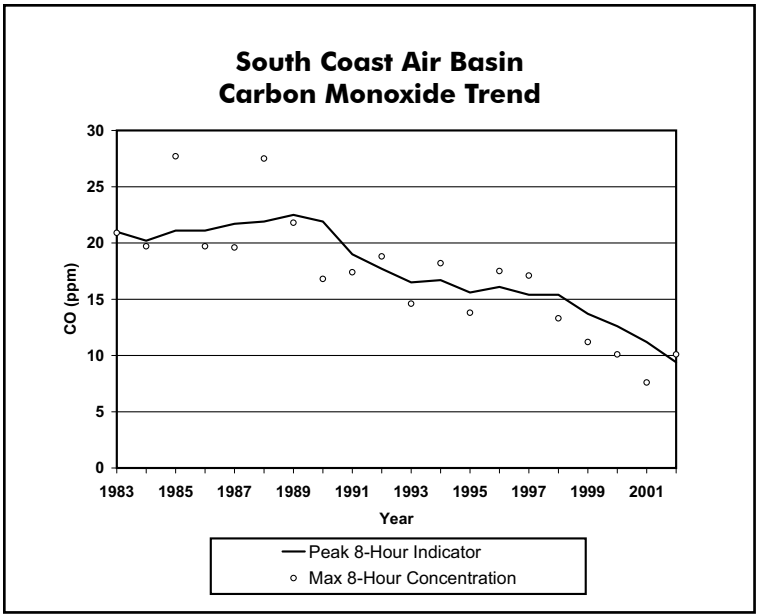


Figure 4-10

# *South Coast Air Basin*

## Carbon Monoxide Air Quality Table

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 9.4 |
| Max. 1-Hr. Concentration | 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 | 15.8 |
| Max. 8-Hr. Concentration | 20.9 | 19.7 | 27.7 | 19.7 | 19.6 | 27.5 | 21.8 | 16.8 | 17.4 | 18.8 | 14.6 | 18.2 | 13.8 | 17.5 | 17.1 | 13.3 | 11.2 | 10.1 | 7.6 | 10.1 |
| Days Above State 8-Hr. Std. | 67 | 79 | 64 | 58 | 50 | 73 | 71 | 50 | 51 | 39 | 29 | 27 | 17 | 26 | 18 | 13 | 11 | 6 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | 57 | 66 | 54 | 49 | 40 | 65 | 67 | 42 | 41 | 34 | 19 | 19 | 14 | 19 | 13 | 10 | 7 | 3 | 0 | 1 |

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.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***1724*** | ***1642*** | ***1742*** | ***1565*** | ***1341*** | ***1182*** | ***968*** | ***762*** |
| **Stationary Sources** | 328 | 292 | 255 | 164 | 131 | 91 | 68 | 65 |
| **Area-wide Sources** | 31 | 34 | 35 | 28 | 27 | 30 | 32 | 27 |
| **On-Road Mobile** | 1026 | 954 | 1094 | 1000 | 869 | 751 | 581 | 426 |
| Gasoline Vehicles | 921 | 768 | 788 | 700 | 594 | 432 | 270 | 186 |
| Diesel Vehicles | 105 | 186 | 306 | 299 | 275 | 319 | 311 | 239 |
| **Other Mobile** | 339 | 362 | 358 | 373 | 314 | 309 | 287 | 243 |

Table 4-9

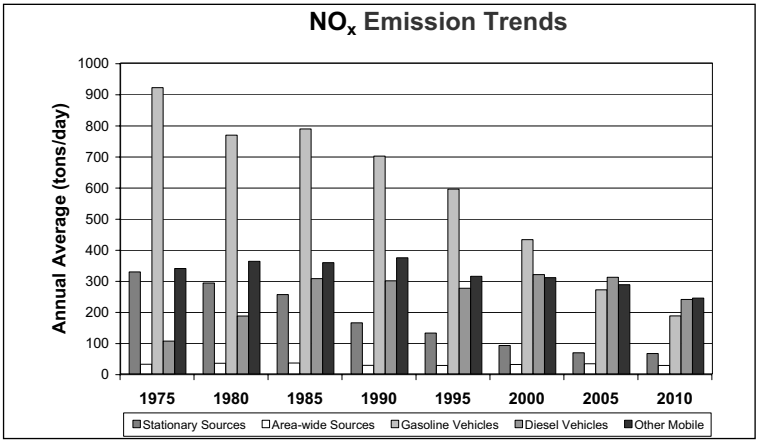


Figure 4-11

# *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. The South Coast Air Basin attained the State 1-hour $NO_2$ standard in 1994, bringing the entire State into attainment. The federal standard has not been exceeded since 1991.

Over the last 20 years, $NO_2$ values have decreased significantly in the South Coast Air Basin. The peak 1-hour indicator for 2002 was nearly half of what it was during 1983, a 47 percent decrease. However, since the early 1990's, maximum 1-hour $NO_2$ concentrations that exceed the level of the State standard have occasionally occurred but have not affected the area's attainment status. These exceedances have been very infrequent and limited to either the Banning Airport or the Burbank-West Palm Avenue monitoring sites. Additional years of data will be needed to determine if there is any long-term change in $NO_2$ trends in the South Coast Air Basin.

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.

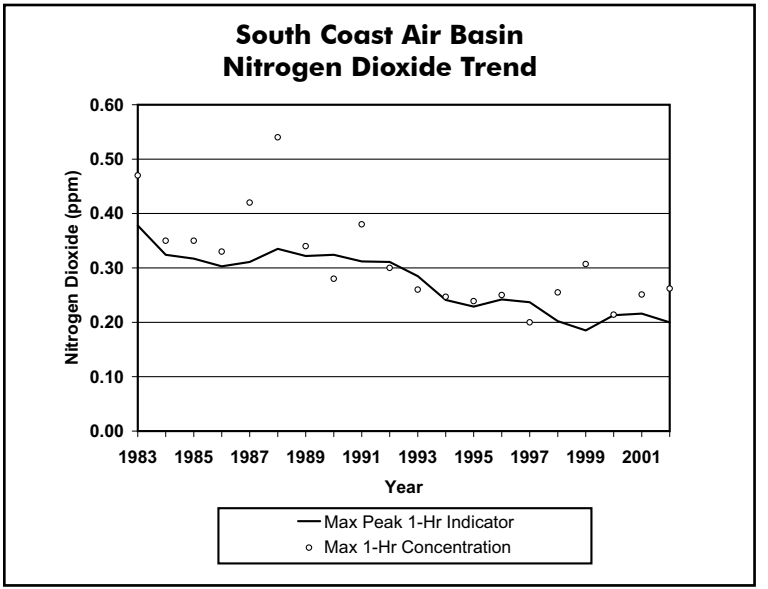


Figure 4-12

# *South Coast Air Basin*

## Nitrogen Dioxide Air Quality Table

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.378 | 0.324 | 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 | 0.202 | 0.185 | 0.213 | 0.216 | 0.200 |
| Max. 1-Hr. Concentration | 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 | 0.262 |
| Max. Annual Average | 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 | 0.040 |

Table 4-10

# *San Francisco Bay Area Air Basin*
## Introduction - Area Description

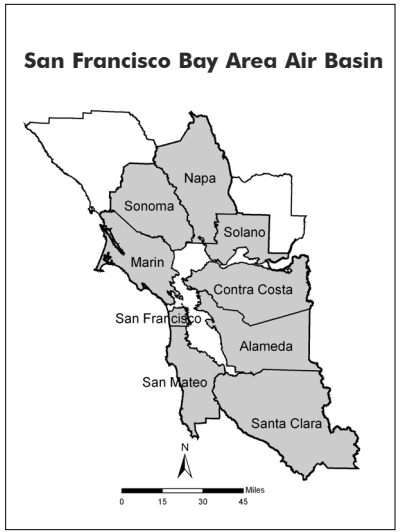


Figure 4-13

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 5,340 square miles. Over 19 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 1975 and 1980, respectively. CO emissions have also been trending downward since 1975. 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 is projected to grow at a slower rate in the San Francisco Bay Area Air Basin from 1980 to 2010. During that 30-year period, the population is projected to increase about 48 percent, from about 5.1 million in 1980 to more than 7.5 million in 2010. During the same period, the daily VMT is projected to increase 114 percent, from 90 million miles per day in 1980 to over 193 million miles per day in 2010. While these growth rates are lower than the growth rates seen in other areas, they still represent substantial increases.

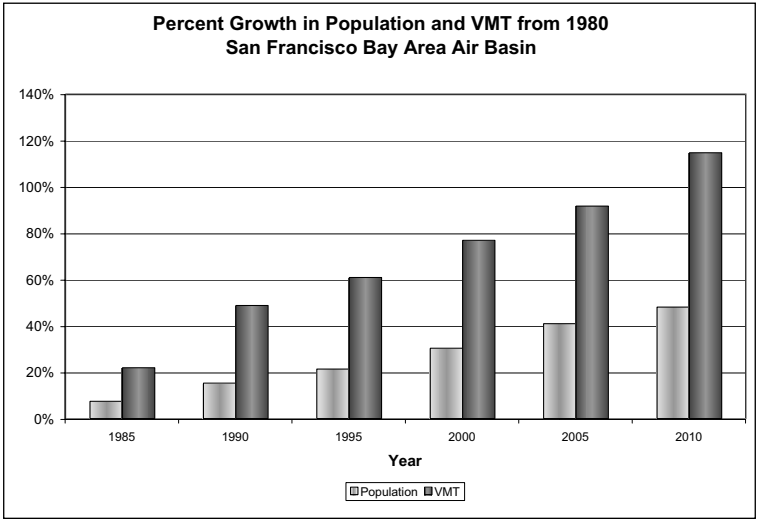


Figure 4-14

# *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 1975 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*** | ***975*** | ***968*** | ***905*** | ***876*** | ***741*** | ***694*** | ***542*** | ***453*** |
| **Stationary Sources** | 231 | 208 | 136 | 132 | 103 | 145 | 73 | 77 |
| **Area-wide Sources** | 14 | 15 | 16 | 19 | 20 | 20 | 20 | 20 |
| **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** | 178 | 175 | 186 | 200 | 182 | 177 | 163 | 139 |

Table 4-11

| ROG Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***1445*** | ***1378*** | ***1119*** | ***793*** | ***637*** | ***496*** | ***397*** | ***344*** |
| **Stationary Sources** | 318 | 306 | 214 | 125 | 119 | 99 | 90 | 90 |
| **Area-wide Sources** | 161 | 154 | 143 | 136 | 104 | 98 | 91 | 91 |
| **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** | 94 | 96 | 104 | 112 | 105 | 92 | 64 | 50 |

Table 4-12

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

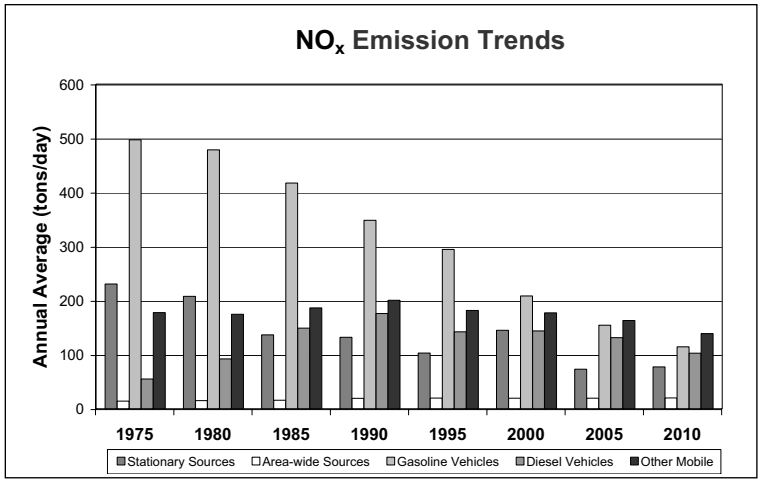


Figure 4-15

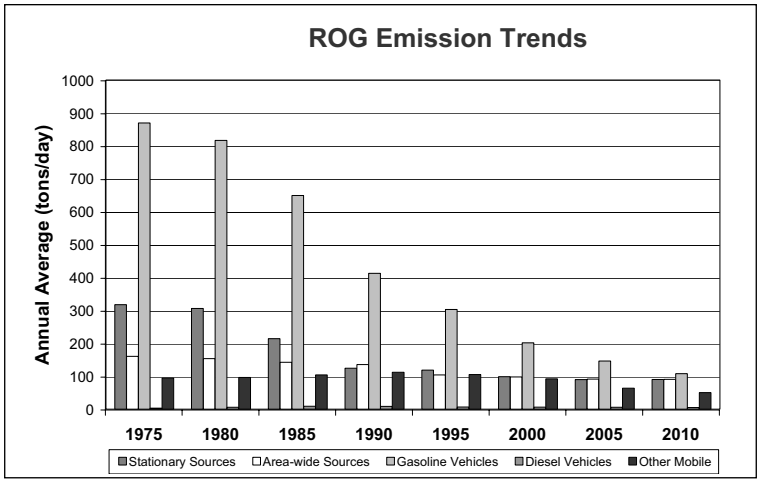


Figure 4-16

# *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 15 percent from 1983 to 2003. Although the trend has not been consistently downward, the ambient concentrations generally declined from 1983 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 2001 through 2003 are lower than values during the prior few years. The number of days above the State 1-hour and national 8-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 Sacramento region, 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.

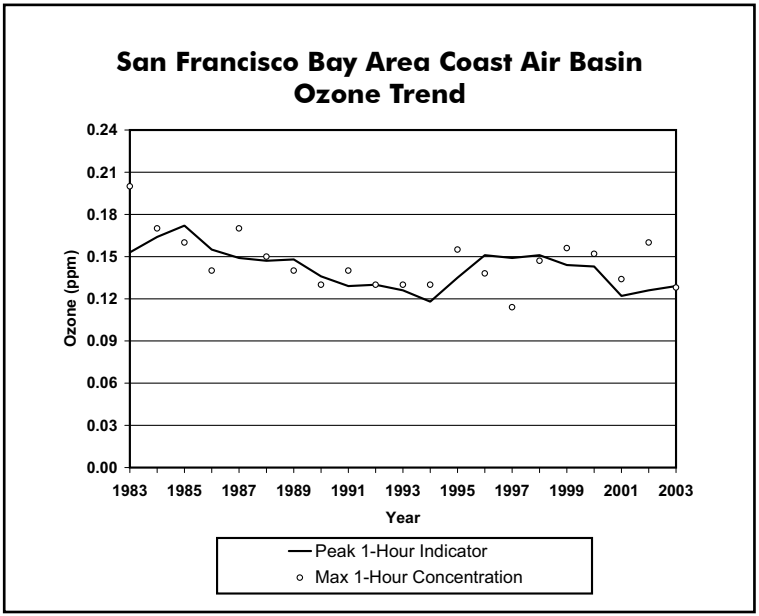


Figure 4-17

# *San Francisco Bay Area Air Basin*

## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.153 | 0.164 | 0.172 | 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 | 0.126 | 0.129 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.124 | 0.123 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.082 | 0.086 |
| Maximum 1-Hr. Concentration | 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 | 0.160 | 0.128 |
| Max. 8-Hr. Concentration | 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 | 0.106 | 0.101 |
| Days Above State Standard | 53 | 55 | 45 | 39 | 46 | 41 | 22 | 14 | 23 | 23 | 19 | 13 | 28 | 34 | 8 | 29 | 20 | 12 | 15 | 16 | 19 |
| Days Above Nat. 1-Hr. Std. | 21 | 22 | 9 | 5 | 14 | 5 | 4 | 2 | 2 | 2 | 3 | 2 | 11 | 8 | 0 | 8 | 3 | 3 | 1 | 2 | 1 |
| Days Above Nat. 8-Hr. Std. | 26 | 32 | 17 | 13 | 29 | 20 | 13 | 7 | 6 | 6 | 5 | 4 | 18 | 14 | 0 | 16 | 9 | 4 | 7 | 7 | 7 |

Table 4-13

# *San Francisco Bay Area Air Basin*

## Directly Emitted $PM_{10}$ Emission Trends and Forecasts

Direct emissions of $PM_{10}$ increase 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 75 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*** | ***183*** | ***184*** | ***197*** | ***196*** | ***184*** | ***195*** | ***205*** | ***208*** |
| **Stationary Sources** | 36 | 24 | 21 | 17 | 18 | 15 | 17 | 17 |
| **Area-wide Sources** | 128 | 139 | 152 | 153 | 145 | 159 | 168 | 170 |
| **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** | 12 | 12 | 12 | 14 | 11 | 11 | 11 | 10 |

Table 4-14

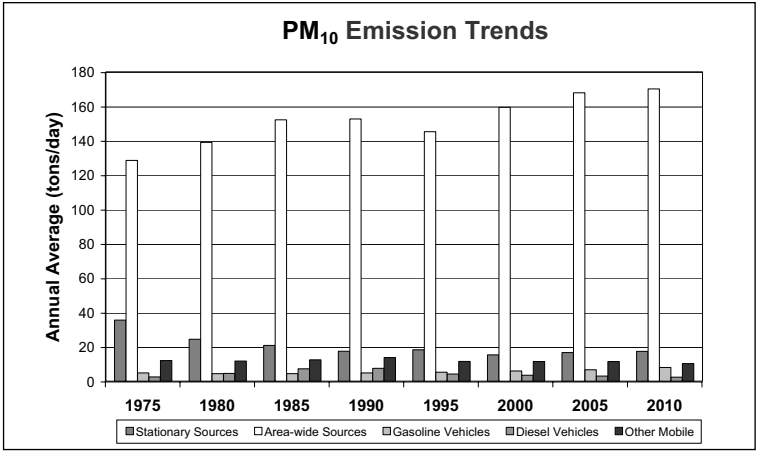


Figure 4-18

# *San Francisco Bay Area Air Basin*
## Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ are declining slightly in the San Francisco Bay Area Air Basin between 1975 and 2010. Emissions from stationary sources declined slightly, while area-wide sources increased. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Emissions of directly emitted $PM_{2.5}$ 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 60 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*** | ***93*** | ***90*** | ***90*** | ***91*** | ***84*** | ***84*** | ***87*** | ***87*** |
| **Stationary Sources** | 26 | 20 | 14 | 12 | 14 | 12 | 13 | 13 |
| **Area-wide Sources** | 50 | 53 | 55 | 57 | 53 | 56 | 58 | 57 |
| **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** | 11 | 11 | 11 | 13 | 10 | 10 | 10 | 9 |

Table 4-15

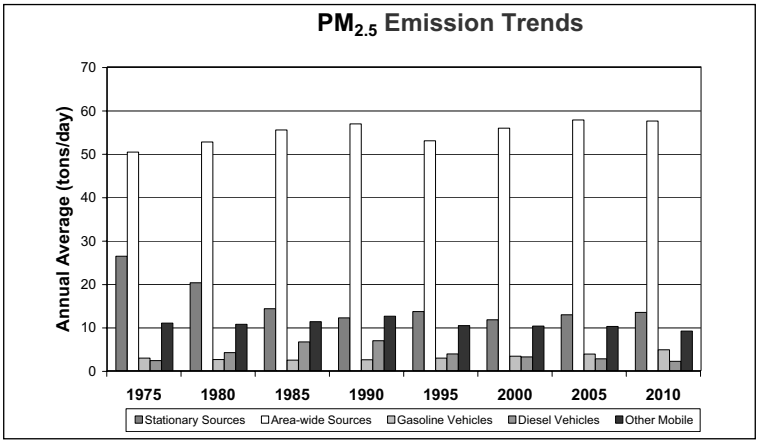


Figure 4-19

# *San Francisco Bay Area 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 (state) decreased about 26 percent.

Calculated exceedance days for the State 24-hour standard dropped from a high of 123 days during 1988 to 30 days during 2002. 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.

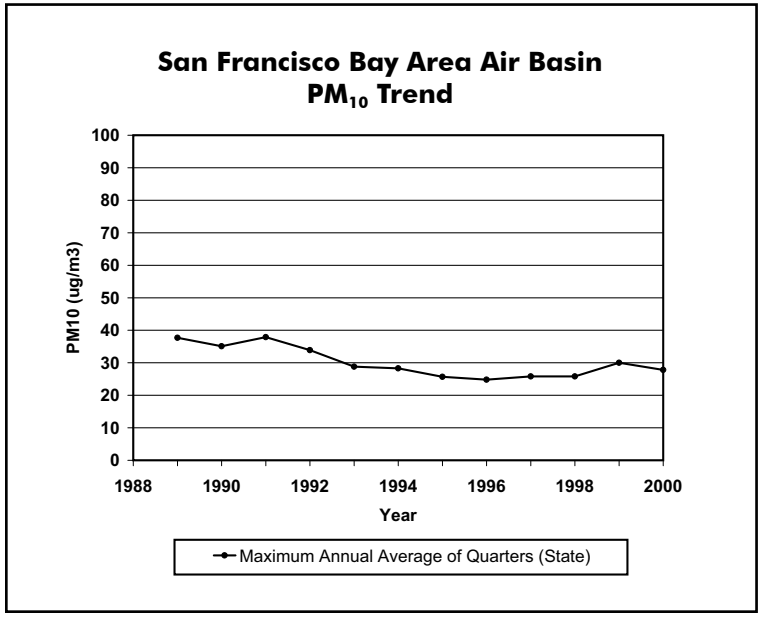


Figure 4-20

# *San Francisco Bay Area Air Basin*

## $PM_{10}$ Air Quality Table

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 146 | 147 | 165 | 155 | 112 | 93 | 97 | 74 | 76 | 85 | 100 | 117 | 80 | 114 | 84 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 146 | 150 | 173 | 155 | 112 | 101 | 97 | 74 | 76 | 95 | 92 | 114 | 76 | 109 | 80 |
| Max. Annual Avg of Qrtrs (State) | | | | | | | 37.7 | 35.1 | 37.9 | 33.9 | 28.8 | 28.3 | 25.7 | 24.8 | 25.8 | 25.8 | 30.0 | 27.8 | | |
| Max. Annual Avg of Qrtrs (Nat) | | | | | | 38.3 | 40.8 | 40.4 | 38.3 | 33.7 | 28.8 | 28.3 | 25.7 | 24.9 | 25.8 | 25.1 | 28.7 | 26.8 | 28.9 | 25.4 |
| Calc Days Above State 24-Hr Std | | | | | | 123 | 137 | 93 | 125 | 108 | 59 | 54 | 42 | 18 | 20 | 25 | 63 | 42 | 51 | 30 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 4 | 1 | 0 | 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*** | ***8956*** | ***8293*** | ***7078*** | ***5241*** | ***3829*** | ***2785*** | ***2206*** | ***1773*** |
| **Stationary Sources** | 49 | 58 | 76 | 69 | 60 | 41 | 51 | 55 |
| **Area-wide Sources** | 173 | 175 | 176 | 174 | 164 | 170 | 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** | 580 | 583 | 636 | 688 | 640 | 545 | 484 | 442 |

Table 4-17

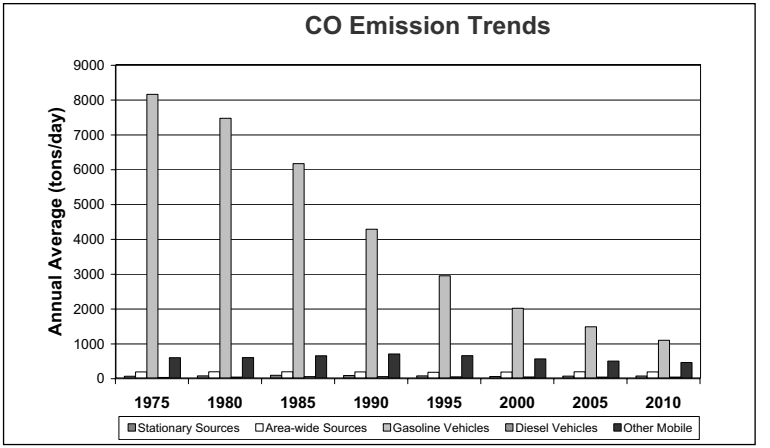


Figure 4-21

# *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 2002 was about half of what it was during 1983 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.

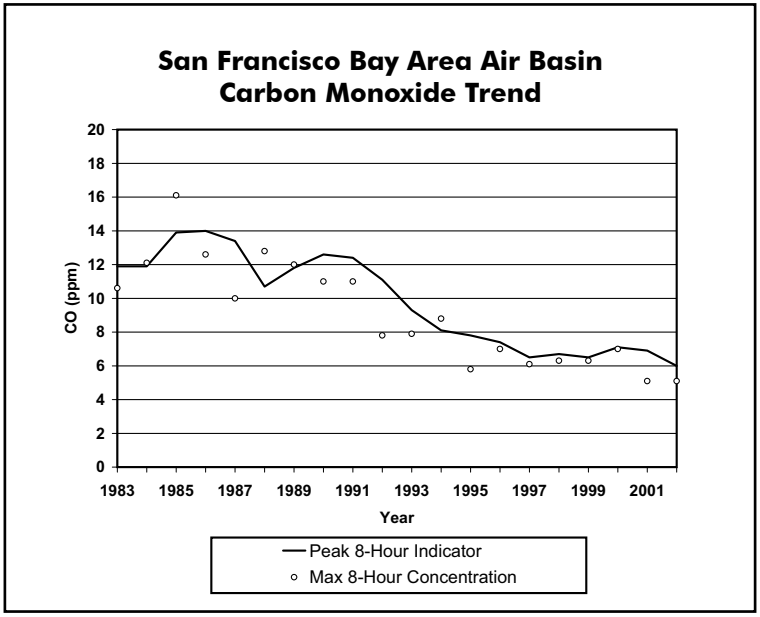


Figure 4-22

# *San Francisco Bay Area Air Basin*

## Carbon Monoxide Air Quality Table

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 6.0 |
| Max. 1-Hr. Concentration | 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 | 7.7 |
| Max. 8-Hr. Concentration | 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 | 5.1 |
| Days Above State 8-Hr. Std. | 4 | 8 | 24 | 8 | 2 | 4 | 10 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 4 | 7 | 21 | 8 | 1 | 4 | 9 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 4-18

# *San Joaquin Valley Air Basin*
## Introduction - Area Description

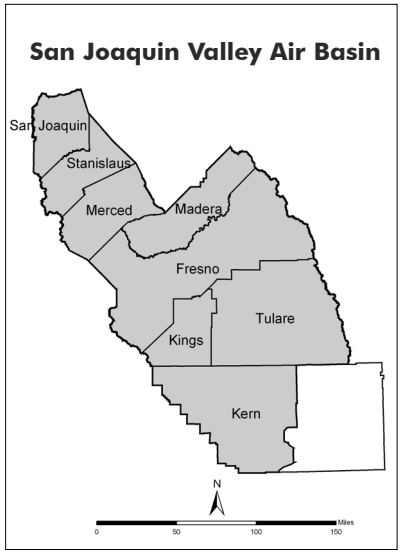

Figure 4-23

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 23,490 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 10 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 is projected to grow at a much faster rate during the 1980 to 2010 time period. The population is projected to increase about 107 percent, from nearly 2 million in 1980 to nearly 4.1 million in 2010. During the same period, the daily VMT is projected to increase by 227 percent, from nearly 33 million miles per day in 1980 to over 107 million miles per day in 2010. These growth rates are so much higher than the growth rates in other areas.

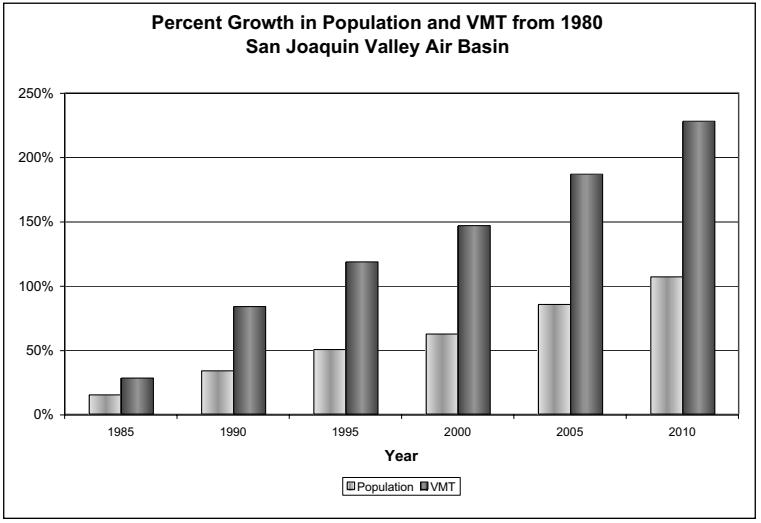


Figure 4-24

# *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 1980, 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.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***672*** | ***835*** | ***836*** | ***806*** | ***682*** | ***570*** | ***477*** | ***403*** |
| **Stationary Sources** | 263 | 350 | 348 | 285 | 216 | 165 | 139 | 140 |
| **Area-wide Sources** | 13 | 13 | 13 | 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** | 177 | 220 | 182 | 190 | 166 | 155 | 131 | 107 |

Table 4-19

| ROG Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***1166*** | ***1227*** | ***1052*** | ***637*** | ***500*** | ***429*** | ***379*** | ***357*** |
| **Stationary Sources** | 690 | 740 | 578 | 197 | 103 | 93 | 89 | 92 |
| **Area-wide Sources** | 134 | 140 | 149 | 153 | 160 | 157 | 160 | 167 |
| **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** | 50 | 61 | 58 | 64 | 64 | 60 | 46 | 39 |

Table 4-20

# *San Joaquin Valley Air Basin*
## Ozone Precursor Emission Trends and Forecasts

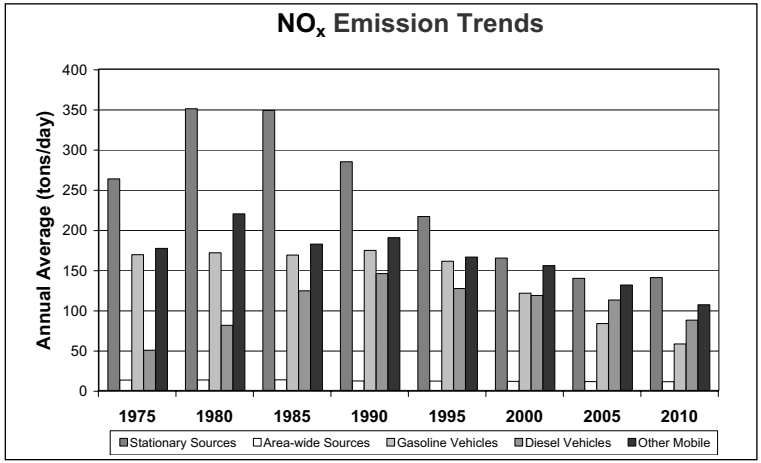


Figure 4-25

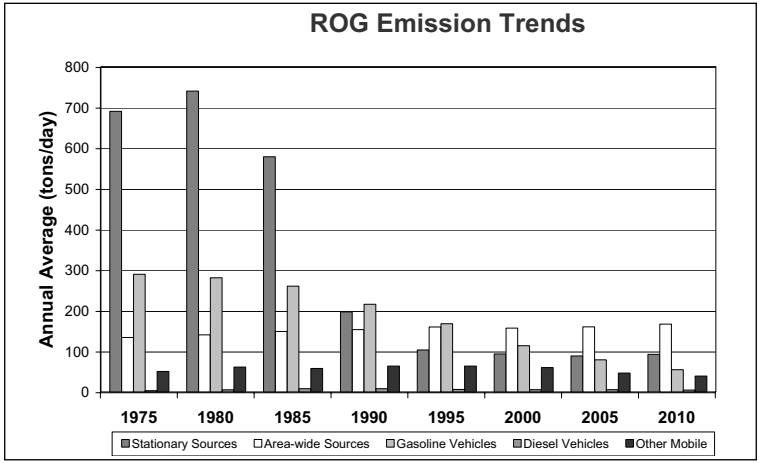


Figure 4-26

# *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 1983 to 2003, the maximum peak 1-hour indicator decreased only 18 percent. The number of national 1-hour standard exceedance days has been quite variable over the years. This variability is due, in part, to the influence of meteorology as well as changes to the monitoring network. The monitoring network was not as extensive during the 1980's as it has been during the last 13 years. For this reason, the period between 1990 to 2003 provides a better indication of trends. During this period, there has been an 18 percent decrease in the number of exceedance days of the national 1-hour standard and a 5 percent increase in the number of exceedance days for the State 1-hour standard.

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 Sacramento region, 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.

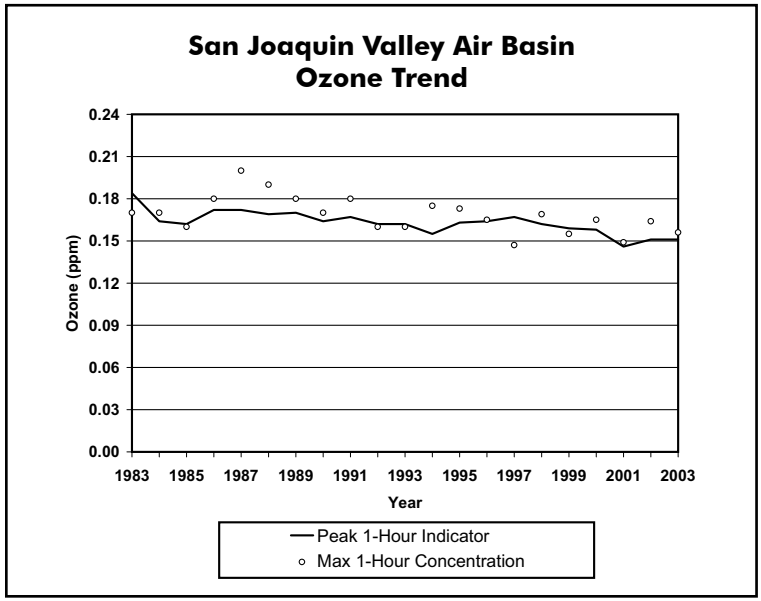


Figure 4-27

# *San Joaquin Valley Air Basin*
## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.184 | 0.164 | 0.162 | 0.172 | 0.172 | 0.169 | 0.170 | 0.164 | 0.167 | 0.162 | 0.162 | 0.155 | 0.163 | 0.164 | 0.167 | 0.162 | 0.159 | 0.158 | 0.146 | 0.151 | 0.151 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.151 | 0.151 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.115 | 0.115 |
| Maximum 1-Hr. Concentration | 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 | 0.164 | 0.156 |
| Max. 8-Hr. Concentration | 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 | 0.132 | 0.127 |
| Days Above State Standard | 105 | 135 | 149 | 147 | 156 | 156 | 148 | 131 | 133 | 127 | 125 | 118 | 124 | 120 | 110 | 90 | 123 | 114 | 123 | 127 | 137 |
| Days Above Nat. 1-Hr. Std. | 41 | 61 | 53 | 59 | 65 | 74 | 54 | 45 | 51 | 29 | 43 | 43 | 44 | 56 | 16 | 39 | 28 | 30 | 32 | 31 | 37 |
| Days Above Nat. 8-Hr. Std. | 100 | 120 | 127 | 134 | 148 | 140 | 133 | 104 | 121 | 119 | 104 | 108 | 109 | 114 | 95 | 84 | 117 | 103 | 109 | 125 | 134 |

Table 4-21

# *San Joaquin Valley Air Basin*

## Directly Emitted $PM_{10}$ Emission Trends and Forecasts

Direct emissions of $PM_{10}$ are increasing between 1975 and 2010. $PM_{10}$ 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 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 75 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*** | ***341*** | ***331*** | ***331*** | ***338*** | ***331*** | ***332*** | ***343*** | ***358*** |
| **Stationary Sources** | 58 | 42 | 34 | 28 | 27 | 22 | 24 | 25 |
| **Area-wide Sources** | 267 | 268 | 278 | 289 | 288 | 294 | 304 | 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 | 13 | 10 | 10 | 9 | 8 |

Table 4-22

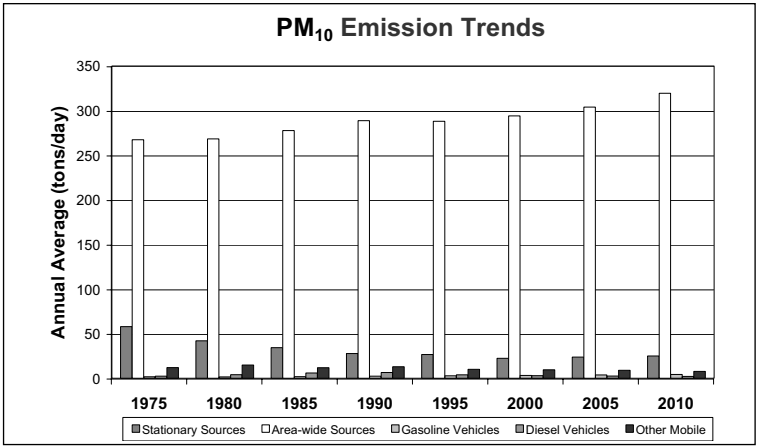


Figure 4-28

# *San Joaquin Valley Air Basin*
## Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ increase from 1975 to 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 60 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*** | ***161*** | ***153*** | ***148*** | ***147*** | ***142*** | ***141*** | ***144*** | ***148*** |
| **Stationary Sources** | 47 | 32 | 24 | 18 | 18 | 16 | 17 | 18 |
| **Area-wide Sources** | 100 | 103 | 106 | 109 | 110 | 112 | 115 | 119 |
| **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 | 12 | 9 | 9 | 8 | 7 |

Table 4-23

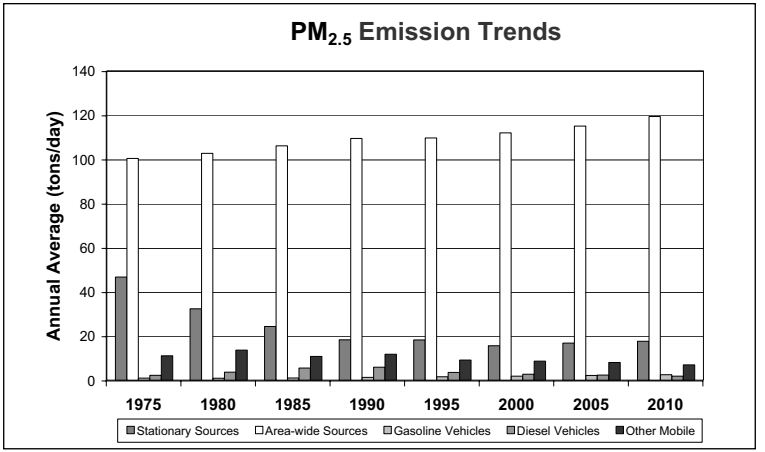


Figure 4-29

# *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 low values for the maximum annual average of quarters in 1988 and 1989 are due to the limited number of monitors with complete data for these years during the startup of the $PM_{10}$ monitoring network. The period between 1990 and 2002 provides a better indication of trends. Over this period, the maximum annual average of quarters (state) shows a decrease of about 25 percent. 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 2002, there were 267 calculated State standard exceedance days and 8 national standard exceedance days. Although $PM_{10}$ air quality has improved overall in the San Joaquin Valley Air Basin, values for 1999 through 2002 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.

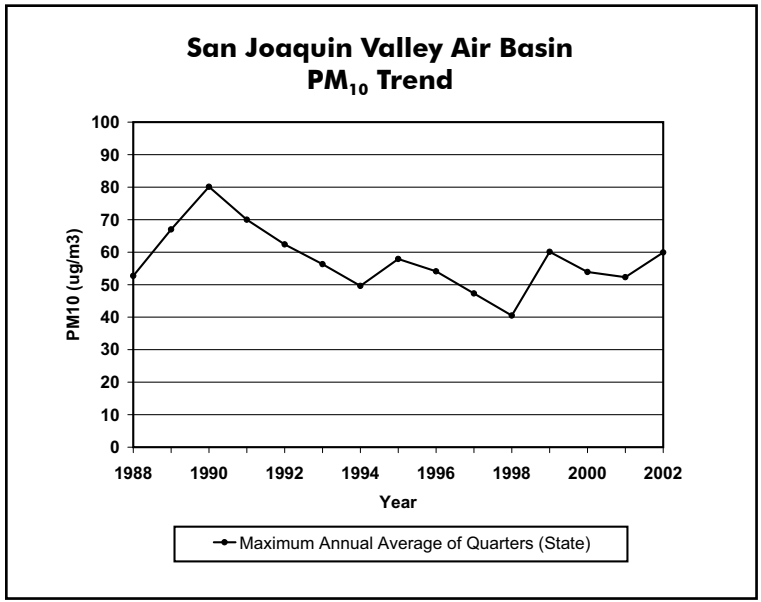


Figure 4-30

# *San Joaquin Valley Air Basin*

## $PM_{10}$ Air Quality Table

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 206 | 237 | 439 | 279 | 186 | 239 | 192 | 279 | 153 | 199 | 167 | 186 | 153 | 221 | 194 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 244 | 250 | 439 | 279 | 183 | 239 | 190 | 279 | 153 | 199 | 160 | 183 | 145 | 205 | 189 |
| Max. Annual Avg of Qrtrs (State) | | | | | | 52.7 | 67.0 | 80.1 | 70.0 | 62.4 | 56.3 | 49.6 | 57.9 | 54.1 | 47.3 | 40.5 | 60.1 | 53.9 | 52.3 | 59.9 |
| Max. Annual Avg of Qrtrs (Nat) | | | | | | 67.4 | 79.3 | 79.3 | 69.9 | 62.9 | 56.3 | 50.1 | 58.2 | 54.1 | 48.2 | 39.9 | 59.5 | 53.1 | 57.4 | 59.2 |
| Calc Days Above State 24-Hr Std | | | | | | 300 | 302 | 313 | 285 | 273 | 233 | 253 | 246 | 225 | 188 | 185 | 216 | 237 | 236 | 267 |
| Calc Days Above Nat 24-Hr Std | | | | | | 40 | 40 | 56 | 40 | 3 | 11 | 8 | 8 | 0 | 3 | 6 | 12 | 0 | 12 | 8 |

Table 4-24

# *San Joaquin Valley Air Basin*
## Carbon Monoxide Emission Trends and Forecasts

Emissions of CO are trending downward between 1975 and 2010. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1975, 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*** | ***3851*** | ***3878*** | ***3657*** | ***3335*** | ***2616*** | ***2070*** | ***1670*** | ***1384*** |
| **Stationary Sources** | 197 | 168 | 73 | 77 | 64 | 52 | 54 | 55 |
| **Area-wide Sources** | 408 | 408 | 409 | 406 | 397 | 394 | 392 | 391 |
| **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** | 352 | 433 | 391 | 425 | 404 | 372 | 349 | 332 |

Table 4-25

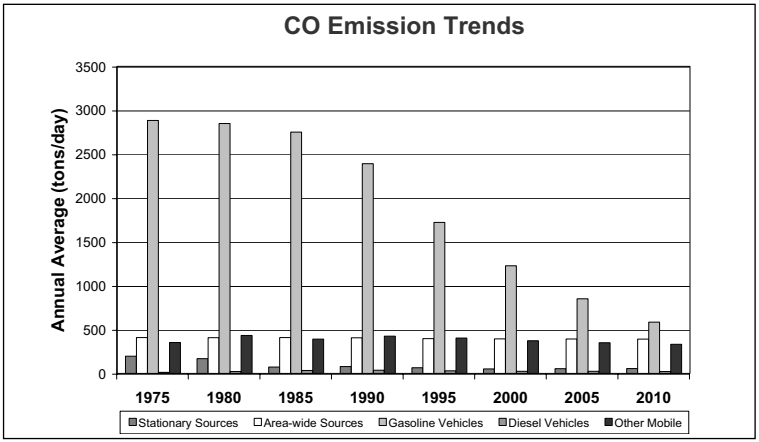


Figure 4-31

# *San Joaquin Valley Air Basin*
## Carbon Monoxide Air Quality Trend

Carbon monoxide concentrations show a fairly consistent downward trend from 1983 through 2002. 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 2002 is less than half that for 1983. 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 seven years. Much of the decline in ambient CO concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles.

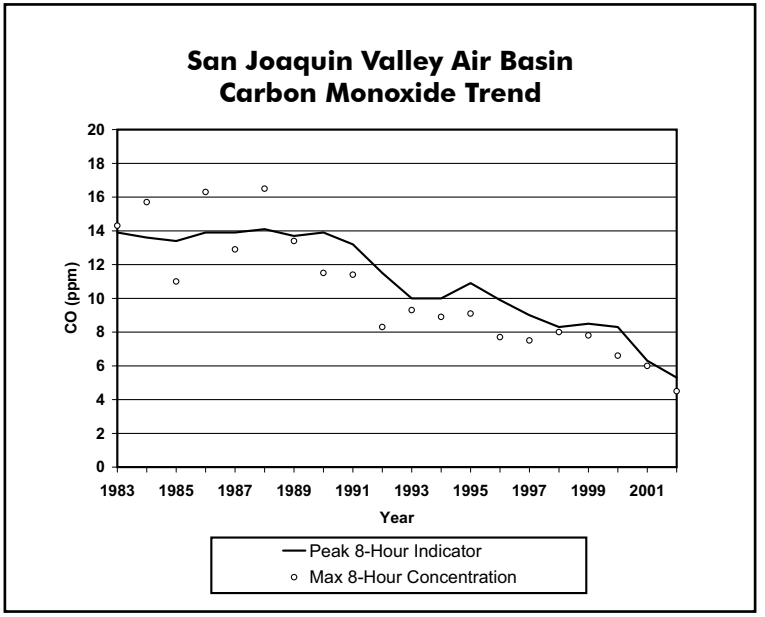


Figure 4-32

# *San Joaquin Valley Air Basin*

## Carbon Monoxide Air Quality Table

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 8.3 | 6.3 | 5.3 |
| Max. 1-Hr. Concentration | 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 | 6.1 |
| Max. 8-Hr. Concentration | 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 | 4.5 |
| Days Above State 8-Hr. Std. | 12 | 7 | 7 | 13 | 4 | 5 | 24 | 10 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 9 | 6 | 7 | 11 | 4 | 6 | 18 | 9 | 3 | 0 | 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 4,200 square miles, includes about 8 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

Population in the San Diego Air Basin during the 1980-2010 period is projected to increase 80 percent: from almost 1.9 million in 1980 to almost 3.4 million in 2010. During this same time period, the number of vehicle miles traveled each day is projected to increase over 175 percent, from almost 32 million miles per day in 1980 to over 87 million miles per day in 2010. 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.

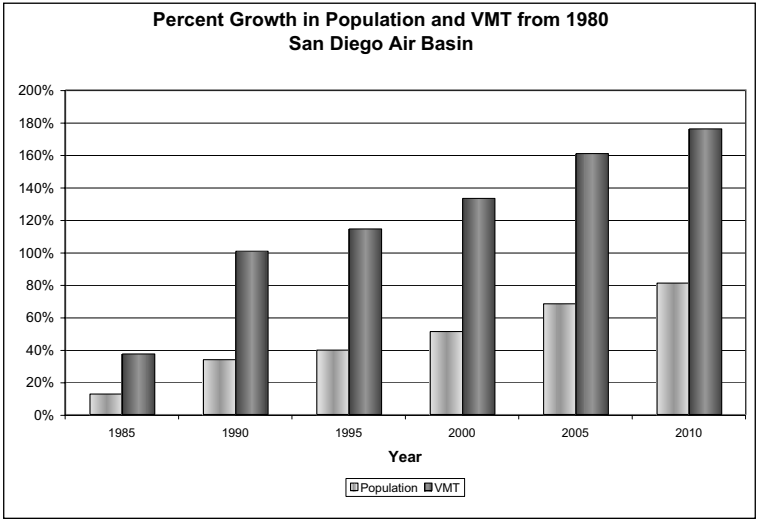


Figure 4-34

# *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.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***282*** | ***274*** | ***286*** | ***319*** | ***272*** | ***227*** | ***188*** | ***153*** |
| **Stationary Sources** | 48 | 32 | 17 | 19 | 16 | 10 | 10 | 12 |
| **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** | 54 | 67 | 71 | 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*** | ***444*** | ***442*** | ***419*** | ***348*** | ***270*** | ***227*** | ***188*** | ***175*** |
| **Stationary Sources** | 40 | 57 | 55 | 53 | 45 | 49 | 56 | 64 |
| **Area-wide Sources** | 36 | 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** | 31 | 38 | 45 | 51 | 50 | 46 | 33 | 27 |

Table 4-28

# *San Diego Air Basin*
## Ozone Precursor Emission Trends and Forecasts

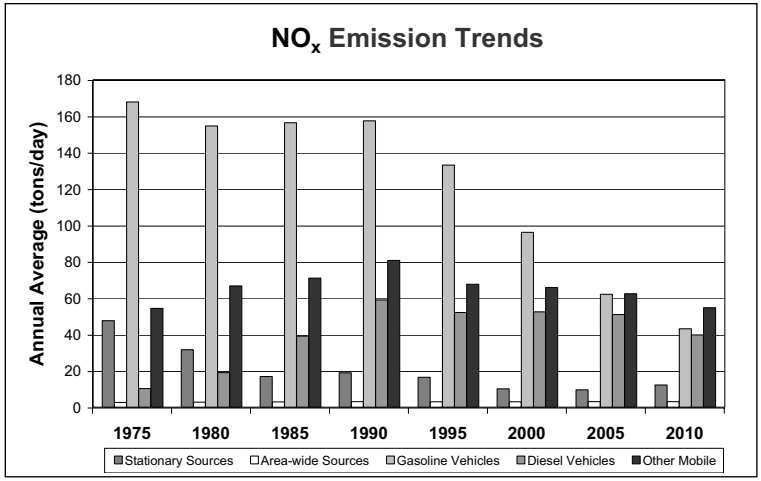


Figure 4-35

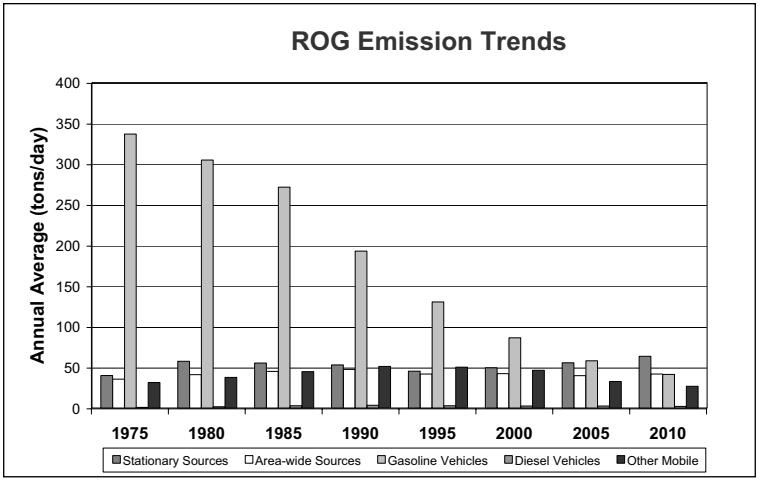


Figure 4-36

# *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 almost 38 percent from 1983 to 2003. The number of State and national 1-hour standard exceedance days has dropped even more. There were 125 State standard exceedance days during 1983 compared with 23 during 2003. This represents a decrease of about 82 percent. During 1983, there were 61 national 1-hour standard exceedance days compared with one during 2003. However, there were still six national 8-hour standard exceedance days during 2003.

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.

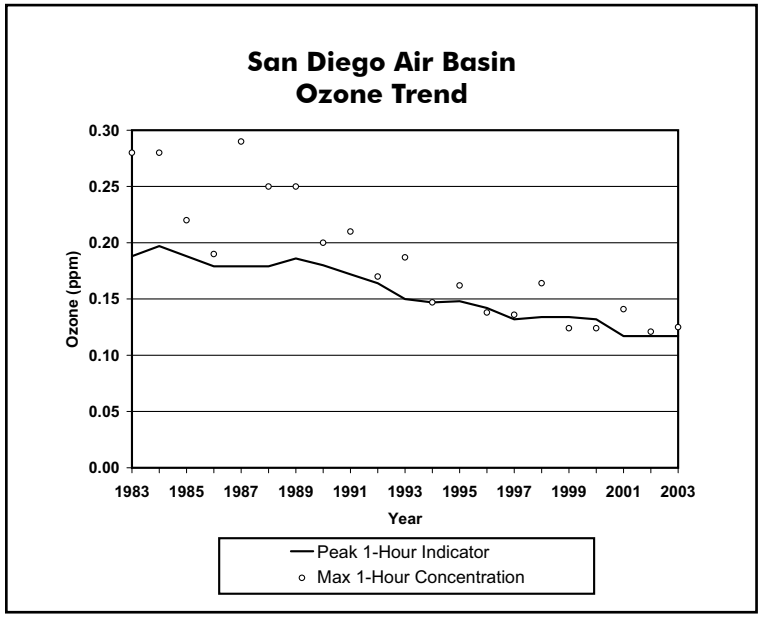


Figure 4-37

# *San Diego Air Basin*
## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.188 | 0.197 | 0.188 | 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 | 0.117 | 0.117 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.118 | 0.118 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.095 | 0.093 |
| Maximum 1-Hr. Concentration | 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 | 0.121 | 0.125 |
| Max. 8-Hr. Concentration | 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 | 0.100 | 0.103 |
| Days Above State Standard | 125 | 146 | 148 | 131 | 127 | 160 | 159 | 139 | 106 | 97 | 90 | 79 | 96 | 51 | 43 | 54 | 27 | 24 | 29 | 15 | 23 |
| Days Above Nat. 1-Hr. Std. | 61 | 51 | 50 | 42 | 40 | 45 | 56 | 39 | 27 | 19 | 14 | 9 | 12 | 2 | 1 | 9 | 0 | 0 | 2 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | 101 | 98 | 109 | 81 | 99 | 119 | 122 | 96 | 67 | 66 | 58 | 46 | 48 | 31 | 16 | 35 | 16 | 16 | 17 | 13 | 6 |

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 70 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*** | ***73*** | ***81*** | ***90*** | ***108*** | ***104*** | ***112*** | ***118*** | ***126*** |
| **Stationary Sources** | 17 | 12 | 5 | 7 | 10 | 8 | 8 | 11 |
| **Area-wide Sources** | 47 | 60 | 73 | 88 | 84 | 92 | 99 | 104 |
| **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 | 7 | 7 | 7 | 6 |

Table 4-30

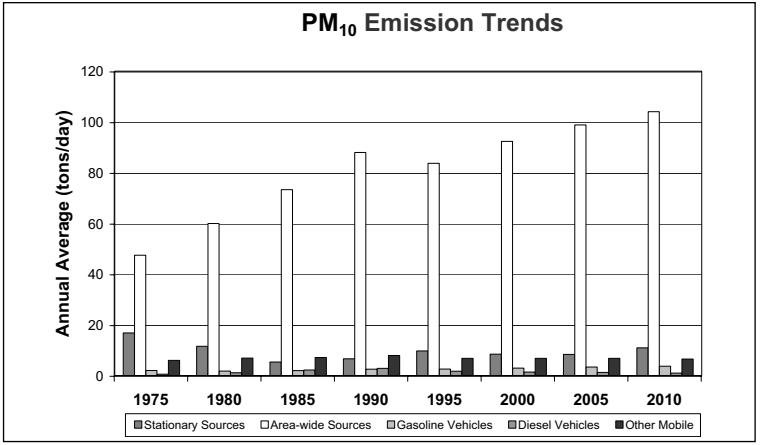


Figure 4-38

# *San Diego Air Basin*
## Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ 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*** | ***36*** | ***35*** | ***40*** | ***39*** | ***41*** | ***43*** | ***46*** |
| **Stationary Sources** | 11 | 9 | 3 | 4 | 6 | 6 | 6 | 8 |
| **Area-wide Sources** | 15 | 19 | 22 | 25 | 24 | 26 | 27 | 28 |
| **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 | 7 | 7 | 6 | 6 | 6 | 6 |

Table 4-31

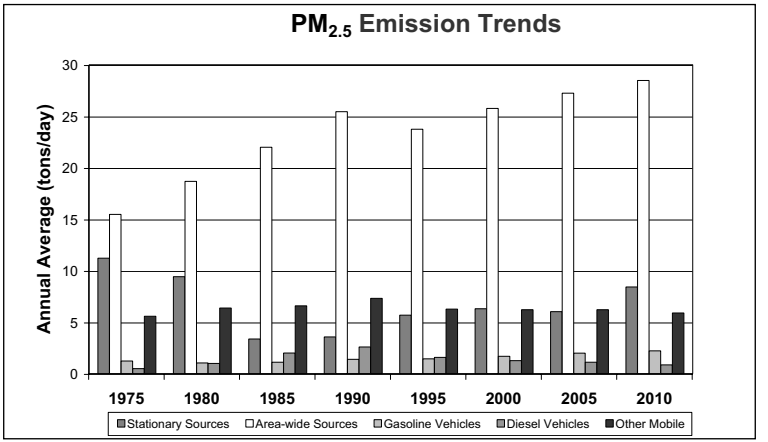


Figure 4-39

# *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 of quarters for 2002 exceeds the State annual standard and is actually higher than it was during 1989. 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 2002, the maximum 24-hour concentration (state) was 131 $\mu g/m^3$.

During 1988, there were 105 calculated State standard exceedance days, compared with 186 during 2002. 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.

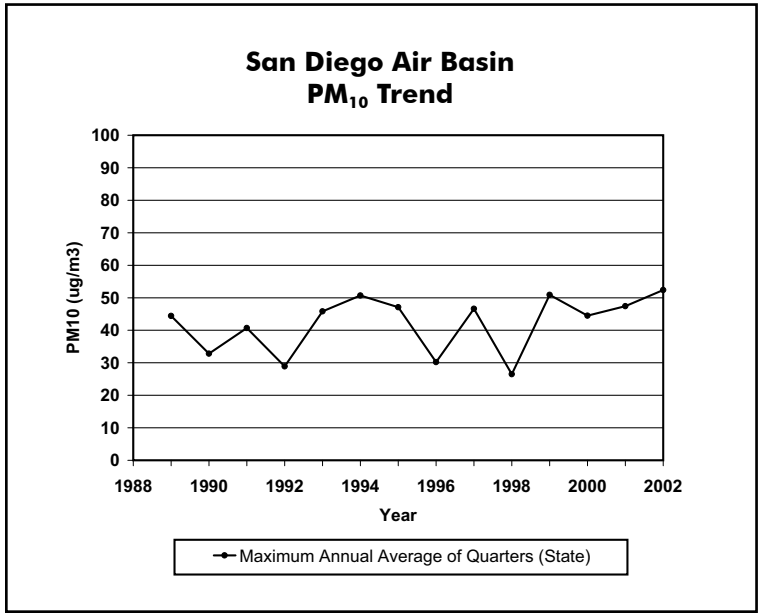


Figure 4-40

# *San Diego Air Basin*

## $PM_{10}$ Air Quality Table

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 80 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 57 | 119 | 136 | 106 | 131 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 81 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 89 | 121 | 139 | 107 | 130 |
| Max. Annual Avg of Qrtrs (State) | | | | | | | 44.4 | 32.8 | 40.7 | 28.9 | 45.8 | 50.7 | 47.1 | 30.2 | 46.6 | 26.5 | 50.9 | 44.5 | 47.4 | 52.4 |
| Max. Annual Avg of Qrtrs (Nat) | | | | | | 40.0 | 43.8 | 37.6 | 40.6 | 35.9 | 45.9 | 50.7 | 46.8 | 30.0 | 46.6 | 42.5 | 52.2 | 45.2 | 49.1 | 54.9 |
| Calc Days Above State 24-Hr Std | | | | | | 105 | 146 | 60 | 90 | 42 | 143.5 | 131 | 117 | 96 | 125 | 108 | 140 | 144 | 146 | 186 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 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*** | ***3332*** | ***3068*** | ***2965*** | ***2501*** | ***1756*** | ***1317*** | ***986*** | ***801*** |
| **Stationary Sources** | 30 | 29 | 28 | 28 | 26 | 39 | 34 | 51 |
| **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** | 188 | 236 | 282 | 334 | 306 | 282 | 257 | 243 |

Table 4-33

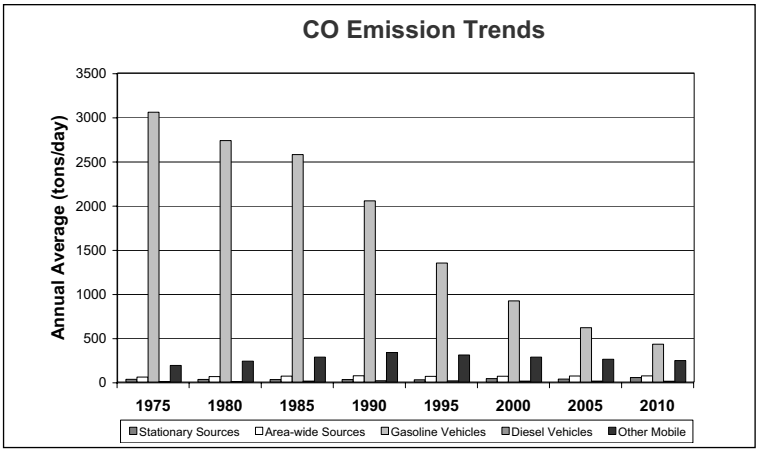


Figure 4-41

# *San Diego Air Basin*
## Carbon Monoxide Air Quality Trend

Peak 8-hour indicator for carbon monoxide in the San Diego Air Basin decreased substantially over the trend period: a 43 percent decrease from 1983 to 2002. 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.

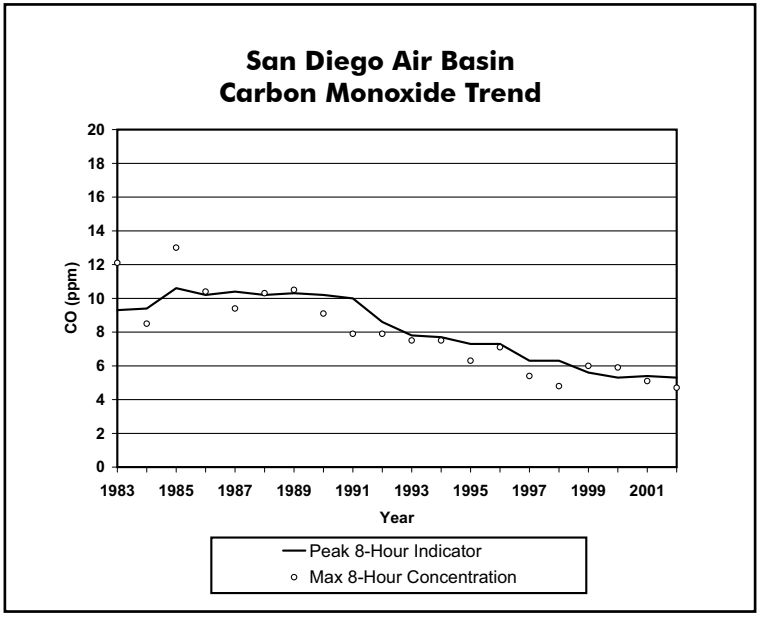


Figure 4-42

# *San Diego Air Basin*

## Carbon Monoxide Air Quality Table

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 9.3 | 9.4 | 10.6 | 10.2 | 10.4 | 10.2 | 10.3 | 10.2 | 10.0 | 8.6 | 7.8 | 7.7 | 7.3 | 7.3 | 6.3 | 6.3 | 5.6 | 5.3 | 5.4 | 5.3 |
| Max. 1-Hr. Concentration | 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 | 8.5 |
| Max. 8-Hr. Concentration | 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 | 4.7 |
| Days Above State 8-Hr. Std. | 1 | 0 | 5 | 2 | 1 | 5 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 1 | 0 | 3 | 1 | 0 | 2 | 5 | 0 | 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.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***282*** | ***274*** | ***286*** | ***319*** | ***272*** | ***227*** | ***188*** | ***153*** |
| **Stationary Sources** | 48 | 32 | 17 | 19 | 16 | 10 | 10 | 12 |
| **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** | 54 | 67 | 71 | 81 | 68 | 66 | 62 | 55 |

Table 4-35

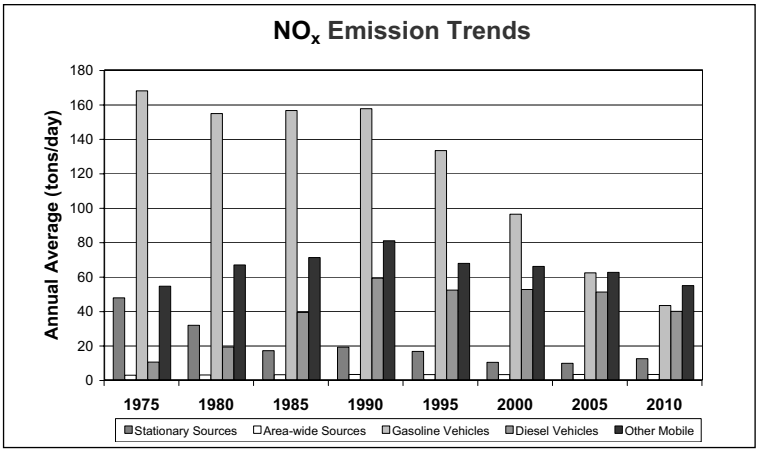


Figure 4-43

# *San Diego Air Basin*

## Nitrogen Dioxide Air Quality Trend

The San Diego Air Basin attains the State and national nitrogen dioxide standard. Maximum 1-hour concentrations during the 1980s occasionally exceeded the level of the State 1-hour standard. However, these exceedances did not affect the area's attainment status. 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 1983 to 2002.

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 ensure continued attainment of the State and national nitrogen dioxide standards.

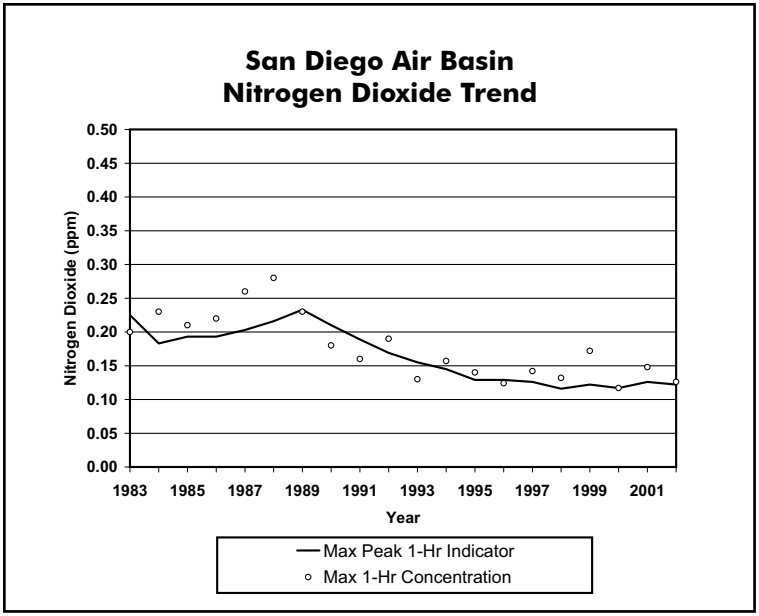


Figure 4-44

# *San Diego Air Basin*

## Nitrogen Dioxide Air Quality Table

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.225 | 0.183 | 0.193 | 0.193 | 0.203 | 0.216 | 0.233 | 0.210 | 0.189 | 0.169 | 0.155 | 0.145 | 0.129 | 0.129 | 0.126 | 0.116 | 0.122 | 0.117 | 0.126 | 0.122 |
| Max. 1-Hr. Concentration | 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 | 0.126 |
| Max. Annual Average | 0.027 | 0.031 | 0.032 | 0.030 | 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 | 0.022 |

Table 4-36

# *Sacramento Valley Air Basin*
## Introduction - Area Description

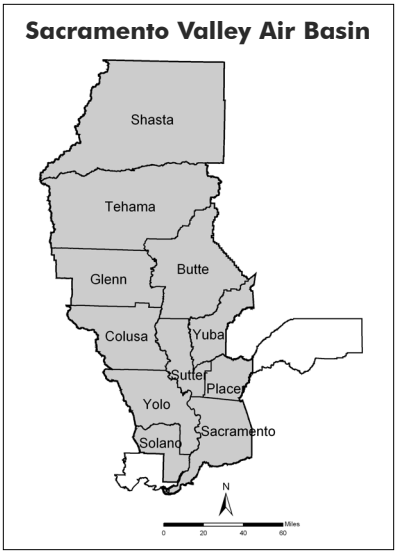

Figure 4-45

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 14,994 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 urbanized portion of the basin (Sacramento, Yolo, Solano, and Placer Counties) 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 downward from 1975 to 2010 for ROG and 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 increasing from 1975 to 2010.

# *Sacramento Valley Air Basin*
## Population and VMT

Between 1980 and 2010, population in the Sacramento Valley Air Basin is projected to grow at a higher rate than the statewide average--a 94 percent increase compared with a 69 percent increase statewide. Population is projected to grow from 15 million in 1980 to 29 million in 2010. During this same period, the increase in the number of vehicle miles traveled each day is projected to be higher than the overall statewide value: a 152 percent increase in the Sacramento Valley Air Basin. VMT is projected to increase from nearly 28 million miles in 1980 to 70 million miles in 2010. 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.

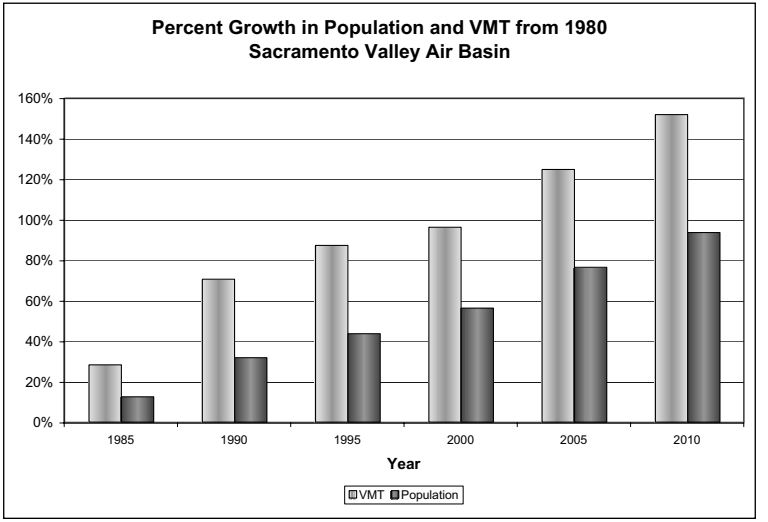


Figure 4-46

# *Sacramento Valley Air Basin*
## Ozone Precursor Emission Trends and Forecasts

Emissions of $NO_x$ show a steady decrease from 1990 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 30 years due to more stringent motor vehicle standards and new rules for control of ROG from various industrial coating and solvent operations.

| $NO_x$ Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***329*** | ***355*** | ***351*** | ***383*** | ***337*** | ***294*** | ***247*** | ***202*** |
| **Stationary Sources** | 36 | 30 | 29 | 43 | 45 | 39 | 40 | 42 |
| **Area-wide Sources** | 7 | 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** | 107 | 124 | 107 | 115 | 102 | 99 | 86 | 72 |

Table 4-37

| ROG Emission Trends (tons/day, annual average) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| ***All Sources*** | ***454*** | ***442*** | ***412*** | ***365*** | ***302*** | ***242*** | ***207*** | ***187*** |
| **Stationary Sources** | 88 | 64 | 58 | 59 | 48 | 37 | 39 | 43 |
| **Area-wide Sources** | 61 | 68 | 66 | 74 | 70 | 68 | 67 | 68 |
| **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** | 33 | 42 | 45 | 52 | 54 | 52 | 39 | 32 |

Table 4-38

# *Sacramento Valley Air Basin*
## Ozone Precursor Emission Trends and Forecasts

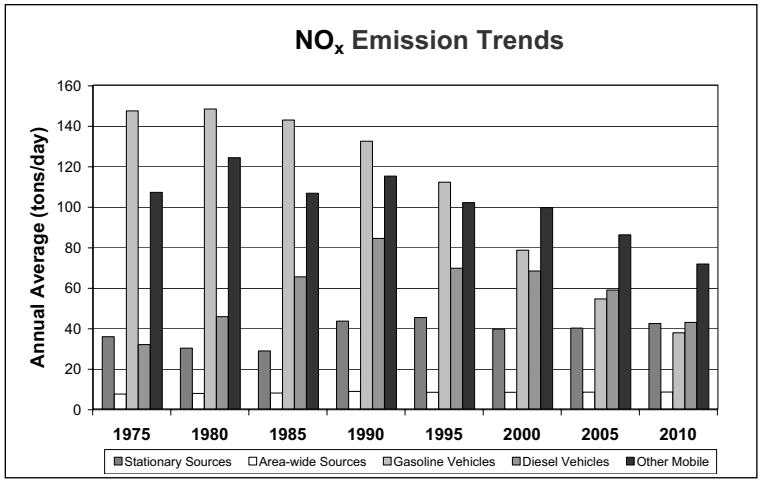


Figure 4-47

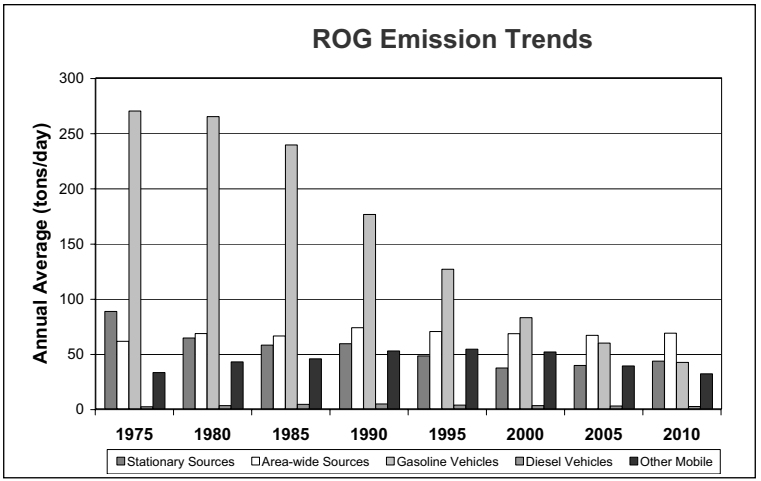


Figure 4-48

# *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 indicator remained fairly constant from 1983 to 1988. Since 1988, the peak 1-hour indicator has decreased slightly, and the overall decline for the 21-year period is about 16 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.

Similar to the San Joaquin Valley, the urbanized portion of the Sacramento Valley Air Basin, along with urbanized portions of El Dorado and Placer Counties in the Mountain Counties Air Basin, is identified as both a transport contributor and receptor. The region is a transport contributor to the Mountain Counties, San Joaquin Valley, and San Francisco Bay Area Air Basins, and a receptor for the San Francisco Bay Area and San Joaquin Valley Air Basins.

New to the almanac this year is a table summarizing the Sacramento Metropolitan Area. This area reflects the portion of the region that is nonattainment for the national ozone standards.

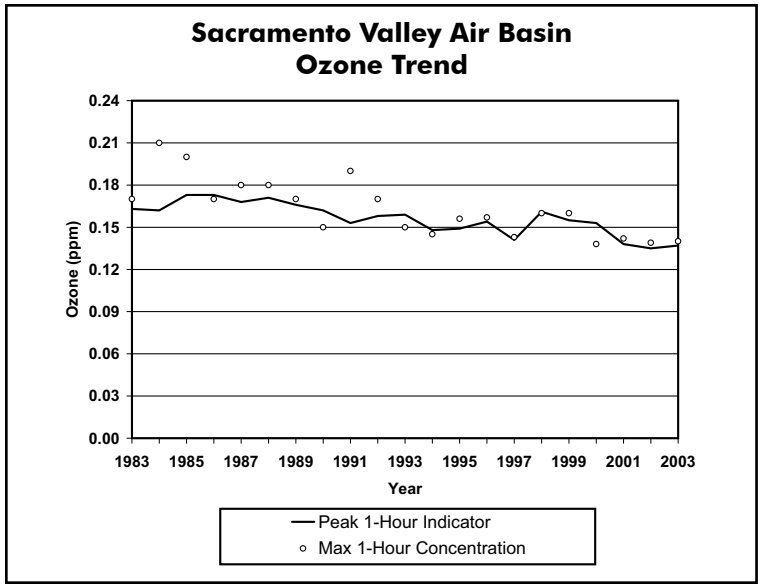


Figure 4-49

# *Sacramento Valley Air Basin*
## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.138 | 0.135 | 0.137 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.132 | 0.138 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.101 | 0.101 | 0.100 |
| Maximum 1-Hr. Concentration | 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 | 0.139 | 0.140 |
| Max. 8-Hr. Concentration | 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 | 0.120 | 0.118 |
| Days Above State Standard | 62 | 64 | 59 | 66 | 94 | 98 | 68 | 50 | 68 | 74 | 34 | 60 | 50 | 58 | 25 | 62 | 59 | 42 | 46 | 47 | 51 |
| Days Above Nat. 1-Hr. Std. | 15 | 23 | 19 | 24 | 24 | 35 | 8 | 16 | 14 | 14 | 7 | 9 | 11 | 9 | 3 | 14 | 7 | 5 | 2 | 7 | 5 |
| Days Above Nat. 8-Hr. Std. | 44 | 46 | 42 | 50 | 73 | 68 | 37 | 44 | 60 | 56 | 22 | 48 | 40 | 44 | 15 | 60 | 43 | 35 | 37 | 34 | 40 |

Table 4-39

# *Sacramento Metropolitan Area*[1]
## Ozone Air Quality Table

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.143 | 0.146 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.143 | 0.143 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.099 | 0.103 | 0.103 | 0.107 | 0.104 | 0.106 | 0.107 |
| Maximum 1-Hr. Concentration | 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 | 0.145 | 0.163 | 0.160 | 0.138 | 0.148 | 0.156 | 0.145 |
| Max. 8-Hr. Concentration | 0.125 | 0.138 | 0.161 | 0.125 | 0.127 | 0.138 | 0.133 | 0.127 | 0.140 | 0.122 | 0.120 | 0.121 | 0.128 | 0.126 | 0.107 | 0.137 | 0.129 | 0.113 | 0.109 | 0.137 | 0.122 |
| Days Above State Standard | 60 | 63 | 54 | 57 | 86 | 97 | 74 | 47 | 65 | 76 | 36 | 54 | 52 | 58 | 25 | 49 | 56 | 46 | 52 | 59 | 53 |
| Days Above Nat. 1-Hr. Std. | 15 | 22 | 19 | 23 | 22 | 35 | 9 | 14 | 14 | 14 | 7 | 9 | 11 | 11 | 4 | 13 | 7 | 7 | 3 | 10 | 6 |
| Days Above Nat. 8-Hr. Std. | 43 | 46 | 37 | 49 | 64 | 72 | 53 | 43 | 57 | 55 | 24 | 42 | 42 | 48 | 19 | 34 | 48 | 37 | 41 | 47 | 43 |

[1] The Sacramento Metropolitan Area includes urbanized portions of the Sacramento Valley Air Basin (Sacramento, Yolo, Placer, and Solano Counties, and part of Sutter County) and all of El Dorado and Placer Counties in the Mountain Counties Air Basin.

Table 4-40

# *Sacramento Valley Air Basin*
## Directly Emitted $PM_{10}$ Emission Trends and Forecasts

Direct emissions of $PM_{10}$ are increasing 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 75 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*** | ***194*** | ***202*** | ***209*** | ***223*** | ***215*** | ***223*** | ***231*** | ***238*** |
| **Stationary Sources** | 25 | 19 | 17 | 21 | 17 | 17 | 17 | 19 |
| **Area-wide Sources** | 160 | 172 | 181 | 189 | 188 | 197 | 204 | 210 |
| **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 | 6 |

Table 4-41

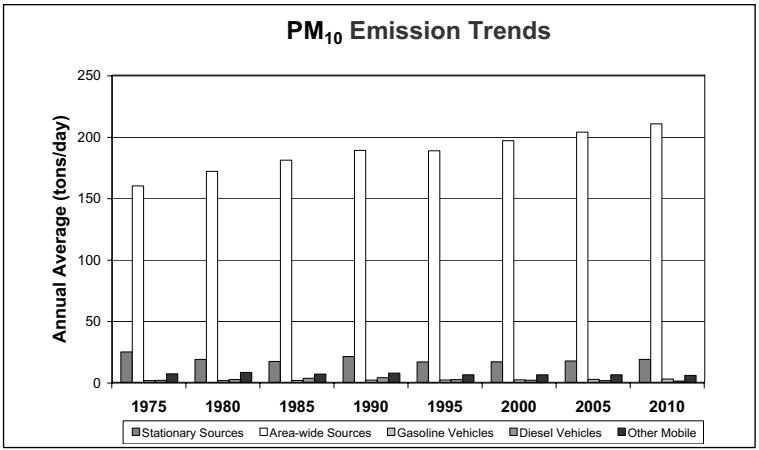


Figure 4-50

# *Sacramento Valley Air Basin*
## Directly Emitted $PM_{2.5}$ Emission Trends and Forecasts

Direct emissions of $PM_{2.5}$ are increasing 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 70 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*** | ***85*** | ***84*** | ***86*** | ***93*** | ***87*** | ***88*** | ***90*** | ***92*** |
| **Stationary Sources** | 18 | 12 | 11 | 13 | 10 | 10 | 11 | 12 |
| **Area-wide Sources** | 58 | 62 | 65 | 68 | 68 | 70 | 72 | 73 |
| **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 | 7 | 6 | 7 | 5 | 5 | 5 | 5 |

Table 4-42

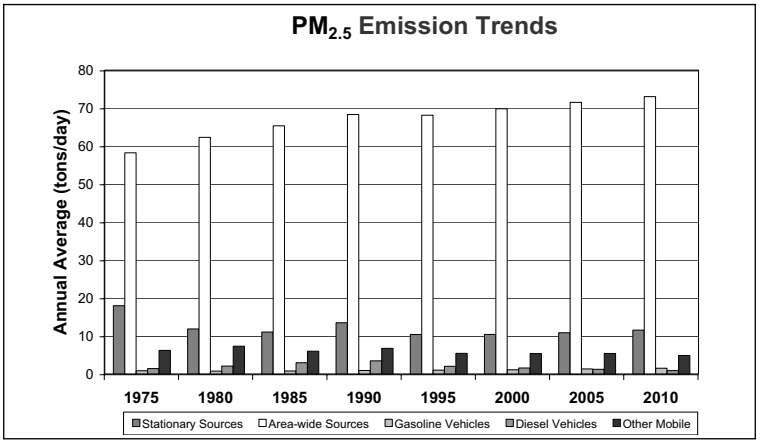


Figure 4-51

# *Sacramento Valley Air Basin*

## $PM_{10}$ Air Quality Trend

The maximum annual average of quarters 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 of quarters (state) shows a decrease of about 24 percent from 1989 to 2002. The number of exceedance days also decreased. During 1988, there were 183 calculated exceedance days of the State 24-hour standard, compared with 126 days during 2002. Because many of the sources that contribute to ozone also contribute to $PM_{10}$, future ozone emission controls should improve $PM_{10}$ air quality.

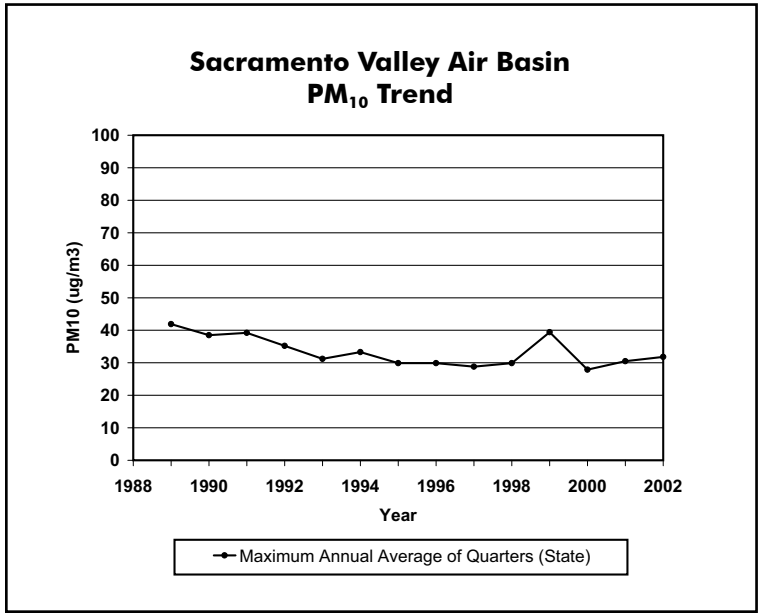


Figure 4-52

# *Sacramento Valley Air Basin*

## $PM_{10}$ Air Quality Table

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 100 | 147 | 153 | 136 | 111 | 113 | 154 | 145 | 98 | 126 | 130 | 179 | 90 | 112 | 96 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 115 | 139 | 153 | 136 | 111 | 110 | 154 | 145 | 98 | 126 | 130 | 179 | 86 | 105 | 92 |
| Max. Annual Avg of Qrtrs (State) | | | | | | | 41.9 | 38.5 | 39.2 | 35.2 | 31.2 | 33.3 | 29.9 | 29.9 | 28.8 | 29.9 | 39.4 | 27.9 | 30.5 | 31.8 |
| Max. Annual Avg of Qrtrs (Nat) | | | | | | 42.8 | 41.9 | 41.7 | 42.3 | 34.7 | 31.8 | 34.5 | 30.1 | 29.8 | 28.6 | 29.0 | 38.4 | 27.9 | 30.2 | 30.9 |
| Calc Days Above State 24-Hr Std | | | | | | 183 | 134 | 175 | 189 | 177 | 92 | 108 | 108 | 129 | 65 | 97 | 144 | 81 | 96 | 126 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |

Table 4-43

# *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 1975, 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*** | ***2968*** | ***2979*** | ***2849*** | ***2515*** | ***1901*** | ***1489*** | ***1228*** | ***1040*** |
| **Stationary Sources** | 27 | 28 | 16 | 51 | 39 | 48 | 50 | 54 |
| **Area-wide Sources** | 292 | 307 | 319 | 331 | 329 | 331 | 334 | 337 |
| **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** | 199 | 255 | 269 | 320 | 307 | 288 | 267 | 252 |

Table 4-44

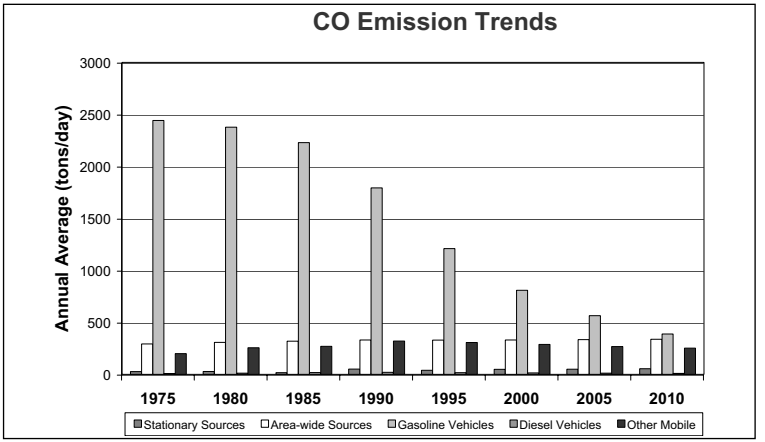


Figure 4-53

# *Sacramento Valley Air Basin*
## Carbon Monoxide Air Quality Trend

The trend of the maximum peak 8-hour indicator for carbon monoxide for the Sacramento Valley Air Basin was relatively flat from 1983 to 1991, with some year-to-year variability that was probably caused by meteorology. Since 1991, indicator values have decreased substantially. The 2002 value was about 59 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.

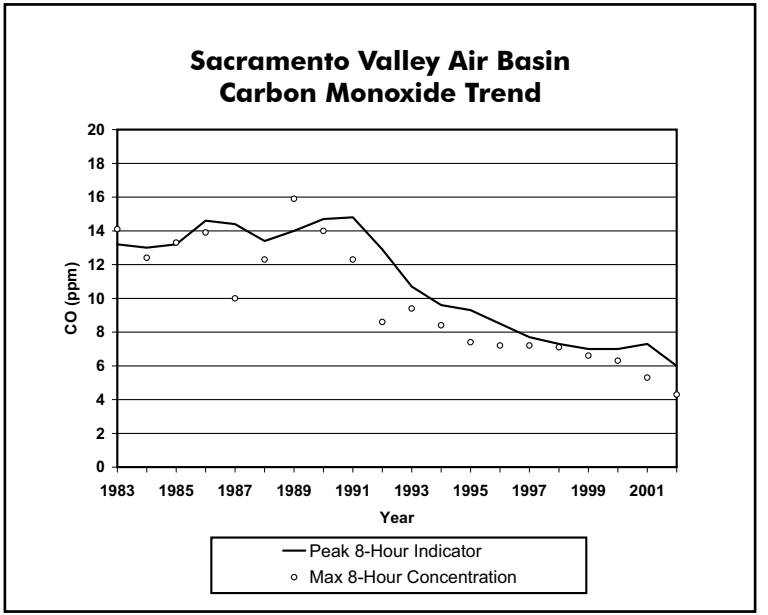


Figure 4-54

# *Sacramento Valley Air Basin*

## Carbon Monoxide Air Quality Table

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 13.2 | 13.0 | 13.2 | 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 | 6.0 |
| Max. 1-Hr. Concentration | 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 | 7.8 |
| Max. 8-Hr. Concentration | 14.1 | 12.4 | 13.3 | 13.9 | 10.0 | 12.3 | 15.9 | 14.0 | 12.3 | 8.6 | 9.4 | 8.4 | 7.4 | 7.2 | 7.2 | 7.1 | 6.6 | 6.3 | 5.3 | 4.3 |
| Days Above State 8-Hr. Std. | 6 | 6 | 12 | 13 | 5 | 12 | 22 | 14 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 4 | 5 | 12 | 12 | 3 | 9 | 22 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 4-45

# 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, hexavalent chromium, *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 populous 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 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 populous 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 can be found in Appendix C). It is important to note that the ambient concentration and health risk information presented here reflect data collected only at sites operated by the ARB, and 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. Additional information on interpreting air quality data for toxic air contaminants 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 stationary source emissions inventory was developed by the ARB 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 ten highest-emitting counties in California. Emissions are also included for the five most populous air basins. In general, the inventory base year is 2003. Note, however, that the stationary source emissions inventory uses the best available information for the emission source, although the data may not have been specifically collected for 2003.

***Air Quality Monitoring for Toxic Air Contaminants.*** The ARB maintains a statewide air quality monitoring network for toxic air contaminants. The network was originally designed to measure selected substances in the ambient air to determine if levels were sufficiently high to be of concern. As a result of this monitoring, the ARB has determined atmospheric concentrations for over 60 individual TACs. As shown in Figure 5-1, the ARB currently maintains a network of 18 air quality monitoring

Figure 5-1

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 concentrations similar to the statewide average, so their closure has a small overall impact on the statewide annual averages. Other factors considered in selecting sites for closure 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 individual 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 in support of 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 has conducted monitoring in five other communities in support of the children's health program as required by SB 25. Efforts such as these will supplement our existing statewide TAC monitoring network, which was designed for regional rather than neighborhood assessments. Information on these and other studies are available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*. The ambient TAC air quality trends included in this chapter are based on ambient data collected during 1990 through 2002. At this time, ambient air quality data for diesel PM are not available. However, the ARB has made some estimates of ambient diesel PM 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 with higher or lower concentrations than those represented by

the ambient air monitoring data. The SB 25 study characterizes community health risks by focusing on localized impacts.

The cancer risk estimates presented in this almanac are calculated using an annual average concentration calculated as an average of the monthly means multiplied by a unit risk factor. The unit risk factor is expressed as the probability, or risk, 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 risk 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 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 at (916) 322-2990 or by accessing the ARB website at *www.arb.ca.gov/toxics/id.htm*.

**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*

## 2003 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 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.

| Acetaldehyde | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 231 | 3% |
| **Area-wide Sources** | 1668 | 22% |
| **On-Road Mobile** | 1816 | 24% |
| Gasoline Vehicles | 834 | 11% |
| Diesel Vehicles | 981 | 13% |
| **Other Mobile** | 3792 | 51% |
| **Natural Sources** | 0 | 0% |
| ***Total Statewide*** | ***7507*** | ***100%*** |

Table 5-2

## 2003 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 (13 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 (3 percent). Collectively, approximately 23 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 17 percent of statewide acetaldehyde emissions.

| Acetaldehyde | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 959 | 13% |
| San Diego | San Diego | 533 | 7% |
| Orange | South Coast | 330 | 4% |
| Alameda | San Francisco Bay Area | 308 | 4% |
| Santa Clara | San Francisco Bay Area | 270 | 4% |
| Fresno | San Joaquin Valley | 250 | 3% |
| Sacramento | Sacramento Valley | 226 | 3% |
| Riverside | South Coast | 209 | 3% |
| San Bernardino | South Coast | 207 | 3% |
| Kern | San Joaquin Valley | 198 | 3% |

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 for the years 1990 through 2002 is shown in Figure 5-2. Except for a sharp drop in acetaldehyde levels during 1995, and a corresponding increase the following year, the trend graph shows a general downward trend throughout the period. There is, however, a slight upturn during 2000 to 2002.

Although data are shown for all years during 1990 through 2002, 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 unable to develop a correction factor 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.

Between 1996 and 2002 (for which years reliable data are available), acetaldehyde concentrations and health risk decreased by about 12 percent. Health risk is based on the annual average

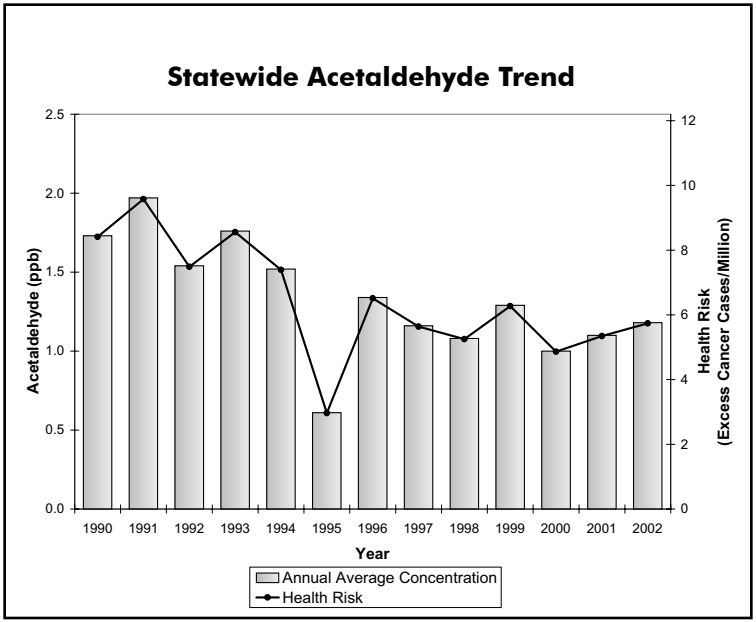


Figure 5-2

concentration and represents the estimated number of excess cancer cases per million people exposed to the specified concentration for 70 years. During 2002, there was an estimated six excess cancer cases per million people. On an individual basis, the health risks from acetaldehyde are much lower than they are for some of the other toxic air contaminants. Among the ten compounds presented in this almanac, the health risk from acetaldehyde ranks eighth out of ten.

It is important to note that the health risk to acetaldehyde is not spread evenly throughout the State. This is common for almost all pollutants. The data reflect statewide averages, and 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 Assembly Bill 2588 (the Air Toxics "Hot Spots" Program) will be used during the risk management phase to help determine the priority and need for control of sources of acetaldehyde.

Another factor to consider is 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, stringent 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 directly emitted acetaldehyde due to vehicular emissions.

# *Benzene*

## 2003 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.

Current estimates show that approximately 88 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 52 percent of the statewide benzene 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 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 11 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

| Benzene | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 1489 | 11% |
| **Area-wide Sources** | 114 | 1% |
| **On-Road Mobile** | 7004 | 52% |
| **Gasoline Vehicles** | 6737 | 50% |
| **Diesel Vehicles** | 267 | 2% |
| **Other Mobile** | 4825 | 36% |
| **Natural Sources** | 35 | 0% |
| ***Total Statewide*** | ***13466*** | ***100%*** |

Table 5-4

sources include residential combustion of various types such as cooking and water heating. The primary natural sources are petroleum seeps that form where oil or natural gas emerge from subsurface sources to the ground or water surface.

## 2003 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 (7 percent), South Coast portion of San Bernardino County (3 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 32 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 14 percent of statewide benzene emissions.

| Benzene | | | |
|---|---|---|---|
| County | Air Basin | tons/year | Percent |
| Los Angeles | South Coast | 2588 | 19% |
| San Diego | San Diego | 966 | 7% |
| Orange | South Coast | 917 | 7% |
| Santa Clara | San Francisco Bay Area | 539 | 4% |
| Kern | San Joaquin Valley | 527 | 4% |
| Alameda | San Francisco Bay Area | 432 | 3% |
| San Bernardino | South Coast | 431 | 3% |
| Riverside | South Coast | 417 | 3% |
| Sacramento | Sacramento Valley | 378 | 3% |
| Contra Costa | San Francisco Bay Area | 351 | 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 2002 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. Ambient levels have shown generally steady improvement since 1990.

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 2002, there was an estimated risk of 58 excess cancer cases per million people due to 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.

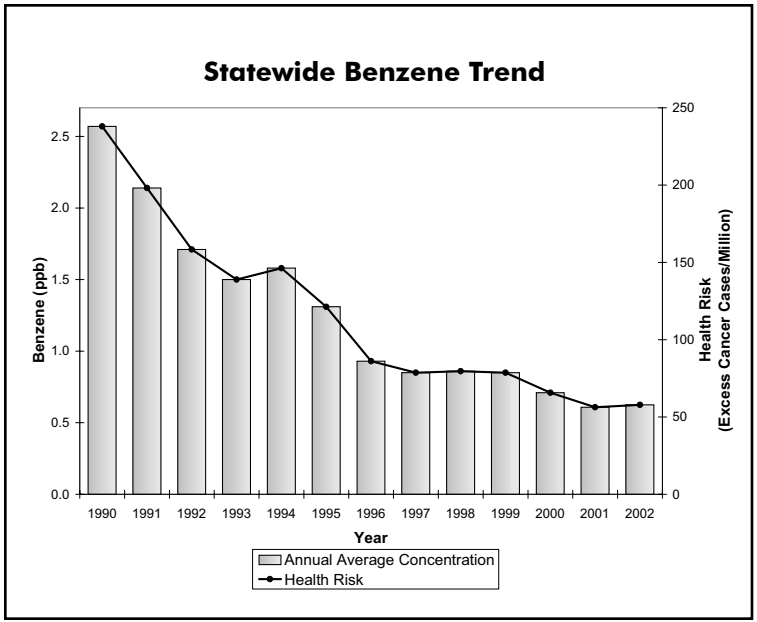

Figure 5-3

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. 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 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 can be found on the "Laboratory Standard Operating Procedures for Ambient Air" page on the ARB website at *www.arb.ca.gov/aaqm/sop/summary/summary.htm*.

The ARB started to use a gas chromatography/mass spectrometry based method to analyze benzene in 2001 to fulfill a lower detection limit requirement for the SB 25 and Neighborhood Assessment Programs. The new method is also in line with the new U.S. EPA Urban Air Toxic Program being developed nationally. Measurements do not change substantially using the GC/MS method, so that no adjustment is needed to prior years' data.

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. The Low Emission Vehicle (LEV) regulations have resulted in a significant reduction in exhaust and evaporative hydrocarbon emissions, including benzene. As the fleet turns over and new LEV technology vehicles are introduced into the fleet, emission reductions will continue. In 1996, the California Phase II Reformulated Gasoline Program was implemented statewide. Fuel reformulation has led to substanial decrease in the level of benzene from gasoline and vehicle exhaust emissions. 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*

## 2003 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 46 percent of the statewide 1,3-butadiene emissions can be attributed to on-road motor vehicles, with an additional 39 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 State** |
| **Stationary Sources** | 22 | 1% |
| **Area-wide Sources** | 390 | 12% |
| **On-Road Mobile** | 1452 | 46% |
| Gasoline Vehicles | 1426 | 44% |
| Diesel Vehicles | 25 | 1% |
| **Other Mobile** | 1227 | 39% |
| **Natural Sources** | 136 | 4% |
| ***Total Statewide*** | ***3228*** | ***100%*** |

Table 5-6

## 2003 Top Ten Counties - 1,3-Butadiene Emissions

The top ten counties account for approximately 50 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 two of the top ten counties emitting 1,3-butadiene: Tulare County (3 percent), and Fresno County (3 percent). The other counties in the top ten for 1,3-butadiene emissions are: Santa Clara, Alameda and Ventura.

| 1,3-Butadiene | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 518 | 16% |
| San Diego | San Diego | 229 | 7% |
| Orange | South Coast | 172 | 5% |
| Santa Clara | San Francisco Bay Area | 109 | 3% |
| Ventura | South Central Coast | 108 | 3% |
| Tulare | San Joaquin Valley | 103 | 3% |
| San Bernardino | South Coast | 99 | 3% |
| Alameda | San Francisco Bay Area | 94 | 3% |
| Riverside | South Coast | 91 | 3% |
| Fresno | San Joaquin Valley | 81 | 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 2002. There has been an equivalent drop in the health risk. Despite this substantial drop, the health risk from this compound remains relatively high. In 2002, there was an estimated risk of 65 excess cancer cases per million people. Of the ten compounds presented in this almanac, the average statewide health risk from 1,3-butadiene ranks second. Again, it is important to note that the data shown here reflect statewide averages. They do not consider local impacts, which may be higher or lower.

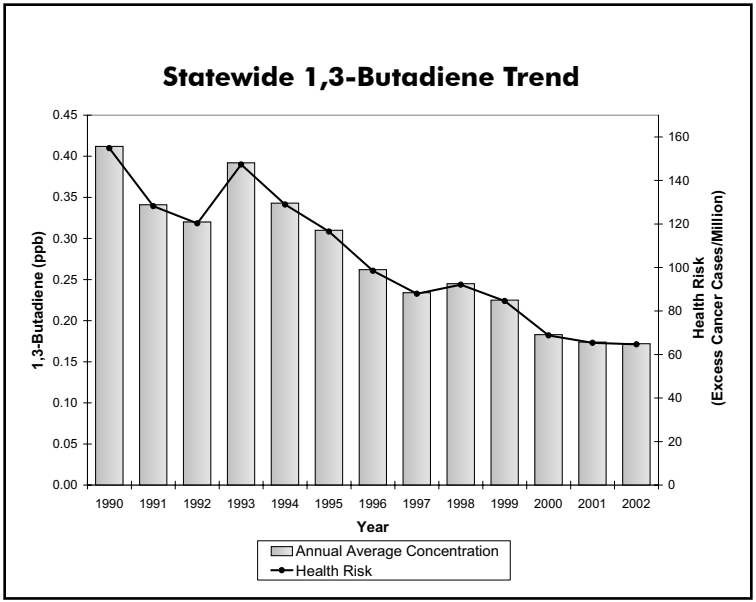



Figure 5-4

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 ARB 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 can be found on the "Laboratory Standard Operating Procedures for Ambient Air" page on the ARB website at *www.arb.ca.gov/aaqm/sop/summary/summary.htm*.

Similar to benzene, the ARB started to use a gas chromatography/mass spectrometry based method to analyze 1,3-butadiene in 2001 to fulfill a lower detection limit requirement for the SB 25 and Neighborhood Assessment Programs. The new method is also in line with the new U.S. EPA Urban Air Toxic Program being developed nationally. Measurements do not change substantially using the GC/MS method, so that no adjustment is needed to prior years' data.

In California, the majority of 1,3-butadiene emissions are from incomplete combustion of gasoline and diesel fuels. The ARB adopted Low Emission Vehicles (LEV)/Clean Fuels regulations in 1990 and Phase II reformulated gasoline regulations in 1991. The LEV regulations are expected to continue to reduce 1,3- butadiene emissions from cars and light-duty trucks as the fleet turns over and new low emission vehicles are introduced into the fleet.

# *Carbon Tetrachloride*

## 2003 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 2.40 tons per year), and background concentrations account for most of the health risk.

| Carbon Tetrachloride | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 2.40 | 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*** | ***2.40*** | ***100%*** |

Table 5-8

## 2003 Top Ten Counties - Carbon Tetrachloride

The top two counties account for 82 percent of the statewide carbon tetrachloride emissions. Contra Costa County (San Francisco Bay Area Air Basin) accounts for approximately 61 percent, and Los Angeles County (South Coast Air Basin Portion) accounts for approximately 21 percent of the emissions of carbon tetrachloride statewide. Carbon tetrachloride emissions in the South Coast Air Basin portion of Los Angeles County have decreased from previous editions of the almanac due to the closure of a major facility in that area. 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 16 percent of statewide carbon tetrachloride emissions.

| Carbon Tetrachloride | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Contra Costa | San Francisco Bay Area | 1.46 | 61% |
| Los Angeles | South Coast | 0.51 | 21% |
| San Diego | San Diego | 0.12 | 5% |
| San Bernardino | Mojave Desert | 0.10 | 4% |
| Ventura | South Central Coast | 0.05 | 2% |
| Sacramento | Sacramento Valley | 0.04 | 2% |
| Alameda | San Francisco Bay Area | 0.03 | 1% |
| Sonoma | San Francisco Bay Area | 0.02 | 1% |
| Kern | Mojave Desert | 0.02 | 1% |
| San Bernardino | South Coast | 0.01 | <1% |

Table 5-9

# *Carbon Tetrachloride*

## Air Quality and Health Risk

The ARB routinely monitors carbon tetrachloride at its statewide air toxics monitoring network. Figure 5-5 shows the annual average statewide concentrations and the associated health risk from carbon tetrachloride alone. 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. During 2000 through 2002, values fluctuated slightly, and that may be due in part to meteorological fluctuations rather than changes in emissions.

Based on data from sites in the TAC monitoring network, the 2002 statewide average carbon tetrachloride concentration and the associated health risk were about 31 percent lower than the peak in 1990. 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 for 70 years. During 2002, there was an estimated risk of 24 excess cancer cases per million people. The health risk of this TAC ranks fifth among the ten compounds presented in

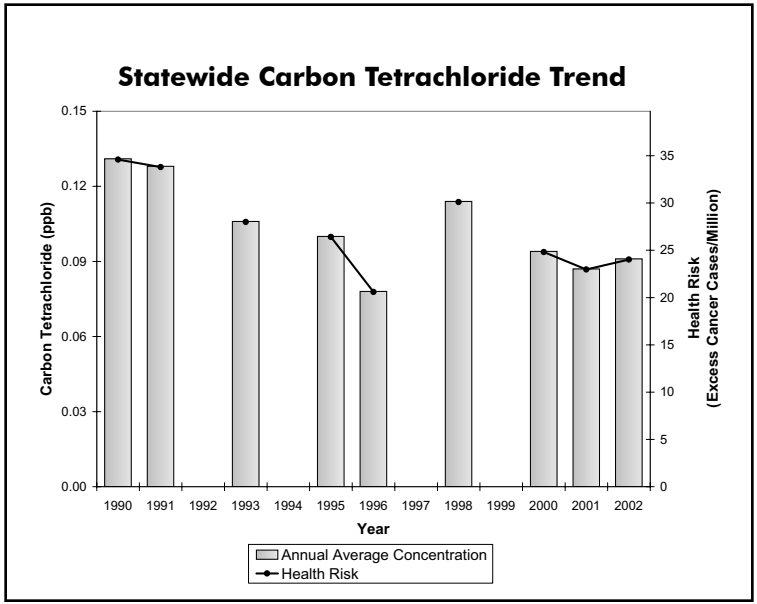



Figure 5-5

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.

Unlike many of the other TACs, carbon tetrachloride is emitted primarily by sources other than motor vehicles, and there are virtually no emissions within California. However, because carbon tetrachloride persists in the atmosphere for many years (the estimated atmospheric lifetime is 50 years), background concentrations still pose a health risk.

# *Chromium, Hexavalent*

## 2003 Statewide Emission Inventory

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

Chrome plating is a primary source of hexavalent chromium emissions in the State. Hexavalent chromium emissions from plating have declined significantly from previous editions of the almanac due to many platers switching to the use of trivalent chromium in place of hexavalent chromium. Chromic acid anodizing is another industrial metal finishing process which uses hexavalent chromium. A third source of hexavalent chromium emissions is the firebrick lining of glass furnaces. In California, stationary sources are estimated to emit slightly less than 1 ton annually of hexavalent chromium. 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 hexavalent chromium.

| Chromium, Hexavalent | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 0.81 | 47% |
| **Area-wide Sources** | 0 | 0% |
| **On-Road Mobile** | 0.12 | 7% |
| Gasoline Vehicles | 0.12 | 7% |
| Diesel Vehicles | < .01 | 0% |
| **Other Mobile** | 0.78 | 46% |
| **Natural Sources** | < .01 | 0% |
| ***Total Statewide*** | ***1.70*** | ***100%*** |

Table 5-10

Area-wide sources include oil and gas production, specifically the burning of residual and distillate oils. Approximately 0.12 tons of hexavalent chromium are emitted by gasoline motor vehicles. Other mobile sources such as trains and ships contribute approximately 0.78 tons of hexavalent chromium annually.

## 2003 Top Ten Counties - Chromium, Hexavalent

Four counties account for approximately 54 percent of the statewide hexavalent chromium emissions: South Coast portion of Los Angeles County (22 percent of the emissions of hexavalent chromium statewide), Mojave Desert portion of Kern County (17 percent), San Diego County (14 percent), and Tuolumne County (5 percent). Collectively, approximately 45 percent of statewide hexavalent chromium emissions occur in the South Coast Air Basin. Three counties in the San Joaquin Valley Air Basin contribute approximately 7 percent: Fresno County (3 percent), the San Joaquin Valley portion of Kern County (2 percent), and Stanislaus County (2 percent).

| Chromium, Hexavalent | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 0.37 | 22% |
| Kern | Mojave Desert | 0.29 | 17% |
| San Diego | San Diego | 0.23 | 14% |
| Tuolumne | Mountain Counties | 0.08 | 5% |
| Orange | South Coast | 0.05 | 3% |
| Fresno | San Joaquin Valley | 0.05 | 3% |
| San Bernardino | South Coast | 0.04 | 3% |
| Kern | San Joaquin Valley | 0.04 | 2% |
| Riverside | South Coast | 0.04 | 2% |
| Stanislaus | San Joaquin Valley | 0.03 | 2% |

Table 5-11

# *Chromium, Hexavalent*

## Air Quality and Health Risk

Unlike the other TACs discussed in this almanac, hexavalent chromium is the cation of a metal salt rather than a gas. Statewide annual averages and health risk estimates are available for 1992 through 2002. Prior to 1992, a different measurement method was used. With this method, some of the hexavalent chromium was transformed into trivalent chromium on the collection filter. As a result, the hexavalent chromium concentrations were underestimated, and these data are not included in this almanac. Since 1992, a new and more accurate method has been used.

The statewide annual average concentrations and associated health risks 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. Hexavalent chromium values dropped substantially after 1995, and the decrease coincided with the complete implementation of the chrome plating and the chromate-treated cooling tower control measures. Between 1996 and 1999, slight improvements continued, and values in 2000 and 2001 were slightly elevated over 1999 and 2002 levels.

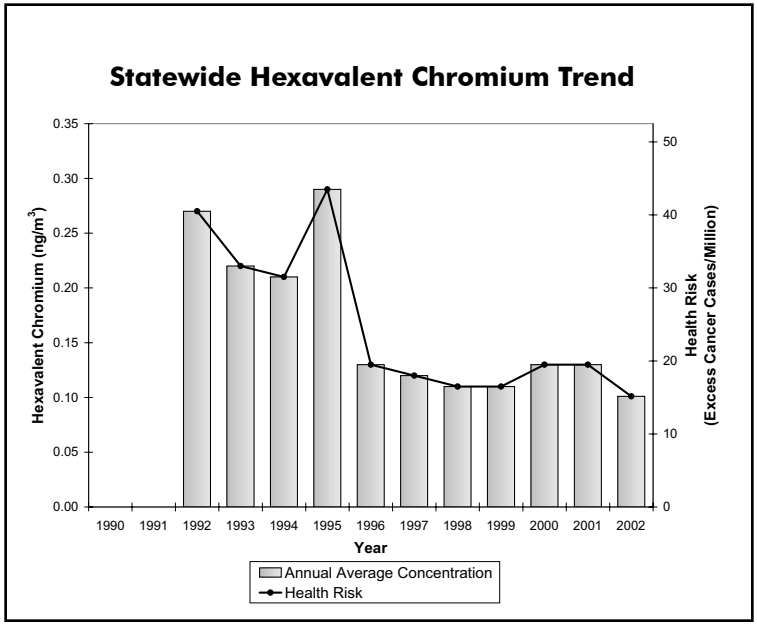



Figure 5-6

In 2002, there was an estimated risk of 15 excess cancer cases per million people, based on the annual average concentration. This represents a 63 percent reduction in hexavalent chromium concentration and associated health risk, as compared to 1992. Based on data for all ten TACs presented in this almanac, hexavalent chromium ranks sixth in terms of health risk. 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. It is important to remember that since hexavalent chromium exposure and health impact occur on a neighborhood scale, actual health risk can be higher in some areas than the statewide average, and lower in other areas.

During 1998 through 2001, a very high percentage of the measured values were below the Limit of Detection (LOD), which is the lowest concentration that can be reliably measured. In calculating an annual average, values below the LOD are assumed equal to 0.1 nanograms per cubic meter (ng/m$^3$), which is one-half the LOD of 0.2 ng/m$^3$. The one-half of LOD approach applies to all other TACs when their measurements are below their respective LODs. It is a good estimate for some TACs, however, it is uncertain for hexavalent chromium due to the high number of very low concentrations. This approach continues to apply to hexavalent chromium for consistency. Starting on January 1, 2002, hexavalent chromium is being analyzed by compositing quarterly samples by site. Although the new method decreases the number of samples, it increases the sensitivity of the instrument by lowering the LOD from 0.2 ng/m$^3$ to 0.06 ng/m$^3$.

Implementation of a series of control measures has helped reduce ambient concentrations and associated health risks from hexavalent chromium. In 1988, the ARB adopted an airborne toxic control measure to reduce emissions of hexavalent chromium from chrome plating and chromic acid anodizing operations. The control measure reduced hexavalent chromium emissions from these operations by over 90 percent. In the past, compounds containing hexavalent chromium, 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 hexavalent chromium in cooling towers. In September 2001, the ARB approved an air toxic control measure banning the use of both hexavalent chromium and cadmium in motor vehicle and mobile equipment coatings. The measure became 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. However, this rule will ensure additional reductions in hexavalent chromium exposures near those remaining facilities that do not use chromium-free and cadmium-free coatings.

# *para-Dichlorobenzene*

## 2003 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 State** |
| **Stationary Sources** | 15 | 1% |
| **Area-wide Sources** | 1834 | 99% |
| **On-Road Mobile** | 0 | 0% |
| Gasoline Vehicles | 0 | 0% |
| Diesel Vehicles | 0 | 0% |
| **Other Mobile** | 0 | 0% |
| **Natural Sources** | 0 | 0% |
| ***Total Statewide*** | ***1849*** | ***100%*** |

Table 5-12

## 2003 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 9 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 | 494 | 27% |
| San Diego | San Diego | 158 | 9% |
| Orange | South Coast | 155 | 8% |
| Santa Clara | San Francisco Bay Area | 92 | 5% |
| Alameda | San Francisco Bay Area | 77 | 4% |
| San Bernardino | South Coast | 71 | 4% |
| Riverside | South Coast | 68 | 4% |
| Sacramento | Sacramento Valley | 66 | 4% |
| Contra Costa | San Francisco Bay Area | 50 | 3% |
| Fresno | San Joaquin Valley | 45 | 2% |

Table 5-13

# *para-Dichlorobenzene*

## Air Quality and Health Risk

The ARB routinely monitors *para*-dichlorobenzene in ambient air, and statewide annual average concentrations and health risk estimates are available for 1991 through 2002, with the exception of 1998 and 1999. No summary data are available for these years because of problems with laboratory equipment and associated data reliability. The trend graph for *para*-dichlorobenzene, shown in Figure 5-7, shows generally constant values throughout 1991 to 2002, with slightly lower values in 1994, 1996, and 2000, and an upturn in 2001 and 2002.

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 for 70 years. During 2002, there was an estimated risk of ten 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. It is important to remember that, as with all air pollutants, the data shown here reflect statewide averages. They do not consider local impacts, which may be higher or lower.

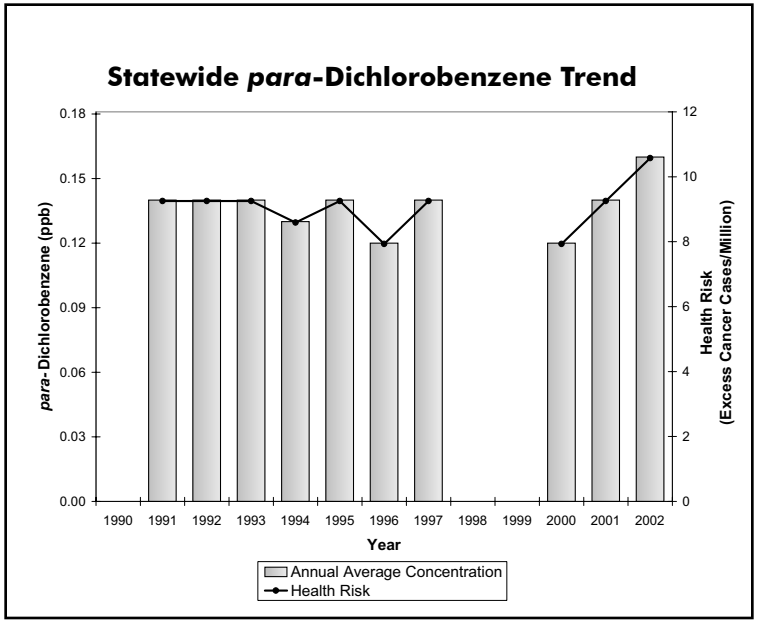



Figure 5-7

Similar to hexavalent chromium, a very high percentage of the measured values were below the Limit of Detection (LOD), which is the lowest concentration that can be reliably measured. In calculating an annual average, values below the LOD are assumed equal to 0.15 parts per billion (ppb), which is one-half the LOD of 0.3 ppb. The one-half of LOD approach applies to all other TACs when their measurements are below the LOD. It is a good estimate for some TACs, however, it is uncertain for *para*-dichlorobenzene due to the large number of samples with very low concentrations. However, for consistency, this approach continues to apply to *para*-dichlorobenzene.

# *Formaldehyde*

## 2003 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 80 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 51 percent attributed to other mobile sources such as aircraft, recreational boats, and construction and mining equipment. Area-wide sources contribute approximately 10 percent and stationary sources contribute approximately 11 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 State** |
| **Stationary Sources** | 2155 | 11% |
| **Area-wide Sources** | 2009 | 10% |
| **On-Road Mobile** | 5777 | 29% |
| Gasoline Vehicles | 3813 | 19% |
| Diesel Vehicles | 1964 | 10% |
| **Other Mobile** | 10145 | 51% |
| **Natural Sources** | < .01 | 0% |
| ***Total Statewide*** | ***20087*** | ***100%*** |

Table 5-14

## 2003 Top Ten Counties - Formaldehyde

The top ten counties account for approximately 50 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 (16 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 27 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 Sacramento. These six counties account for approximately 24 percent of statewide formaldehyde emissions.

| Formaldehyde | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 3177 | 16% |
| San Diego | San Diego | 1400 | 7% |
| Orange | South Coast | 1051 | 5% |
| Kern | San Joaquin Valley | 794 | 4% |
| Santa Clara | San Francisco Bay Area | 736 | 4% |
| Alameda | San Francisco Bay Area | 654 | 3% |
| Riverside | South Coast | 607 | 3% |
| Fresno | San Joaquin Valley | 580 | 3% |
| San Bernardino | South Coast | 568 | 3% |
| Sacramento | Sacramento Valley | 561 | 3% |

Table 5-15

# *Formaldehyde*
## Air Quality and Health Risk

The ARB routinely monitors formaldehyde concentrations in the ambient air, and statewide annual average concentrations and associated health risk are available for 1990 through 2002. However, values prior to 1996 are uncertain because the data were based on a method that underestimated the actual concentrations. A method change in 1996 corrected this problem, but 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.

The trend graph for formaldehyde, shown in Figure 5-8, shows a great deal of variability. During 1990 through 1992, there is a general drop in ambient concentrations, and then values steadily increase from 1993 through 1996. During 1996 through 2002, values fluctuate, but do not change substantially. It may take a few years to see if a long-term trend exists. 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 for 70 years. During 2002, there was an estimated risk of 26 excess cancer cases per

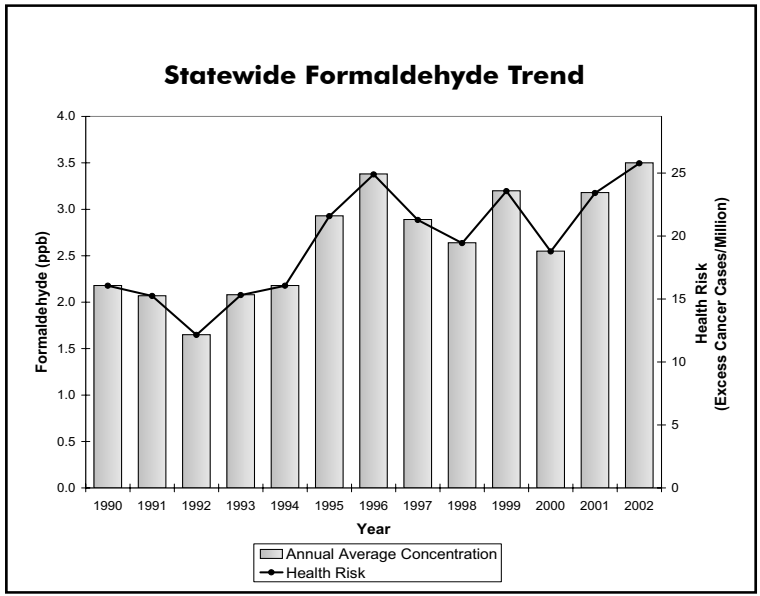



Figure 5-8

million people from formaldehyde alone. Based on data for all ten TACs presented in this almanac, formaldehyde ranks fourth in terms of health risk. As with other TACs, the health risk is not spread evenly throughout the State, so in some areas the health risk is higher than the statewide average while in other areas, the health risk is lower.

Although 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.

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*

## 2003 Statewide Emission Inventory

The ARB identified methylene chloride as a Toxic Air Contaminant 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 51 percent of the statewide methylene chloride emissions. Area-wide sources contribute approximately 49 percent. The primary area-wide sources include consumer products such as paint removers and strippers and automotive brake cleaners.

| Methylene Chloride | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 3879 | 51% |
| **Area-wide Sources** | 3709 | 49% |
| **On-Road Mobile** | 0 | 0% |
| **Gasoline Vehicles** | 0 | 0% |
| **Diesel Vehicles** | 0 | 0% |
| **Other Mobile** | 0 | 0% |
| **Natural Sources** | 0 | 0% |
| ***Total Statewide*** | ***7588*** | ***100%*** |

Table 5-16

## 2003 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 (35 percent of the emissions of methylene chloride statewide), Orange County (14 percent), South Coast portion of San Bernardino County (6 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 58 percent of statewide methylene chloride emissions occur in the South Coast Air Basin. Three counties in the San Francisco Bay Area Air Basin contribute approximately 7 percent: Santa Clara County (4 percent), Alameda County (3 percent), and Contra Costa (2 percent). The three other counties in the top ten for methylene chloride emissions are: San Diego, Sacramento, and Ventura. Together, these three counties account for approximately 9 percent of statewide methylene chloride emissions.

| Methylene Chloride | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 2618 | 35% |
| Orange | South Coast | 1061 | 14% |
| San Bernardino | South Coast | 473 | 6% |
| San Diego | San Diego | 381 | 5% |
| Santa Clara | San Francisco Bay Area | 323 | 4% |
| Riverside | South Coast | 260 | 3% |
| Alameda | San Francisco Bay Area | 260 | 3% |
| Sacramento | Sacramento Valley | 175 | 2% |
| Ventura | South Central Coast | 160 | 2% |
| Contra Costa | San Francisco Bay Area | 132 | 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, and the drop during 2001 and 2002 is substantial. The statewide annual average concentrations and health risk have decreased about 74 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 2002, there was an estimated risk of one excess cancer case per million people. 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 for 70 years.

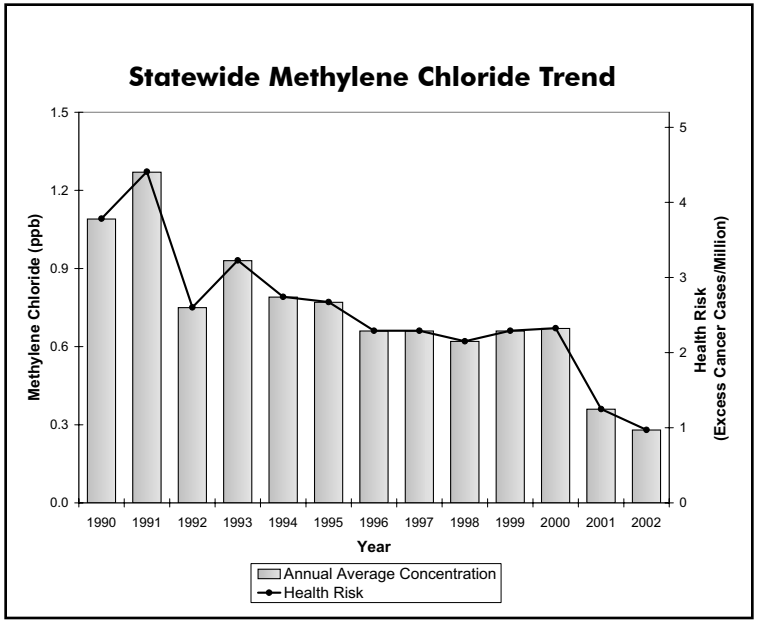



Figure 5-9

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*

## 2003 Statewide Emission Inventory

The ARB identified perchloroethylene as a Toxic Air Contaminant 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 67 percent of the statewide emissions of perchloroethylene. Area-wide sources contribute approximately 33 percent. The primary area-wide sources include consumer products such as automotive brake cleaners and tire sealants and inflators.

| Perchloroethylene | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 4082 | 67% |
| **Area-wide Sources** | 1997 | 33% |
| **On-Road Mobile** | 0 | 0% |
| Gasoline Vehicles | 0 | 0% |
| Diesel Vehicles | 0 | 0% |
| **Other Mobile** | 0 | 0% |
| **Natural Sources** | 0 | 0% |
| ***Total Statewide*** | ***6078*** | ***100%*** |

Table 5-18

## 2003 Top Ten Counties - Perchloroethylene

The top ten counties account for approximately 72 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 (29 percent of the emissions of perchloroethylene statewide), Orange County (9 percent), South Coast portion of San Bernardino County (4 percent), and South Coast portion of Riverside County (3 percent). Collectively, approximately 45 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: Sacramento, Santa Clara, Alameda, Fresno, and San Francisco. These five counties account for approximately 16 percent of statewide perchloroethylene emissions.

| Perchloroethylene | | | |
|---|---|---|---|
| **County** | **Air Basin** | **tons/year** | **Percent** |
| Los Angeles | South Coast | 1761 | 29% |
| San Diego | San Diego | 618 | 10% |
| Orange | South Coast | 556 | 9% |
| Sacramento | Sacramento Valley | 336 | 6% |
| San Bernardino | South Coast | 238 | 4% |
| Santa Clara | San Francisco Bay Area | 223 | 4% |
| Alameda | San Francisco Bay Area | 184 | 3% |
| Riverside | South Coast | 183 | 3% |
| Fresno | San Joaquin Valley | 130 | 2% |
| San Francisco | San Francisco Bay Area | 115 | 2% |

Table 5-19

# *Perchloroethylene*

## Air Quality and Health Risk

The ARB routinely monitors perchloroethylene concentrations in the ambient air. Although the trend graph for perchloroethylene shows some variability, there is an overall downward trend. Since 1990, the statewide annual average concentrations and health risk have dropped about 72 percent. Figure 5-10 shows annual average statewide perchloroethylene concentrations and the associated health risk for 1990 through 2002. No data are shown for 1999 because complete and representative data are not available. During 2002, there was an estimated risk of three excess cancer cases per million people. Based on this, perchloroethylene ranks ninth out of the ten compounds presented in this almanac. 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.

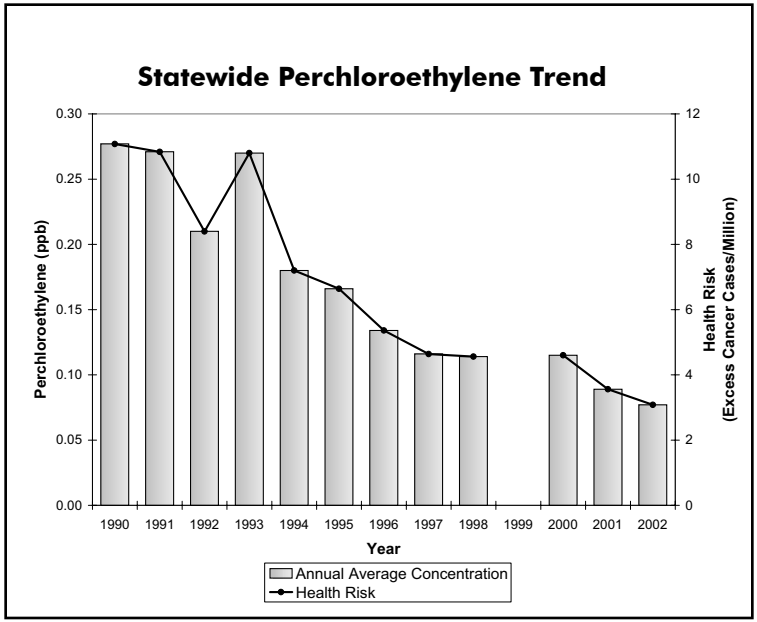



Figure 5-10

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 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, which may increase emissions from dry cleaners. However, the ARB has developed control measures that prohibit the use of perchloroethene in automotive products, aerosol adhesives, and aerosol coatings.

# *Diesel Particulate Matter*

## 2003 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 is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 24 percent of the statewide total, with an additional 70 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 5 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.

| Diesel PM | | |
|---|---|---|
| **Emissions Source** | **tons/year** | **Percent State** |
| **Stationary Sources** | 1301 | 5% |
| **Area-wide Sources** | 0 | 0% |
| **On-Road Mobile** | 6082 | 24% |
| **Gasoline Vehicles** | 0 | 0% |
| **Diesel Vehicles** | 6082 | 24% |
| **Other Mobile** | 17616 | 70% |
| **Natural Sources** | 0 | 0% |
| ***Total Statewide*** | ***24998*** | ***100%*** |

Table 5-20

Readers may note that the stationary source diesel PM emission estimates differ from those presented in previous editions of the almanac and 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 and have been calculated with updated methodologies developed for new regulations. These regulations are those that were recommended in the Diesel Risk Reduction Plan. 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.

## 2003 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 four 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), South Coast portion of Riverside County (4 percent), and the South Coast portion of San Bernardino County (3 percent). Collectively, approximately 32 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 4 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 Fresno County contribute the remainder.

| Diesel PM | | | |
|---|---|---|---|
| County | Air Basin | tons/year | Percent |
| Los Angeles | South Coast | 4570 | 18% |
| San Diego | San Diego | 1704 | 7% |
| Orange | South Coast | 1678 | 7% |
| Fresno | San Joaquin Valley | 1027 | 4% |
| Riverside | South Coast | 999 | 4% |
| Santa Clara | San Francisco Bay Area | 914 | 4% |
| Alameda | San Francisco Bay Area | 910 | 4% |
| San Bernardino | South Coast | 801 | 3% |
| San Francisco | San Francisco Bay Area | 773 | 3% |
| Kern | San Joaquin Valley | 764 | 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 PM contributes the majority of the risk from exposure to diesel exhaust because the particles carry many of the harmful organics and metals present in the exhaust.

Unlike the other toxic air contaminants presented in this almanac, the ARB does not monitor diesel PM because there is no routine method for monitoring ambient concentrations. However, the ARB made a preliminary estimation of diesel PM concentrations for the State's 15 air basins and for the State as a whole using a PM-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 PM. The ARB subsequently updated the original statewide estimates based on the ratio

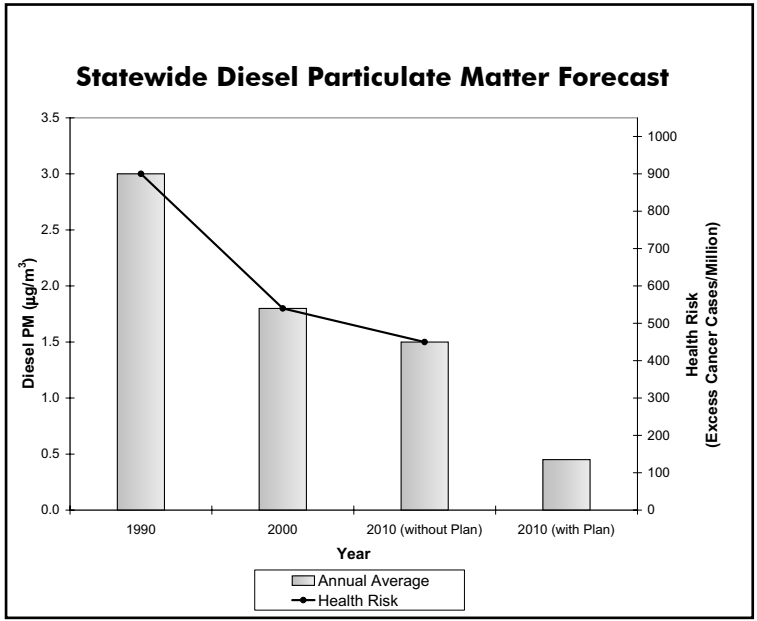



Figure 5-11

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. 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. In addition, the ARB estimated population-weighted concentrations for 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. 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 PM.

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, the goal of the Plan is 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 PM 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 PM concentrations and associated health risks should continue to decline.

# *South Coast Air Basin*

## 2003 Emission Inventory by Compound

### Acetaldehyde

Approximately 94 percent of the emissions of acetaldehyde are from mobile sources.

| South Coast - Acetaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 16 | 1% | 0% |
| **Area-wide Sources** | 85 | 5% | 1% |
| **On-Road Mobile** | 630 | 37% | 8% |
| Gasoline Vehicles | 295 | 17% | 4% |
| Diesel Vehicles | 336 | 20% | 4% |
| **Other Mobile** | 973 | 57% | 13% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1704 | 100% | 23% |
| **Total Statewide** | **7507** | | |

Table 5-22

### Benzene

The primary sources of benzene emissions in the South Coast Air Basin are mobile sources (approximately 89 percent).

| South Coast - Benzene | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 435 | 10% | 3% |
| **Area-wide Sources** | 43 | 1% | 0% |
| **On-Road Mobile** | 2492 | 57% | 19% |
| Gasoline Vehicles | 2401 | 55% | 18% |
| Diesel Vehicles | 91 | 2% | 1% |
| **Other Mobile** | 1382 | 32% | 10% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 4353 | 100% | 32% |
| **Total Statewide** | **13466** | | |

Table 5-23

## 1,3-Butadiene

Approximately 92 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** | 7 | 1% | 0% |
| **Area-wide Sources** | 39 | 4% | 1% |
| **On-Road Mobile** | 512 | 58% | 16% |
| Gasoline Vehicles | 503 | 57% | 16% |
| Diesel Vehicles | 9 | 1% | 0% |
| **Other Mobile** | 304 | 35% | 10% |
| **Natural Sources** | 17 | 2% | 1% |
| **Total** | 880 | 100% | 28% |
| **Total Statewide** | **3228** | | |

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** | 0.53 | 100% | 22% |
| **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** | 0.53 | 100% | 22% |
| **Total Statewide** | **2.40** | | |

Table 5-25

## Chromium, Hexavalent

Approximately 81 percent of the hexavalent chromium 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** | 0.41 | 81% | 24% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 0.05 | 9% | 3% |
| Gasoline Vehicles | 0.05 | 9% | 3% |
| Diesel Vehicles | < .01 | 0% | 0% |
| **Other Mobile** | 0.05 | 10% | 3% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 0.51 | 100% | 30% |
| **Total Statewide** | **1.71** | | |

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** | 778 | 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** | 787 | 100% | 43% |
| **Total Statewide** | **1849** | | |

Table 5-27

## Formaldehyde

Approximately 84 percent of the formaldehyde emissions are from mobile sources.

| South Coast - Formaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 688 | 13% | 3% |
| **Area-wide Sources** | 177 | 3% | 1% |
| **On-Road Mobile** | 2022 | 37% | 10% |
| Gasoline Vehicles | 1350 | 25% | 7% |
| Diesel Vehicles | 672 | 12% | 3% |
| **Other Mobile** | 2515 | 47% | 13% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 5402 | 100% | 27% |
| **Total Statewide** | **20087** | | |

Table 5-28

## Methylene Chloride

Approximately 65 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** | 2863 | 65% | 38% |
| **Area-wide Sources** | 1549 | 35% | 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** | 4413 | 100% | 58% |
| **Total Statewide** | **7588** | | |

Table 5-29

## Perchloroethylene

Approximately 69 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** | 1892 | 69% | 31% |
| **Area-wide Sources** | 847 | 31% | 14% |
| **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** | 2739 | 100% | 45% |
| **Total Statewide** | **6078** | | |

Table 5-30

## Diesel Particulate Matter

Approximately 97 percent of emissions of diesel particulate matter are from mobile sources.

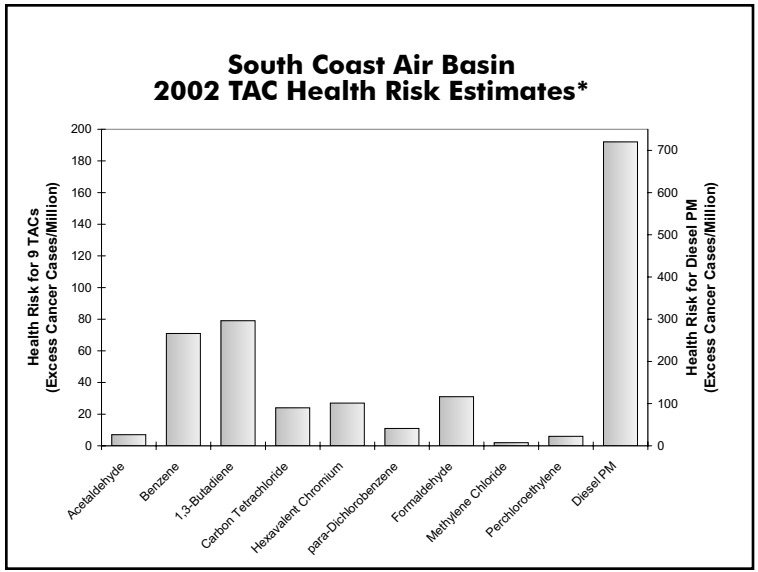
| South Coast - Diesel PM | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 239 | 3% | 1% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 2180 | 27% | 9% |
| Gasoline Vehicles | 0 | 0% | 0% |
| Diesel Vehicles | 2180 | 27% | 9% |
| **Other Mobile** | 5627 | 70% | 23% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 8047 | 100% | 32% |
| **Total Statewide** | **24998** | | |

Table 5-31

# *South Coast Air Basin*
## Air Quality and Health Risk

From 1990 through 2002, 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 also 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. Annual average concentrations and associated health risks for the top ten TACs individually, as well as their cumulative health risk for the South Coast Air Basin, are shown in Table 5-32. Data for individual sites are listed in Appendix C.

Two special study sites, located in the Boyle Heights and Wilmington areas of Los Angeles, were operated between February 2001 and May 2002 (Boyle Heights) and between May 2001 and July 2002 (Wilmington). Monitoring was conducted for both TACs and criteria air pollutants. Limited monitoring of a few pollutants was conducted at two satel-




** Data for Hexavalent Chromium and Diesel PM reflect 2000; data for all other TACs reflect 2002.*

Figure 5-12

lite sites in Boyle Heights from March 2001 through October 2001, and at one satellite site in Wilmington from November 2001 through May 2002. The Boyle Heights and Wilmington communities are both located near major freeways. The Wilmington community is also located near oil refineries and port facilities. Although not included in this almanac, data from Boyle Heights, Wilmington, and other community monitoring studies are being used in support of the ARB's Community Health Program. Copies of the full reports are available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*.

Figure 5-12 shows 2002 health risks posed by the top ten TACs individually for the South Coast Air Basin. As indicated on the graph, the health risk data reflect the year of 2002, except for hexavalent chromium and diesel PM. Data for these TACs reflect the year 2000, the most recent year for which complete and representative data are available. It is important to note that health risks shown here are based on an annual average concentration 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.

Of the ten TACs considered in this almanac, diesel PM presents the most substantial health risk. In the South Coast Air Basin, the estimated health risk from diesel PM is 720 excess cancer cases per million people. Although the health risk is higher than the statewide average, it represents a 33 percent drop between 1990 and 2000. Although much smaller by comparison, 1,3-butadiene and benzene also pose substantial health risks. Since 1990, their health risks have been reduced by 60 percent and 77 percent, respectively. Perchloroethylene and methylene chloride also show substantial reductions of 75 percent and 69 percent, respectively. Overall, in South Coast Air Basin, all TACs except formaldehyde have been reduced since 1990, but their health risks are still higher than the statewide levels.

It is important to note that 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** | **2002** |
| 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 | 1.41 |
| | Health Risk | 12 | 15 | 12 | 13 | 11 | 5 | 10 | 9 | 7 | 8 | 6 | 7 | 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 | 0.77 |
| | Health Risk | 317 | 269 | 242 | 201 | 222 | 175 | 134 | 124 | 116 | 111 | 90 | 80 | 71 |
| 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 | 0.21 |
| | Health Risk | 200 | 170 | 187 | 212 | 187 | 173 | 146 | 142 | 133 | 123 | 94 | 94 | 79 |
| Carbon Tetrachloride | Annual Avg | 0.14 | 0.13 | | 0.11 | | 0.10 | 0.08 | | 0.11 | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 36 | 35 | | 28 | | 27 | 21 | | 30 | | 25 | 23 | 24 |
| 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 | 0.16 |
| | Health Risk | | 11 | 13 | 11 | 8 | 11 | 7 | 9 | | | 9 | 10 | 11 |
| 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 | 4.16 |
| | Health Risk | 22 | 23 | 16 | 24 | 23 | 26 | 37 | 33 | 28 | 30 | 23 | 30 | 31 |
| 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 | 0.57 |
| | Health Risk | 6 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 3 | 3 | 3 | 2 | 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 | 0.15 |
| | Health Risk | 23 | 22 | 16 | 18 | 16 | 15 | 13 | 11 | 10 | | 8 | 7 | 6 |
| *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 | 231 |
| | ***With Diesel PM*** | ***(1696)*** | | | | | ***(1315)*** | | | | | ***(1005)*** | | |

* Concentrations for Hexavalent Chromium 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*
# 2003 Emission Inventory by Compound

## Acetaldehyde

Approximately 76 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** | 54 | 4% | 1% |
| **Area-wide Sources** | 278 | 21% | 4% |
| **On-Road Mobile** | 345 | 26% | 5% |
| Gasoline Vehicles | 162 | 12% | 2% |
| Diesel Vehicles | 183 | 14% | 2% |
| **Other Mobile** | 673 | 50% | 9% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1351 | 100% | 18% |
| **Total Statewide** | **7507** | | |

Table 5-33

## Benzene

Mobile sources are the primary sources of benzene emissions in the San Francisco Bay Area Air Basin (approximately 90 percent).

| San Francisco Bay Area - Benzene | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 140 | 6% | 1% |
| **Area-wide Sources** | 34 | 1% | 0% |
| **On-Road Mobile** | 1380 | 61% | 10% |
| Gasoline Vehicles | 1330 | 59% | 10% |
| Diesel Vehicles | 50 | 2% | 0% |
| **Other Mobile** | 692 | 31% | 5% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 2245 | 100% | 17% |
| **Total Statewide** | **13466** | | |

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** | 6 | 1% | 0% |
| **Area-wide Sources** | 2 | 0% | 0% |
| **On-Road Mobile** | 288 | 59% | 9% |
| Gasoline Vehicles | 283 | 58% | 9% |
| Diesel Vehicles | 5 | 1% | 0% |
| **Other Mobile** | 191 | 39% | 6% |
| **Natural Sources** | 1 | 0% | 0% |
| **Total** | 488 | 100% | 15% |
| **Total Statewide** | **3228** | | |

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** | 1.53 | 100% | 64% |
| **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** | 1.53 | 100% | 64% |
| **Total Statewide** | **2.40** | | |

Table 5-36

## Chromium, Hexavalent

Approximately 75 percent of the hexavalent chromium emissions are from other mobile sources. Stationary sources such as electrical generation and fabricated metal product manufacturing contribute approximately 4 percent.

| San Francisco Bay Area - Chromium, Hexavalent | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | < .01 | 4% | 0% |
| **Area-wide Sources** | 0.00 | 0% | 0% |
| **On-Road Mobile** | 0.02 | 21% | 1% |
| Gasoline Vehicles | 0.02 | 21% | 1% |
| Diesel Vehicles | < .01 | 1% | 0% |
| **Other Mobile** | 0.08 | 75% | 5% |
| **Natural Sources** | 0.00 | 0% | 0% |
| **Total** | 0.11 | 100% | 6% |
| **Total Statewide** | **1.71** | | |

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** | 354 | 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** | 355 | 100% | 19% |
| **Total Statewide** | **1849** | | |

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** | 171 | 5% | 1% |
| **Area-wide Sources** | 362 | 11% | 2% |
| **On-Road Mobile** | 1107 | 32% | 6% |
| Gasoline Vehicles | 740 | 22% | 4% |
| Diesel Vehicles | 367 | 11% | 2% |
| **Other Mobile** | 1771 | 52% | 9% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 3412 | 100% | 17% |
| **Total Statewide** | **20087** | | |

Table 5-39

## Methylene Chloride

Approximately 66 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** | 387 | 34% | 5% |
| **Area-wide Sources** | 746 | 66% | 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** | 1134 | 100% | 15% |
| **Total Statewide** | **7588** | | |

Table 5-40

## Perchloroethylene

Approximately 56 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** | 486 | 56% | 8% |
| **Area-wide Sources** | 385 | 44% | 6% |
| **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** | 871 | 100% | 14% |
| **Total Statewide** | **6078** | | |

Table 5-41

## Diesel Particulate Matter

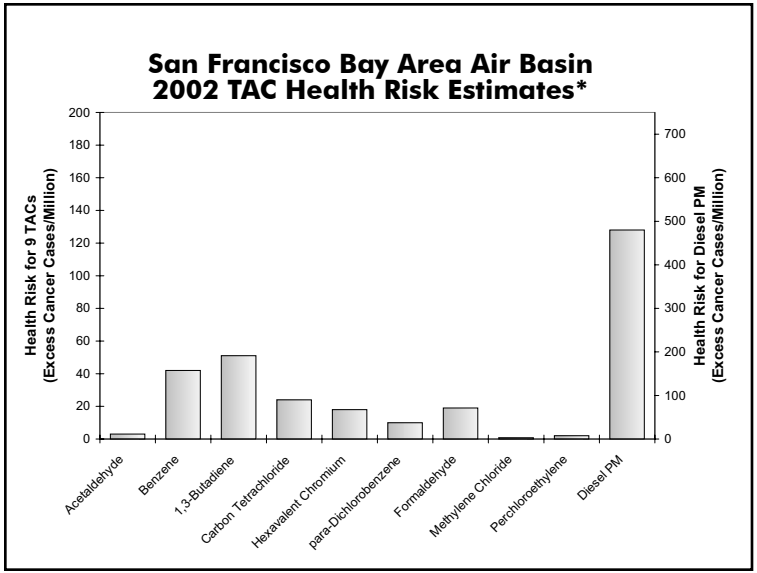
Emissions of diesel particulate matter are primarily from mobile sources.

| San Francisco Bay Area - Diesel PM | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 84 | 2% | 0% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 1137 | 26% | 5% |
| Gasoline Vehicles | 0 | 0% | 0% |
| Diesel Vehicles | 1137 | 26% | 5% |
| **Other Mobile** | 3221 | 73% | 13% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 4442 | 100% | 18% |
| **Total Statewide** | **24998** | | |

Table 5-42

# *San Francisco Bay Area Air Basin*
## Air Quality and Health Risk

From 1990 through 2002, the ARB 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 and San Francisco. San Jose-Fourth Street site has measurements from 1990 through 2001; this site was relocated to San Jose-Jackson Street in mid-2002. Data are also available from a site at 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. Annual average concentration and associated health risk are unavailable for the year during the site move because neither site has a full year of data. Annual average concentrations and health risks for the top ten TACs individually, as well as their cumulative health risk for the San Francisco Bay Area Air Basin, are shown in Table 5-43. Data for individual sites are shown in Appendix C.




** Data for Hexavalent Chromium and Diesel PM reflect 2000; data for all other TACs reflect 2002.*

Figure 5-13

Two special study sites, located in the Crockett and Fruitvale/Oakland areas of the San Francisco Bay Area Air Basin, were operated between October 2001 and May 2003 (Crockett) and between November 2001 and April 2003 (Fruitvale). Monitoring was conducted for both TACs and criteria air pollutants. The Crockett community is located near high-risk facilities, including mobile source emissions. Oil refineries and major oil storage facilities are located in nearby cities to Crockett. Crockett is also the location of a major food processing operation and a heavy-rail transfer facility. The Fruitvale community lies between two major freeways that are a significant source of vehicular emissions. The Fruitvale area is also downwind of several industrial operations that are sources of pollution. Although not included in this almanac, data from Crockett, Fruitvale, and other community monitoring studies are being used in support of the ARB's Community Health Program. Copies of the full reports are available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*.

Figure 5-13 shows 2002 health risks for the top ten TACs individually for the San Francisco Bay Area Air Basin. As indicated on the graph, the health risk data reflect the year 2002 except for hexavalent chromium and diesel PM. Data for these TACs reflect the year 2000, the most recent year for which complete and representative data are available. It is important to note that health risks shown here are based on an annual average concentration 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.

Of the ten TACs considered in this almanac, diesel PM poses the greatest health risk in this air basin, 480 excess cancer cases per million people exposed for 70 years. The estimate is slightly lower than the estimated statewide value for the same year, and it represents a 36 percent drop between 1990 and 2000. Aside from diesel PM, 1,3-butadiene and benzene also pose substantial health risks. Since 1990, they have been reduced by 61 percent and 79 percent, respectively. Methylene chloride and perchloroethylene also show significant reductions of 79 percent and 75 percent, respectively. Overall, in the San Francisco Bay Area Air Basin, all TACs except for *para*-dichlorobenzene and formaldehyde show a reduction since 1990.

In general, the average concentrations and associated health risks of the top ten TACs for the San Francisco Bay Area Air Basin are lower than the statewide averages, and they 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. Reductions in ambient level of TACs 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** | **2002** |
| 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 | 0.63 |
| | Health Risk | 6 | 7 | 5 | 6 | 6 | 2 | 4 | 4 | 3 | 4 | 3 | 4 | 3 |
| 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 | 0.45 |
| | Health Risk | 202 | 169 | 138 | 138 | 129 | 116 | 66 | 56 | 66 | 55 | 52 | 39 | 42 |
| 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 | 0.14 |
| | Health Risk | 135 | 108 | 103 | 138 | 108 | 104 | 82 | 70 | 82 | 64 | 56 | 50 | 51 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.11 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 34 | 33 | | 29 | | 26 | 21 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 8 | 8 | 8 | 7 | 8 | 9 | 8 | | | 7 | 9 | 10 |
| 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 | 2.57 |
| | Health Risk | 14 | 13 | 11 | 11 | 12 | 15 | 19 | 14 | 13 | 15 | 13 | 17 | 19 |
| Methylene Chloride | Annual Avg | 1.04 | 2.32 | 0.65 | 0.72 | 0.59 | 0.60 | 0.58 | 0.55 | | | 0.53 | 0.27 | 0.22 |
| | Health Risk | 4 | 8 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.20 | 0.23 | 0.17 | 0.13 | 0.08 | 0.09 | 0.07 | 0.07 | | | 0.08 | 0.06 | 0.05 |
| | Health Risk | 8 | 9 | 7 | 5 | 3 | 4 | 3 | 3 | | | 3 | 2 | 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 | 152 |
| | ***With Diesel PM*** | ***(1153)*** | | | | | ***(884)*** | | | | | ***(659)*** | | |

* Concentrations for Hexavalent chromium 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*
# 2003 Emission Inventory by Compound

## Acetaldehyde

Approximately 76 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion account for approximately 17 percent.

| San Joaquin Valley - Acetaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 72 | 6% | 1% |
| **Area-wide Sources** | 194 | 17% | 3% |
| **On-Road Mobile** | 263 | 23% | 3% |
| Gasoline Vehicles | 94 | 8% | 1% |
| Diesel Vehicles | 169 | 15% | 2% |
| **Other Mobile** | 596 | 53% | 8% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1124 | 100% | 15% |
| **Total Statewide** | **7507** | | |

Table 5-44

## Benzene

The primary sources of benzene emissions in the San Joaquin Valley Air Basin are mobile sources (approximately 76 percent) and stationary sources (approximately 24 percent).

| San Joaquin Valley - Benzene | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 407 | 24% | 3% |
| **Area-wide Sources** | 13 | 1% | 0% |
| **On-Road Mobile** | 782 | 46% | 6% |
| Gasoline Vehicles | 736 | 43% | 5% |
| Diesel Vehicles | 46 | 3% | 0% |
| **Other Mobile** | 505 | 30% | 4% |
| **Natural Sources** | < 1 | 0% | 0% |
| **Total** | 1707 | 100% | 13% |
| **Total Statewide** | **13466** | | |

Table 5-45

## 1,3-Butadiene

Approximately 67 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 | 30% | 4% |
| **On-Road Mobile** | 162 | 36% | 5% |
| Gasoline Vehicles | 157 | 35% | 5% |
| Diesel Vehicles | 4 | 1% | 0% |
| **Other Mobile** | 138 | 31% | 4% |
| **Natural Sources** | 10 | 2% | 0% |
| **Total** | 447 | 100% | 14% |
| **Total Statewide** | **3228** | | |

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** | **2.40** | | |

Table 5-47

## Chromium, Hexavalent

Approximately 65 percent of the hexavalent chromium 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** | 0.13 | 65% | 7% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 0.01 | 7% | 1% |
| Gasoline Vehicles | 0.01 | 7% | 1% |
| Diesel Vehicles | < .01 | 0% | 0% |
| **Other Mobile** | 0.05 | 28% | 3% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 0.19 | 100% | 11% |
| **Total Statewide** | **1.71** | | |

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** | 180 | 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** | 185 | 100% | 10% |
| **Total Statewide** | **1849** | | |

Table 5-49

## Formaldehyde

Approximately 74 percent of the formaldehyde emissions are from mobile sources.

| San Joaquin Valley - Formaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 540 | 18% | 3% |
| **Area-wide Sources** | 227 | 8% | 1% |
| **On-Road Mobile** | 767 | 25% | 4% |
| Gasoline Vehicles | 429 | 14% | 2% |
| Diesel Vehicles | 338 | 11% | 2% |
| **Other Mobile** | 1493 | 49% | 7% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 3028 | 100% | 15% |
| **Total Statewide** | **20087** | | |

Table 5-50

## Methylene Chloride

Approximately 82 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** | 77 | 18% | 1% |
| **Area-wide Sources** | 360 | 82% | 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** | 438 | 100% | 6% |
| **Total Statewide** | **7588** | | |

Table 5-51

## Perchloroethylene

Approximately 61 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** | 309 | 61% | 5% |
| **Area-wide Sources** | 195 | 39% | 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** | 504 | 100% | 8% |
| **Total Statewide** | **6078** | | |

Table 5-52

## Diesel Particulate Matter

Emissions of diesel particulate matter are from mobile sources (approximately 89 percent) and stationary sources (approximately 11 percent).

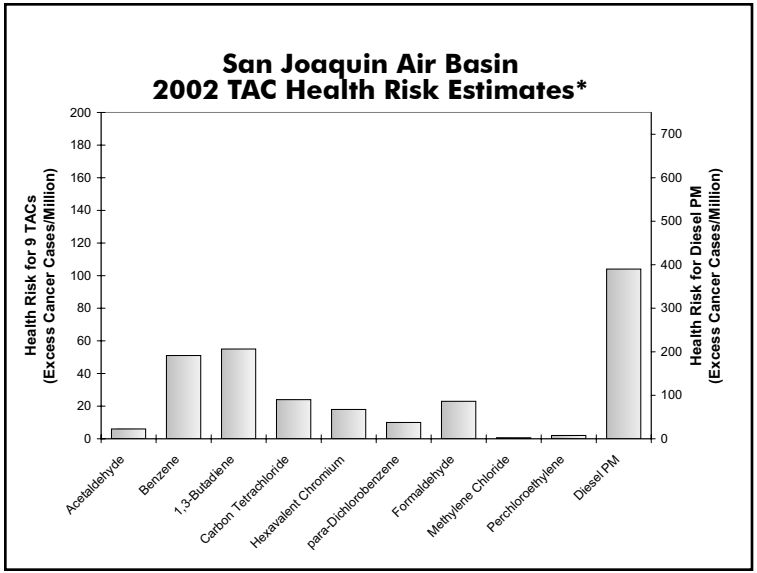
| San Joaquin Valley - Diesel PM | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 483 | 11% | 2% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 962 | 23% | 4% |
| Gasoline Vehicles | 0 | 0% | 0% |
| Diesel Vehicles | 962 | 23% | 4% |
| **Other Mobile** | 2774 | 66% | 11% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 4219 | 100% | 17% |
| **Total Statewide** | **24998** | | |

Table 5-53

# *San Joaquin Valley Air Basin*
## Air Quality and Health Risk

From 1990 through 2002, the ARB monitored ambient TAC concentrations at six sites in the San Joaquin Valley Air Basin. Data for all years are available only for the Stockton site. Data are available for 1991 through 2002 at the Fresno-First Street site, for 1990 through 1993 at the Bakersfield-Chester Avenue site, and for 1995 through 2002 at the Bakersfield-5558 California Avenue site. Data are also available at the Modesto-14th Street site from 1990 through 1999. In addition, limited TAC data are available at the Modesto-I Street site during 1991 to 1997. Annual average concentrations and associated health risks of the top ten TACs individually, as well as their cumulative health risk for the San Joaquin Valley Air Basin, are shown in Table 5-54. Data for individual sites are listed in Appendix C.

A special study site, located in the Fresno area of the San Joaquin Valley Air Basin, was operated between June 2002 and August 2003. Monitoring was conducted for both TACs and criteria air pollutants. This Fresno community is located in a residential neighborhood near sources of motor vehicle pollution. There is a large number of children living in the community. Although not included in the almanac, data from




** Data for Hexavalent Chromium and Diesel PM reflect 2000; data for all other TACs reflect 2002.*

Figure 5-14

Fresno and other community monitoring studies are being used in support of the ARB's Community Health Program.

Figure 5-14 shows 2002 health risks posed by the top ten TACs individually for the San Joaquin Valley Air Basin. As indicated on the graph, the health risk data reflect the year of 2002 except for hexavalent chromium and diesel PM. Data for these two TACs reflect the year 2000, the most recent year for which complete and representative data are available. It is important to note that health risks shown here are based on an annual average concentration 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.

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 in the San Joaquin Valley Air Basin for 2000 is estimated at 390 excess cancer cases per 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 Diego Air Basin and the Sacramento Valley Air Basin. Since 1990, the estimated diesel PM concentration and associated health risk has decreased by 50 percent. Among the nine remaining TACs, 1,3-butadiene and benzene pose the greatest health risk. They have been reduced by 64 percent and 78 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions, and they have been reduced by 79 percent and 69 percent, respectively. Overall, in this air basin, all TACs except *para*-dichlorobenzene and formaldehyde have been reduced since 1990.

In general, the average concentrations and associated health risks of most TACs for the San Joaquin Valley Air Basin are lower than the statewide averages, and they are much lower than those for the South Coast Air Basin. It is important to note that there may be other compounds that pose a significant risk but are not monitored. Reductions in ambient levels of TACs should continue as additional control measures are implemented.

# *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** | **2002** |
| 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 | 1.24 |
| | Health Risk | 9 | 9 | 7 | 8 | 6 | 3 | 6 | 6 | 6 | 8 | 5 | 6 | 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 | 0.55 |
| | Health Risk | 227 | 196 | 126 | 122 | 123 | 107 | 68 | 66 | 71 | 64 | 58 | 50 | 51 |
| 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 | 0.15 |
| | Health Risk | 154 | 135 | 89 | 127 | 121 | 99 | 83 | 73 | 88 | 67 | 59 | 56 | 55 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.11 | | 0.10 | 0.08 | | 0.11 | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 34 | 34 | | 29 | | 26 | 20 | | 30 | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 7 | 7 | 9 | 7 | 8 | 7 | 9 | | | 7 | 9 | 10 |
| 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 | 3.13 |
| | Health Risk | 18 | 13 | 11 | 12 | 13 | 15 | 22 | 20 | 21 | 25 | 19 | 23 | 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 | 0.16 |
| | Health Risk | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 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 | 0.04 |
| | Health Risk | 5 | 5 | 4 | 19 | 3 | 3 | 3 | 2 | 2 | | 3 | 2 | 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 | 172 |
| | ***With Diesel PM*** | ***(1230)*** | | | | | ***(815)*** | | | | | ***(586)*** | | |

* Concentrations for Hexavalent chromium 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*

## 2003 Emission Inventory by Compound

### Acetaldehyde

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

| San Diego - Acetaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 6 | 1% | 0% |
| **Area-wide Sources** | 104 | 19% | 1% |
| **On-Road Mobile** | 142 | 27% | 2% |
| Gasoline Vehicles | 67 | 13% | 1% |
| Diesel Vehicles | 75 | 14% | 1% |
| **Other Mobile** | 281 | 53% | 4% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 533 | 100% | 7% |
| **Total Statewide** | **7507** | | |

Table 5-55

### Benzene

The primary sources of benzene emissions in the San Diego Air Basin are mobile sources (approximately 96 percent).

| San Diego - Benzene | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 38 | 4% | 0% |
| **Area-wide Sources** | 3 | 0% | 0% |
| **On-Road Mobile** | 560 | 58% | 4% |
| Gasoline Vehicles | 540 | 56% | 4% |
| Diesel Vehicles | 20 | 2% | 0% |
| **Other Mobile** | 364 | 38% | 3% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 966 | 100% | 7% |
| **Total Statewide** | **13466** | | |

Table 5-56

## 1,3-Butadiene

Approximately 94 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** | 116 | 51% | 4% |
| Gasoline Vehicles | 114 | 50% | 4% |
| Diesel Vehicles | 2 | 1% | 0% |
| **Other Mobile** | 100 | 44% | 3% |
| **Natural Sources** | 8 | 4% | 0% |
| **Total** | 229 | 100% | 7% |
| **Total Statewide** | **3228** | | |

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** | 0.12 | 100% | 5% |
| **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** | 0.12 | 100% | 5% |
| **Total Statewide** | **2.40** | | |

Table 5-58

## Chromium, Hexavalent

Approximately 82 percent of the hexavalent chromium emissions are from other mobile sources. Stationary sources account for approximately 18 percent.

| San Diego - Chromium, Hexavalent | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 0.04 | 18% | 2% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 0.01 | 5% | 1% |
| Gasoline Vehicles | 0.01 | 5% | 1% |
| Diesel Vehicles | < .01 | 0% | 0% |
| **Other Mobile** | 0.18 | 77% | 11% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 0.23 | 100% | 14% |
| **Total Statewide** | **1.71** | | |

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** | 158 | 100% | 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** | 158 | 100% | 9% |
| **Total Statewide** | **1849** | | |

Table 5-60

## Formaldehyde

Approximately 89 percent of the formaldehyde emissions are from mobile sources.

| San Diego - Formaldehyde | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 39 | 3% | 0% |
| **Area-wide Sources** | 119 | 8% | 1% |
| **On-Road Mobile** | 461 | 33% | 2% |
| Gasoline Vehicles | 311 | 22% | 2% |
| Diesel Vehicles | 150 | 11% | 1% |
| **Other Mobile** | 781 | 56% | 4% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1400 | 100% | 7% |
| **Total Statewide** | **20087** | | |

Table 5-61

## Methylene Chloride

Area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products account for approximately 83 percent of the emissions of methylene chloride.

| San Diego - Methylene Chloride | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 65 | 17% | 1% |
| **Area-wide Sources** | 316 | 83% | 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** | 381 | 100% | 5% |
| **Total Statewide** | **7588** | | |

Table 5-62

## Perchloroethylene

Approximately 72 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** | 446 | 72% | 7% |
| **Area-wide Sources** | 172 | 28% | 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** | 618 | 100% | 10% |
| **Total Statewide** | **6078** | | |

Table 5-63

## Diesel Particulate Matter

Approximately 98 percent of the emissions of diesel particulate matter are from mobile sources.

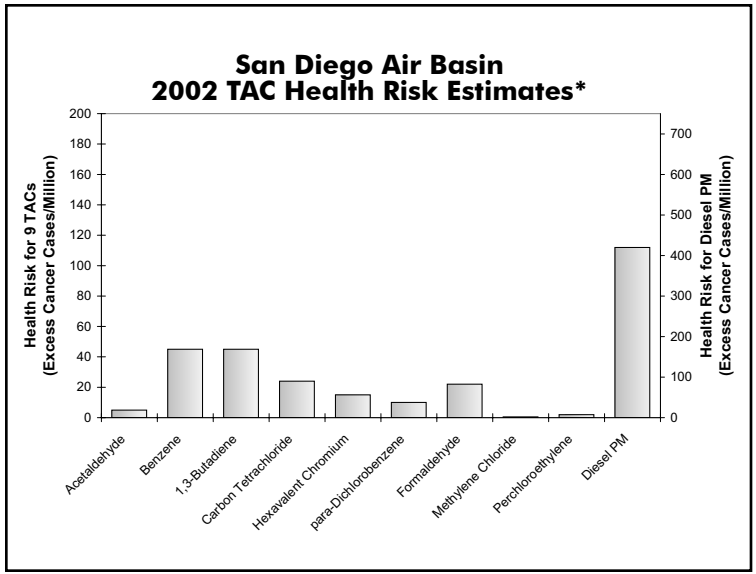
| San Diego - Diesel PM | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 34 | 2% | 0% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 456 | 27% | 2% |
| Gasoline Vehicles | 0 | 0% | 0% |
| Diesel Vehicles | 456 | 27% | 2% |
| **Other Mobile** | 1214 | 71% | 5% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1704 | 100% | 7% |
| **Total Statewide** | **24998** | | |

Table 5-64

# *San Diego Air Basin*
## Air Quality and Health Risk

During 1990 through 2002, 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. Annual average concentrations and health risks of the top ten TACs individually as well as their cumulative health risk for the San Diego Air Basin are listed in Table 5-65. Data for individual sites are shown in Appendix C.

A special study site, located in the Logan Heights/ Barrio Logan area of San Diego, was operated between October 1999 and February 2001. Monitoring was conducted for both TACs and criteria air pollutants. 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 Barrio Logan and other community monitoring studies are being used in support of the ARB's Community Health Program. Copies of the full reports are available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*.




** Data for Hexavalent Chromium and Diesel PM reflect 2000; data for all other TACs reflect 2002.*

Figure 5-15

Figure 5-15 shows 2002 health risks posed by the top ten TACs individually for the San Diego Air Basin. As indicated on the graph, the health risk data reflect the year 2002 except for hexavalent chromium and diesel PM. Data for these TACs reflect the year 2000, the most recent year for which complete and representative data are available. It is important to note that health risks shown here are based on an annual average concentration 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.

Similar to most areas in the State, diesel PM presents the most substantial health risk among the ten TACs considered in this almanac. In the San Diego Air Basin, the estimated health risk for diesel PM in 2000 wass 420 excess cancer cases per million people exposed over 70 years. 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. Since 1990, diesel PM health risk has been reduced by 52 percent in the San Diego Air Basin. Aside from diesel PM, 1,3-butadiene and benzene pose the greatest health risks among the nine remaining TACs. Since 1990, their risks have been reduced by 78 percent and 64 percent, respectively. Perchloroethylene and methylene chloride also show significant reductions of 79 percent and 73 percent, respectively. Overall, in San Diego Air Basin, all TACs except *para*-dichlorobenzene and formaldehyde have been reduced since 1990.

It is important to note that there may be other compounds that pose a significant risk but are not monitored. Furthermore, reductions in ambient TAC concentrations and health risks should continue, as new rules and regulations are implemented to control toxic air contaminants.

# *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** | **2002** |
| 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 | 0.97 |
| | Health Risk | 6 | 7 | 6 | 7 | 7 | 3 | 5 | 5 | 4 | 5 | 4 | 5 | 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 | 0.51 | 0.49 |
| | Health Risk | 208 | 158 | 137 | 107 | 129 | 90 | 71 | 70 | 70 | 79 | 60 | 47 | 45 |
| 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 | 0.12 |
| | Health Risk | 125 | 97 | 97 | 117 | 115 | 91 | 78 | 75 | 74 | 83 | 60 | 51 | 45 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.10 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 35 | 34 | | 27 | | 26 | 20 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 7 | 8 | 8 | 10 | 8 | 7 | 8 | | | | 10 | 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 | 2.99 |
| | Health Risk | 12 | 11 | 9 | 13 | 17 | 16 | 19 | 19 | 17 | 20 | 16 | 19 | 22 |
| 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 | 0.16 |
| | Health Risk | 2 | 3 | 5 | 4 | 3 | 2 | 2 | 2 | | 2 | 3 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.28 | 0.27 | 0.26 | 0.20 | 0.21 | 0.25 | 0.15 | 0.13 | | | 0.09 | 0.06 | 0.06 |
| | Health Risk | 11 | 11 | 11 | 8 | 8 | 10 | 6 | 5 | | | 4 | 2 | 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 | 154 |
| | ***With Diesel PM*** | ***(1269)*** | | | | | ***(843)*** | | | | | ***(607)*** | | |

* Concentrations for Hexavalent chromium 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*
# 2003 Emission Inventory by Compound

## Acetaldehyde

Approximately 61 percent of the emissions of acetaldehyde are from mobile sources. Another 35 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** | 29 | 4% | 0% |
| **Area-wide Sources** | 289 | 35% | 4% |
| **On-Road Mobile** | 147 | 18% | 2% |
| Gasoline Vehicles | 64 | 8% | 1% |
| Diesel Vehicles | 83 | 10% | 1% |
| **Other Mobile** | 355 | 43% | 5% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 820 | 100% | 11% |
| **Total Statewide** | **7507** | | |

Table 5-66

## Benzene

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

| Sacramento Valley - Benzene | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 140 | 12% | 1% |
| **Area-wide Sources** | 8 | 1% | 0% |
| **On-Road Mobile** | 540 | 47% | 4% |
| Gasoline Vehicles | 517 | 45% | 4% |
| Diesel Vehicles | 23 | 2% | 0% |
| **Other Mobile** | 454 | 40% | 3% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1142 | 100% | 8% |
| **Total Statewide** | **13466** | | |

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** | 59 | 20% | 2% |
| **On-Road Mobile** | 111 | 38% | 4% |
| Gasoline Vehicles | 109 | 38% | 3% |
| Diesel Vehicles | 2 | 1% | 0% |
| **Other Mobile** | 111 | 38% | 3% |
| **Natural Sources** | 8 | 3% | 0% |
| **Total** | 290 | 100% | 9% |
| **Total Statewide** | **3228** | | |

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** | 0.04 | 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** | 0.04 | 100% | 2% |
| **Total Statewide** | **2.40** | | |

Table 5-69

## Chromium, Hexavalent

Approximately 55 percent of the hexavalent chromium 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** | 0.05 | 55% | 3% |
| **Area-wide Sources** | 0.00 | 0% | 0% |
| **On-Road Mobile** | < .01 | 10% | 0% |
| Gasoline Vehicles | < .01 | 9% | 0% |
| Diesel Vehicles | < .01 | 0% | 0% |
| **Other Mobile** | 0.03 | 35% | 2% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 0.08 | 100% | 5% |
| **Total Statewide** | **1.71** | | |

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** | 127 | 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** | 127 | 100% | 7% |
| **Total Statewide** | **1849** | | |

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** | 216 | 11% | 1% |
| **Area-wide Sources** | 326 | 17% | 2% |
| **On-Road Mobile** | 452 | 23% | 2% |
| Gasoline Vehicles | 285 | 15% | 1% |
| Diesel Vehicles | 167 | 9% | 1% |
| **Other Mobile** | 935 | 48% | 5% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 1928 | 100% | 10% |
| **Total Statewide** | **20087** | | |

Table 5-72

## Methylene Chloride

Approximately 72 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** | 98 | 28% | 1% |
| **Area-wide Sources** | 256 | 72% | 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** | 353 | 100% | 5% |
| **Total Statewide** | **7588** | | |

Table 5-73

## Perchloroethylene

Approximately 73 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** | 373 | 73% | 6% |
| **Area-wide Sources** | 138 | 27% | 2% |
| **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** | 511 | 100% | 8% |
| **Total Statewide** | **6078** | | |

Table 5-74

## Diesel Particulate Matter

Approximately 91 percent emissions of diesel particulate matter are from mobile sources.

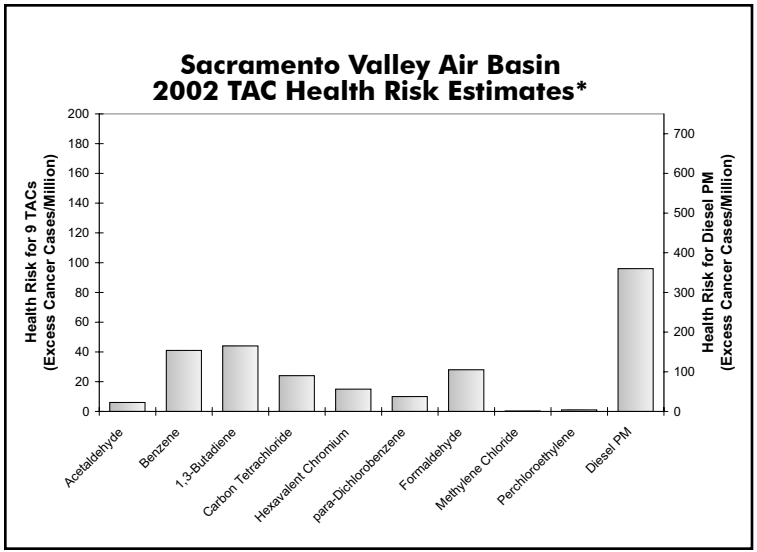
| Sacramento Valley - Diesel PM | | | |
|---|---|---|---|
| **Emissions Source** | **tons/year** | **Percent Air Basin** | **Percent State** |
| **Stationary Sources** | 215 | 9% | 1% |
| **Area-wide Sources** | 0 | 0% | 0% |
| **On-Road Mobile** | 532 | 22% | 2% |
| Gasoline Vehicles | 0 | 0% | 0% |
| Diesel Vehicles | 532 | 22% | 2% |
| **Other Mobile** | 1656 | 69% | 7% |
| **Natural Sources** | 0 | 0% | 0% |
| **Total** | 2403 | 100% | 10% |
| **Total Statewide** | **24998** | | |

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 annual average concentration and associated health risk are available for the year during which the site was moved because neither site has a full year of data. Table 5-76 shows annual average concentrations and health risks of the top ten TACs individually, as well as their cumulative health risk for the Sacramento Valley Air Basin. Data for individual sites are listed in Appendix C.

Figure 5-16 is based on all data collected in the Sacramento Valley Air Basin and shows the estimated annual average health risks for the top ten TACs in this area. As shown in the graph,




** Data for Hexavalent Chromium and Diesel PM reflects 2001 and 2000, respectively; data for all other TACs reflect 2002.*

Figure 5-16

the health risk estimates for the nine TACs measured by the ambient network reflect 2002, the most recent year for which complete and representative data are available. The estimate for diesel PM reflects the year 2000. It is important to note that health risks shown here are based on two areas in the air basin, and other locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.

Diesel PM poses the greatest health risk among the ten TACs considered in this almanac. Based on receptor modeling techniques, the ARB estimated its health risk to be 360 excess cancer cases per million people in the Sacramento Valley Air Basin. This is about half the estimated statewide health risk, and it is similar to that for the San Joaquin Valley. Since 1990, the diesel PM's health risk has been reduced by 52 percent. Aside from diesel PM, 1,3-butadiene and benzene pose the greatest health risk in the Sacramento Valley Air Basin. They have been reduced by 69 percent and 78 percent, respectively. Methylene chloride and perchloroethylene also show substantial reduction of 88 percent and 57 percent, respectively. Overall, levels of most TACs have gone down since 1990 except *para*-dichlorobenzene and formaldehyde. In 2002, formaldehyde shows a 37 percent increase from 1996, the first year a new method was used to analyze formaldehyde.

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** | **2002** |
| Acetaldehyde | Annual Avg | 1.29 | | | 1.37 | 1.04 | 0.39 | 1.03 | 1.05 | 0.92 | 1.23 | 0.83 | 0.74 | 1.14 |
| | Health Risk | 6 | | | 7 | 5 | 2 | 5 | 5 | 4 | 6 | 4 | 4 | 6 |
| 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 | 0.44 |
| | Health Risk | 187 | 174 | 125 | 92 | 95 | 74 | 51 | 51 | 47 | 52 | 42 | 39 | 41 |
| 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 | 0.12 |
| | Health Risk | 142 | 125 | 106 | 108 | 83 | 70 | 66 | 60 | 58 | 48 | 45 | 47 | 44 |
| Carbon Tetrachloride | Annual Avg | 0.12 | 0.12 | | 0.11 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 33 | 32 | | 29 | | 26 | 21 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | | 7 | 7 | 14 | 9 | 7 | 10 | | | 7 | 9 | 10 |
| Formaldehyde | Annual Avg | 1.57 | | | 1.77 | 1.75 | 1.91 | 2.76 | 2.92 | 2.52 | 3.61 | 2.51 | 2.41 | 3.79 |
| | Health Risk | 12 | | | 13 | 13 | 14 | 20 | 22 | 19 | 27 | 18 | 18 | 28 |
| 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 | 0.08 |
| | Health Risk | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | | 2 | 2 | 1 | 0 |
| Perchloroethylene | Annual Avg | 0.07 | 0.07 | 0.06 | 0.05 | 0.17 | 0.05 | 0.06 | 0.05 | | | 0.06 | 0.03 | 0.03 |
| | Health Risk | 3 | 3 | 3 | 2 | 7 | 2 | 2 | 2 | | | 2 | 1 | 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 | 154 |
| | ***With Diesel PM*** | ***(1135)*** | | | | | ***(705)*** | | | | | ***(520)*** | | |

* Concentrations for Hexavalent chromium 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.*

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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*

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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 1983 through 2002 for ozone, CO, $NO_2$, and $SO_2$ and 1988 through 2002 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 1983 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards are violated. The CO concentra-

tions 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 | 7 | 7 | 5 | 4 | 4 | 4 |
| Mono* | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

| | 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** |
| Alpine | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 5 | 5 | 6 | 8 | 8 | 8 | 8 |
| Inyo* | 827 | 827 | 827 | 827 | 826 | 825 | 149 | 42 | 51 | 51 | 45 | 41 | 30 | 22 | 19 | 15 |
| Mono* | 26 | 29 | 29 | 32 | 32 | 33 | 33 | 34 | 36 | 42 | 41 | 38 | 34 | 29 | 27 | 26 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| Alpine | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Inyo* | 127 | 127 | 127 | 127 | 126 | 126 | 25 | 9 |
| Mono* | 9 | 10 | 10 | 10 | 11 | 10 | 11 | 11 |

* 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** |
| Coso Operating Company (Steam Plant) | Little Lake | 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 | 13 | 15 | 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 | 8 | 9 | 11 | 11 | 11 | 12 | 12 | 12 | 92 | 103 | 117 | 111 | 103 | 88 | 80 | 71 |

| | 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 | 7 | 7 | 7 | 6 | 6 | 5 | 5 |
| Placer | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 6 | 3 | 3 | 3 | 3 | 3 | 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 | 59 | 49 | 40 | 37 | 33 |
| Placer | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 76 | 32 | 33 | 27 | 23 | 18 | 16 | 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 | 0 | 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 | 53 | 30 | 37 | 50 | 41 | 38 | 37 | 36 | 65 | 46 | 32 | 27 | 17 | 14 | 13 | 11 |
| Los Angeles | 20 | 26 | 29 | 37 | 30 | 29 | 25 | 21 | 31 | 36 | 39 | 41 | 26 | 22 | 20 | 19 |
| Riverside | 4 | 4 | 4 | 10 | 6 | 7 | 7 | 7 | 6 | 4 | 4 | 4 | 3 | 2 | 2 | 2 |
| San Bernardino | 137 | 161 | 146 | 180 | 165 | 163 | 157 | 153 | 29 | 37 | 47 | 63 | 52 | 42 | 36 | 32 |

| | 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 | 41 | 32 | 29 | 45 | 27 | 28 | 28 | 29 | 741 | 481 | 255 | 195 | 128 | 105 | 91 | 76 |
| Los Angeles | 36 | 38 | 37 | 35 | 29 | 33 | 35 | 36 | 100 | 173 | 212 | 256 | 164 | 114 | 88 | 70 |
| Riverside | 6 | 7 | 7 | 9 | 9 | 8 | 7 | 8 | 12 | 10 | 12 | 18 | 14 | 12 | 9 | 7 |
| San Bernardino | 71 | 76 | 90 | 80 | 90 | 91 | 95 | 100 | 131 | 214 | 287 | 438 | 344 | 270 | 227 | 183 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| Kern | 19 | 13 | 11 | 22 | 9 | 9 | 9 | 9 |
| Los Angeles | 9 | 9 | 9 | 9 | 7 | 9 | 9 | 9 |
| Riverside | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| San Bernardino | 22 | 22 | 30 | 24 | 30 | 28 | 29 | 30 |

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** |
| TXI Riverside Cement Company | Oro Grande | 4496 |
| Cemex - Black Mountain Quarry | Apple Valley | 4483 |
| California Portland Cement Co. | Mojave | 3026 |
| Mitsubishi Cement 2000 | Lucerne Valley | 2245 |
| IMC Chemicals, Inc. | Trona | 1948 |
| Southern California Gas Co. | Blythe | 1917 |
| Reliant Energy | Daggett | 1426 |
| National Cement Co | Lebec | 1378 |
| Southern California Gas Co | Needles | 1157 |
| PG&E Topock Compressor Station | Needles | 1140 |

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

No High Emitting Facilities

Table A-8

# *Mojave Desert Air Basin*

## High Emitting Facilities

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| TXI Riverside Cement Company | Oro Grande | 1470 |
| Antelope Valley Aggregate Inc | Littlerock | 691 |
| Mitsubishi Cement 2000 | Lucerne Valley | 600 |
| Lehigh Southwest Cement Co. | Monolith | 354 |
| IMC Chemicals, Inc. | Trona | 326 |
| Granite Cons. Inc - Littlerock | Littlerock | 297 |
| Cemex - Black Mountain Quarry | Apple Valley | 277 |
| California Portland Cement Co. | Mojave | 275 |
| National Cement Co | Lebec | 254 |
| U.S. Borax | Boron | 246 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| TXI Riverside Cement Company | Oro Grande | 316 |
| Mitsubishi Cement 2000 | Lucerne Valley | 277 |
| Antelope Valley Aggregate Inc | Littlerock | 257 |
| IMC Chemicals, Inc. | Trona | 226 |
| Cemex - Black Mountain Quarry | Apple Valley | 183 |
| Lehigh Southwest Cement Co. | Monolith | 132 |
| California Portland Cement Co. | Mojave | 101 |

Table A-8 (continued)

# *Mountain Counties 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** |
| Amador | 5 | 6 | 7 | 9 | 9 | 6 | 6 | 6 | 11 | 12 | 12 | 13 | 11 | 10 | 10 | 9 |
| Calaveras | 5 | 12 | 6 | 7 | 6 | 5 | 5 | 4 | 9 | 10 | 11 | 12 | 13 | 12 | 10 | 9 |
| El Dorado | 9 | 12 | 12 | 13 | 12 | 9 | 8 | 6 | 18 | 24 | 24 | 23 | 21 | 15 | 13 | 12 |
| Mariposa | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 5 | 6 | 7 | 7 | 7 | 7 | 6 | 5 |
| Nevada | 10 | 13 | 14 | 15 | 12 | 10 | 9 | 7 | 14 | 19 | 22 | 20 | 17 | 16 | 14 | 13 |
| Placer | 4 | 6 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 9 | 5 | 5 | 4 | 4 | 4 | 3 |
| Plumas | 8 | 10 | 10 | 11 | 9 | 9 | 8 | 7 | 12 | 15 | 14 | 15 | 17 | 16 | 16 | 16 |
| Sierra | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| Tuolumne | 9 | 11 | 10 | 13 | 11 | 9 | 8 | 7 | 14 | 15 | 16 | 17 | 16 | 14 | 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** |
| Amador | 9 | 9 | 9 | 9 | 11 | 10 | 11 | 11 | 64 | 70 | 73 | 80 | 65 | 50 | 47 | 41 |
| Calaveras | 29 | 11 | 10 | 11 | 11 | 11 | 11 | 12 | 63 | 81 | 76 | 82 | 76 | 63 | 56 | 49 |
| El Dorado | 10 | 12 | 13 | 15 | 16 | 16 | 17 | 18 | 115 | 152 | 157 | 153 | 129 | 100 | 87 | 77 |
| Mariposa | 6 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 26 | 31 | 32 | 35 | 33 | 27 | 23 | 19 |
| Nevada | 11 | 14 | 15 | 18 | 18 | 19 | 19 | 20 | 108 | 141 | 158 | 148 | 124 | 105 | 95 | 85 |
| Placer | 5 | 7 | 6 | 7 | 7 | 8 | 8 | 8 | 31 | 35 | 39 | 37 | 32 | 32 | 28 | 24 |
| Plumas | 17 | 19 | 20 | 19 | 19 | 19 | 19 | 19 | 133 | 143 | 142 | 153 | 151 | 144 | 141 | 138 |
| Sierra | 11 | 12 | 12 | 11 | 12 | 12 | 12 | 11 | 27 | 26 | 27 | 30 | 30 | 29 | 28 | 27 |
| Tuolumne | 7 | 9 | 9 | 11 | 10 | 10 | 10 | 11 | 93 | 106 | 110 | 123 | 108 | 89 | 81 | 73 |

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 | 5 | 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 | 2 | 2 | 2 | 3 | 3 |
| Plumas | 8 | 9 | 10 | 9 | 9 | 8 | 8 | 8 |
| 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 | Quincy | 363 |
| Sierra Pacific Industries | Loyalton | 180 |
| Pacific-Ultrapower Chinese Station | Jamestown | 157 |
| Collins Pine Co | Chester | 109 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Sierrapine - Ampine Division | Martell | 263 |

Table A-10

# *Mountain Counties Air Basin*

## High Emitting Facilities

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Sierrapine - Ampine Division | Martell | 518 |
| Blue Mountain Minerals | Columbia | 121 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Sierrapine - Ampine Division | Martell | 414 |

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 | 117 | 131 | 90 | 90 | 76 | 67 | 52 | 45 | 94 | 77 | 72 | 68 | 56 | 48 | 42 | 39 |
| San Benito | 8 | 9 | 9 | 11 | 10 | 8 | 8 | 7 | 11 | 10 | 10 | 11 | 9 | 8 | 7 | 7 |
| Santa Cruz | 22 | 25 | 29 | 32 | 27 | 23 | 20 | 17 | 43 | 42 | 43 | 40 | 31 | 26 | 22 | 21 |

| | 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 | 41 | 43 | 40 | 40 | 38 | 41 | 44 | 48 | 684 | 577 | 586 | 510 | 377 | 327 | 277 | 264 |
| San Benito | 11 | 11 | 13 | 14 | 13 | 14 | 16 | 17 | 86 | 84 | 88 | 81 | 68 | 61 | 62 | 64 |
| Santa Cruz | 11 | 12 | 13 | 14 | 13 | 13 | 14 | 14 | 254 | 258 | 264 | 233 | 169 | 134 | 109 | 87 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| Monterey | 19 | 20 | 16 | 16 | 15 | 17 | 19 | 22 |
| San Benito | 5 | 5 | 6 | 6 | 5 | 6 | 7 | 7 |
| Santa Cruz | 5 | 5 | 5 | 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** |
| RMC Pacific Materials (Cement) | Davenport | 822 |
| Duke Energy Moss Landing | Moss Landing | 297 |

| 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** |
| RMC Pacific Materials (Cement) | Davenport | 195 |
| Duke Energy Moss Landing | Moss Landing | 164 |
| Chemical Lime Company | Salinas | 107 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Duke Energy Moss Landing | Moss Landing | 164 |
| RMC Pacific Materials (Cement) | Davenport | 117 |

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 | 2 | 10 | 11 | 8 | 7 | 6 | 6 | 6 | 5 |
| Humboldt | 38 | 39 | 34 | 35 | 28 | 25 | 23 | 20 | 66 | 42 | 35 | 32 | 26 | 22 | 20 | 18 |
| Mendocino | 21 | 20 | 20 | 21 | 17 | 14 | 12 | 10 | 31 | 26 | 20 | 20 | 18 | 15 | 13 | 12 |
| Sonoma | 15 | 22 | 25 | 23 | 20 | 18 | 16 | 12 | 14 | 23 | 21 | 23 | 19 | 16 | 13 | 12 |
| Trinity | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 7 | 8 | 6 | 7 | 6 | 6 | 5 | 5 |

| | 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** |
| 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 | 23 | 331 | 295 | 264 | 247 | 192 | 163 | 146 | 129 |
| Mendocino | 19 | 16 | 17 | 19 | 19 | 19 | 21 | 23 | 162 | 152 | 145 | 142 | 112 | 86 | 76 | 65 |
| Sonoma | 4 | 4 | 5 | 8 | 6 | 6 | 6 | 6 | 70 | 157 | 165 | 155 | 118 | 95 | 72 | 65 |
| Trinity | 16 | 19 | 20 | 19 | 20 | 18 | 18 | 17 | 70 | 75 | 74 | 75 | 66 | 60 | 57 | 54 |

| | Directly Emitted $PM_{2.5}$ 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 | 11 |
| Mendocino | 10 | 7 | 7 | 7 | 7 | 7 | 7 | 8 |
| Sonoma | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 2 |
| 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** |
| P G & E-Humboldt Bay Plant | Eureka | 592 |
| Samoa-Pacific Cellulose | Samoa | 351 |
| Fairhaven Power Company | Fairhaven | 301 |
| Pacific Lumber Company | Scotia | 246 |
| Humboldt Flakeboard Panels | Arcata | 156 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Fairhaven Power Company | Fairhaven | 109 |
| Samoa-Pacific Cellulose | Samoa | 104 |

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Fairhaven Power Company | Fairhaven | 123 |
| Georgia Pacific | Fort Bragg | 119 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Fairhaven Power Company | Fairhaven | 114 |
| Georgia Pacific | Fort Bragg | 109 |

Table A-14

# *Northeast Plateau 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** |
| Lassen | 9 | 9 | 9 | 9 | 8 | 8 | 7 | 6 | 11 | 15 | 15 | 14 | 13 | 12 | 12 | 11 |
| Modoc | 6 | 6 | 5 | 5 | 5 | 5 | 4 | 4 | 6 | 7 | 6 | 6 | 5 | 4 | 4 | 4 |
| Siskiyou | 18 | 19 | 18 | 18 | 17 | 15 | 12 | 10 | 29 | 29 | 28 | 28 | 26 | 23 | 22 | 22 |

| | 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 | 19 | 19 | 20 | 21 | 20 | 23 | 22 | 22 | 65 | 81 | 81 | 76 | 73 | 61 | 58 | 54 |
| Modoc | 18 | 18 | 19 | 19 | 18 | 18 | 18 | 17 | 31 | 33 | 31 | 30 | 25 | 20 | 18 | 16 |
| Siskiyou | 32 | 34 | 33 | 33 | 33 | 33 | 33 | 33 | 355 | 347 | 334 | 334 | 309 | 280 | 270 | 261 |

| | 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 | 5 | 5 | 5 | 5 | 5 | 5 | 4 |
| Siskiyou | 20 | 21 | 19 | 19 | 19 | 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 |
| PG&E Tioesta Compressor Station | Tulelake | 100 |

| 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 | 30 | 34 | 33 | 35 | 31 | 26 | 22 | 18 | 42 | 44 | 43 | 42 | 35 | 28 | 25 | 23 |
| Colusa | 9 | 10 | 9 | 13 | 13 | 10 | 10 | 8 | 14 | 12 | 14 | 12 | 10 | 9 | 9 | 9 |
| Glenn | 14 | 13 | 12 | 13 | 12 | 10 | 9 | 8 | 14 | 14 | 14 | 12 | 12 | 10 | 10 | 10 |
| Placer | 23 | 27 | 28 | 31 | 29 | 29 | 24 | 20 | 35 | 33 | 34 | 31 | 29 | 23 | 20 | 19 |
| Sacramento | 129 | 134 | 140 | 148 | 125 | 103 | 83 | 64 | 214 | 196 | 174 | 145 | 114 | 85 | 67 | 59 |
| Shasta | 36 | 39 | 37 | 42 | 36 | 34 | 29 | 27 | 39 | 43 | 42 | 40 | 33 | 28 | 25 | 22 |
| Solano | 12 | 15 | 14 | 17 | 15 | 13 | 11 | 9 | 12 | 16 | 15 | 16 | 14 | 11 | 9 | 8 |
| Sutter | 19 | 20 | 18 | 21 | 19 | 16 | 15 | 14 | 19 | 18 | 19 | 16 | 14 | 11 | 11 | 10 |
| Tehama | 14 | 18 | 15 | 15 | 13 | 13 | 11 | 10 | 14 | 16 | 15 | 14 | 11 | 9 | 8 | 8 |
| Yolo | 31 | 32 | 33 | 37 | 33 | 31 | 24 | 18 | 36 | 33 | 28 | 23 | 20 | 16 | 13 | 12 |
| Yuba | 11 | 14 | 12 | 12 | 11 | 10 | 8 | 7 | 14 | 17 | 15 | 13 | 12 | 10 | 9 | 8 |

| | 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 | 26 | 29 | 29 | 32 | 28 | 28 | 28 | 29 | 257 | 276 | 273 | 266 | 207 | 162 | 140 | 118 |
| Colusa | 19 | 19 | 19 | 19 | 19 | 20 | 20 | 20 | 84 | 79 | 78 | 75 | 66 | 60 | 57 | 54 |
| Glenn | 14 | 15 | 14 | 15 | 15 | 15 | 15 | 16 | 84 | 85 | 83 | 75 | 63 | 55 | 52 | 49 |
| Placer | 8 | 8 | 10 | 13 | 13 | 14 | 15 | 16 | 201 | 237 | 229 | 202 | 169 | 149 | 126 | 108 |
| Sacramento | 33 | 37 | 40 | 43 | 39 | 42 | 44 | 46 | 1456 | 1374 | 1296 | 1052 | 743 | 526 | 389 | 305 |
| Shasta | 30 | 27 | 28 | 31 | 31 | 31 | 32 | 33 | 319 | 327 | 327 | 332 | 268 | 233 | 213 | 196 |
| Solano | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 68 | 105 | 103 | 103 | 72 | 56 | 43 | 35 |
| Sutter | 13 | 14 | 13 | 14 | 14 | 14 | 15 | 15 | 99 | 101 | 98 | 93 | 71 | 56 | 50 | 42 |
| Tehama | 13 | 15 | 15 | 14 | 14 | 14 | 15 | 15 | 83 | 91 | 85 | 87 | 65 | 51 | 45 | 38 |
| Yolo | 21 | 22 | 23 | 26 | 26 | 28 | 28 | 29 | 223 | 202 | 192 | 152 | 110 | 86 | 65 | 52 |
| Yuba | 10 | 9 | 8 | 8 | 8 | 8 | 9 | 9 | 94 | 101 | 85 | 80 | 67 | 55 | 49 | 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 | 12 | 13 | 13 | 14 | 12 | 11 | 12 | 12 |
| Colusa | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Glenn | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 |
| Placer | 4 | 4 | 5 | 6 | 6 | 6 | 7 | 7 |
| Sacramento | 14 | 14 | 16 | 17 | 15 | 16 | 16 | 17 |
| Shasta | 17 | 14 | 14 | 16 | 15 | 15 | 15 | 16 |
| Solano | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Sutter | 5 | 6 | 5 | 5 | 5 | 5 | 5 | 5 |
| Tehama | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 5 |
| Yolo | 8 | 7 | 7 | 8 | 8 | 8 | 8 | 8 |
| Yuba | 4 | 4 | 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 Shasta (Electric Services) | Anderson | 592 |
| Lehigh Southwest Cement | Redding | 527 |
| Neo California Power | Red Bluff | 400 |
| PG&E Delevan Compressor Station | Colusa | 356 |
| Pacific Gas & Electric | Burney | 254 |
| Sierra Pacific Industries | Lincoln | 164 |
| Burney Forest Products | Burney | 155 |
| Wadham Energy | Williams | 152 |
| Calpine Greenleaf | Yuba City | 144 |
| Sierrapine - Rocklin | Rocklin | 136 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Premier Industries | Dixon | 169 |
| Johns-Mansville (Insulation) | Williams | 162 |
| Oilseeds International | Grimes | 160 |

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 |
| Lehigh Southwest Cement Co. | Redding | 122 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Johns-Manville (Insulation) | Willows | 220 |

Table A-18 (continued)

# *Salton Sea 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** |
| Imperial | 43 | 38 | 37 | 42 | 44 | 37 | 34 | 32 | 46 | 46 | 38 | 38 | 37 | 33 | 32 | 31 |
| Riverside | 32 | 34 | 39 | 31 | 28 | 27 | 21 | 16 | 35 | 36 | 39 | 30 | 23 | 20 | 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 | 261 | 265 | 262 | 253 | 233 | 229 | 232 | 235 | 224 | 219 | 194 | 195 | 163 | 122 | 105 | 93 |
| Riverside | 18 | 19 | 20 | 30 | 26 | 24 | 24 | 25 | 276 | 276 | 297 | 224 | 169 | 121 | 83 | 66 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| Imperial | 59 | 60 | 58 | 57 | 55 | 52 | 53 | 53 |
| Riverside | 6 | 5 | 5 | 7 | 6 | 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 | 272 |
| Holly Sugar | 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** |
| U.S. Gypsum - Plaster City Plant | Plaster City | 156 |

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

No High Emitting Facilities

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 | 282 | 274 | 286 | 319 | 272 | 227 | 188 | 153 | 444 | 442 | 419 | 348 | 270 | 227 | 188 | 175 |

| | 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 | 73 | 81 | 90 | 108 | 104 | 112 | 118 | 126 | 3332 | 3068 | 2965 | 2501 | 1756 | 1317 | 986 | 801 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| San Diego | 34 | 36 | 35 | 40 | 39 | 41 | 43 | 46 |

Table A-21

# *San Diego Air Basin*

## High Emitting Facilities

| Oxides of Nitrogen ($NO_x$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Cabrillo Power - Encina Power Plant | Carlsbad | 276 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| National Steel & Shipbuilding | San Diego | 161 |

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Duke Energy-South Bay Power Plant | Chula Vista | 194 |
| Cabrillo Power - Encina Power Plant | Carlsbad | 160 |
| Hanson Aggregates - Twin Oaks | San Marcos | 101 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Duke Energy-South Bay Power Plant | Chula Vista | 193 |
| Cabrillo Power - Encina Power Plant | Carlsbad | 159 |

Table A-22

# *San Francisco Bay Area 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** |
| Alameda | 180 | 176 | 184 | 176 | 147 | 126 | 107 | 88 | 307 | 277 | 231 | 169 | 132 | 103 | 81 | 71 |
| Contra Costa | 262 | 244 | 199 | 183 | 152 | 181 | 111 | 100 | 240 | 266 | 210 | 133 | 112 | 85 | 72 | 65 |
| Marin | 30 | 31 | 30 | 29 | 25 | 21 | 19 | 15 | 58 | 53 | 45 | 34 | 28 | 24 | 19 | 16 |
| Napa | 15 | 14 | 16 | 15 | 14 | 13 | 11 | 9 | 28 | 25 | 22 | 18 | 16 | 13 | 11 | 9 |
| San Francisco | 102 | 111 | 102 | 100 | 82 | 74 | 61 | 52 | 155 | 133 | 108 | 77 | 60 | 48 | 38 | 32 |
| San Mateo | 104 | 102 | 98 | 94 | 82 | 68 | 59 | 49 | 169 | 151 | 122 | 86 | 70 | 52 | 41 | 35 |
| Santa Clara | 207 | 205 | 192 | 189 | 165 | 142 | 120 | 96 | 362 | 338 | 265 | 189 | 150 | 116 | 91 | 78 |
| Solano | 45 | 54 | 51 | 53 | 41 | 42 | 30 | 27 | 55 | 69 | 60 | 44 | 32 | 25 | 21 | 19 |
| Sonoma | 29 | 31 | 32 | 37 | 33 | 28 | 23 | 18 | 70 | 65 | 56 | 44 | 37 | 29 | 24 | 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** |
| Alameda | 35 | 33 | 39 | 38 | 35 | 36 | 37 | 38 | 1923 | 1741 | 1504 | 1104 | 779 | 569 | 435 | 354 |
| Contra Costa | 37 | 38 | 33 | 31 | 29 | 30 | 32 | 33 | 1292 | 1169 | 1052 | 792 | 590 | 420 | 345 | 279 |
| Marin | 6 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 396 | 371 | 314 | 237 | 172 | 130 | 105 | 81 |
| Napa | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 6 | 155 | 144 | 131 | 112 | 93 | 74 | 62 | 50 |
| San Francisco | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 872 | 817 | 688 | 484 | 347 | 260 | 206 | 170 |
| San Mateo | 15 | 16 | 18 | 18 | 17 | 19 | 20 | 21 | 1254 | 1142 | 914 | 650 | 478 | 327 | 257 | 204 |
| Santa Clara | 44 | 44 | 48 | 49 | 47 | 53 | 56 | 56 | 2330 | 2175 | 1807 | 1330 | 975 | 718 | 566 | 457 |
| Solano | 14 | 15 | 16 | 16 | 15 | 14 | 14 | 15 | 318 | 325 | 296 | 237 | 159 | 119 | 97 | 78 |
| Sonoma | 13 | 13 | 14 | 15 | 14 | 14 | 15 | 14 | 417 | 410 | 371 | 296 | 236 | 167 | 134 | 100 |

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 | 17 | 15 | 17 | 17 | 15 | 15 | 16 | 16 |
| Contra Costa | 24 | 23 | 18 | 17 | 14 | 15 | 16 | 16 |
| Marin | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Napa | 2 | 2 | 3 | 3 | 3 | 2 | 3 | 2 |
| San Francisco | 8 | 8 | 8 | 8 | 9 | 8 | 8 | 8 |
| San Mateo | 7 | 7 | 8 | 8 | 7 | 8 | 8 | 8 |
| Santa Clara | 19 | 18 | 19 | 20 | 19 | 20 | 21 | 21 |
| Solano | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 |
| Sonoma | 7 | 7 | 7 | 8 | 7 | 7 | 7 | 6 |

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** |
| Mirant Delta (Electric Services) | Pittsburg | 3459 |
| Shell Martinez Refinery | Martinez | 2898 |
| Tesoro Refining And Marketing | Martinez | 2307 |
| Valero Refining Company | Benicia | 2289 |
| Chevron Products Company | Richmond | 2063 |
| Hanson Permanente Cement | Cupertino | 1935 |
| Conoco Phillips - San Francisco | Rodeo | 1794 |
| Mirant Delta (Electric Services) | Antioch | 1164 |
| Tosco Refining Company | Rodeo | 632 |
| Owens-Brockway Glass Container | Oakland | 558 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Tesoro Refining And Marketing | Martinez | 2040 |
| Chevron Products Company | Richmond | 1637 |
| Shell Martinez Refinery | Martinez | 1462 |
| Conoco Phillips - San Francisco | Rodeo | 769 |
| New United Motor Manufacturing | Fremont | 581 |
| Redwood Landfill | Novato | 475 |
| Valero Refining Company | Benicia | 388 |
| Allied Waste Industries | Pittsburg | 377 |
| Ball Metal Beverage Container | Fairfield | 280 |
| International Disposal Corporation | Milpitas | 210 |

Table A-24

# *San Francisco Bay Area Air Basin*

## High Emitting Facilities

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Shell Martinez Refinery | Martinez | 357 |
| Valero Refining Company | Benicia | 219 |
| Hanson Permanente Cement | Cupertino | 193 |
| Chevron Products Company | Richmond | 188 |
| Mirant Delta (Electric Services) | Pittsburg | 157 |
| Tesoro Refining And Marketing | Martinez | 149 |
| Owens Corning | Santa Clara | 109 |
| Owens-Brockway Glass Container | Oakland | 102 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Shell Martinez Refinery | Martinez | 346 |
| Valero Refining Company | Benicia | 204 |
| Chevron Products Company | Richmond | 181 |
| Mirant Delta (Electric Services) | Pittsburg | 157 |
| Tesoro Refining And Marketing | Martinez | 133 |
| Hanson Permanente Cement | Cupertino | 119 |

Table A-24 (continued)

# *San Joaquin Valley 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** |
| Fresno | 137 | 153 | 164 | 167 | 146 | 112 | 94 | 76 | 182 | 167 | 141 | 130 | 112 | 94 | 82 | 77 |
| Kern | 223 | 334 | 324 | 263 | 198 | 146 | 128 | 112 | 597 | 714 | 597 | 194 | 111 | 93 | 83 | 78 |
| Kings | 44 | 40 | 42 | 36 | 32 | 23 | 18 | 16 | 30 | 27 | 24 | 22 | 23 | 19 | 17 | 17 |
| Madera | 30 | 36 | 33 | 36 | 32 | 31 | 30 | 27 | 42 | 26 | 24 | 24 | 22 | 19 | 18 | 17 |
| Merced | 40 | 47 | 43 | 50 | 45 | 58 | 37 | 34 | 51 | 48 | 40 | 44 | 37 | 34 | 31 | 29 |
| San Joaquin | 92 | 98 | 105 | 112 | 101 | 89 | 75 | 61 | 105 | 96 | 87 | 82 | 69 | 57 | 46 | 42 |
| Stanislaus | 51 | 64 | 63 | 77 | 66 | 57 | 48 | 39 | 76 | 71 | 67 | 71 | 61 | 53 | 46 | 43 |
| Tulare | 55 | 64 | 63 | 65 | 60 | 54 | 48 | 38 | 83 | 78 | 73 | 71 | 66 | 60 | 56 | 54 |

| | 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** |
| Fresno | 82 | 76 | 76 | 79 | 78 | 79 | 81 | 87 | 893 | 844 | 814 | 733 | 572 | 445 | 343 | 278 |
| Kern | 57 | 55 | 54 | 49 | 48 | 47 | 50 | 53 | 718 | 823 | 711 | 603 | 444 | 334 | 262 | 217 |
| Kings | 28 | 27 | 27 | 28 | 28 | 28 | 29 | 31 | 149 | 137 | 119 | 109 | 98 | 74 | 62 | 50 |
| Madera | 17 | 18 | 17 | 18 | 18 | 19 | 20 | 21 | 172 | 183 | 178 | 158 | 120 | 105 | 95 | 80 |
| Merced | 37 | 36 | 36 | 38 | 36 | 35 | 36 | 36 | 348 | 341 | 298 | 306 | 238 | 195 | 164 | 138 |
| San Joaquin | 32 | 32 | 33 | 35 | 35 | 35 | 36 | 37 | 607 | 596 | 605 | 528 | 413 | 316 | 237 | 189 |
| Stanislaus | 34 | 34 | 34 | 36 | 34 | 34 | 35 | 35 | 407 | 402 | 393 | 412 | 313 | 242 | 185 | 149 |
| Tulare | 54 | 53 | 54 | 55 | 54 | 55 | 56 | 58 | 559 | 553 | 540 | 486 | 417 | 358 | 322 | 282 |

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 | 36 | 29 | 29 | 29 | 28 | 28 | 29 | 30 |
| Kern | 32 | 30 | 27 | 22 | 21 | 20 | 21 | 21 |
| Kings | 10 | 9 | 9 | 9 | 10 | 10 | 10 | 11 |
| Madera | 7 | 9 | 7 | 8 | 8 | 8 | 8 | 9 |
| Merced | 14 | 14 | 14 | 15 | 14 | 14 | 14 | 14 |
| San Joaquin | 15 | 14 | 14 | 15 | 15 | 14 | 15 | 15 |
| Stanislaus | 15 | 15 | 15 | 16 | 15 | 15 | 15 | 15 |
| Tulare | 32 | 32 | 33 | 33 | 32 | 32 | 33 | 33 |

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** |
| Aera Energy (Electric Services) | Kern County | 1127 |
| Guardian Industries (Glass Products) | Kingsburg | 1052 |
| Pilkington North America (Glass Products) | Lathrop | 935 |
| JNW & Associates Cogeneration | Winton | 668 |
| Chevron USA | Kern County | 591 |
| Kern River Cogeneration | Kern County | 580 |
| Owens-Brockway Glass Container | Tracy | 571 |
| Saint-Gobain Containers | Madera | 518 |
| Sycamore Cogeneration | Kern County | 472 |
| Occidental Of Elk Hills | Tupman | 428 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Crimson Resource Management | Taft | 448 |
| Occidental Of Elk Hills | Tupman | 325 |
| Styrotek (Foam Products) | Delano | 256 |
| Silgan Containers Mfr. Corp. | Riverbank | 245 |
| Eott Energy Operating (Natural Gas) | Kern County | 161 |
| J G Boswell Company Oil Mill | Corcoran | 118 |
| Bay Sulfur Company | Stockton | 116 |
| Owens-Brockway Glass Container | Tracy | 102 |

Table A-26

# *San Joaquin Valley Air Basin*

## High Emitting Facilities

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Pilkington North America (Glass Products) | Lathrop | 221 |
| Chevron USA | Kern County | 130 |
| Aera Energy (Electric Services) | Kern County | 129 |
| Calaveras Materials | Fresno | 100 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Pilkington North America (Glass Products) | Lathrop | 212 |
| Chevron USA | Kern County | 130 |
| Aera Energy (Electric Services | Kern County | 128 |

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 | 65 | 65 | 47 | 49 | 32 | 28 | 24 | 19 | 46 | 50 | 53 | 44 | 35 | 30 | 26 | 24 |
| Santa Barbara | 52 | 65 | 64 | 65 | 54 | 47 | 37 | 30 | 83 | 78 | 81 | 73 | 57 | 47 | 38 | 34 |
| Ventura | 94 | 105 | 93 | 85 | 67 | 57 | 47 | 36 | 109 | 118 | 107 | 95 | 75 | 62 | 51 | 45 |

| | 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 | 24 | 26 | 27 | 28 | 27 | 28 | 29 | 29 | 273 | 290 | 303 | 277 | 204 | 167 | 139 | 116 |
| Santa Barbara | 19 | 21 | 21 | 22 | 20 | 22 | 22 | 23 | 468 | 451 | 457 | 418 | 299 | 229 | 180 | 143 |
| Ventura | 25 | 22 | 23 | 26 | 25 | 26 | 26 | 27 | 552 | 612 | 607 | 545 | 410 | 310 | 234 | 181 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| San Luis Obispo | 11 | 12 | 11 | 11 | 10 | 11 | 11 | 11 |
| Santa Barbara | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Ventura | 15 | 12 | 11 | 12 | 11 | 11 | 11 | 11 |

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** |
| Celite Corporation (Minerals) | Lompoc | 394 |
| Duke Energy Morro Bay | Morro Bay | 288 |
| Santa Susana Field Laboratory | Simi Valley | 232 |
| ERG - Orcutt Hill (Petroleum) | Orcutt Hill Field | 188 |
| Procter & Gamble Paper Products | Oxnard | 146 |
| Conoco Phillips Santa Maria Facility | Arroyo Grande | 142 |
| SCE - Ormond Beach Generating Station | Oxnard | 106 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Venoco - Ellwood (Petroleum) | Goleta | 200 |
| Aera Energy (Electric Services) | Ventura | 154 |
| Procter & Gamble Paper Products | Oxnard | 128 |
| Exxon - Syu Project | Goleta | 123 |

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Conoco Phillips Santa Maria Facility | Arroyo Grande | 110 |

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

No High Emitting Facilities

Table A-28

*(This page intentionally left blank)*

Table A-28 (continued)

# *South 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** |
| Los Angeles | 1237 | 1126 | 1174 | 1014 | 857 | 729 | 580 | 454 | 1885 | 1505 | 1443 | 1044 | 744 | 601 | 424 | 353 |
| Orange | 269 | 277 | 311 | 260 | 219 | 193 | 162 | 129 | 470 | 440 | 441 | 326 | 233 | 202 | 141 | 121 |
| Riverside | 88 | 99 | 111 | 149 | 133 | 136 | 119 | 94 | 119 | 117 | 125 | 125 | 104 | 92 | 73 | 65 |
| San Bernardino | 129 | 139 | 145 | 142 | 133 | 124 | 108 | 85 | 162 | 170 | 178 | 144 | 119 | 100 | 77 | 68 |

| | 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** |
| Los Angeles | 137 | 134 | 149 | 182 | 161 | 143 | 140 | 141 | 11684 | 9018 | 8811 | 6609 | 4753 | 3426 | 2352 | 1781 |
| Orange | 31 | 38 | 44 | 57 | 53 | 53 | 53 | 54 | 2621 | 2406 | 2463 | 1922 | 1453 | 1049 | 771 | 612 |
| Riverside | 23 | 28 | 31 | 47 | 48 | 48 | 51 | 54 | 775 | 789 | 847 | 927 | 724 | 557 | 422 | 336 |
| San Bernardino | 42 | 43 | 46 | 52 | 57 | 44 | 46 | 48 | 1074 | 1169 | 1018 | 863 | 675 | 520 | 397 | 322 |

| | Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **County** | **1975** | **1980** | **1985** | **1990** | **1995** | **2000** | **2005** | **2010** |
| Los Angeles | 75 | 64 | 67 | 71 | 59 | 56 | 56 | 55 |
| Orange | 15 | 16 | 17 | 19 | 17 | 17 | 18 | 18 |
| Riverside | 8 | 10 | 10 | 14 | 14 | 15 | 16 | 17 |
| San Bernardino | 19 | 18 | 15 | 16 | 16 | 15 | 16 | 17 |

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** |
| California Portland Cement | Colton | 1257 |
| Equilon Enterprises | Wilmington | 1108 |
| Chevron USA | El Segundo | 1027 |
| West Coast Products (Refining) | Carson | 834 |
| Mobil Oil Corp | Torrance | 671 |
| Tosco Refining Company | Wilmington | 593 |
| Southern California Edison | Avalon | 435 |
| AES Alamitos | Long Beach | 393 |
| Tosco Refining | Carson | 389 |
| City of Long Beach, SERRF Project | Long Beach | 315 |

| Reactive Organic Gases (ROG) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| Chevron USA.. | El Segundo | 881 |
| Mobil Oil | Torrance | 576 |
| West Coast Products (Refining) | Carson | 413 |
| MCP Foods | Anaheim | 386 |
| Tomkins Industries (Plastics) | Anaheim | 328 |
| TABC, Inc (Automotive Parts) | Long Beach | 287 |
| Equilon Enterprises | Wilmington | 286 |
| Tosco Refining Company | Wilmington | 264 |
| AES Alamitos | Long Beach | 239 |
| Catalina Furniture Company | La Mirada | 188 |

Table A-30

# *South Coast Air Basin*

## High Emitting Facilities

| Directly Emitted Particulate Matter ($PM_{10}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| AES Alamitos (Electric Power) | Long Beach | 405 |
| Chevron USA | El Segundo | 261 |
| West Coast Products | Carson | 251 |
| Equilon Enterprises | Wilmington | 176 |
| Tosco Refining Company | Wilmington | 170 |
| Ultramar | Wilmington | 169 |
| Mobil Oil | Torrance | 140 |
| California Portland Cement | Colton | 111 |

| Directly Emitted Particulate Matter ($PM_{2.5}$) | | |
|---|---|---|
| **Facility Name** | **City** | **Tons per Year** |
| AES Alamitos (Electric Power) | Long Beach | 405 |
| West Coast Products (Refining) | Carson | 246 |
| Chevron USA. Inc. | El Segundo | 239 |
| Tosco Refining Company | Wilmington | 158 |
| Ultramar | Wilmington | 148 |
| Equilon Enterprises | Wilmington | 147 |
| Mobil Oil | Torrance | 128 |

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 1983 through 2002 for ozone, CO, $NO_2$, and $SO_2$ and 1988 through 2002 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.

Consistent with last years almanac, this section provides information on the 4th highest 1-hour ozone concentration in three years, and the average 4th highest 8-hour concentration in three years. In some cases, these statistics may be the same as the national 1-hour and 8-hour ozone design values. However, since this does not consider data completeness, they are not considered valid for design value purposes.

This year's almanac also provides both State and national PM10 annual average statistics. State and national annual average concentrations may differ for several reasons: 1) the State and national criteria for assessing data completeness are different, 2) different monitors are approved, by the State and U.S. EPA, for assessing compliance with the State and national standards, and 3) the State standard uses local conditions while the national standard uses standard conditions for data reporting.

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, $PM_{2.5}$ air quality data are summarized by air basin in Chapter 2.

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

Table A-31

No Monitoring Data Available

# *Great Basin Valleys Air Basin*

## County: Inyo

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | 0.083 | 0.083 | 0.097 | 0.097 | 0.094 | 0.090 | 0.092 | 0.090 | 0.090 | 0.090 | 0.091 |
| 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 | 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 | 0.081 |
| 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 | 0.100 |
| 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 | 0.088 |
| Days Above State Standard | | | | | | | | | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| 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 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 2 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 119 | 227 | 866 | 150 | 64 | 254 | 388 | 692 | 309 | 402 | 1022 | 2708 | 9967 | 3457 | 7401 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 394 | 1861 | 866 | 181 | 526 | 781 | 388 | 2668 | 491 | 402 | 1116 | 514 | 715 | 3189 | 219 |
| Annual Average (State) | | | | | | | 27.1 | 29.4 | 23.2 | 18.1 | 28.7 | 22.4 | 32.3 | 21.5 | 14.6 | 57.8 | 13.6 | 115.4 | 63.1 | 159.3 |
| Annual Average (Nat) | | | | | | 32.7 | 27.4 | 29.4 | 23.2 | 37.3 | 30.6 | 26.2 | 31.8 | 21.5 | 14.6 | 53.8 | 15.3 | 39.0 | 69.6 | 31.2 |
| Calc Days Above State 24-Hr Std | | | | | | | 36 | 18 | 12 | 12 | 36 | 16 | 23 | 7 | 6 | 80 | 0 | 58 | 41 | 93 |
| Calc Days Above Nat 24-Hr Std | | | | | | 13 | 27 | 12 | 3 | 19 | 8 | 4 | 14 | 26 | 17 | 22 | 0 | 13 | 17 | 13 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-32

# *Great Basin Valleys Air Basin*

## County: Mono

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.091 | 0.096 | 0.094 | 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 | 0.104 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.099 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.078 |
| Maximum 1-Hr. Concentration | 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 | 0.099 |
| Max. 8-Hr. Concentration | 0.087 | 0.087 | 0.09 | 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 | 0.086 |
| Days Above State Standard | 0 | 0 | 1 | 5 | 4 | 3 | 0 | 2 | 0 | 5 | 0 | 2 | 2 | 0 | 0 | 0 | | | 4 | 6 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 1 | 2 | 2 | 13 | 2 | 6 | 0 | 3 | 0 | 9 | 0 | 3 | 2 | 1 | 0 | 0 | | | 2 | 1 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 166 | 163 | 161 | 134 | 493 | 981 | 92 | 122 | 158 | 112 | 88 | 109 | 2523 | 3643 | 2524 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 166 | 163 | 161 | 134 | 493 | 981 | 92 | 122 | 158 | 112 | 106 | 133 | 3059 | 4482 | 3089 |
| Annual Average (State) | | | | | | | | 11.6 | | 37.0 | 34.2 | 29.8 | 26.0 | | 26.4 | | 10.0 | 32.2 | | 46.3 |
| Annual Average (Nat) | | | | | | 36.9 | 34.6 | 39.6 | 12.7 | 36.3 | 34.6 | 29.9 | 26.0 | 14.4 | 26.5 | 8.7 | 12.6 | 39.5 | 10.8 | 62.7 |
| Calc Days Above State 24-Hr Std | | | | | | | | 13 | | 83 | 62 | 64 | 37 | | 36 | | 0 | 14 | | 21 |
| Calc Days Above Nat 24-Hr Std | | | | | | 6 | 7 | 12 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 12 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.5 |
| Max. 1-Hr. Concentration | 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 | 3.8 |
| Max. 8-Hr. Concentration | 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 | 1.8 |
| 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 |
| 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 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-33

# *Lake County Air Basin*

## County: Lake

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.077 | 0.079 | 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 | 0.08 | 0.081 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.080 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.064 |
| Maximum 1-Hr. Concentration | 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 | 0.090 |
| Max. 8-Hr. Concentration | 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 | 0.077 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 23 | 29 | 30 | 31 | 22 | 30 | 21 | 30 | 26 | 18 | 34 | 40 | 21 | 23 | 85 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 28 | 29 | 30 | 31 | 22 | 30 | 21 | 30 | 26 | 18 | 35 | 43 | 22 | 21 | |
| Annual Average (State) | | | | | | | 12.9 | | | 11.9 | 11.3 | 11.0 | 10.8 | 10.2 | 8.6 | | | 10.6 | | 13.1 |
| Annual Average (Nat) | | | | | | | 12.9 | | 12.6 | 11.8 | 11.3 | 10.9 | 10.7 | 10.2 | 8.6 | 7.8 | | 10.8 | | |
| Calc Days Above State 24-Hr Std | | | | | | | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 12 |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-34

# *Lake Tahoe Air Basin*

## County: El Dorado

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.086 | 0.080 | 0.081 | 0.082 | 0.085 | 0.089 | 0.091 | 0.091 | 0.093 | 0.089 | 0.079 | 0.082 | 0.084 | 0.084 | 0.083 | 0.082 | 0.081 | 0.089 | 0.090 | 0.093 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.089 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.075 |
| Maximum 1-Hr. Concentration | 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 | 0.102 |
| Max. 8-Hr. Concentration | 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 | 0.079 |
| Days Above State Standard | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 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 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | 52 | 92 | 78 | 71 | 72 | 55 | 50 | 36 | 44 | 50 | 46 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 95 | 73 | 84 | 78 | 85 | 92 | 78 | 71 | 72 | 55 | 59 | 41 | 50 | 58 | 51 |
| Annual Average (State) | | | | | | | | | | | | 27.1 | 22.5 | | 21.6 | 19.8 | 16.9 | 17.3 | 16.9 | 17.1 |
| Annual Average (Nat) | | | | | | | 28.1 | 30.7 | 28.3 | | | 27.1 | 22.5 | 23.4 | 21.6 | 23.4 | 19.9 | 20.4 | 19.8 | 19.9 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | 42 | 18 | | 13 | 0 | 0 | 0 | 0 | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.0 |
| Max. 1-Hr. Concentration | 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 | 3.8 |
| Max. 8-Hr. Concentration | 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 | 3.0 |
| Days Above Nat. 8-Hr. Std. | 24 | 28 | 28 | 10 | 12 | 9 | 5 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Lake Tahoe 8-Hr. Std. | 139 | 139 | 121 | 96 | 87 | 80 | 67 | 39 | 24 | 13 | 12 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.085 | 0.079 | 0.079 | 0.074 | 0.076 | 0.073 | 0.074 | 0.078 | 0.076 | 0.078 | 0.062 | 0.061 | 0.062 | 0.062 | 0.061 | 0.060 | 0.057 | 0.058 | 0.068 | 0.063 |
| Max. 1-Hr. Concentration | 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 | 0.088 |
| 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 | 0.012 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

**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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | 24 | 50 | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | 24 | 50 | | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | | 3.9 | 3.9 | 3.9 | | | | | | | |
| Max. 1-Hr. Concentration | | 13.0 | | | | | | | | | 9.0 | 11.6 | 9.5 | | | | | | | |
| Max. 8-Hr. Concentration | | 7.3 | | | | | | | | | 4.3 | 4.7 | 2.9 | | | | | | | |
| Days Above Nat. 8-Hr. Std. | | 0 | | | | | | | | | 0 | 0 | 0 | | | | | | | |
| Days Above Lake Tahoe 8-Hr. Std. | | 2 | | | | | | | | | 0 | 0 | 0 | | | | | | | |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | | | 0.122 | 0.134 | 0.125 | 0.121 | 0.125 | 0.121 | 0.121 | 0.116 | 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 | 0.116 |
| 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 | 0.095 |
| Maximum 1-Hr. Concentration | | | | | | | | | | | 0.130 | 0.124 | 0.142 | 0.130 | 0.119 | 0.134 | 0.119 | 0.113 | 0.126 | 0.115 |
| Max. 8-Hr. Concentration | | | | | | | | | | | 0.112 | 0.107 | 0.109 | 0.109 | 0.096 | 0.117 | 0.100 | 0.095 | 0.106 | 0.102 |
| Days Above State Standard | | | | | | | | | | | 15 | 43 | 54 | 46 | 22 | 43 | 39 | 25 | 33 | 18 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | | | | 2 | 0 | 3 | 2 | 0 | 2 | 0 | 0 | 1 | 0 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | | | 13 | 46 | 46 | 42 | 19 | 40 | 34 | 15 | 33 | 26 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | 54 | 462 | 534 | 65 | 50 | 33 | 143 | 92 | 130 | 159 | 40 | 90 | 112 | 194 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 148 | 54 | 462 | 534 | 65 | 64 | 116 | 235 | 92 | 130 | 165 | 45 | 90 | 115 | 208 |
| Annual Average (State) | | | | | | | | | | | | | | 16.9 | 18.4 | 15.0 | 17.7 | 20.3 | 19.8 | 24.2 |
| Annual Average (Nat) | | | | | | | | 34.0 | | | 21.2 | | 17.3 | 16.9 | 18.6 | 16.2 | 19.3 | 21.6 | 21.2 | 26.1 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | 0 | 6 | 0 | 0 | 6 | 6 | 12 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 6 | | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | 0.063 | 0.067 | 0.072 | 0.072 | 0.072 | 0.067 | 0.070 | 0.066 | 0.067 |
| Max. 1-Hr. Concentration | | | | | | | | | | | 0.070 | 0.060 | 0.120 | 0.075 | 0.075 | 0.082 | 0.083 | 0.071 | 0.071 | 0.071 |
| Max. Annual Average | | | | | | | | | | | | | 0.008 | | 0.010 | 0.011 | | 0.010 | 0.010 | |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.205 | 0.176 | 0.185 | 0.187 | 0.191 | 0.187 | 0.181 | 0.179 | 0.140 | 0.154 | 0.159 | 0.161 | 0.194 | 0.138 | 0.134 | 0.140 | 0.131 | 0.137 | 0.128 | 0.140 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.128 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.071 |
| Maximum 1-Hr. Concentration | 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 | 0.157 |
| Max. 8-Hr. Concentration | 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 | 0.107 |
| Days Above State Standard | 93 | 110 | 106 | 108 | 105 | 105 | 95 | 52 | 62 | 78 | 59 | 62 | 92 | 40 | 14 | 24 | 1 | 35 | 37 | 46 |
| Days Above Nat. 1-Hr. Std. | 42 | 49 | 58 | 47 | 32 | 44 | 27 | 7 | 8 | 25 | 14 | 10 | 34 | 1 | 0 | 8 | 0 | 2 | 3 | 5 |
| Days Above Nat. 8-Hr. Std. | 66 | 85 | 85 | 79 | 76 | 91 | 65 | 36 | 39 | 53 | 36 | 33 | 70 | 18 | 7 | 18 | 0 | 28 | 24 | 38 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | 342 | 780 | 68 | 70 | 97 | 61 | 67 | 54 | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | 110 | 342 | 780 | 68 | 70 | 97 | 61 | 67 | 54 | 80 | 85 | | | 73 |
| Annual Average (State) | | | | | | | | | | | 35.1 | | | 29.0 | | | | | | |
| Annual Average (Nat) | | | | | | | 46.0 | | 58.0 | 32.6 | 34.9 | | 25.5 | 29.0 | 29.2 | | 28.7 | | | 29.7 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | 58 | | | 12 | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | | 13 | 0 | 0 | | 0 | 0 | 0 | | 0 | | | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.0 |
| Max. 1-Hr. Concentration | 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 | 3.4 |
| Max. 8-Hr. Concentration | 6.3 | 4.9 | 5.7 | 4.6 | 3.9 | 5.9 | 7.1 | 8.3 | 7.1 | 5.4 | 5.9 | 5.6 | 5.0 | 4.7 | 4.0 | 3.6 | 5.4 | 4.3 | 3.3 | 2.2 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.095 | 0.093 | 0.091 | 0.087 | 0.084 | 0.09 | 0.091 | 0.096 | 0.095 | 0.097 | 0.098 | 0.097 | 0.098 | 0.090 | 0.086 | 0.070 | 0.070 | 0.070 | 0.070 | 0.074 |
| Max. 1-Hr. Concentration | 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 | 0.101 |
| 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 | | 0.016 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | 112 | 242 | | | | | | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.199 | 0.193 | 0.200 | 0.235 | 0.231 | 0.234 | 0.204 | 0.215 | 0.223 | 0.220 | 0.193 | 0.191 | 0.193 | 0.186 | 0.171 | 0.176 | 0.162 | 0.154 | 0.136 | 0.139 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.143 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.106 |
| Maximum 1-Hr. Concentration | 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 | 0.148 |
| Max. 8-Hr. Concentration | 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 | 0.123 |
| Days Above State Standard | 109 | 103 | 138 | 142 | 147 | 148 | 150 | 135 | 132 | 148 | 129 | 137 | 109 | 98 | 95 | 74 | 74 | 79 | 52 | 68 |
| Days Above Nat. 1-Hr. Std. | 48 | 38 | 74 | 94 | 71 | 104 | 91 | 76 | 67 | 75 | 66 | 77 | 47 | 38 | 22 | 24 | 4 | 10 | 3 | 14 |
| Days Above Nat. 8-Hr. Std. | 101 | 86 | 119 | 136 | 135 | 137 | 136 | 118 | 122 | 128 | 121 | 126 | 94 | 83 | 74 | 60 | 61 | 61 | 47 | 59 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 63 | 191 | 381 | 389 | 80 | 79 | 140 | 85 | 138 | 85 | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | 150 | 191 | 381 | 389 | 105 | 79 | 140 | 85 | 138 | 85 | 70 | 109 | 80 | 84 | 98 |
| Annual Average (State) | | | | | | | 42.5 | | | 39.7 | 34.4 | 27.9 | | 28.9 | 27.4 | | | | | |
| Annual Average (Nat) | | | | | | 35.8 | 48.6 | 48.1 | 42.8 | 39.4 | 34.9 | 42.1 | | 28.9 | 27.3 | 27.8 | 32.1 | 33.6 | 29.8 | 34.3 |
| Calc Days Above State 24-Hr Std | | | | | | | 72 | | | 84 | 50 | 6 | | 18 | 6 | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 6 | 6 | 7 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 2.8 | 3.1 | 3.4 | 3.4 | 3.5 | 4.2 | 4.0 | 4.1 | 4.2 | 4.3 | 3.8 | 3.8 | 2.9 | 7.4 | 2.3 | 2.4 | 2.1 | 1.7 | 1.8 | 1.8 |
| Max. 1-Hr. Concentration | 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 | 3.0 |
| Max. 8-Hr. Concentration | 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 | 1.8 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.147 | 0.138 | 0.136 | 0.130 | 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 | 0.096 |
| Max. 1-Hr. Concentration | 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 | 0.091 |
| Max. Annual Average | 0.021 | 0.021 | 0.025 | 0.021 | | 0.018 | 0.026 | 0.019 | | 0.025 | | 0.024 | 0.023 | 0.021 | 0.020 | 0.022 | 0.024 | 0.025 | 0.024 | 0.025 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 | 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 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.01 |

Table A-40

A portion of San Bernardino County lies within the South Coast Air Basin.

# *Mountain Counties Air Basin*

## County: Amador

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | 0.119 | 0.117 | 0.117 | 0.120 | 0.123 | 0.123 | 0.133 | 0.129 | 0.127 | 0.114 | 0.113 |
| 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 | 0.111 |
| 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 | 0.088 |
| Maximum 1-Hr. Concentration | | | | | | | | | | 0.120 | 0.110 | 0.123 | 0.146 | 0.127 | 0.135 | 0.143 | 0.121 | 0.121 | 0.107 | 0.118 |
| Max. 8-Hr. Concentration | | | | | | | | | | 0.105 | 0.090 | 0.104 | 0.112 | 0.106 | 0.104 | 0.115 | 0.107 | 0.102 | 0.087 | 0.092 |
| Days Above State Standard | | | | | | | | | | 15 | 11 | 15 | 21 | 21 | 9 | 30 | 22 | 13 | 4 | 8 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | | | 0 | 0 | 0 | 1 | 2 | 1 | 4 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | | 11 | 5 | 15 | 18 | 14 | 3 | 28 | 13 | 14 | 2 | 7 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | | 30 | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | | | 30 | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | 2.5 | 2.2 | 2.0 | 2.0 | 1.7 | 1.5 | 1.4 | 1.5 | 1.6 | 1.5 | 1.4 |
| Max. 1-Hr. Concentration | | | | | | | | | | 3.0 | 3.0 | 9.3 | 9.3 | 2.2 | 2.8 | 2.5 | 2.2 | 5.0 | 3.5 | 3.0 |
| Max. 8-Hr. Concentration | | | | | | | | | | 2.4 | 3.0 | 1.8 | 2.6 | 1.5 | 1.4 | 1.4 | 1.5 | 1.3 | 1.4 | 1.2 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-41

# *Mountain Counties Air Basin*

## County: Calaveras

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | | | 0.121 | 0.118 | 0.123 | 0.124 | 0.128 | 0.123 | 0.124 | 0.116 | 0.116 |
| 4th High 1-Hr in 3 Yrs | | | | | | | | | | | | 0.114 | 0.117 | 0.129 | 0.130 | 0.130 | 0.124 | 0.124 | 0.120 | 0.117 |
| 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 | 0.092 |
| Maximum 1-Hr. Concentration | | | | | | | | | | | | 0.121 | 0.146 | 0.138 | 0.140 | 0.134 | 0.126 | 0.134 | 0.120 | 0.131 |
| Max. 8-Hr. Concentration | | | | | | | | | | | | 0.108 | 0.107 | 0.112 | 0.112 | 0.109 | 0.106 | 0.105 | 0.090 | 0.108 |
| Days Above State Standard | | | | | | | | | | | | 35 | 23 | 24 | 6 | 27 | 21 | 16 | 8 | 14 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | | | | | 0 | 1 | 3 | 1 | 1 | 1 | 1 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | | | | 34 | 19 | 18 | 4 | 28 | 18 | 17 | 5 | 12 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | 44 | 118 | 36 | 112 | 34 | 63 | 36 | 42 | 47 |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | 44 | 118 | 36 | 112 | 35 | 65 | 35 | 44 | 44 |
| Annual Average (State) | | | | | | | | | | | | | 20.9 | 17.7 | | 15.6 | | 17.7 | 19.2 | 20.9 |
| Annual Average (Nat) | | | | | | | | | | | | | 21.0 | 17.8 | 19.9 | 15.8 | 20.7 | 17.9 | 19.4 | 20.9 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | 12 | 0 | | 0 | | 0 | 0 | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | | | 0.7 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.8 | 1.1 | 1.0 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | 1.5 | 2.1 | 1.7 | 2.1 | 1.8 | 1.8 | 1.2 | 6.2 | 1.2 |
| Max. 8-Hr. Concentration | | | | | | | | | | | | 0.7 | 1.8 | 0.9 | 1.7 | 0.9 | 0.8 | 0.9 | 4.3 | 0.8 |
| Days Above State 8-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 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-42

# *Mountain Counties Air Basin*

## County: El Dorado

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | 0.138 | | | 0.127 | 0.122 | 0.127 | 0.131 | 0.137 | 0.140 | 0.147 | 0.144 | 0.144 | 0.137 | 0.143 |
| 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 | 0.143 |
| 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 | 0.106 |
| 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 | 0.156 |
| 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 | 0.137 |
| Days Above State Standard | | | | | | | 21 | | | 29 | 10 | 26 | 32 | 41 | 19 | 32 | 39 | 37 | 42 | 50 |
| Days Above Nat. 1-Hr. Std. | | | | | | | 2 | | | 0 | 0 | 2 | 1 | 3 | 1 | 6 | 4 | 2 | 1 | 6 |
| Days Above Nat. 8-Hr. Std. | | | | | | | 24 | | | 29 | 12 | 22 | 31 | 36 | 16 | 26 | 40 | 31 | 35 | 42 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | 103 | 62 | 34 | 53 | 58 | 62 | 39 | 46 | 38 | 51 | 36 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 56 | 59 | 89 | | 103 | 62 | 34 | 53 | 58 | 62 | 41 | 49 | 38 | 52 | 37 |
| Annual Average (State) | | | | | | | | | | | 18.4 | 18 | 18.1 | | 17.4 | 14.3 | 17.7 | | 16.0 | 16.4 |
| Annual Average (Nat) | | | | | | | | | | | 18.4 | 18 | 18.1 | 17.0 | 17.4 | 14.9 | 18.5 | 16.5 | 16.8 | 17.3 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | 6 | 0 | 6 | | 6 | 0 | 0 | | 6 | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 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 | 1.9 |
| 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 | 0.8 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | 0.129 | 0.124 | 0.121 | 0.116 | 0.117 | 0.117 | 0.115 | 0.114 | 0.113 | 0.108 | 0.111 | 0.114 | 0.120 | 0.118 | 0.113 | 0.108 |
| 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 | 0.106 |
| 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 | 0.089 |
| 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 | 0.106 |
| 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 | 0.097 |
| Days Above State Standard | | | | | 27 | 26 | 2 | 20 | 19 | 10 | 17 | 10 | 20 | 28 | 7 | 13 | 16 | 10 | 4 | 19 |
| Days Above Nat. 1-Hr. Std. | | | | | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | | | | | 22 | 20 | 4 | 20 | 31 | 9 | 22 | 12 | 24 | 30 | 7 | 14 | 24 | 14 | 8 | 26 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | 84 | 209 | 350 | 104 | 126 | 115 | 71 | 106 | 62 | 36 | 75 | 89 | 277 | 72 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 180 | 84 | 209 | 350 | 104 | 126 | 115 | 71 | 106 | 62 | 40 | 82 | 98 | 312 | 76 |
| Annual Average (State) | | | | | | | | | 48.4 | | | 33.9 | | | | | | | 29.6 | 25.9 |
| Annual Average (Nat) | | | | | | | | 40.9 | 47.8 | 30.9 | | 34.6 | 28.0 | | | 20.4 | 26.7 | 26.3 | 33.3 | 28.5 |
| Calc Days Above State 24-Hr Std | | | | | | | | | 95 | | | 87 | | | | | | | 37 | 18 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 10 | 14 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 6 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | 0.043 |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-44

# *Mountain Counties Air Basin*

## County: Nevada

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.117 | 0.116 | 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 | 0.117 |
| 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 | 0.098 |
| 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 | 0.127 |
| 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 | 0.113 |
| Days Above State Standard | | | | | | | 12 | 8 | 7 | 2 | 0 | 8 | 3 | 22 | 10 | 16 | 20 | 21 | 21 | 24 |
| Days Above Nat. 1-Hr. Std. | | | | | | | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | | | | | | | 11 | 9 | 7 | 5 | 0 | 9 | 4 | 29 | 17 | 25 | 33 | 28 | 23 | 29 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | 30 | 34 | | | 44 | 81 | | | 49 | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | 38 | | | 44 | 43 | 34 | | | 49 | 136 | 92 | 84 | 57 | | |
| Annual Average (State) | | | | | | | | | | | | | | | 28.3 | | | | | |
| Annual Average (Nat) | | | | | | | | | | 22.3 | | | | | 28.4 | 14.4 | 25.3 | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | 41 | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | 0 | | | | | 0 | 0 | 0 | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-45

# *Mountain Counties Air Basin*

## County: Placer

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.113 | 0.129 |
| 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 | 0.105 | 0.104 | 0.116 |
| 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 | 0.079 | 0.073 | 0.077 |
| 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 | 0.070 | 0.095 | 0.142 |
| 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 | 0.058 | 0.088 | 0.113 |
| Days Above State Standard | | | | | | 39 | 24 | 0 | 0 | 17 | 9 | 15 | 16 | 4 | 2 | 11 | 9 | 0 | 2 | 17 |
| Days Above Nat. 1-Hr. Std. | | | | | | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| Days Above Nat. 8-Hr. Std. | | | | | | 35 | 22 | 0 | 0 | 12 | 4 | 12 | 11 | 5 | 2 | 8 | 9 | 0 | 2 | 18 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | 86 | 60 | 74 | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | 86 | 60 | 74 | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | 21.8 | 21.9 | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | 0 | 0 | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.088 |
| 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 | 0.087 |
| 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 | 0.071 |
| 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 | 0.091 |
| 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 | 0.084 |
| Days Above State Standard | | | | 0 | 0 | | | | | 0 | 0 | 0 | 1 | 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 |
| Days Above Nat. 8-Hr. Std. | | | | 0 | 0 | | | | | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 113 | 144 | 138 | 162 | 120 | 130 | 98 | 52 | 55 | 66 | 69 | 115 | 67 | 60 | 48 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 153 | 144 | 138 | 162 | 120 | 130 | 98 | 52 | 55 | 66 | 74 | 125 | 75 | 60 | 49 |
| Annual Average (State) | | | | | | | | | | | | 33.4 | 24.1 | 21.5 | | 18.5 | | 19.9 | | |
| Annual Average (Nat) | | | | | | | | 38.2 | | 37.5 | | 33.0 | 24.0 | 21.4 | 22.4 | 25.3 | 27.6 | 21.3 | 22.5 | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | 42 | 6 | 6 | | 6 | | 25 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | 0.046 | 0.046 | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | 0.050 | 0.040 | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-47

## *Mountain Counties Air Basin*

### County: Sierra

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | 114 | 138 | | | 34 | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | | 114 | 138 | 60 | 68 | 39 | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | 32.0 | 22.6 | 25.0 | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | 0 | 0 | 0 | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-48

# *Mountain Counties Air Basin*

## County: Tuolumne

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | 0.097 | 0.093 | 0.092 | 0.089 | 0.102 | 0.102 | 0.103 | 0.105 | 0.112 | 0.112 | 0.118 | 0.115 | 0.113 | 0.108 | 0.109 |
| 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 | 0.109 |
| 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 | 0.091 |
| 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 | 0.132 |
| 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 | 0.101 |
| Days Above State Standard | | | | | | 2 | 0 | 0 | 0 | 2 | 5 | 8 | 9 | 25 | 8 | 21 | 17 | 13 | 4 | 16 |
| Days Above Nat. 1-Hr. Std. | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | | | | | | 3 | 0 | 0 | 0 | 1 | 6 | 9 | 14 | 21 | 7 | 26 | 25 | 26 | 5 | 25 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | 2.9 | 2.9 | 2.8 | 2.8 | 2.7 | 2.4 | 5.1 | 5.4 | 5.7 | 2.4 | 1.6 |
| Max. 1-Hr. Concentration | | | | | | | | | | 4.0 | 5.0 | 4.4 | 3.9 | 4.5 | 6.6 | 6.7 | 4.1 | 3.4 | 2.8 | 3.7 |
| Max. 8-Hr. Concentration | | | | | | | | | | 2.6 | 3.0 | 2.7 | 3.4 | 2.6 | 1.9 | 5.5 | 3.0 | 1.6 | 1.6 | 1.5 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-49

# *North Central Coast Air Basin*

## County: Monterey

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.098 | 0.098 | 0.098 | 0.095 | 0.095 | 0.092 | 0.098 | 0.096 | 0.095 | 0.093 | 0.091 | 0.092 | 0.094 | 0.093 | 0.090 | 0.093 | 0.084 | 0.087 | 0.082 | 0.081 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.082 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.064 |
| Maximum 1-Hr. Concentration | 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 | 0.082 |
| Max. 8-Hr. Concentration | 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 | 0.073 |
| Days Above State Standard | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 51 | 54 | 56 | 46 | 41 | 86 | 50 | 50 | 50 | 91 | 54 | 94 | 77 | 72 | 60 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 51 | 54 | 57 | 55 | 45 | 86 | 50 | 50 | 50 | 91 | 52 | 91 | 74 | 68 | 62 |
| Annual Average (State) | | | | | | | | 22.5 | | | 11.6 | 19.5 | 20.6 | 20.0 | 21.4 | | 30.3 | 31.2 | | 28.9 |
| Annual Average (Nat) | | | | | | 23.0 | 25.4 | 22.5 | 23.4 | | 11.7 | 19.5 | 20.6 | 20.0 | 21.4 | 27.0 | 29.0 | 29.9 | 29.4 | 27.7 |
| Calc Days Above State 24-Hr Std | | | | | | | | 6 | | | 0 | 0 | 0 | 0 | 6 | | 12 | 24 | | 25 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.1 | 2.0 | 2.0 | 2.0 | 1.6 | 1.6 | 1.5 |
| Max. 1-Hr. Concentration | 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 | 2.3 |
| Max. 8-Hr. Concentration | 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 | 1.4 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.046 |
| Max. 1-Hr. Concentration | 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 | 0.049 |
| Max. Annual Average | 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 | 0.007 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.02 | 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 | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | |

Table A-50

# *North Central Coast Air Basin*

## County: San Benito

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.104 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.104 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.081 |
| Maximum 1-Hr. Concentration | 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 | 0.115 |
| Max. 8-Hr. Concentration | 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 | 0.094 |
| Days Above State Standard | 5 | 6 | 11 | 1 | 37 | 14 | 8 | 10 | 9 | 9 | 8 | 6 | 7 | 16 | 1 | 9 | 2 | 2 | 3 | 8 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 3 | 0 | 4 | 0 | 26 | 6 | 1 | 5 | 3 | 3 | 2 | 0 | 3 | 9 | 1 | 6 | 1 | 0 | 2 | 5 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 58 | 58 | 48 | 55 | 17 | 61 | 37 | 50 | 38 | 34 | 39 | 68 | 41 | 42 | 59 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 71 | 58 | 48 | 55 | 17 | 61 | 37 | 50 | 38 | 34 | 37 | 67 | 40 | 42 | 59 |
| Annual Average (State) | | | | | | | 24.3 | | | | 18.9 | | 17.2 | 16.8 | 18.0 | | 22.6 | 16.4 | | 18.5 |
| Annual Average (Nat) | | | | | | | 24.4 | | 22.6 | | 18.8 | 16.9 | 17.2 | 16.8 | 18.0 | 15.7 | 21.8 | 15.7 | 17.6 | 17.9 |
| Calc Days Above State 24-Hr Std | | | | | | | 6 | | | | 12 | | 0 | 0 | 0 | | 13 | 0 | | 7 |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.099 | 0.092 | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | 0.110 | 0.060 | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | 0.009 | | | | | | | | | | | | | | | | | | | |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-51

# *North Central Coast Air Basin*

## County: Santa Cruz

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.091 | 0.089 | 0.103 | 0.096 | 0.097 | 0.094 | 0.092 | 0.084 | 0.084 | 0.082 | 0.110 | 0.102 | 0.102 | 0.098 | 0.095 | 0.096 | 0.088 | 0.089 | 0.086 | 0.087 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.085 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.064 |
| Maximum 1-Hr. Concentration | 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 | 0.086 |
| Max. 8-Hr. Concentration | 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 | 0.077 |
| Days Above State Standard | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 7 | 0 | 1 | 2 | 0 | 1 | 1 | 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 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 65 | 51 | 49 | 49 | 36 | 102 | 106 | 152 | 115 | 113 | 78 | 106 | 52 | 74 | 81 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 65 | 51 | 49 | 49 | 36 | 102 | 106 | 152 | 115 | 113 | 76 | 103 | 50 | 72 | 77 |
| Annual Average (State) | | | | | | | | 23.8 | 24.3 | | 21.7 | 31.1 | 36.3 | 32.8 | 36.9 | | 32.3 | 27.1 | | 28.0 |
| Annual Average (Nat) | | | | | | | | 23.9 | 24.3 | | 21.7 | 31.1 | 36.4 | 32.8 | 37.0 | 28.5 | 30.9 | 26.2 | 28.7 | 26.8 |
| Calc Days Above State 24-Hr Std | | | | | | | | 0 | 0 | | 12 | 31 | 71 | 71 | 72 | | 50 | 18 | | 24 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 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 | 1.3 |
| 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 | 0.8 |
| Days Above State 8-Hr. Std. | | | | | 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 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | 0.044 | 0.048 | 0.049 | 0.050 | 0.049 | 0.047 | 0.043 | 0.051 | 0.052 | 0.050 | 0.045 | 0.041 | 0.035 | 0.036 | 0.036 | 0.035 |
| 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 | 0.035 |
| Max. Annual Average | | | | | 0.005 | | 0.008 | | | 0.006 | | 0.005 | | 0.005 | | 0.004 | 0.005 | 0.005 | 0.005 | 0.005 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.03 |
| 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 |
| Max. 24-Hr. Concentration | | | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |

Table A-52

# *North Coast Air Basin*

## County: Del Norte

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | 0.062 | 0.058 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | 41 | 42 | 58 | 50 | 42 | 46 | 48 | 39 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 46 | | | | | | | 41 | 42 | 58 | 48 | 39 | 44 | 46 | 39 |
| Annual Average (State) | | | | | | | | | | | | | | | 20.8 | | 18.4 | 17.6 | 17.3 | |
| Annual Average (Nat) | | | | | | | | | | | | | | | 20.9 | | 17.3 | | 16.9 | 18.7 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | 6 | | 0 | 0 | 0 | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | | 0 | | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-53

# *North Coast Air Basin*

## County: Humboldt

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 98 | 92 | 83 | | | | 77 | 68 | 87 | 56 | 45 | 60 | 53 | 67 | 38 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 98 | 92 | 83 | | | | 77 | 68 | 87 | 56 | 43 | 57 | 51 | 64 | 36 |
| Annual Average (State) | | | | | | | 31.4 | 28.0 | | | | 24.3 | | 19.0 | 21.0 | 15.9 | 19.9 | 21.8 | 21.3 | |
| Annual Average (Nat) | | | | | | 36.2 | 31.4 | 28.0 | | | | 24.3 | 19.9 | 18.4 | 21.2 | 14.8 | 19.2 | 20.9 | 20.8 | 18.5 |
| Calc Days Above State 24-Hr Std | | | | | | | 35 | 29 | | | | 12 | | 12 | 6 | 0 | 13 | 6 | 13 | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-54

# *North Coast Air Basin*

## County: Mendocino

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.076 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.083 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.055 |
| Maximum 1-Hr. Concentration | 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 | 0.092 |
| Max. 8-Hr. Concentration | 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 | 0.072 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 101 | 82 | 60 | 74 | 51 | 54 | 62 | 54 | 56 | 66 | 52 | 69 | 51 | 64 | 72 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 101 | 82 | 60 | 74 | 51 | 54 | 62 | 54 | 56 | 66 | 50 | 66 | 49 | 61 | 74 |
| Annual Average (State) | | | | | | | 29.7 | 23.7 | 25.4 | 21.9 | 23.2 | 21.9 | 26.0 | 24.4 | 23.4 | 22.1 | | 23.5 | 25.4 | 22.9 |
| Annual Average (Nat) | | | | | | | 29.9 | 23.7 | 25.3 | 21.8 | 22.6 | 22.1 | 26.1 | 24.6 | 23.4 | 21.1 | 24.3 | 22.4 | 24.1 | 22.2 |
| Calc Days Above State 24-Hr Std | | | | | | | 40 | 24 | 17 | 6 | 13 | 6 | 13 | 7 | 6 | 6 | | 6 | 24 | 12 |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | 5.2 | 5.2 | | | | | | | 2.4 | | 3.2 | 3.4 | 3.3 | 3.1 | 3.6 | 3.4 | 3.3 | 2.6 |
| 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 | 4.4 | 4.0 | 3.1 |
| 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 | 2.6 | 2.3 | 2.5 |
| Days Above State 8-Hr. Std. | | 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 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | 0.054 | 0.053 | 0.053 | 0.053 | 0.049 | 0.050 | 0.054 | 0.053 | 0.052 | 0.042 |
| 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 | 0.080 |
| Max. Annual Average | | | | | | | | | | | | 0.008 | 0.009 | | 0.010 | 0.010 | 0.010 | 0.011 | 0.010 | 0.010 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | 0.01 | 0.01 | | | | | | | | |
| Max. Annual Average | | | | | | 0.00 | | | | 0.00 | 0.00 | 0.00 | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | 0.01 | | | | 0.01 | 0.00 | 0.00 | | | | | | | | |

Table A-55

# *North Coast Air Basin*

## County: Sonoma

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | 0.085 | 0.088 | 0.089 | 0.090 | 0.088 | 0.091 | 0.103 | 0.109 | 0.105 | 0.093 | 0.083 |
| 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 | 0.080 |
| 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 | 0.063 |
| Maximum 1-Hr. Concentration | | | | | | | | | | 0.090 | 0.090 | 0.100 | 0.100 | 0.080 | 0.100 | 0.130 | 0.100 | 0.090 | 0.090 | 0.080 |
| Max. 8-Hr. Concentration | | | | | | | | | | 0.072 | 0.073 | 0.080 | 0.090 | 0.071 | 0.091 | 0.106 | 0.087 | 0.077 | 0.073 | 0.068 |
| Days Above State Standard | | | | | | | | | | 0 | 0 | 1 | 1 | 0 | 2 | 7 | 4 | 0 | 0 | 0 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | | 0 | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 62 | 85 | 266 | 78 | 58 | 53 | 57 | 43 | 40 | 54 | 33 | 74 | 45 | 63 | 37 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 86 | 85 | 266 | 78 | 58 | 53 | 57 | 43 | 40 | 54 | 32 | 71 | 44 | 59 | 36 |
| Annual Average (State) | | | | | | | | 23.8 | 24.8 | | 20.7 | 18.4 | | 16.4 | 16.5 | 16.6 | 19.4 | 12.6 | | 15.6 |
| Annual Average (Nat) | | | | | | 25.4 | 27.2 | 23.8 | 24.2 | | 20.3 | 18.4 | | 16.5 | 16.5 | 16.0 | 18.3 | 14.7 | 15.0 | 15.0 |
| Calc Days Above State 24-Hr Std | | | | | | | | 22 | 23 | | 12 | 13 | | 0 | 5 | 0 | 18 | 0 | | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 6 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | 63 | 54 | 47 | 95 | 51 | 72 | 53 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 125 | | | | | | | 41 | 72 | 54 | 46 | 100 | 51 | 73 | 52 |
| Annual Average (State) | | | | | | | | | | | | | | | 17.8 | 18.1 | 24.3 | 18.8 | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | 18.0 | | | 18.7 | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | 6 | 0 | 36 | 7 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-57

## *Northeast Plateau Air Basin*

### County: Lassen

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | 42 | 84 | 48 | 93 | 74 | 91 | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | | | 42 | 84 | 52 | 100 | 80 | 105 | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-58

# *Northeast Plateau Air Basin*

## County: Modoc

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | 101 | 78 | 74 | 97 | 41 | 89 | 74 | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | 101 | 78 | 74 | 97 | 62 | 94 | 79 | 67 | |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | 30.3 | | | | 26.3 | 22.5 | 19.8 | |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | | | | 0 | 0 | 0 | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-59

# *Northeast Plateau Air Basin*

## County: Siskiyou

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.072 | 0.074 | 0.076 | 0.078 | 0.081 | 0.082 | 0.083 | 0.082 | 0.084 | 0.081 | 0.073 | 0.075 | 0.074 | 0.075 | 0.074 | 0.078 | 0.078 | 0.081 | 0.080 | 0.085 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.078 | 0.081 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.053 | 0.055 |
| Maximum 1-Hr. Concentration | 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 | 0.049 | 0.087 |
| Max. 8-Hr. Concentration | 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 | 0.038 | 0.075 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 58 | 59 | 63 | 60 | 74 | 60 | 61 | 46 | 188 | 40 | 63 | 51 | 33 | 33 | 73 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 92 | 59 | 63 | 60 | 74 | 60 | 61 | 46 | 188 | 40 | 66 | 56 | 53 | 41 | 86 |
| Annual Average (State) | | | | | | | 24.8 | | | 23.6 | | 22.1 | 16.0 | | | | 16.8 | | | 17.5 |
| Annual Average (Nat) | | | | | | 25.0 | 24.8 | 23.5 | | 23.6 | | 22.1 | 16.0 | 13.6 | 12.9 | 11.1 | 17.7 | 13.9 | 14.1 | 18.6 |
| Calc Days Above State 24-Hr Std | | | | | | | 29 | | | 24 | | 0 | 0 | | | | 0 | | | 6 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-60

# *Sacramento Valley Air Basin*

## County: Butte

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.103 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.105 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.089 |
| Maximum 1-Hr. Concentration | 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 | 0.112 |
| Max. 8-Hr. Concentration | 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 | 0.101 |
| Days Above State Standard | 0 | 0 | 4 | 2 | 5 | 8 | 4 | 2 | 1 | 0 | 1 | 3 | 1 | 2 | 0 | 2 | 7 | 5 | 4 | 10 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 4 | 1 | 3 | 3 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 5 | 6 | 6 | 13 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 100 | 82 | | | 83 | 78 | 93 | 64 | 66 | 108 | 71 | 94 | 85 | 112 | 96 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 115 | 91 | 97 | 123 | 83 | 78 | 93 | 64 | 66 | 108 | 68 | 95 | 81 | 105 | 92 |
| Annual Average (State) | | | | | | | | | | | 28.0 | 33.3 | 27.0 | 25.2 | 25.2 | 22.8 | 31.1 | 27.9 | 29.9 | 28.8 |
| Annual Average (Nat) | | | | | | 42.1 | 35.5 | 35.5 | 38.3 | | 27.6 | 33.3 | 26.2 | 25.5 | 24.9 | 22.3 | 30.5 | 27.6 | 29.3 | 28.2 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | 46 | 36 | 37 | 16 | 21 | 18 | 49 | 39 | 31 | 37 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 8.6 | 8.6 | 8.6 | 10.1 | 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 | 4.1 |
| Max. 1-Hr. Concentration | 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 | 5.1 |
| Max. 8-Hr. Concentration | 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 | 3.5 |
| Days Above State 8-Hr. Std. | 0 | 1 | 2 | 3 | 0 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 1 | 2 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.072 | 0.080 | 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 | 0.074 | 0.061 |
| Max. 1-Hr. Concentration | 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 | 0.058 |
| Max. Annual Average | 0.011 | 0.014 | 0.014 | 0.015 | 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 | 0.012 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-61

## *Sacramento Valley Air Basin*

### County: Colusa

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.097 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.095 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.076 |
| Maximum 1-Hr. Concentration | 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 | 0.094 |
| Max. 8-Hr. Concentration | 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 | 0.081 |
| Days Above State Standard | 0 | 12 | 7 | 12 | 28 | | | | 1 | 8 | 3 | 4 | 6 | 6 | 0 | 2 | 1 | 0 | 5 | 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. | 1 | 5 | 4 | 5 | 21 | | | | 0 | 3 | 2 | 2 | 2 | 4 | 0 | 1 | 1 | 0 | 3 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 98 | 72 | 93 | 102 | 84 | 70 | 57 | 93 | 57 | 57 | 59 | 172 | 55 | 76 | 64 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 98 | 72 | 93 | 102 | 84 | 70 | 57 | 93 | 57 | 57 | 58 | 171 | 55 | 74 | 62 |
| Annual Average (State) | | | | | | | 29.8 | 31.3 | | 29.9 | 25.0 | 28.9 | | | 25.1 | 20.0 | | | 25.2 | |
| Annual Average (Nat) | | | | | | 33.5 | 29.8 | 30.9 | | 28.7 | 24.5 | 28.1 | 29.9 | 26.8 | 24.6 | 19.5 | | | 24.5 | |
| Calc Days Above State 24-Hr Std | | | | | | | 35 | 35 | | 42 | 20 | 26 | | | 12 | 6 | | | 7 | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-62

# *Sacramento Valley Air Basin*

## County: Glenn

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.096 | 0.092 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.088 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.074 |
| Maximum 1-Hr. Concentration | 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 | 0.093 |
| Max. 8-Hr. Concentration | 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 | 0.077 |
| Days Above State Standard | 4 | 1 | 5 | 2 | 9 | | | 3 | 1 | 6 | 1 | 3 | 1 | 1 | 1 | 2 | 4 | 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 |
| Days Above Nat. 8-Hr. Std. | 3 | 1 | 3 | 0 | 8 | | | 1 | 0 | 4 | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 93 | 73 | 63 | 81 | 111 | 75 | 80 | 88 | 75 | 72 | 55 | 88 | 65 | 68 | 80 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 93 | 73 | 63 | 81 | 111 | 75 | 80 | 88 | 75 | 72 | 53 | 88 | 65 | 68 | 77 |
| Annual Average (State) | | | | | | | 27.1 | 28.8 | 33.0 | 28.9 | 23.1 | | 29.0 | 24.5 | 22.8 | 20.3 | | 23.4 | | 29.1 |
| Annual Average (Nat) | | | | | | 35.1 | 27.1 | 28.0 | 32.3 | 28.4 | 23.1 | | 27.6 | 24.7 | 22.4 | | 26.1 | 22.2 | | 28.6 |
| Calc Days Above State 24-Hr Std | | | | | | | 18 | 23 | 83 | 46 | 16 | | 57 | 29 | 10 | 12 | | 6 | | 41 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-63

# *Sacramento Valley Air Basin*

## County: Placer

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.130 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.124 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.101 | 0.101 |
| Maximum 1-Hr. Concentration | 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 | 0.136 |
| Max. 8-Hr. Concentration | 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 | 0.107 | 0.115 |
| Days Above State Standard | 36 | 39 | 35 | 45 | 41 | 55 | 23 | 42 | 36 | 46 | 23 | 35 | 35 | 33 | 10 | 23 | 28 | 25 | 32 | 25 |
| Days Above Nat. 1-Hr. Std. | 6 | 5 | 8 | 4 | 7 | 13 | 0 | 11 | 4 | 8 | 4 | 5 | 3 | 3 | 0 | 7 | 3 | 1 | 1 | 4 |
| Days Above Nat. 8-Hr. Std. | 24 | 28 | 25 | 36 | 37 | 43 | 13 | 41 | 29 | 34 | 17 | 27 | 21 | 26 | 4 | 20 | 27 | 19 | 26 | 16 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | 55 | 48 | 52 | 65 | 84 | 98 | 66 | 75 | 89 | 62 | 62 | 61 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 70 | 67 | 58 | 68 | 48 | 52 | 65 | 84 | 98 | 66 | 70 | 89 | 58 | 59 | 58 |
| Annual Average (State) | | | | | | | | | | | 21.4 | 25.3 | 24.1 | 20.9 | 22.1 | 23.0 | 26.7 | 24.5 | 24.7 | 25.2 |
| Annual Average (Nat) | | | | | | 31.4 | 28.7 | | | | 24.3 | 25.0 | 23.4 | 23.6 | 21.8 | 22.3 | 26.1 | 23.9 | 24.2 | 24.6 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | 0 | 16 | 7 | 0 | 0 | 18 | 31 | 11 | 24 | 6 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | 2.3 | 2.6 | 2.9 | 2.6 | 2.5 | 2.2 | 2.3 | 2.3 | 2.4 | 2.3 | 2.2 |
| 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 | 4.6 |
| Max. 8-Hr. Concentration | | | | | | | | | 3.3 | 2.3 | 2.8 | 3.0 | 2.1 | 2.8 | 2.1 | 2.4 | 2.2 | 2.4 | 1.9 | 2.8 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | 0.090 | 0.088 | 0.090 | 0.096 | 0.098 | 0.095 | 0.091 | 0.092 | 0.091 | 0.090 | 0.085 |
| 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 | 0.075 |
| Max. Annual Average | | | | | | | | | | 0.015 | 0.016 | 0.018 | 0.017 | 0.016 | 0.015 | 0.016 | 0.012 | 0.016 | 0.015 | 0.016 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

**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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.138 | 0.135 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.132 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.100 |
| Maximum 1-Hr. Concentration | 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 | 0.139 |
| Max. 8-Hr. Concentration | 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 | 0.120 |
| Days Above State Standard | 52 | 58 | 48 | 48 | 74 | 86 | 61 | 29 | 55 | 52 | 26 | 36 | 39 | 49 | 21 | 42 | 40 | 31 | 31 | 39 |
| Days Above Nat. 1-Hr. Std. | 12 | 23 | 18 | 22 | 17 | 30 | 8 | 8 | 12 | 9 | 6 | 6 | 10 | 7 | 3 | 13 | 5 | 4 | 2 | 3 |
| Days Above Nat. 8-Hr. Std. | 38 | 44 | 32 | 36 | 53 | 58 | 32 | 20 | 45 | 35 | 14 | 24 | 32 | 29 | 9 | 29 | 26 | 26 | 23 | 28 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 99 | 147 | 153 | 134 | 89 | 113 | 99 | 90 | 86 | 108 | 114 | 141 | 90 | 96 | 91 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 99 | 139 | 153 | 134 | 89 | 110 | 99 | 90 | 86 | 108 | 104 | 141 | 86 | 89 | 85 |
| Annual Average (State) | | | | | | | 41.9 | | | 31.2 | 29.4 | 29.1 | 28.0 | 25.6 | 23.5 | 23.3 | 29.6 | 25.9 | | 27.6 |
| Annual Average (Nat) | | | | | | 40.4 | 41.9 | 41.7 | 42.3 | 31.1 | 28.5 | 30.2 | 28.8 | 24.9 | 23.2 | 27.0 | 33.1 | 26.7 | 23.1 | 29.0 |
| Calc Days Above State 24-Hr Std | | | | | | | 82 | | | 34 | 43 | 23 | 42 | 24 | 12 | 18 | 49 | 36 | | 30 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 13.2 | 13.0 | 13.2 | 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 | 6.0 |
| Max. 1-Hr. Concentration | 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 | 7.8 |
| Max. 8-Hr. Concentration | 14.1 | 12.4 | 13.3 | 13.9 | 10.0 | 11.6 | 15.9 | 14.0 | 12.3 | 8.6 | 9.4 | 8.4 | 7.4 | 7.2 | 7.2 | 7.1 | 6.6 | 6.3 | 5.3 | 4.3 |
| Days Above State 8-Hr. Std. | 6 | 6 | 12 | 12 | 5 | 11 | 22 | 14 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 4 | 5 | 12 | 11 | 3 | 8 | 22 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.084 |
| Max. 1-Hr. Concentration | 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 | 0.090 |
| Max. Annual Average | 0.016 | 0.019 | 0.021 | 0.022 | 0.022 | 0.025 | 0.019 | 0.023 | 0.024 | 0.021 | 0.015 | 0.022 | 0.022 | 0.022 | 0.019 | 0.021 | 0.021 | 0.019 | 0.019 | 0.020 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.02 |
| Max. Annual Average | 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 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.01 |

Table A-65

## *Sacramento Valley Air Basin*

### County: Shasta

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.100 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.098 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.078 |
| Maximum 1-Hr. Concentration | 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 | 0.098 |
| Max. 8-Hr. Concentration | 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 | 0.084 |
| Days Above State Standard | 7 | 2 | 10 | 8 | 25 | 5 | 0 | 13 | 12 | 10 | 1 | 7 | 3 | 16 | 8 | 40 | 23 | 3 | 1 | 4 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 4 | 2 | 9 | 9 | 21 | 3 | 0 | 13 | 11 | 10 | 1 | 8 | 0 | 14 | 6 | 45 | 12 | 1 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 60 | 91 | 80 | 83 | 86 | 91 | 64 | 55 | 51 | 63 | 52 | 75 | 53 | 71 | 58 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 60 | 91 | 80 | 83 | 86 | 91 | 64 | 55 | 51 | 63 | 61 | 81 | 49 | 66 | 60 |
| Annual Average (State) | | | | | | | | | 28.7 | | 20.1 | 24.4 | 25.1 | 24.3 | | | | 24.3 | 24.1 | 20.8 |
| Annual Average (Nat) | | | | | | 26.4 | | 24.9 | 28.7 | | 20.1 | 24.4 | 25.2 | 24.3 | 22.2 | 23.5 | | 23.7 | 23.7 | 25.9 |
| Calc Days Above State 24-Hr Std | | | | | | | | | 50 | | 7 | 12 | 13 | 6 | | | | 6 | 6 | 6 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | 1.1 | 1.1 | 3.1 | 3.1 | | 2.4 | 2.3 | 2.3 | 2.6 | 2.0 | 2.0 | | | | | | | | |
| Max. 1-Hr. Concentration | 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 | 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 | | | | | | | | |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | 0.091 | 0.093 | 0.093 | 0.090 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-66

# *Sacramento Valley Air Basin*

## County: Solano

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.101 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.100 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.072 |
| Maximum 1-Hr. Concentration | 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 | 0.100 |
| Max. 8-Hr. Concentration | 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 | 0.077 |
| Days Above State Standard | 0 | 1 | 0 | 0 | 12 | 2 | 4 | 1 | | | | | 6 | 8 | 3 | 10 | 8 | 2 | 2 | 1 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 0 | 0 | 8 | 2 | 1 | 1 | | | | | 3 | 2 | 0 | 7 | 8 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 81 | 109 | 96 | 98 | 70 | 53 | 76 | 62 | 45 | 74 | 62 | 68 | 50 | 82 | 66 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 81 | 109 | 96 | 98 | 70 | 53 | 76 | 62 | 45 | 74 | 56 | 66 | 47 | 77 | 63 |
| Annual Average (State) | | | | | | | | | | 24.4 | | 21.2 | 18.9 | 17.3 | 16.1 | 17.7 | 20.5 | 19.0 | 20.8 | 19.9 |
| Annual Average (Nat) | | | | | | | | | | 24.4 | 22.4 | 21.2 | 19.0 | 17.3 | 16.1 | 17.2 | 19.8 | 18.3 | 20.2 | 19.4 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | 24 | | 18 | 13 | 0 | 6 | 6 | 18 | 0 | 12 | 6 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.113 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.109 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.084 |
| Maximum 1-Hr. Concentration | 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 | 0.117 |
| Max. 8-Hr. Concentration | 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 | 0.103 |
| Days Above State Standard | 11 | 22 | 18 | 21 | 23 | 41 | 4 | 2 | 10 | 29 | 13 | 25 | 21 | 28 | 5 | 16 | 21 | 9 | 6 | 15 |
| Days Above Nat. 1-Hr. Std. | 2 | 1 | 0 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 5 | 14 | 10 | 12 | 16 | 32 | 2 | 0 | 2 | 13 | 9 | 18 | 17 | 28 | 3 | 14 | 11 | 5 | 3 | 11 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | 103 | 96 | 108 | 79 | 78 | 154 | 128 | 82 | 98 | 63 | 151 | 70 | 82 | 75 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 109 | 103 | 96 | 108 | 79 | 78 | 154 | 128 | 82 | 98 | 60 | 150 | 70 | 80 | 74 |
| Annual Average (State) | | | | | | | | 38.5 | 39.2 | 35.2 | 31.2 | | | 29.9 | 28.8 | 24.5 | 39.4 | | 30.5 | 31.8 |
| Annual Average (Nat) | | | | | | 37.4 | | 38.5 | 38.5 | 34.3 | 30.7 | 34.5 | | 29.8 | 28.6 | 23.8 | 38.4 | 27.9 | 30.2 | 30.9 |
| Calc Days Above State 24-Hr Std | | | | | | | | 74 | 104 | 61 | 43 | | | 27 | 22 | 30 | 62 | | 50 | 25 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 4.2 |
| 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 | 6.4 |
| 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 | 3.5 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.075 |
| 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 | 0.068 |
| Max. Annual Average | | | | | | | | | | 0.017 | 0.017 | 0.016 | 0.013 | 0.012 | 0.014 | 0.013 | 0.014 | | | 0.015 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-68

# *Sacramento Valley Air Basin*

## County: Tehama

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.104 |
| 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 | 0.102 |
| 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 | 0.083 |
| 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 | 0.109 |
| 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 | 0.095 |
| Days Above State Standard | | | | | | | | 15 | 6 | 9 | 5 | 2 | 10 | 4 | 2 | 12 | 18 | 3 | 3 | 10 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | 11 | 2 | 9 | 4 | 3 | 9 | 0 | 2 | 11 | 20 | 2 | 1 | 8 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 99 | 68 | 67 | 85 | 75 | 67 | 74 | 63 | 56 | 58 | 118 | 99 | 49 | 73 | 71 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 99 | 68 | 67 | 85 | 75 | 67 | 74 | 63 | 56 | 58 | 119 | 98 | 49 | 71 | 69 |
| Annual Average (State) | | | | | | | 31.4 | 29.7 | 32.4 | 29.3 | 24.9 | | | | | | | | | |
| Annual Average (Nat) | | | | | | 42.8 | 31.4 | 29.7 | 32.5 | 29.3 | 25.0 | 30.0 | | | 22.5 | | | 23.6 | 26.2 | 30.5 |
| Calc Days Above State 24-Hr Std | | | | | | | 42 | 24 | 67 | 30 | 18 | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-69

## *Sacramento Valley Air Basin*

### County: Yolo

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.115 | 0.115 | 0.112 | 0.107 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.101 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.083 |
| Maximum 1-Hr. Concentration | 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 | 0.121 |
| Max. 8-Hr. Concentration | 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 | 0.091 |
| Days Above State Standard | 13 | 20 | 13 | 12 | 25 | 32 | 3 | 9 | 4 | 14 | 1 | 4 | 9 | 13 | 2 | 10 | 10 | 7 | 6 | 10 |
| Days Above Nat. 1-Hr. Std. | 0 | 2 | 1 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 7 | 11 | 6 | 4 | 13 | 12 | 0 | 6 | 1 | 7 | 1 | 0 | 4 | 4 | 1 | 5 | 6 | 2 | 2 | 5 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | 147 | 136 | 106 | 96 | 98 | 145 | 77 | 126 | 130 | 179 | 85 | 101 | 87 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 96 | 113 | 147 | 136 | 106 | 96 | 98 | 145 | 77 | 126 | 130 | 179 | 79 | 95 | 82 |
| Annual Average (State) | | | | | | | | | | 34.7 | 30.5 | | 29.9 | 27.5 | 27.7 | 29.9 | 33.3 | 26.6 | 28.2 | 28.0 |
| Annual Average (Nat) | | | | | | 40.5 | | 31.3 | | 34.7 | 31.8 | 29.8 | 30.1 | 27.5 | 27.6 | 29.0 | 32.5 | 25.7 | 27.4 | 27.2 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | 70 | 63 | | 43 | 44 | 12 | 60 | 64 | 43 | 30 | 37 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 4.6 | 4.2 | 3.6 | 4.3 | 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 | 1.3 |
| Max. 1-Hr. Concentration | 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 | 1.9 |
| Max. 8-Hr. Concentration | 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 | 1.4 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | 0.064 | 0.061 | 0.064 | 0.069 | 0.069 | 0.082 | 0.075 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | 0.061 | 0.057 | 0.060 | 0.073 | 0.053 | 0.172 | 0.059 |
| Max. Annual Average | | | | | | | | | | | | | | | 0.010 | 0.011 | 0.012 | 0.011 | 0.010 | 0.012 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

**No Monitoring Data Available**

Table A-70

# *Sacramento Valley Air Basin*

## County: Yuba

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 96 | 113 | 80 | 102 | | | | | | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | 96 | 113 | 80 | 102 | | | | | | | | | | | |
| Annual Average (State) | | | | | | | | 31.1 | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | 31.3 | | | | | | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | | | 43 | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 0 | | | | | | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-71

# *Salton Sea Air Basin*

## County: Imperial

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.114 | 0.103 | 0.122 | 0.134 | 0.092 | 0.110 | 0.110 | 0.117 | 0.108 | 0.150 | 0.156 | 0.154 | 0.163 | 0.155 | 0.156 | 0.145 | 0.147 | 0.149 | 0.152 | 0.142 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.147 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.090 |
| Maximum 1-Hr. Concentration | 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 | 0.156 |
| Max. 8-Hr. Concentration | 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 | 0.104 |
| Days Above State Standard | 3 | 0 | 16 | 0 | 0 | 17 | 4 | 6 | 9 | 46 | 50 | 75 | 83 | 69 | 69 | 44 | 65 | 20 | 41 | 29 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 8 | 16 | 8 | 22 | 10 | 10 | 5 | 24 | 5 | 10 | 3 |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 10 | 0 | 0 | 3 | 1 | 0 | 3 | 24 | 24 | 47 | 49 | 34 | 50 | 18 | 20 | 5 | 18 | 13 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 368 | 676 | 258 | 243 | 103 | 175 | 258 | 229 | 359 | 532 | 181 | 238 | 279 | 634 | 361 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 368 | 676 | 258 | 243 | 103 | 175 | 258 | 229 | 359 | 532 | 176 | 227 | 268 | 647 | 373 |
| Annual Average (State) | | | | | | | 77.9 | 57.0 | 57.0 | 47.5 | 52.6 | | 72.0 | 73.6 | 77.7 | 66.6 | 79.0 | 84.8 | 87.1 | 82.5 |
| Annual Average (Nat) | | | | | | 60.4 | 77.9 | 57.3 | 57.9 | 47.5 | 53.3 | 44.8 | 71.9 | 73.6 | 77.7 | 66.1 | 77.8 | 95.2 | 86.2 | 81.3 |
| Calc Days Above State 24-Hr Std | | | | | | | 221 | 197 | 182 | 143 | 144 | | 218 | 244 | 294 | 227 | 289 | 313 | 312 | 306 |
| Calc Days Above Nat 24-Hr Std | | | | | | 7 | 27 | 12 | 7 | 0 | 13 | 0 | 13 | 30 | 12 | 12 | 32 | 38 | 18 | 21 |

** $PM_{10}$ statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | | | 17.4 | 18.8 | 17.8 | 17.4 | 15.4 | 15.5 | 14.8 | 14.3 | 12.8 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | 30.6 | 32.0 | 27.0 | 24.0 | 23.5 | 22.9 | 19.9 | 17.4 | 15.6 |
| Max. 8-Hr. Concentration | | | | | | | | | | | | 13.1 | 22.9 | 22.1 | 17.8 | 14.4 | 17.9 | 15.5 | 12.3 | 11.6 |
| Days Above State 8-Hr. Std. | | | | | | | | | | | | 10 | 17 | 11 | 15 | 12 | 13 | 7 | 6 | 4 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | | | | 9 | 15 | 9 | 10 | 8 | 11 | 6 | 6 | 3 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | 0.153 | 0.182 | 0.178 | 0.178 | 0.150 | 0.145 | 0.170 | 0.161 | 0.153 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | 0.227 | 0.217 | 0.164 | 0.128 | 0.257 | 0.286 | 0.192 | 0.139 | 0.138 |
| Max. Annual Average | | | | | | | | | | | | | 0.016 | 0.014 | | | 0.018 | | | 0.013 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 |
| Max. Annual Average | | | | | | | | | | | | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | | | | | | | | | | | | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.00 | 0.00 |

Table A-72

# *Salton Sea Air Basin*

## County: Riverside

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.134 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.132 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.105 |
| Maximum 1-Hr. Concentration | 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 | 0.136 |
| Max. 8-Hr. Concentration | 0.150 | 0.165 | 0.16 | 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 | 0.124 |
| Days Above State Standard | 95 | 100 | 93 | 80 | 85 | 99 | 117 | 82 | 80 | 82 | 82 | 78 | 56 | 61 | 45 | 42 | 33 | 43 | 56 | 54 |
| Days Above Nat. 1-Hr. Std. | 50 | 40 | 28 | 31 | 40 | 35 | 38 | 27 | 24 | 24 | 21 | 13 | 11 | 12 | 4 | 8 | 1 | 0 | 6 | 2 |
| Days Above Nat. 8-Hr. Std. | 77 | 79 | 68 | 62 | 72 | 70 | 90 | 56 | 62 | 66 | 64 | 39 | 34 | 52 | 26 | 31 | 23 | 30 | 43 | 50 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 115 | 712 | 520 | 340 | 175 | 125 | 97 | 199 | 215 | 182 | 158 | 119 | 201 | 604 | 276 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 115 | 712 | 520 | 340 | 175 | 125 | 97 | 199 | 215 | 182 | 158 | 119 | 201 | 604 | 276 |
| Annual Average (State) | | | | | | | 44.6 | 80.3 | 69.1 | 43.8 | 46.4 | 48.3 | 52.0 | 55.2 | | 48.4 | 28.9 | 55.4 | 59.0 | 53.5 |
| Annual Average (Nat) | | | | | | 47.6 | 89.9 | 80.3 | 69.3 | 43.1 | 46.5 | 48.3 | 52.3 | 55.6 | 53.9 | 48.1 | 52.7 | 55.2 | 59.5 | 53.8 |
| Calc Days Above State 24-Hr Std | | | | | | | 104 | 254 | 230 | 115 | 151 | 136 | 162 | 189 | | 146 | 19 | 183 | 171 | 169 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 26 | 26 | 19 | 6 | 0 | 0 | 7 | 13 | 13 | 3 | 0 | 9 | 18 | 9 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 3.1 | 2.5 | 2.5 | 2.6 | 2.6 | 2.5 | 2.4 | 2.3 | 2.3 | 2.2 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.5 | 1.6 | 1.7 | 1.7 | 1.6 |
| Max. 1-Hr. Concentration | 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 | 1.9 |
| Max. 8-Hr. Concentration | 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 | 1.1 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.149 | 0.150 | 0.124 | 0.085 | 0.083 | 0.084 | 0.089 | 0.092 | 0.091 | 0.088 | 0.088 | 0.088 | 0.088 | 0.084 | 0.082 | 0.077 | 0.075 | 0.073 | 0.071 | 0.069 |
| Max. 1-Hr. Concentration | 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 | 0.068 |
| Max. Annual Average | 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 | 0.016 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.02 | 0.02 | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | 0.00 | 0.00 | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.01 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.188 | 0.197 | 0.188 | 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 | 0.117 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.118 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.095 |
| Maximum 1-Hr. Concentration | 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 | 0.121 |
| Max. 8-Hr. Concentration | 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 | 0.100 |
| Days Above State Standard | 125 | 146 | 148 | 131 | 127 | 160 | 159 | 139 | 106 | 97 | 90 | 79 | 96 | 51 | 43 | 54 | 27 | 24 | 29 | 15 |
| Days Above Nat. 1-Hr. Std. | 61 | 51 | 50 | 42 | 40 | 45 | 56 | 39 | 27 | 19 | 14 | 9 | 12 | 2 | 1 | 9 | 0 | 0 | 2 | 0 |
| Days Above Nat. 8-Hr. Std. | 101 | 98 | 109 | 81 | 99 | 119 | 122 | 96 | 67 | 66 | 58 | 46 | 48 | 31 | 16 | 35 | 16 | 16 | 17 | 13 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 80 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 57 | 119 | 136 | 106 | 131 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 81 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 89 | 121 | 139 | 107 | 130 |
| Annual Average (State) | | | | | | | 44.4 | 32.8 | 40.7 | 28.9 | 45.8 | 50.7 | 47.1 | 30.2 | 46.6 | 26.5 | 50.9 | 44.5 | 47.4 | 52.4 |
| Annual Average (Nat) | | | | | | 40.0 | 43.8 | 37.6 | 40.6 | 35.9 | 45.9 | 50.7 | 46.8 | 30.0 | 46.6 | 42.5 | 52.2 | 45.2 | 49.1 | 54.9 |
| Calc Days Above State 24-Hr Std | | | | | | | 114 | 38 | 84 | 12 | 134 | 134 | 122 | 12 | 125 | 6 | 124 | 109 | 129 | 173 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 9.3 | 9.4 | 10.6 | 10.2 | 10.4 | 10.2 | 10.3 | 10.2 | 10.0 | 8.6 | 7.8 | 7.7 | 7.3 | 7.3 | 6.3 | 6.3 | 5.6 | 5.3 | 5.4 | 5.3 |
| Max. 1-Hr. Concentration | 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 | 8.5 |
| Max. 8-Hr. Concentration | 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 | 4.7 |
| Days Above State 8-Hr. Std. | 1 | 0 | 5 | 2 | 1 | 5 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 1 | 0 | 3 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.225 | 0.183 | 0.193 | 0.193 | 0.203 | 0.215 | 0.233 | 0.210 | 0.189 | 0.169 | 0.155 | 0.145 | 0.129 | 0.129 | 0.126 | 0.116 | 0.122 | 0.117 | 0.126 | 0.122 |
| Max. 1-Hr. Concentration | 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 | 0.126 |
| Max. Annual Average | 0.027 | 0.031 | 0.032 | 0.030 | 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 | 0.022 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.05 |
| Max. Annual Average | 0.00 | 0.00 | 0.01 | 0.00 | 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 |
| Max. 24-Hr. Concentration | 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 | 0.01 |

Table A-74

# *San Francisco Bay Area Air Basin*

## County: Alameda

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.126 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.124 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.081 |
| Maximum 1-Hr. Concentration | 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 | 0.160 |
| Max. 8-Hr. Concentration | 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 | 0.106 |
| Days Above State Standard | 29 | 36 | 27 | 22 | 21 | 27 | 14 | 9 | 19 | 16 | 8 | 7 | 21 | 23 | 6 | 22 | 15 | 9 | 9 | 11 |
| Days Above Nat. 1-Hr. Std. | 13 | 10 | 7 | 5 | 7 | 4 | 2 | 2 | 1 | 1 | 2 | 2 | 9 | 8 | 0 | 6 | 2 | 2 | 0 | 2 |
| Days Above Nat. 8-Hr. Std. | 12 | 15 | 12 | 5 | 11 | 8 | 5 | 4 | 2 | 3 | 4 | 3 | 12 | 10 | 0 | 10 | 6 | 2 | 3 | 6 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 69 | 108 | 137 | 155 | 99 | 84 | 97 | 52 | 71 | 65 | 66 | 90 | 74 | 114 | 66 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 74 | 108 | 137 | 155 | 99 | 84 | 97 | 52 | 71 | 65 | 63 | 88 | 71 | 109 | 64 |
| Annual Average (State) | | | | | | | 37.2 | 32.5 | 36.5 | 29.0 | 25.5 | 24.9 | 22.3 | 22.6 | 24.3 | 22.5 | 25.9 | 22.2 | | |
| Annual Average (Nat) | | | | | | 32.1 | 37.1 | 32.6 | 36.1 | 29.0 | 25.9 | 24.9 | 22.3 | 22.6 | 24.3 | 21.8 | 25.6 | 21.5 | 24.6 | 24.5 |
| Calc Days Above State 24-Hr Std | | | | | | | 76 | 59 | 85 | 30 | 18 | 18 | 6 | 6 | 12 | 12 | 18 | 12 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 7.0 | 7.4 | 6.8 | 7.0 | 6.4 | 6.6 | 6.5 | 6.8 | 7.0 | 6.4 | 5.8 | 4.8 | 4.8 | 4.8 | 4.4 | 4.5 | 4.7 | 4.6 | 4.4 | 5.5 |
| Max. 1-Hr. Concentration | 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 | 7.7 |
| Max. 8-Hr. Concentration | 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 | 3.4 | 4.0 | 5.1 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.130 | 0.132 | 0.138 | 0.140 | 0.138 | 0.139 | 0.138 | 0.138 | 0.133 | 0.120 | 0.112 | 0.092 | 0.091 | 0.090 | 0.089 | 0.087 | 0.094 | 0.091 | 0.090 | 0.077 |
| Max. 1-Hr. Concentration | 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 | 0.080 |
| Max. Annual Average | 0.023 | 0.025 | 0.026 | 0.025 | 0.025 | 0.026 | 0.025 | 0.023 | 0.024 | 0.021 | 0.022 | 0.022 | 0.021 | 0.022 | 0.020 | 0.020 | 0.022 | 0.020 | 0.019 | 0.019 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | 0.02 |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | 0.00 | 0.01 |

Table A-75

# *San Francisco Bay Area Air Basin*

## County: Contra Costa

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.136 | 0.143 | 0.140 | 0.128 | 0.129 | 0.128 | 0.129 | 0.115 | 0.113 | 0.112 | 0.111 | 0.110 | 0.121 | 0.125 | 0.123 | 0.126 | 0.128 | 0.128 | 0.120 | 0.113 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.114 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.078 |
| Maximum 1-Hr. Concentration | 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 | 0.111 |
| Max. 8-Hr. Concentration | 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 | 0.096 |
| Days Above State Standard | 17 | 18 | 15 | 9 | 22 | 12 | 12 | 7 | 5 | 7 | 10 | 6 | 12 | 15 | 4 | 16 | 8 | 2 | 7 | 10 |
| Days Above Nat. 1-Hr. Std. | 7 | 3 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 0 | 2 | 3 | 1 | 1 | 0 |
| Days Above Nat. 8-Hr. Std. | 9 | 11 | 5 | 4 | 15 | 5 | 7 | 5 | 2 | 2 | 2 | 2 | 6 | 5 | 0 | 8 | 7 | 1 | 2 | 5 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 95 | 115 | 147 | 123 | 73 | 81 | 87 | 73 | 76 | 78 | 71 | 104 | 65 | 112 | 77 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 95 | 115 | 147 | 123 | 73 | 81 | 87 | 73 | 76 | 78 | 67 | 101 | 62 | 106 | 73 |
| Annual Average (State) | | | | | | | 30.3 | 29.3 | 33.4 | 26.1 | 25.3 | 24.7 | 23.3 | 21.1 | 22.3 | 20.6 | 26.0 | 20.4 | | |
| Annual Average (Nat) | | | | | | 34.5 | 30.3 | 29.3 | 33.2 | 26.5 | 25.1 | 24.5 | 23.3 | 21.1 | 22.3 | 20.1 | 25.3 | 19.8 | 22.7 | 23.8 |
| Calc Days Above State 24-Hr Std | | | | | | | 53 | 41 | 79 | 47 | 37 | 24 | 18 | 6 | 12 | 17 | 37 | 12 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 6.2 | 6.5 | 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 | 2.8 |
| Max. 1-Hr. Concentration | 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 | 6.2 |
| Max. 8-Hr. Concentration | 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 | 2.5 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.073 | 0.074 | 0.062 |
| Max. 1-Hr. Concentration | 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 | 0.069 |
| Max. Annual Average | 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 | 0.015 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.07 | 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 | 0.04 | 0.05 | 0.06 | 0.06 | 0.05 |
| 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 |
| Max. 24-Hr. Concentration | 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 | 0.02 |

Table A-76

# *San Francisco Bay Area Air Basin*

## County: Marin

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.084 | 0.098 | 0.103 | 0.100 | 0.094 | 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 | 0.070 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.075 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.047 |
| Maximum 1-Hr. Concentration | 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 | 0.077 |
| Max. 8-Hr. Concentration | 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 | 0.056 |
| Days Above State Standard | 2 | 5 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 2 | 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. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | 84 | 209 | 350 | 104 | 126 | 115 | 71 | 106 | 62 | 36 | 75 | 89 | 277 | 72 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 180 | 84 | 209 | 350 | 104 | 126 | 115 | 71 | 106 | 62 | 40 | 82 | 98 | 312 | 76 |
| Annual Average (State) | | | | | | | | | 48.4 | | | 33.9 | | | | | | | 29.6 | 25.9 |
| Annual Average (Nat) | | | | | | | | 40.9 | 47.8 | 30.9 | | 34.6 | 28.0 | | | 20.4 | 26.7 | 26.3 | 33.3 | 28.5 |
| Calc Days Above State 24-Hr Std | | | | | | | | | 95 | | | 87 | | | | | | | 37 | 18 |
| Calc Days Above Nat 24-Hr Std | | | | | | | | 10 | 14 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 6 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 5.3 | 5.3 | 5.1 | 5.5 | 5.4 | 5.4 | 4.7 | 4.9 | 5.3 | 5.3 | 5.1 | 3.9 | 3.5 | 3.3 | 3.2 | 3.3 | 3.1 | 2.9 | 2.6 | 2.3 |
| Max. 1-Hr. Concentration | 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 | 4.1 |
| Max. 8-Hr. Concentration | 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 | 1.9 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.105 | 0.101 | 0.099 | 0.100 | 0.099 | 0.104 | 0.102 | 0.096 | 0.091 | 0.084 | 0.085 | 0.077 | 0.075 | 0.068 | 0.065 | 0.064 | 0.068 | 0.065 | 0.066 | 0.059 |
| Max. 1-Hr. Concentration | 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 | 0.057 |
| Max. Annual Average | 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 | 0.017 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-77

# *San Francisco Bay Area Air Basin*

## County: Napa

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.102 | 0.111 | 0.115 | 0.107 | 0.106 | 0.107 | 0.109 | 0.100 | 0.098 | 0.094 | 0.098 | 0.096 | 0.106 | 0.107 | 0.103 | 0.101 | 0.106 | 0.105 | 0.099 | 0.091 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.082 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.063 |
| Maximum 1-Hr. Concentration | 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 | 0.116 |
| Max. 8-Hr. Concentration | 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 | 0.082 |
| Days Above State Standard | 4 | 8 | 3 | 0 | 6 | 1 | 2 | 0 | 3 | 0 | 2 | 0 | 4 | 0 | 0 | 3 | 4 | 0 | 1 | 1 |
| Days Above Nat. 1-Hr. Std. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 109 | 97 | 117 | 100 | 74 | 70 | 86 | 69 | 39 | | | | 45 | 96 | 70 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 109 | 97 | 117 | 100 | 74 | 70 | 86 | 69 | 57 | 78 | 60 | 66 | 45 | 91 | 67 |
| Annual Average (State) | | | | | | | 31.7 | 33.7 | 33.0 | 27.1 | 25.8 | | 20.2 | | | | | | | |
| Annual Average (Nat) | | | | | | | 31.7 | 33.5 | 33.1 | 27.1 | 25.7 | 23.6 | 20.3 | 20.2 | 18.7 | 16.9 | 18.6 | 16.3 | 24.0 | 25.4 |
| Calc Days Above State 24-Hr Std | | | | | | | 53 | 47 | 67 | 30 | 18 | | 6 | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 6.7 | 7.0 | 6.9 | 6.9 | 6.3 | 6.4 | 6.4 | 6.3 | 6.2 | 6.0 | 5.7 | 5.2 | 5.0 | 4.5 | 4.1 | 4.1 | 4.0 | 3.7 | 3.5 | 2.8 |
| Max. 1-Hr. Concentration | 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 | 4.2 |
| Max. 8-Hr. Concentration | 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 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.084 | 0.081 | 0.080 | 0.091 | 0.093 | 0.095 | 0.090 | 0.084 | 0.087 | 0.081 | 0.082 | 0.072 | 0.071 | 0.065 | 0.063 | 0.058 | 0.066 | 0.061 | 0.064 | 0.055 |
| Max. 1-Hr. Concentration | 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 | 0.052 |
| Max. Annual Average | 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 | 0.013 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

**No Monitoring Data Available**

Table A-78

# *San Francisco Bay Area Air Basin*

## County: San Francisco

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.057 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.059 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.044 |
| Maximum 1-Hr. Concentration | 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 | 0.054 |
| Max. 8-Hr. Concentration | 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 | 0.049 |
| Days Above State Standard | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 1-Hr. Std. | 1 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 117 | 101 | 165 | 109 | 81 | 69 | 93 | 50 | 71 | 81 | 56 | 82 | 67 | 70 | 79 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 117 | 101 | 165 | 109 | 81 | 69 | 93 | 50 | 71 | 81 | 52 | 78 | 63 | 67 | 74 |
| Annual Average (State) | | | | | | | 35.8 | 33.6 | 34.9 | | 28.8 | 28.2 | 24.8 | 24.3 | 24.9 | 22.9 | 27.5 | 25.1 | | |
| Annual Average (Nat) | | | | | | | 35.9 | 33.8 | 35.2 | 31.7 | 28.8 | 28.0 | 24.8 | 24.3 | 24.9 | 21.7 | 26.4 | 24.0 | 25.9 | 24.7 |
| Calc Days Above State 24-Hr Std | | | | | | | 75 | 70 | 91 | | 30 | 36 | 0 | 12 | 18 | 6 | 37 | 12 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 4.5 | 4.2 | 4.3 | 3.8 | 3.7 | 2.9 |
| Max. 1-Hr. Concentration | 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 | 6.8 |
| Max. 8-Hr. Concentration | 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 | 2.6 |
| Days Above State 8-Hr. Std. | 0 | 1 | 4 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 1 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.125 | 0.131 | 0.141 | 0.143 | 0.112 | 0.116 | 0.122 | 0.120 | 0.112 | 0.108 | 0.099 | 0.092 | 0.089 | 0.088 | 0.083 | 0.076 | 0.083 | 0.084 | 0.083 | 0.074 |
| Max. 1-Hr. Concentration | 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 | 0.075 |
| 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 | 0.019 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.02 |
| 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 | 0.00 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.01 |

Table A-79

# *San Francisco Bay Area Air Basin*

## County: San Mateo

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.110 | 0.115 | 0.121 | 0.104 | 0.099 | 0.097 | 0.098 | 0.089 | 0.078 | 0.071 | 0.076 | 0.075 | 0.091 | 0.098 | 0.100 | 0.078 | 0.071 | 0.071 | 0.074 | 0.079 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.081 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.052 |
| Maximum 1-Hr. Concentration | 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 | 0.090 |
| Max. 8-Hr. Concentration | 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 | 0.063 |
| Days Above State Standard | 8 | 9 | 5 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Days Above Nat. 1-Hr. Std. | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 94 | 90 | 137 | 90 | 80 | 76 | 76 | 48 | 48 | 70 | 56 | 95 | 61 | 68 | 56 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 94 | 90 | 137 | 90 | 80 | 76 | 76 | 48 | 48 | 70 | 49 | 85 | 53 | 65 | 53 |
| Annual Average (State) | | | | | | | 33.1 | 27.9 | 32.1 | 28.5 | 26.5 | 24.8 | 21.0 | 21.0 | 23.9 | 24.5 | 28.3 | 24.0 | | |
| Annual Average (Nat) | | | | | | | 33.0 | 28.3 | 32.1 | 28.5 | 26.5 | 24.9 | 21.0 | 21.1 | 23.9 | 22.4 | 24.6 | 21.2 | 22.5 | 22.1 |
| Calc Days Above State 24-Hr Std | | | | | | | 59 | 47 | 73 | 41 | 31 | 36 | 0 | 0 | 12 | 12 | 31 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 7.0 | 7.1 | 7.3 | 7.0 | 6.9 | 6.0 | 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 | 3.7 |
| Max. 1-Hr. Concentration | 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 | 5.8 |
| Max. 8-Hr. Concentration | 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 | 2.8 |
| 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 | 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 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.066 |
| Max. 1-Hr. Concentration | 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 | 0.066 |
| Max. Annual Average | 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 | 0.017 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-80

# *San Francisco Bay Area Air Basin*

## County: Santa Clara

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.153 | 0.164 | 0.172 | 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 | 0.120 | 0.122 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.116 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.082 |
| Maximum 1-Hr. Concentration | 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 | 0.121 |
| Max. 8-Hr. Concentration | 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 | 0.099 |
| Days Above State Standard | 48 | 50 | 40 | 32 | 41 | 34 | 17 | 10 | 12 | 15 | 14 | 8 | 22 | 24 | 3 | 22 | 12 | 4 | 9 | 10 |
| Days Above Nat. 1-Hr. Std. | 18 | 19 | 7 | 1 | 12 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 6 | 1 | 0 | 3 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 26 | 28 | 14 | 10 | 25 | 19 | 7 | 4 | 5 | 3 | 4 | 2 | 14 | 8 | 0 | 8 | 4 | 1 | 3 | 6 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 146 | 147 | 134 | 120 | 112 | 93 | 93 | 60 | 76 | 78 | 100 | 117 | 80 | 82 | 73 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 146 | 150 | 173 | 153 | 112 | 101 | 93 | 60 | 76 | 95 | 92 | 114 | 76 | 77 | 70 |
| Annual Average (State) | | | | | | | 37.7 | 35.1 | 37.9 | 33.9 | 28.1 | 28.3 | 25.7 | 24.8 | 25.8 | 25.8 | 30.0 | 27.8 | | |
| Annual Average (Nat) | | | | | | 38.3 | 40.8 | 40.4 | 38.3 | 33.7 | 28.4 | 28.3 | 25.7 | 24.9 | 25.8 | 25.1 | 28.7 | 26.8 | 28.9 | |
| Calc Days Above State 24-Hr Std | | | | | | | 76 | 65 | 85 | 53 | 31 | 36 | 24 | 12 | 18 | 18 | 31 | 42 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 6.0 |
| Max. 1-Hr. Concentration | 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 | 5.9 |
| Max. 8-Hr. Concentration | 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 | 4.5 |
| Days Above State 8-Hr. Std. | 2 | 5 | 20 | 5 | 0 | 3 | 8 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 2 | 5 | 18 | 5 | 0 | 3 | 7 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.100 |
| Max. 1-Hr. Concentration | 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 | 0.069 |
| Max. Annual Average | 0.029 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-81

# *San Francisco Bay Area Air Basin*

## County: Solano

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.113 | 0.115 | 0.121 | 0.124 | 0.117 | 0.114 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.099 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.074 |
| Maximum 1-Hr. Concentration | 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 | 0.109 |
| Max. 8-Hr. Concentration | 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 | 0.083 |
| Days Above State Standard | 7 | 13 | 7 | 0 | 14 | 6 | 4 | 2 | 5 | 4 | 4 | 3 | 13 | 8 | 1 | 9 | 9 | 1 | 3 | 4 |
| Days Above Nat. 1-Hr. Std. | 2 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 1 | 5 | 1 | 0 | 5 | 2 | 1 | 1 | 1 | 2 | 2 | 0 | 5 | 3 | 0 | 3 | 4 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | | | | | | 58 | 84 |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | 63 | 59 | 49 | 85 | 71 | 84 | 53 | 86 | 80 |
| Annual Average (State) | | | | | | | | | | | | | | | | | | | | |
| Annual Average (Nat) | | | | | | | | | | | | | 18.7 | 17.2 | 18.3 | 17.2 | 19.3 | 15.0 | 19.5 | 21.4 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 10.9 | 11.4 | 10.8 | 10.9 | 10.3 | 10.3 | 10.1 | 10.4 | 10.3 | 9.3 | 8.4 | 7.5 | 7.1 | 6.2 | 5.6 | 5.4 | 5.7 | 5.5 | 5.3 | 4.6 |
| Max. 1-Hr. Concentration | 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 | 5.8 |
| Max. 8-Hr. Concentration | 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 | 3.9 |
| Days Above State 8-Hr. Std. | 1 | 4 | 0 | 4 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 1 | 2 | 0 | 4 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.056 |
| Max. 1-Hr. Concentration | 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 | 0.051 |
| Max. Annual Average | 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 | 0.013 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 | 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 |
| Max. 24-Hr. Concentration | 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 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.090 | 0.100 | 0.106 | 0.105 | 0.102 | 0.101 | 0.104 | 0.102 | 0.103 | 0.095 | 0.091 | 0.081 | 0.086 | 0.086 | 0.084 | 0.079 | 0.085 | 0.082 | 0.083 | 0.071 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.077 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.052 |
| Maximum 1-Hr. Concentration | 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 | 0.077 |
| Max. 8-Hr. Concentration | 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 | 0.060 |
| Days Above State Standard | 2 | 3 | 3 | 1 | 2 | 2 | 3 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 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. | 1 | 2 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | | | | | | | | 38 | 85 | 56 | 57 | 48 | 78 | 64 |
| Max. 24-Hr. Concentration (Nat) | | | | | | | | | | | | 61 | 46 | 38 | 85 | 53 | 54 | 46 | 74 | 60 |
| Annual Average (State) | | | | | | | | | | | | | | | 18.7 | | | 18.2 | | |
| Annual Average (Nat) | | | | | | | | | | | | | 15.4 | 16.9 | 18.6 | 18.2 | | 17.6 | 21.0 | 19.7 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | | | | | 12 | | | 0 | | |
| Calc Days Above Nat 24-Hr Std | | | | | | | | | | | | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 5.2 | 5.1 | 5.3 | 5.6 | 5.5 | 5.2 | 5.5 | 5.5 | 5.2 | 4.4 | 4.3 | 3.8 | 3.5 | 3.1 | 3.0 | 3.1 | 3.3 | 3.2 | 3.1 | 2.7 |
| Max. 1-Hr. Concentration | 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 | 3.7 |
| Max. 8-Hr. Concentration | 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 | 3.4 | 3.0 | 2.4 | 2.1 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.055 |
| Max. 1-Hr. Concentration | 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 | 0.054 |
| Max. Annual Average | 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 | 0.013 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.184 | 0.164 | 0.162 | 0.172 | 0.172 | 0.168 | 0.170 | 0.158 | 0.167 | 0.162 | 0.162 | 0.155 | 0.152 | 0.154 | 0.153 | 0.162 | 0.159 | 0.158 | 0.146 | 0.151 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.151 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.115 |
| Maximum 1-Hr. Concentration | 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 | 0.164 |
| Max. 8-Hr. Concentration | 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 | 0.132 |
| Days Above State Standard | 82 | 109 | 112 | 118 | 127 | 130 | 109 | 79 | 94 | 86 | 81 | 65 | 81 | 96 | 95 | 79 | 95 | 92 | 108 | 106 |
| Days Above Nat. 1-Hr. Std. | 27 | 42 | 34 | 39 | 43 | 47 | 24 | 14 | 30 | 25 | 19 | 14 | 22 | 31 | 13 | 30 | 18 | 23 | 21 | 25 |
| Days Above Nat. 8-Hr. Std. | 72 | 100 | 85 | 94 | 112 | 113 | 92 | 55 | 81 | 69 | 59 | 55 | 63 | 78 | 75 | 69 | 83 | 79 | 94 | 95 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 162 | 204 | 297 | 152 | 125 | 190 | 127 | 126 | 144 | 124 | 149 | 164 | 139 | 204 | 111 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 162 | 250 | 297 | 152 | 125 | 190 | 127 | 126 | 144 | 124 | 141 | 162 | 138 | 193 | 106 |
| Annual Average (State) | | | | | | | 49.3 | 65.5 | 60.0 | 52.1 | 53.0 | 38.1 | 48.9 | 39.8 | 46.7 | 39.8 | 46.9 | 41.0 | 43.3 | 43.4 |
| Annual Average (Nat) | | | | | | 52.1 | 56.3 | 65.5 | 60.0 | 52.2 | 53.1 | 49.7 | 48.8 | 39.3 | 46.7 | 39.3 | 46.6 | 40.3 | 44.4 | 42.6 |
| Calc Days Above State 24-Hr Std | | | | | | | 176 | 196 | 185 | 178 | 152 | 72 | 137 | 89 | 107 | 91 | 119 | 72 | 98 | 123 |
| Calc Days Above Nat 24-Hr Std | | | | | | 7 | 12 | 26 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 8.3 | 5.8 | 5.3 |
| Max. 1-Hr. Concentration | 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 | 6.1 |
| Max. 8-Hr. Concentration | 14.3 | 15.7 | 10.7 | 16.3 | 10.9 | 16.5 | 13.1 | 10.3 | 10.4 | 7.6 | 9.3 | 8.9 | 9.1 | 6.8 | 7.5 | 8.0 | 7.7 | 6.2 | 4.6 | 4.5 |
| Days Above State 8-Hr. Std. | 9 | 7 | 6 | 12 | 3 | 3 | 17 | 3 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 6 | 6 | 6 | 8 | 3 | 4 | 13 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.134 | 0.115 | 0.144 | 0.148 | 0.145 | 0.144 | 0.151 | 0.156 | 0.129 | 0.123 | 0.121 | 0.124 | 0.124 | 0.115 | 0.107 | 0.100 | 0.107 | 0.106 | 0.102 | 0.093 |
| Max. 1-Hr. Concentration | 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 | 0.089 |
| Max. Annual Average | 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 | 0.020 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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. 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 | | | | | |
| Max. 24-Hr. Concentration | 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 | | | | | |

Table A-84

# *San Joaquin Valley Air Basin*

## County: Kern

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.171 | 0.164 | 0.162 | 0.162 | 0.166 | 0.169 | 0.167 | 0.164 | 0.166 | 0.160 | 0.154 | 0.154 | 0.163 | 0.164 | 0.167 | 0.161 | 0.152 | 0.150 | 0.141 | 0.143 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.142 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.112 |
| Maximum 1-Hr. Concentration | 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 | 0.151 |
| Max. 8-Hr. Concentration | 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 | 0.120 |
| Days Above State Standard | 66 | 81 | 112 | 99 | 124 | 134 | 132 | 120 | 119 | 106 | 110 | 114 | 115 | 114 | 66 | 81 | 105 | 95 | 95 | 95 |
| Days Above Nat. 1-Hr. Std. | 20 | 26 | 27 | 33 | 46 | 56 | 42 | 37 | 37 | 10 | 37 | 37 | 38 | 44 | 8 | 29 | 12 | 16 | 16 | 17 |
| Days Above Nat. 8-Hr. Std. | 61 | 71 | 90 | 94 | 112 | 124 | 112 | 96 | 107 | 100 | 98 | 101 | 104 | 109 | 55 | 75 | 88 | 82 | 85 | 89 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 206 | 237 | 287 | 189 | 186 | 131 | 192 | 195 | 153 | 137 | 166 | 186 | 153 | 216 | 194 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 244 | 237 | 287 | 189 | 183 | 130 | 190 | 195 | 153 | 137 | 159 | 183 | 145 | 205 | 189 |
| Annual Average (State) | | | | | | | | 80.1 | 70.0 | 62.4 | 55.8 | 41.5 | 57.9 | 54.1 | 42.9 | 40.5 | 60.1 | 53.9 | 51.3 | 59.9 |
| Annual Average (Nat) | | | | | | 60.0 | 79.3 | 79.3 | 69.9 | 62.9 | 54.3 | 39.6 | 58.2 | 54.1 | 46.1 | 38.7 | 59.5 | 53.1 | 47.7 | 59.2 |
| Calc Days Above State 24-Hr Std | | | | | | | | 292 | 225 | 246 | 178 | 106 | 184 | 204 | 80 | 95 | 173 | 158 | 133 | 256 |
| Calc Days Above Nat 24-Hr Std | | | | | | 31 | 23 | 31 | 18 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | 0 | 9 | 6 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 8.6 | 8.2 | 7.4 | 7.3 | 7.0 | 7.4 | 8.8 | 9.4 | 9.5 | 8.5 | 6.8 | 5.4 | 5.3 | 5.1 | 4.7 | 4.1 | 4.8 | 6.0 | 5.4 | 4.6 |
| Max. 1-Hr. Concentration | 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 | 4.5 |
| Max. 8-Hr. Concentration | 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 | 4.0 | 3.9 | 5.0 | 5.4 | 3.5 | 2.5 |
| Days Above State 8-Hr. Std. | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.109 | 0.107 |
| Max. 1-Hr. Concentration | 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 | 0.173 |
| Max. Annual Average | 0.030 | 0.028 | 0.031 | 0.030 | 0.029 | 0.032 | 0.033 | 0.031 | 0.030 | 0.027 | 0.017 | 0.017 | 0.029 | 0.029 | 0.024 | 0.022 | 0.027 | 0.024 | 0.022 | 0.024 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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. Annual Average | 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 | |
| Max. 24-Hr. Concentration | 0.05 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | 0.01 | 0.00 | 0.01 | |

Table A-85

A portion of Kern County lies within the Mojave Desert Air Basin.

# *San Joaquin Valley Air Basin*

## County: Kings

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.125 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.124 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.099 |
| Maximum 1-Hr. Concentration | 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 | 0.125 |
| Max. 8-Hr. Concentration | 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 | 0.105 |
| Days Above State Standard | 20 | 20 | 14 | 1 | 19 | 34 | 13 | 4 | 15 | 1 | 2 | 9 | 2 | 78 | 23 | 27 | 28 | 48 | 21 | 29 |
| Days Above Nat. 1-Hr. Std. | 1 | 0 | 2 | 0 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 3 | 2 | 0 | 1 | 1 |
| Days Above Nat. 8-Hr. Std. | 14 | 20 | 14 | 1 | 14 | 28 | 10 | 3 | 9 | 0 | 2 | 12 | 1 | 81 | 26 | 31 | 25 | 51 | 18 | 27 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 170 | 213 | 439 | 279 | 178 | 239 | 129 | 279 | 143 | 199 | 149 | 185 | 137 | 221 | 174 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 159 | 202 | 439 | 279 | 167 | 239 | 125 | 279 | 143 | 199 | 146 | 174 | 128 | 185 | 168 |
| Annual Average (State) | | | | | | | 67.0 | 58.8 | 62.9 | 54.7 | 56.3 | 49.6 | 52.9 | 40.9 | 47.3 | | 53.1 | 51.3 | | 55.4 |
| Annual Average (Nat) | | | | | | 53.2 | 66.0 | 63.9 | 62.9 | 54.7 | 56.3 | 50.1 | 52.9 | 40.8 | 48.2 | | 53.0 | 46.6 | 57.4 | 53.5 |
| Calc Days Above State 24-Hr Std | | | | | | | 208 | 157 | 189 | 172 | 170 | 166 | 174 | 115 | 102 | | 135 | 132 | | 172 |
| Calc Days Above Nat 24-Hr Std | | | | | | 7 | 29 | 14 | 14 | 6 | 20 | 0 | 12 | 0 | 6 | | 9 | 0 | 14 | 6 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | 0.087 | 0.094 | 0.091 | 0.091 | 0.081 | 0.084 | 0.073 | 0.068 | 0.073 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | 0.082 | 0.094 | 0.066 | 0.080 | 0.086 | 0.086 | 0.072 | 0.096 | 0.067 |
| Max. Annual Average | | | | | | | | | | | | 0.015 | 0.015 | | 0.014 | 0.014 | | 0.014 | | 0.014 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-86

# *San Joaquin Valley Air Basin*

## County: Madera

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.111 |
| 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 | 0.115 |
| 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 | 0.091 |
| 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 | 0.141 |
| 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 | 0.110 |
| Days Above State Standard | | | | | | 11 | 15 | 6 | 24 | 15 | 28 | 4 | 16 | 28 | 0 | 15 | 12 | 8 | 15 | 21 |
| Days Above Nat. 1-Hr. Std. | | | | | | 1 | 0 | 0 | 2 | 0 | 6 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 |
| Days Above Nat. 8-Hr. Std. | | | | | | 8 | 15 | 13 | 17 | 12 | 26 | 1 | 15 | 28 | 0 | 12 | 10 | 9 | 13 | 18 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 108 | 162 | 174 | 118 | 96 | 128 | 105 | 111 | 89 | | | | | | |
| Max. 24-Hr. Concentration (Nat) | | | | | | 108 | 162 | 174 | 118 | 96 | 128 | 105 | 111 | 89 | | | | | | |
| Annual Average (State) | | | | | | 52.7 | 53.7 | | 51.6 | 43.6 | 47.1 | 40.4 | 41.9 | | | | | | | |
| Annual Average (Nat) | | | | | | 52.7 | 53.7 | 53.5 | 52.0 | 43.6 | 47.1 | 40.1 | 41.9 | | | | | | | |
| Calc Days Above State 24-Hr Std | | | | | | 159 | 148 | | 165 | 118 | 138 | 78 | 125 | | | | | | | |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 6 | 7 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | 0.088 | 0.053 | 0.068 | 0.066 | 0.066 | 0.060 |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | 0.077 | 0.060 | 0.084 | 0.060 | 0.060 | 0.058 |
| Max. Annual Average | | | | | | | | | | | | | | | | 0.011 | 0.014 | 0.013 | 0.011 | 0.012 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-87

# *San Joaquin Valley Air Basin*

## County: Merced

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | | | | | | | | | | 0.124 | 0.122 | 0.122 | 0.124 | 0.127 | 0.129 | 0.132 | 0.134 | 0.132 | 0.122 | 0.124 |
| 4th High 1-Hr in 3 Yrs | | | | | | | | | 0.120 | 0.120 | 0.120 | 0.120 | 0.125 | 0.125 | 0.125 | 0.131 | 0.132 | 0.132 | 0.120 | 0.121 |
| Avg of 4th Hi 8-Hr in 3 Yrs | | | | | | | | | 0.097 | 0.099 | 0.098 | 0.098 | 0.100 | 0.102 | 0.094 | 0.096 | 0.097 | 0.106 | 0.101 | 0.101 |
| Maximum 1-Hr. Concentration | | | | | | | | | 0.130 | 0.120 | 0.130 | 0.123 | 0.130 | 0.131 | 0.102 | 0.143 | 0.132 | 0.120 | 0.113 | 0.138 |
| Max. 8-Hr. Concentration | | | | | | | | | 0.111 | 0.107 | 0.110 | 0.107 | 0.114 | 0.116 | 0.095 | 0.129 | 0.117 | 0.112 | 0.105 | 0.125 |
| Days Above State Standard | | | | | | | | | 13 | 39 | 22 | 31 | 38 | 44 | 1 | 37 | 42 | 32 | 26 | 55 |
| Days Above Nat. 1-Hr. Std. | | | | | | | | | 2 | 0 | 1 | 0 | 3 | 1 | 0 | 3 | 2 | 0 | 0 | 2 |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | 12 | 40 | 19 | 26 | 36 | 44 | 1 | 35 | 40 | 37 | 29 | 56 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 114 | 148 | 211 | 145 | 98 | 121 | 131 | 100 | 61 | | | 143 | 112 | 117 | 88 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 114 | 148 | 211 | 145 | 98 | 121 | 131 | 100 | 61 | | | 134 | 104 | 113 | 85 |
| Annual Average (State) | | | | | | | 52.0 | 53.4 | 52.4 | 45.8 | 42.5 | 39.4 | 38.7 | | | | | 36.1 | | 39.6 |
| Annual Average (Nat) | | | | | | | 52.0 | 53.2 | 52.4 | 45.9 | 42.5 | 39.2 | 38.7 | | | | | 34.9 | 39.1 | 38.8 |
| Calc Days Above State 24-Hr Std | | | | | | | 107 | 148 | 152 | 139 | 109 | 61 | 96 | | | | | 70 | | 85 |
| Calc Days Above Nat 24-Hr Std | | | | | | | 0 | 6 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | 10.0 | 9.0 | | | | | | | | | | |
| Max. 8-Hr. Concentration | | | | | | | | | 5.4 | 4.8 | | | | | | | | | | |
| Days Above State 8-Hr. Std. | | | | | | | | | 0 | 0 | | | | | | | | | | |
| Days Above Nat. 8-Hr. Std. | | | | | | | | | 0 | 0 | | | | | | | | | | |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | 0.075 | 0.080 | 0.080 | 0.078 | 0.076 | 0.076 | 0.075 | 0.074 | | 0.079 | 0.072 |
| Max. 1-Hr. Concentration | | | | | | | | | 0.090 | 0.070 | 0.090 | 0.076 | 0.073 | 0.071 | 0.072 | 0.063 | 0.078 | | 0.066 | 0.068 |
| Max. Annual Average | | | | | | | | | | | 0.014 | 0.013 | 0.012 | 0.012 | 0.013 | 0.012 | | | | 0.012 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

Table A-88

# *San Joaquin Valley Air Basin*

## County: San Joaquin

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.113 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.111 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.081 |
| Maximum 1-Hr. Concentration | 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 | 0.108 |
| Max. 8-Hr. Concentration | 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 | 0.096 |
| Days Above State Standard | 32 | 49 | 35 | 31 | 54 | 37 | 10 | 17 | 26 | 21 | 12 | 16 | 16 | 26 | 6 | 19 | 16 | 9 | 9 | 12 |
| Days Above Nat. 1-Hr. Std. | 9 | 4 | 5 | 3 | 1 | 4 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 1 | 3 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 26 | 35 | 24 | 17 | 30 | 21 | 4 | 7 | 10 | 10 | 4 | 6 | 9 | 14 | 3 | 7 | 10 | 3 | 2 | 3 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 115 | 146 | 251 | 140 | 145 | 104 | 109 | 109 | 127 | 130 | 115 | 155 | 110 | 147 | 91 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 153 | 146 | 251 | 140 | 145 | 104 | 109 | 109 | 127 | 130 | 106 | 150 | 104 | 140 | 87 |
| Annual Average (State) | | | | | | | | 51.4 | | | | 37.0 | | 27.4 | 29.7 | 30.1 | 37.7 | 33.7 | 36.6 | 36.1 |
| Annual Average (Nat) | | | | | | 51.2 | 50.4 | 51.2 | 52.4 | 44.8 | | 36.9 | | 27.4 | 29.7 | 29.1 | 36.3 | 32.2 | 35.9 | 35.5 |
| Calc Days Above State 24-Hr Std | | | | | | | | 128 | | | | 63 | | 19 | 30 | 50 | 67 | 60 | 64 | 58 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 6 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 6.0 | 6.2 | 6.8 | 4.8 | 4.1 |
| Max. 1-Hr. Concentration | 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 | 6.0 |
| Max. 8-Hr. Concentration | 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 | 3.2 |
| Days Above State 8-Hr. Std. | 3 | 0 | 0 | 9 | 1 | 1 | 6 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 3 | 0 | 0 | 8 | 1 | 1 | 4 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.085 |
| Max. 1-Hr. Concentration | 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 | 0.077 |
| Max. Annual Average | 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 | 0.015 | 0.021 | 0.019 | 0.021 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | | | | | | | | | | | | | |
| Max. Annual Average | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | | | | | | | | | | | | | |

Table A-89

# *San Joaquin Valley Air Basin*

## County: Stanislaus

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.140 | 0.143 | 0.148 | 0.152 | 0.149 | 0.143 | 0.142 | 0.131 | 0.126 | 0.122 | 0.119 | 0.120 | 0.127 | 0.129 | 0.131 | 0.132 | 0.130 | 0.127 | 0.117 | 0.125 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.123 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.095 |
| Maximum 1-Hr. Concentration | 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 | 0.135 |
| Max. 8-Hr. Concentration | 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 | 0.113 |
| Days Above State Standard | 47 | 56 | 57 | 39 | 77 | 64 | 41 | 32 | 33 | 27 | 19 | 28 | 28 | 39 | 15 | 35 | 19 | 16 | 16 | 31 |
| Days Above Nat. 1-Hr. Std. | 5 | 13 | 10 | 2 | 18 | 5 | 3 | 3 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 4 | 0 | 1 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | 36 | 47 | 43 | 21 | 68 | 44 | 26 | 22 | 13 | 11 | 13 | 12 | 21 | 20 | 8 | 29 | 12 | 10 | 11 | 25 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | | 148 | 171 | 157 | 150 | 154 | 160 | 120 | 133 | 119 | 135 | 162 | 119 | 160 | 97 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 175 | 148 | 180 | 157 | 150 | 154 | 160 | 120 | 133 | 119 | 125 | 157 | 112 | 158 | 93 |
| Annual Average (State) | | | | | | | | 49.6 | 53.0 | 43.6 | 42.0 | 41.1 | 41.2 | 32.0 | 37.1 | 31.9 | 42.8 | 35.4 | 40.5 | 37.2 |
| Annual Average (Nat) | | | | | | 48.4 | 52.8 | 49.1 | 53.7 | 43.6 | 42.0 | 41.1 | 41.3 | 32.0 | 37.1 | 31.0 | 41.1 | 34.9 | 39.7 | 36.6 |
| Calc Days Above State 24-Hr Std | | | | | | | | 135 | 148 | 106 | 98 | 89 | 100 | 47 | 56 | 47 | 90 | 68 | 61 | 76 |
| Calc Days Above Nat 24-Hr Std | | | | | | 7 | 0 | 6 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 6.3 | 5.3 |
| Max. 1-Hr. Concentration | 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 | 5.2 |
| Max. 8-Hr. Concentration | 8.8 | 8.4 | 11.0 | 11.3 | 8.6 | 13.1 | 13.4 | 10.9 | 10.8 | 6.5 | 8.6 | 6.3 | 5.7 | 6.5 | 5.0 | 7.3 | 6.4 | 6.0 | 6.0 | 4.5 |
| Days Above State 8-Hr. Std. | 0 | 0 | 2 | 4 | 0 | 2 | 11 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 0 | 0 | 1 | 4 | 0 | 1 | 8 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.098 | 0.100 | 0.081 |
| Max. 1-Hr. Concentration | 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 | 0.083 |
| Max. Annual Average | | 0.020 | 0.022 | 0.024 | 0.024 | 0.027 | | 0.026 | 0.024 | 0.022 | 0.023 | 0.022 | 0.022 | 0.022 | 0.021 | 0.018 | 0.022 | 0.019 | 0.018 | 0.017 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | | | | | | | | | | | |
| Max. Annual Average | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | | | | | | | | | | | |

Table A-90

# *San Joaquin Valley Air Basin*

## County: Tulare

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.140 | 0.140 | 0.133 | 0.140 | 0.143 | 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 | 0.124 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.126 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.105 |
| Maximum 1-Hr. Concentration | 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 | 0.140 |
| Max. 8-Hr. Concentration | 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 | 0.117 |
| Days Above State Standard | 64 | 73 | 93 | 98 | 121 | 100 | 76 | 63 | 65 | 63 | 76 | 78 | 66 | 81 | 50 | 63 | 84 | 78 | 73 | 86 |
| Days Above Nat. 1-Hr. Std. | 4 | 3 | 6 | 13 | 10 | 4 | 10 | 1 | 1 | 2 | 10 | 12 | 3 | 4 | 1 | 6 | 3 | 1 | 2 | 3 |
| Days Above Nat. 8-Hr. Std. | 66 | 68 | 96 | 99 | 120 | 97 | 71 | 65 | 66 | 65 | 72 | 82 | 59 | 78 | 54 | 58 | 88 | 76 | 71 | 93 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 145 | 206 | 285 | 177 | 122 | 108 | 105 | 128 | 115 | 96 | 167 | 160 | 136 | 151 | 111 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 141 | 204 | 285 | 175 | 122 | 108 | 104 | 125 | 115 | 96 | 160 | 152 | 130 | 143 | 110 |
| Annual Average (State) | | | | | | | | | | | 52.8 | | 52.7 | 44.5 | 41.6 | 40.4 | 55.8 | 53.7 | 52.3 | 52.4 |
| Annual Average (Nat) | | | | | | 67.4 | 66.9 | 79.2 | 65.8 | | 52.8 | 48.2 | 52.4 | 44.5 | 41.5 | 39.9 | 54.9 | 52.7 | 51.9 | 51.9 |
| Calc Days Above State 24-Hr Std | | | | | | | | | | | 183 | | 163 | 148 | 65 | 102 | 182 | 196 | 168 | 179 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 12 | 29 | 7 | | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 5.8 | 5.5 | 5.5 | 5.7 | 5.8 | 6.0 | 6.4 | 6.5 | 6.5 | 6.0 | 5.2 | 4.4 | 4.5 | 4.5 | 4.2 | 4.0 | 4.1 | 4.1 | 4.0 | 3.5 |
| Max. 1-Hr. Concentration | 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 | 4.9 |
| Max. 8-Hr. Concentration | 5.8 | 5.4 | 5.5 | 6.9 | 5.8 | 8.0 | 6.4 | 6.7 | 6.1 | 4.8 | 4.0 | 4.4 | 4.4 | 4.0 | 4.1 | 3.8 | 4.1 | 4.2 | 3.7 | 2.9 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.113 | 0.114 | 0.120 | 0.117 | 0.114 | 0.118 | 0.138 | 0.137 | 0.130 | 0.109 | 0.111 | 0.113 | 0.115 | 0.119 | 0.115 | 0.089 | 0.100 | 0.098 | 0.096 | 0.092 |
| Max. 1-Hr. Concentration | 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 | 0.095 |
| Max. Annual Average | 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 | 0.019 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.02 | 0.02 | 0.03 | 0.03 | 0.06 | 0.05 | 0.06 | | | | | | | | | | | | | |
| Max. Annual Average | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.01 | 0.01 | 0.05 | 0.01 | 0.02 | 0.01 | 0.01 | | | | | | | | | | | | | |

Table A-91

# *South Central Coast Air Basin*

## County: San Luis Obispo

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.094 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.092 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.073 |
| Maximum 1-Hr. Concentration | 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 | 0.093 |
| Max. 8-Hr. Concentration | 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 | 0.083 |
| Days Above State Standard | 7 | 2 | 3 | 5 | 3 | 6 | 8 | 2 | 4 | 3 | 4 | 2 | 7 | 14 | 0 | 25 | 2 | 0 | 0 | 0 |
| Days Above Nat. 1-Hr. Std. | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 3 | 2 | 1 | 3 | 2 | 1 | 8 | 0 | 2 | 1 | 2 | 1 | 1 | 10 | 0 | 21 | 0 | 0 | 0 | 0 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 63 | 63 | 79 | 75 | 135 | 141 | 78 | 73 | 90 | 75 | 55 | 58 | 80 | 70 | 46 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 63 | 84 | 86 | 119 | 135 | 141 | 78 | 73 | 98 | 99 | 70 | 90 | 113 | 89 | 178 |
| Annual Average (State) | | | | | | | | 21.0 | 24.4 | 30.4 | 28.8 | 22.3 | 21.4 | 18.7 | 20.9 | 17.7 | | 21.3 | 21.2 | 21.1 |
| Annual Average (Nat) | | | | | | 22.5 | 29.2 | 30.3 | 26.5 | 30.4 | 42.8 | 22.4 | 23.0 | 19.1 | 24.2 | 22.3 | 27.2 | 21.6 | 24.8 | 20.4 |
| Calc Days Above State 24-Hr Std | | | | | | | | 0 | 6 | 51 | 53 | 6 | 18 | 0 | 7 | 6 | | 13 | 12 | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.6 | 2.2 |
| Max. 1-Hr. Concentration | 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 | 3.5 |
| Max. 8-Hr. Concentration | 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 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.084 | 0.081 | 0.088 | 0.089 | 0.090 | 0.085 | 0.085 | 0.084 | 0.078 | 0.074 | 0.072 | 0.070 | 0.070 | 0.065 | 0.063 | 0.064 | 0.073 | 0.070 | 0.069 | 0.060 |
| Max. 1-Hr. Concentration | 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 | 0.060 |
| Max. Annual Average | 0.013 | 0.015 | 0.017 | 0.015 | 0.015 | 0.016 | 0.016 | 0.010 | 0.011 | 0.015 | 0.014 | 0.014 | 0.013 | 0.013 | 0.012 | 0.012 | 0.014 | 0.012 | 0.012 | 0.011 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.16 |
| Max. Annual Average | 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 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.02 |

Table A-92

# *South Central Coast Air Basin*

## County: Santa Barbara

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.132 | 0.143 | 0.142 | 0.136 | 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 | 0.103 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.101 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.082 |
| Maximum 1-Hr. Concentration | 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 | 0.113 |
| Max. 8-Hr. Concentration | 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 | 0.090 |
| Days Above State Standard | 20 | 21 | 15 | 36 | 37 | 43 | 42 | 40 | 38 | 27 | 23 | 23 | 24 | 23 | 10 | 15 | 3 | 6 | 5 | 3 |
| Days Above Nat. 1-Hr. Std. | 7 | 4 | 3 | 7 | 4 | 3 | 9 | 4 | 6 | 5 | 1 | 5 | 3 | 4 | 1 | 2 | 1 | 1 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 10 | 12 | 9 | 26 | 25 | 28 | 28 | 27 | 25 | 17 | 13 | 11 | 16 | 19 | 4 | 6 | 2 | 2 | 3 | 5 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 132 | 119 | 96 | 96 | 89 | 90 | 139 | 129 | 78 | 168 | 75 | 52 | 54 | 68 | 50 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 132 | 119 | 96 | 96 | 89 | 90 | 139 | 129 | 78 | 168 | 73 | 51 | 53 | 66 | 49 |
| Annual Average (State) | | | | | | 28.7 | 33.8 | 36.9 | 25.7 | 32.6 | 29.3 | 26.8 | 25.4 | 28.6 | 29.7 | 26.1 | 29.5 | 26.6 | 27.4 | 24.3 |
| Annual Average (Nat) | | | | | | 33.6 | 33.8 | 36.6 | 36.8 | 32.6 | 29.4 | 32.5 | 31.1 | 28.6 | 29.8 | 25.0 | 28.5 | 25.8 | 26.5 | 23.5 |
| Calc Days Above State 24-Hr Std | | | | | | 19 | 26 | 25 | 6 | 57 | 41 | 7 | 13 | 18 | 12 | 18 | 12 | 18 | 18 | 0 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 11.3 | 9.6 | 10.2 | 9.9 | 10.1 | 9.0 | 8.8 | 8.2 | 7.5 | 6.4 | 5.5 | 5.9 | 6.0 | 5.8 | 5.0 | 4.8 | 4.5 | 4.7 | 1.6 | 1.6 |
| Max. 1-Hr. Concentration | 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 | 3.4 |
| Max. 8-Hr. Concentration | 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 | 4.0 | 4.6 | 4.2 | 3.1 | 1.9 | 1.8 |
| Days Above State 8-Hr. Std. | 0 | 1 | 5 | 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 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.052 |
| Max. 1-Hr. Concentration | 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 | 0.063 |
| Max. Annual Average | | 0.031 | 0.030 | 0.022 | 0.017 | 0.012 | 0.027 | 0.015 | 0.024 | 0.022 | 0.022 | 0.022 | 0.021 | 0.019 | 0.019 | 0.021 | 0.022 | 0.012 | 0.010 | 0.011 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 |
| Max. Annual Average | 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 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.00 |

Table A-93

# *South Central Coast Air Basin*

## County: Ventura

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.153 | 0.143 | 0.135 | 0.132 | 0.126 | 0.125 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.124 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.097 |
| Maximum 1-Hr. Concentration | 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 | 0.132 |
| Max. 8-Hr. Concentration | 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 | 0.109 |
| Days Above State Standard | 125 | 132 | 136 | 149 | 123 | 135 | 116 | 99 | 107 | 68 | 58 | 88 | 90 | 80 | 59 | 41 | 33 | 38 | 34 | 22 |
| Days Above Nat. 1-Hr. Std. | 58 | 45 | 44 | 59 | 31 | 55 | 46 | 18 | 33 | 10 | 13 | 17 | 23 | 17 | 2 | 5 | 2 | 1 | 2 | 1 |
| Days Above Nat. 8-Hr. Std. | 109 | 108 | 111 | 120 | 88 | 110 | 94 | 70 | 92 | 57 | 46 | 64 | 67 | 65 | 46 | 30 | 23 | 30 | 24 | 15 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 118 | 92 | 133 | 90 | 84 | 118 | 86 | 94 | 93 | 321 | 108 | 82 | 97 | 77 | 100 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 118 | 92 | 133 | 90 | 84 | 118 | 78 | 94 | 93 | 321 | 110 | 84 | 100 | 78 | 97 |
| Annual Average (State) | | | | | | 40.3 | 41.6 | 36.1 | 40.0 | 33.0 | 29.1 | 31.6 | 30.9 | 29.3 | 36.5 | 24.4 | 28.8 | 30.9 | 29.0 | 28.6 |
| Annual Average (Nat) | | | | | | 41.6 | 41.5 | 36.1 | 39.9 | 33.2 | 29.1 | 30.6 | 28.4 | 29.3 | 37.0 | 24.4 | 31.3 | 31.0 | 31.5 | 28.9 |
| Calc Days Above State 24-Hr Std | | | | | | 102 | 139 | 66 | 99 | 43 | 30 | 24 | 57 | 29 | 47 | 12 | 13 | 39 | 18 | 19 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 2.7 |
| Max. 1-Hr. Concentration | 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 | 5.7 |
| Max. 8-Hr. Concentration | 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 | 2.3 |
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.139 | 0.140 | 0.136 | 0.132 | 0.130 | 0.123 | 0.117 | 0.119 | 0.120 | 0.114 | 0.104 | 0.104 | 0.112 | 0.114 | 0.110 | 0.097 | 0.089 | 0.086 | 0.083 | 0.079 |
| Max. 1-Hr. Concentration | 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 | 0.064 |
| Max. Annual Average | 0.018 | 0.009 | | 0.015 | 0.016 | 0.024 | 0.027 | 0.025 | 0.024 | 0.012 | 0.023 | 0.020 | 0.024 | 0.015 | 0.020 | 0.019 | 0.017 | 0.020 | 0.019 | 0.017 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 | 0.02 | 0.02 | 0.02 | 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 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 0.01 | 0.01 | 0.03 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |

Table A-94

# *South Coast Air Basin*

## County: Los Angeles

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.171 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.169 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.121 |
| Maximum 1-Hr. Concentration | 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 | 0.169 |
| Max. 8-Hr. Concentration | 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 | 0.144 |
| Days Above State Standard | 178 | 196 | 201 | 209 | 190 | 205 | 192 | 168 | 159 | 174 | 158 | 142 | 127 | 109 | 89 | 68 | 43 | 57 | 70 | 86 |
| Days Above Nat. 1-Hr. Std. | 146 | 153 | 154 | 162 | 147 | 165 | 140 | 120 | 111 | 129 | 102 | 102 | 79 | 55 | 27 | 35 | 6 | 12 | 17 | 36 |
| Days Above Nat. 8-Hr. Std. | 154 | 160 | 164 | 177 | 158 | 181 | 150 | 131 | 128 | 139 | 108 | 118 | 92 | 68 | 43 | 46 | 19 | 27 | 35 | 56 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 149 | 172 | 161 | 151 | 222 | 104 | 127 | 157 | 138 | 116 | 87 | 103 | 105 | 106 | 121 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 149 | 172 | 161 | 151 | 222 | 104 | 127 | 157 | 138 | 116 | 87 | 103 | 105 | 106 | 121 |
| Annual Average (State) | | | | | | | 63.8 | 54.9 | 54.9 | 48.7 | 47.4 | 45.3 | 48.6 | 45.4 | 46.1 | 37.8 | 56.3 | 40.0 | 44.2 | 37.7 |
| Annual Average (Nat) | | | | | | 63.1 | 63.8 | 55.0 | 65.9 | 48.8 | 47.4 | 45.3 | 47.7 | 45.5 | 46.1 | 40.6 | 56.3 | 46.3 | 45.3 | 45.8 |
| Calc Days Above State 24-Hr Std | | | | | | | 249 | 187 | 183 | 146 | 155 | 145 | 143 | 153 | 149 | 67 | 213 | 92 | 119 | 71 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 6 | 6 | 0 | 11 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 9.4 |
| Max. 1-Hr. Concentration | 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 | 15.8 |
| Max. 8-Hr. Concentration | 20.9 | 19.7 | 27.7 | 19.7 | 19.6 | 27.5 | 21.8 | 16.8 | 17.4 | 18.8 | 14.6 | 18.2 | 13.8 | 17.5 | 17.1 | 13.3 | 11.2 | 10.1 | 7.6 | 10.1 |
| Days Above State 8-Hr. Std. | 65 | 77 | 62 | 57 | 50 | 70 | 70 | 49 | 51 | 39 | 29 | 27 | 17 | 26 | 18 | 13 | 11 | 6 | 0 | 1 |
| Days Above Nat. 8-Hr. Std. | 56 | 63 | 53 | 49 | 40 | 63 | 67 | 41 | 41 | 34 | 19 | 19 | 14 | 19 | 13 | 10 | 7 | 3 | 0 | 1 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.378 | 0.324 | 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 | 0.202 | 0.180 | 0.168 | 0.166 | 0.162 |
| Max. 1-Hr. Concentration | 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 | 0.262 |
| Max. Annual Average | 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 | 0.040 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.04 |
| Max. Annual Average | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Max. 24-Hr. Concentration | 0.04 | 0.06 | 0.04 | 0.04 | 0.02 | 0.04 | 0.02 | 0.04 | 0.02 | 0.03 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 |

Table A-95

A portion of Los Angeles County lies within the Mojave Desert Air Basin.

# *South Coast Air Basin*

## County: Orange

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.113 | 0.117 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.119 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.080 |
| Maximum 1-Hr. Concentration | 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 | 0.136 |
| Max. 8-Hr. Concentration | 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 | 0.093 |
| Days Above State Standard | 110 | 107 | 101 | 101 | 81 | 96 | 81 | 80 | 71 | 63 | 59 | 46 | 39 | 27 | 13 | 22 | 8 | 14 | 12 | 9 |
| Days Above Nat. 1-Hr. Std. | 65 | 65 | 63 | 53 | 42 | 45 | 38 | 37 | 32 | 35 | 17 | 9 | 4 | 6 | 3 | 6 | 0 | 2 | 1 | 2 |
| Days Above Nat. 8-Hr. Std. | 73 | 75 | 66 | 62 | 54 | 50 | 44 | 39 | 36 | 35 | 25 | 15 | 8 | 9 | 3 | 6 | 1 | 6 | 4 | 1 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 88 | 88 | 158 | 146 | 88 | 115 | 106 | 172 | 101 | 91 | 81 | 122 | 126 | 93 | 80 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 132 | 138 | 158 | 146 | 88 | 115 | 106 | 172 | 101 | 91 | 81 | 122 | 126 | 93 | 80 |
| Annual Average (State) | | | | | | | 41.7 | | 45.5 | 34.4 | 38.3 | 37.5 | 43.3 | 35.2 | 38.8 | 35.8 | 36.7 | 39.9 | 26.4 | 33.6 |
| Annual Average (Nat) | | | | | | 46.0 | 46.9 | 48.1 | 45.9 | 40.0 | 38.3 | 37.5 | 43.5 | 35.2 | 38.8 | 35.8 | 36.7 | 39.6 | 26.5 | 33.5 |
| Calc Days Above State 24-Hr Std | | | | | | | 122 | | 89 | 31 | 78 | 67 | 86 | 37 | 66 | 72 | 37 | 48 | 18 | 31 |
| Calc Days Above Nat 24-Hr Std | | | | | | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 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 | 5.8 |
| Max. 1-Hr. Concentration | 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 | 10.2 |
| Max. 8-Hr. Concentration | 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 | 6.0 | 7.1 | 6.4 | 6.7 | 4.7 | 5.3 |
| Days Above State 8-Hr. Std. | 8 | 7 | 9 | 4 | 3 | 9 | 13 | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Days Above Nat. 8-Hr. Std. | 8 | 5 | 7 | 4 | 2 | 7 | 12 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.302 | 0.266 | 0.252 | 0.236 | 0.240 | 0.238 | 0.241 | 0.235 | 0.231 | 0.221 | 0.220 | 0.201 | 0.196 | 0.188 | 0.171 | 0.141 | 0.143 | 0.149 | 0.150 | 0.124 |
| Max. 1-Hr. Concentration | 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 | 0.116 |
| Max. Annual Average | 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 | 0.024 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.02 |
| Max. Annual Average | 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 | 0.00 |
| Max. 24-Hr. Concentration | 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 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |

Table A-96

# *South Coast Air Basin*

## County: Riverside

| OZONE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 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 | 0.134 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.132 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.105 |
| Maximum 1-Hr. Concentration | 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 | 0.136 |
| Max. 8-Hr. Concentration | 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 | 0.124 |
| Days Above State Standard | 95 | 100 | 93 | 80 | 85 | 99 | 117 | 82 | 80 | 82 | 82 | 78 | 56 | 61 | 45 | 42 | 33 | 43 | 56 | 54 |
| Days Above Nat. 1-Hr. Std. | 50 | 40 | 28 | 31 | 40 | 35 | 38 | 27 | 24 | 24 | 21 | 13 | 11 | 12 | 4 | 8 | 1 | 0 | 6 | 2 |
| Days Above Nat. 8-Hr. Std. | 77 | 79 | 68 | 62 | 72 | 70 | 90 | 56 | 62 | 66 | 64 | 39 | 34 | 52 | 26 | 31 | 23 | 30 | 43 | 50 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 252 | 252 | 250 | 179 | 126 | 231 | 161 | 219 | 162 | 163 | 116 | 153 | 139 | 219 | 130 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 252 | 252 | 250 | 179 | 126 | 231 | 161 | 219 | 162 | 163 | 116 | 153 | 139 | 219 | 130 |
| Annual Average (State) | | | | | | | 94.0 | 78.2 | 76.0 | 62.0 | 72.5 | 65.5 | 68.8 | 61.5 | 65.3 | | 72.2 | 60.1 | 62.9 | 58.4 |
| Annual Average (Nat) | | | | | | 94.5 | 93.0 | 78.2 | 76.1 | 62.6 | 72.5 | 65.5 | 68.8 | 62.8 | 65.6 | 46.2 | 72.2 | 59.1 | 63.3 | 58.1 |
| Calc Days Above State 24-Hr Std | | | | | | | 305 | 275 | 250 | 233 | 251 | 244 | 226 | 251 | 257 | | 261 | 248 | 240 | 251 |
| Calc Days Above Nat 24-Hr Std | | | | | | 30 | 34 | 18 | 12 | 0 | 18 | 6 | 25 | 6 | 6 | 0 | 0 | 0 | 6 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | | | | | | | | | | | | | | | | | | | | |
| Max. 1-Hr. Concentration | | | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | | | | | | | | | | | | | | | | | | | | |

No Monitoring Data Available

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 0.02 | 0.02 | | | | | | | | | | | | | | | | | | |
| Max. Annual Average | 0.00 | 0.00 | | | | | | | | | | | | | | | | | | |
| Max. 24-Hr. Concentration | 0.01 | 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) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hour Indicator | 0.322 | 0.328 | 0.330 | 0.321 | 0.304 | 0.284 | 0.277 | 0.273 | 0.265 | 0.266 | 0.252 | 0.252 | 0.232 | 0.233 | 0.222 | 0.224 | 0.211 | 0.213 | 0.172 | 0.172 |
| 4th High 1-Hr in 3 Yrs | 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 | 0.169 |
| Avg of 4th Hi 8-Hr in 3 Yrs | 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 | 0.128 |
| Maximum 1-Hr. Concentration | 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 | 0.161 |
| Max. 8-Hr. Concentration | 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 | 0.139 |
| Days Above State Standard | 169 | 197 | 184 | 179 | 179 | 193 | 192 | 161 | 160 | 176 | 170 | 158 | 135 | 132 | 122 | 100 | 98 | 101 | 99 | 94 |
| Days Above Nat. 1-Hr. Std. | 137 | 162 | 138 | 145 | 141 | 153 | 143 | 115 | 109 | 123 | 112 | 115 | 91 | 79 | 53 | 58 | 37 | 25 | 32 | 30 |
| Days Above Nat. 8-Hr. Std. | 147 | 178 | 166 | 167 | 163 | 174 | 169 | 145 | 143 | 164 | 157 | 142 | 110 | 110 | 93 | 88 | 87 | 75 | 79 | 85 |

| $PM_{10}$ (ug/m3) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. 24-Hour Concentration (State) | | | | | | 287 | 271 | 475 | 163 | 649 | 143 | 147 | 178 | 136 | 208 | 114 | 183 | 124 | 166 | 102 |
| Max. 24-Hr. Concentration (Nat) | | | | | | 289 | 271 | 475 | 163 | 649 | 143 | 147 | 178 | 136 | 208 | 114 | 183 | 124 | 166 | 102 |
| Annual Average (State) | | | | | | | 79.7 | 77.3 | 68.5 | 79.0 | 58.2 | 60.0 | 60.8 | 54.9 | 53.6 | 50.2 | 60.1 | 52.6 | 52.4 | 50.1 |
| Annual Average (Nat) | | | | | | 81.3 | 79.7 | 77.3 | 68.5 | 79.0 | 58.3 | 59.9 | 60.8 | 54.9 | 53.6 | 50.2 | 65.8 | 52.6 | 52.2 | 50.1 |
| Calc Days Above State 24-Hr Std | | | | | | | 293 | 265 | 250 | 243 | 231 | 232 | 209 | 211 | 174 | 171 | 223 | 195 | 208 | 201 |
| Calc Days Above Nat 24-Hr Std | | | | | | 19 | 18 | 19 | 6 | 12 | 0 | 0 | 21 | 0 | 6 | 0 | 6 | 0 | 6 | 0 |

| CARBON MONOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 8-Hr. Indicator | 6.4 | 6.2 | 5.8 | 7.2 | 7.1 | 7.5 | 7.8 | 7.7 | 7.4 | 6.7 | 6.0 | 5.5 | 6.4 | 6.3 | 6.1 | 5.1 | 4.9 | 4.9 | 4.1 | 3.5 |
| Max. 1-Hr. Concentration | 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 | 4.5 |
| Max. 8-Hr. Concentration | 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 | 3.2 |
| 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 | 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 | 0 |

| NITROGEN DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.123 |
| Max. 1-Hr. Concentration | 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 | 0.122 |
| Max. Annual Average | 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 | 0.036 |

| SULFUR DIOXIDE (ppm) | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak 1-Hr. Indicator | 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 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 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 |
| Max. 24-Hr. Concentration | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

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, $NO_2$, $SO_2$*

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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 1983 through 2002 for ozone, CO, $NO_2$, and $SO_2$, and 1988 through 2002 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 1983 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, basinwide 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 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 0.091 | 0.096 | 0.094 | 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 | 0.104 |
| LAKE COUNTY | 0.077 | 0.079 | 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 | 0.081 |
| LAKE TAHOE | 0.086 | 0.080 | 0.081 | 0.082 | 0.085 | 0.089 | 0.091 | 0.091 | 0.093 | 0.089 | 0.079 | 0.082 | 0.084 | 0.084 | 0.083 | 0.082 | 0.081 | 0.089 | 0.090 | 0.093 |
| MOJAVE DESERT | 0.205 | 0.193 | 0.200 | 0.235 | 0.231 | 0.234 | 0.204 | 0.215 | 0.223 | 0.220 | 0.193 | 0.191 | 0.194 | 0.186 | 0.171 | 0.176 | 0.162 | 0.154 | 0.136 | 0.140 |
| MOUNTAIN COUNTIES | | | | 0.090 | 0.129 | 0.155 | 0.138 | 0.134 | 0.118 | 0.127 | 0.122 | 0.127 | 0.131 | 0.137 | 0.140 | 0.147 | 0.144 | 0.144 | 0.137 | 0.143 |
| NORTH CENTRAL COAST | 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 | 0.104 |
| NORTH COAST | 0.076 | 0.076 | 0.073 | 0.074 | 0.083 | 0.062 | 0.058 | 0.066 | 0.063 | 0.085 | 0.088 | 0.089 | 0.090 | 0.088 | 0.091 | 0.103 | 0.109 | 0.105 | 0.093 | 0.083 |
| NORTHEAST PLATEAU | 0.072 | 0.074 | 0.076 | 0.078 | 0.081 | 0.082 | 0.083 | 0.082 | 0.084 | 0.081 | 0.073 | 0.075 | 0.074 | 0.075 | 0.074 | 0.078 | 0.078 | 0.081 | 0.080 | 0.085 |
| SACRAMENTO VALLEY | 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 | 0.138 | 0.135 |
| SALTON SEA | 0.194 | 0.202 | 0.204 | 0.197 | 0.185 | 0.182 | 0.18 | 0.181 | 0.175 | 0.168 | 0.159 | 0.154 | 0.163 | 0.155 | 0.156 | 0.153 | 0.147 | 0.149 | 0.152 | 0.142 |
| SAN DIEGO | 0.188 | 0.197 | 0.188 | 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 | 0.117 |
| SAN FRANCISCO BAY AREA | 0.153 | 0.164 | 0.172 | 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 | 0.126 |
| SAN JOAQUIN VALLEY | 0.184 | 0.164 | 0.162 | 0.172 | 0.172 | 0.169 | 0.17 | 0.164 | 0.167 | 0.162 | 0.162 | 0.155 | 0.163 | 0.164 | 0.167 | 0.162 | 0.159 | 0.158 | 0.146 | 0.151 |
| SOUTH CENTRAL COAST | 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 | 0.153 | 0.143 | 0.135 | 0.132 | 0.126 | 0.125 |
| SOUTH COAST | 0.365 | 0.354 | 0.375 | 0.360 | 0.344 | 0.319 | 0.32 | 0.310 | 0.304 | 0.286 | 0.297 | 0.279 | 0.249 | 0.233 | 0.229 | 0.224 | 0.211 | 0.213 | 0.172 | 0.172 |

Table B-1

## 4th Highest 1-Hour Concentration in 3 Years (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 0.099 |
| LAKE COUNTY | 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 | 0.080 |
| LAKE TAHOE | 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 | 0.089 |
| MOJAVE DESERT | 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 | 0.143 |
| 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 | 0.143 |
| NORTH CENTRAL COAST | 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 | 0.104 |
| NORTH COAST | 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 | 0.083 |
| NORTHEAST PLATEAU | 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 | 0.078 | 0.081 |
| SACRAMENTO VALLEY | 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 | 0.132 |
| SALTON SEA | 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 | 0.147 |
| SAN DIEGO | 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 | 0.118 |
| SAN FRANCISCO BAY AREA | 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 | 0.124 |
| SAN JOAQUIN VALLEY | 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 | 0.151 |
| SOUTH CENTRAL COAST | 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 | 0.124 |
| SOUTH COAST | 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 | 0.169 |

Table B-2

# *Ozone*

## Average of 4th Highest 8-Hour Concentration in 3 Years (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 0.081 |
| LAKE COUNTY | 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 | 0.064 |
| LAKE TAHOE | 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 | 0.075 |
| MOJAVE DESERT | 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 | 0.106 |
| 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 | 0.106 |
| NORTH CENTRAL COAST | 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 | 0.081 |
| NORTH COAST | 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 | 0.063 |
| NORTHEAST PLATEAU | 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 | 0.053 | 0.055 |
| SACRAMENTO VALLEY | 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 | 0.101 | 0.101 |
| SALTON SEA | 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 | 0.105 |
| SAN DIEGO | 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 | 0.095 |
| SAN FRANCISCO BAY AREA | 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 | 0.082 |
| SAN JOAQUIN VALLEY | 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 | 0.115 |
| SOUTH CENTRAL COAST | 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 | 0.097 |
| SOUTH COAST | 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 | 0.128 |

Table B-3

## Maximum 1-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 0.100 |
| LAKE COUNTY | 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 | 0.090 |
| LAKE TAHOE | 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 | 0.102 |
| MOJAVE DESERT | 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 | 0.157 |
| 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 | 0.156 |
| NORTH CENTRAL COAST | 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 | 0.115 |
| NORTH COAST | 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 | 0.092 |
| NORTHEAST PLATEAU | 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 | 0.049 | 0.087 |
| SACRAMENTO VALLEY | 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 | 0.139 |
| SALTON SEA | 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 | 0.156 |
| SAN DIEGO | 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 | 0.121 |
| SAN FRANCISCO BAY AREA | 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 | 0.160 |
| SAN JOAQUIN VALLEY | 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 | 0.164 |
| SOUTH CENTRAL COAST | 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 | 0.132 |
| SOUTH COAST | 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 | 0.169 |

Table B-4

# *Ozone*

## Maximum 8-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 0.088 |
| LAKE COUNTY | 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 | 0.077 |
| LAKE TAHOE | 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 | 0.079 |
| MOJAVE DESERT | 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 | 0.123 |
| 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 | 0.137 |
| NORTH CENTRAL COAST | 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 | 0.094 |
| NORTH COAST | 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 | 0.072 |
| NORTHEAST PLATEAU | 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 | 0.038 | 0.075 |
| SACRAMENTO VALLEY | 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 | 0.120 |
| SALTON SEA | 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 | 0.124 |
| SAN DIEGO | 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 | 0.100 |
| SAN FRANCISCO BAY AREA | 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 | 0.106 |
| SAN JOAQUIN VALLEY | 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 | 0.132 |
| SOUTH CENTRAL COAST | 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 | 0.109 |
| SOUTH COAST | 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 | 0.144 |

Table B-5

## Days Above State Standard

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 0 | 0 | 1 | 5 | 4 | 3 | 0 | 2 | 0 | 5 | 0 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | 8 |
| 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 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| MOJAVE DESERT | 120 | 131 | 147 | 156 | 158 | 152 | 158 | 136 | 135 | 150 | 135 | 137 | 119 | 108 | 101 | 77 | 83 | 86 | 72 | 75 |
| MOUNTAIN COUNTIES | | | | 0 | 27 | 51 | 39 | 22 | 23 | 54 | 35 | 57 | 49 | 65 | 29 | 52 | 66 | 51 | 50 | 62 |
| NORTH CENTRAL COAST | 7 | 6 | 12 | 1 | 37 | 14 | 10 | 11 | 12 | 9 | 12 | 6 | 8 | 16 | 1 | 10 | 3 | 3 | 3 | 8 |
| NORTH COAST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 7 | 4 | 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 | 62 | 64 | 59 | 66 | 94 | 98 | 68 | 50 | 68 | 74 | 34 | 60 | 50 | 58 | 25 | 62 | 59 | 42 | 46 | 47 |
| SALTON SEA | 96 | 100 | 96 | 80 | 85 | 107 | 119 | 83 | 86 | 100 | 113 | 126 | 124 | 98 | 91 | 72 | 88 | 54 | 81 | 68 |
| SAN DIEGO | 125 | 146 | 148 | 131 | 127 | 160 | 159 | 139 | 106 | 97 | 90 | 79 | 96 | 51 | 43 | 54 | 27 | 24 | 29 | 15 |
| SAN FRANCISCO BAY AREA | 53 | 55 | 45 | 39 | 46 | 41 | 22 | 14 | 23 | 23 | 19 | 13 | 28 | 34 | 8 | 29 | 20 | 12 | 15 | 16 |
| SAN JOAQUIN VALLEY | 105 | 135 | 149 | 147 | 156 | 156 | 148 | 131 | 133 | 127 | 125 | 118 | 124 | 120 | 110 | 90 | 123 | 114 | 123 | 127 |
| SOUTH CENTRAL COAST | 126 | 133 | 137 | 150 | 126 | 138 | 117 | 105 | 112 | 75 | 63 | 90 | 95 | 82 | 59 | 54 | 33 | 38 | 34 | 24 |
| SOUTH COAST | 192 | 209 | 207 | 217 | 196 | 216 | 211 | 185 | 184 | 190 | 185 | 165 | 153 | 141 | 144 | 107 | 111 | 115 | 121 | 116 |

Table B-6

# *Ozone*

## Days Above National 1-Hour Standard

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 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 | 66 | 66 | 93 | 105 | 82 | 108 | 93 | 76 | 70 | 77 | 69 | 77 | 60 | 39 | 22 | 26 | 4 | 11 | 6 | 16 |
| MOUNTAIN COUNTIES | | | | 0 | 3 | 7 | 2 | 2 | 0 | 1 | 0 | 2 | 3 | 7 | 2 | 8 | 7 | 4 | 1 | 8 |
| NORTH CENTRAL COAST | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NORTH COAST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 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 | 15 | 23 | 19 | 24 | 24 | 35 | 8 | 16 | 14 | 14 | 7 | 9 | 11 | 9 | 3 | 14 | 7 | 5 | 2 | 7 |
| SALTON SEA | 50 | 40 | 29 | 31 | 40 | 35 | 38 | 27 | 27 | 31 | 36 | 20 | 33 | 21 | 13 | 13 | 25 | 5 | 15 | 5 |
| SAN DIEGO | 61 | 51 | 50 | 42 | 40 | 45 | 56 | 39 | 27 | 19 | 14 | 9 | 12 | 2 | 1 | 9 | 0 | 0 | 2 | 0 |
| SAN FRANCISCO BAY AREA | 21 | 22 | 9 | 5 | 14 | 5 | 4 | 2 | 2 | 2 | 3 | 2 | 11 | 8 | 0 | 8 | 3 | 3 | 1 | 2 |
| SAN JOAQUIN VALLEY | 41 | 61 | 53 | 59 | 65 | 74 | 54 | 45 | 51 | 29 | 43 | 43 | 44 | 56 | 16 | 39 | 28 | 30 | 32 | 31 |
| SOUTH CENTRAL COAST | 58 | 46 | 44 | 60 | 31 | 56 | 48 | 20 | 35 | 12 | 14 | 17 | 25 | 19 | 3 | 6 | 2 | 2 | 2 | 1 |
| SOUTH COAST | 153 | 175 | 158 | 167 | 161 | 178 | 157 | 131 | 130 | 142 | 124 | 118 | 98 | 85 | 64 | 60 | 39 | 33 | 36 | 45 |

Table B-7

## Days Above National 8-Hour Standard

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 1 | 2 | 2 | 13 | 2 | 6 | 0 | 3 | 0 | 9 | 0 | 6 | 2 | 1 | 0 | 1 | 1 | 0 | 4 | 3 |
| 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 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOJAVE DESERT | 105 | 109 | 129 | 146 | 144 | 142 | 137 | 120 | 122 | 134 | 124 | 129 | 109 | 91 | 78 | 68 | 73 | 72 | 65 | 66 |
| MOUNTAIN COUNTIES | | | | 0 | 22 | 43 | 38 | 22 | 33 | 47 | 34 | 49 | 47 | 59 | 28 | 54 | 65 | 56 | 44 | 59 |
| NORTH CENTRAL COAST | 3 | 0 | 5 | 0 | 26 | 6 | 3 | 5 | 3 | 4 | 4 | 1 | 3 | 9 | 1 | 6 | 1 | 0 | 2 | 5 |
| NORTH COAST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 5 | 2 | 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 | 44 | 46 | 42 | 50 | 73 | 68 | 37 | 44 | 60 | 56 | 22 | 48 | 40 | 44 | 15 | 60 | 43 | 35 | 37 | 34 |
| SALTON SEA | 77 | 79 | 70 | 62 | 72 | 70 | 90 | 56 | 65 | 75 | 80 | 75 | 79 | 62 | 63 | 40 | 35 | 33 | 54 | 55 |
| SAN DIEGO | 101 | 98 | 109 | 81 | 99 | 119 | 122 | 96 | 67 | 66 | 58 | 46 | 48 | 31 | 16 | 35 | 16 | 16 | 17 | 13 |
| SAN FRANCISCO BAY AREA | 26 | 32 | 17 | 13 | 29 | 20 | 13 | 7 | 6 | 6 | 5 | 4 | 18 | 14 | 0 | 16 | 9 | 4 | 7 | 7 |
| SAN JOAQUIN VALLEY | 100 | 120 | 127 | 134 | 148 | 140 | 133 | 104 | 121 | 119 | 104 | 108 | 109 | 114 | 95 | 84 | 117 | 103 | 109 | 125 |
| SOUTH CENTRAL COAST | 109 | 109 | 111 | 122 | 91 | 113 | 97 | 76 | 94 | 63 | 53 | 65 | 70 | 68 | 46 | 41 | 24 | 30 | 25 | 16 |
| SOUTH COAST | 169 | 190 | 181 | 191 | 179 | 194 | 181 | 161 | 160 | 173 | 161 | 148 | 120 | 115 | 118 | 93 | 93 | 94 | 92 | 96 |

Table B-8

# $PM_{10}$

## Maximum 24-Hour Concentration (State) (ug/m$^3$)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | 166 | 227 | 866 | 150 | 493 | 981 | 388 | 692 | 309 | 402 | 1022 | 2708 | 9967 | 3643 | 7401 |
| LAKE COUNTY | | | | | | 23 | 29 | 30 | 31 | 22 | 30 | 21 | 30 | 26 | 18 | 34 | 40 | 21 | 22 | 85 |
| LAKE TAHOE | | | | | | | | | | 52 | 92 | 78 | 71 | 72 | 55 | 50 | 36 | 44 | 50 | 46 |
| MOJAVE DESERT | | | | | | 63 | 191 | 462 | 780 | 80 | 79 | 140 | 143 | 138 | 130 | 159 | 40 | 90 | 112 | 194 |
| MOUNTAIN COUNTIES | | | | | | 113 | 144 | 209 | 350 | 120 | 130 | 115 | 118 | 114 | 138 | 69 | 115 | 89 | 277 | 72 |
| NORTH CENTRAL COAST | | | | | | 65 | 58 | 56 | 55 | 41 | 102 | 106 | 152 | 115 | 113 | 78 | 106 | 77 | 74 | 81 |
| NORTH COAST | | | | | | 101 | 92 | 266 | 78 | 58 | 54 | 77 | 68 | 87 | 66 | 52 | 94 | 53 | 72 | 72 |
| NORTHEAST PLATEAU | | | | | | 58 | 59 | 63 | 60 | 74 | 60 | 101 | 78 | 188 | 97 | 63 | 93 | 74 | 91 | 73 |
| SACRAMENTO VALLEY | | | | | | 100 | 147 | 153 | 136 | 111 | 113 | 154 | 145 | 98 | 126 | 130 | 179 | 90 | 112 | 96 |
| SALTON SEA | | | | | | 368 | 712 | 520 | 340 | 175 | 175 | 258 | 229 | 359 | 532 | 181 | 238 | 279 | 634 | 361 |
| SAN DIEGO | | | | | | 80 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 57 | 119 | 136 | 106 | 131 |
| SAN FRANCISCO BAY AREA | | | | | | 146 | 147 | 165 | 155 | 112 | 93 | 96 | 74 | 76 | 85 | 100 | 116 | 80 | 113 | 84 |
| SAN JOAQUIN VALLEY | | | | | | 206 | 237 | 439 | 279 | 186 | 239 | 192 | 279 | 153 | 199 | 167 | 186 | 153 | 221 | 194 |
| SOUTH CENTRAL COAST | | | | | | 132 | 119 | 133 | 96 | 135 | 141 | 138 | 129 | 92 | 321 | 108 | 82 | 97 | 76 | 100 |
| SOUTH COAST | | | | | | 287 | 271 | 475 | 179 | 649 | 231 | 161 | 219 | 162 | 208 | 116 | 183 | 139 | 219 | 130 |

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 24-Hour Concentration (National) (ug/m$^3$)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | 394 | 1861 | 866 | 181 | 526 | 981 | 388 | 2668 | 491 | 402 | 1116 | 514 | 3059 | 4482 | 3089 |
| 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 | 51 |
| MOJAVE DESERT | | | | | | 150 | 191 | 462 | 780 | 242 | 79 | 140 | 235 | 138 | 130 | 165 | 109 | 90 | 115 | 208 |
| MOUNTAIN COUNTIES | | | | | | 180 | 144 | 209 | 350 | 120 | 130 | 115 | 118 | 114 | 138 | 92 | 125 | 98 | 312 | 76 |
| NORTH CENTRAL COAST | | | | | | 71 | 58 | 57 | 55 | 45 | 102 | 106 | 152 | 115 | 113 | 76 | 103 | 74 | 72 | 77 |
| NORTH COAST | | | | | | 125 | 92 | 266 | 78 | 58 | 54 | 77 | 68 | 87 | 66 | 50 | 100 | 51 | 73 | 74 |
| NORTHEAST PLATEAU | | | | | | 92 | 59 | 63 | 60 | 74 | 60 | 101 | 78 | 188 | 97 | 66 | 100 | 80 | 105 | 86 |
| SACRAMENTO VALLEY | | | | | | 115 | 139 | 153 | 136 | 111 | 110 | 154 | 145 | 98 | 126 | 130 | 179 | 86 | 105 | 92 |
| SALTON SEA | | | | | | 368 | 712 | 520 | 340 | 175 | 175 | 258 | 229 | 359 | 532 | 176 | 227 | 268 | 647 | 373 |
| SAN DIEGO | | | | | | 81 | 90 | 115 | 81 | 67 | 159 | 129 | 121 | 93 | 125 | 89 | 121 | 139 | 107 | 130 |
| SAN FRANCISCO BAY AREA | | | | | | 146 | 150 | 173 | 155 | 112 | 101 | 97 | 74 | 76 | 95 | 92 | 114 | 76 | 109 | 80 |
| SAN JOAQUIN VALLEY | | | | | | 244 | 250 | 439 | 279 | 183 | 239 | 190 | 279 | 153 | 199 | 160 | 183 | 145 | 205 | 189 |
| SOUTH CENTRAL COAST | | | | | | 132 | 119 | 133 | 119 | 135 | 141 | 139 | 129 | 98 | 321 | 110 | 90 | 113 | 89 | 178 |
| SOUTH COAST | | | | | | 289 | 271 | 475 | 179 | 649 | 231 | 161 | 219 | 162 | 208 | 116 | 183 | 139 | 219 | 130 |

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.*

# *$PM_{10}$*

## Maximum Annual Average of Quarters (State) (ug/m$^3$)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | 27.1 | 29.4 | 23.2 | 37.0 | 34.2 | 29.8 | 32.3 | 21.5 | 26.4 | 57.8 | 13.6 | 115.4 | 63.1 | 159.3 |
| LAKE COUNTY | | | | | | | 12.9 | | | 11.9 | 11.3 | 11.0 | 10.8 | 10.2 | 8.6 | | | 10.6 | | 13.1 |
| LAKE TAHOE | | | | | | | | | | | | 27.1 | 22.5 | | 21.6 | 19.8 | 16.9 | 17.3 | 16.9 | 17.1 |
| MOJAVE DESERT | | | | | | | 42.5 | | | 39.7 | 35.1 | 27.9 | | 29.0 | 27.4 | 15.0 | 17.7 | 20.3 | 19.8 | 24.2 |
| MOUNTAIN COUNTIES | | | | | | | | | 48.4 | | 18.4 | 33.9 | 24.1 | 21.5 | 28.3 | 18.5 | 17.7 | 19.9 | 29.6 | 25.9 |
| NORTH CENTRAL COAST | | | | | | | 24.3 | 23.8 | 24.3 | | 21.7 | 31.1 | 36.3 | 32.8 | 36.9 | | 32.3 | 31.2 | | 28.9 |
| NORTH COAST | | | | | | | 31.4 | 28.0 | 25.4 | 21.9 | 23.2 | 24.3 | 26.0 | 24.4 | 23.4 | 22.1 | 24.3 | 23.5 | 25.4 | 22.9 |
| NORTHEAST PLATEAU | | | | | | | 24.8 | | | 23.6 | | 22.1 | 16.0 | | | | 16.8 | | | 17.5 |
| SACRAMENTO VALLEY | | | | | | | 41.9 | 38.5 | 39.2 | 35.2 | 31.2 | 33.3 | 29.9 | 29.9 | 28.8 | 29.9 | 39.4 | 27.9 | 30.5 | 31.8 |
| SALTON SEA | | | | | | | 77.9 | 80.3 | 69.1 | 47.5 | 52.6 | 48.3 | 72.0 | 73.6 | 77.7 | 66.6 | 79.0 | 84.8 | 87.1 | 82.5 |
| SAN DIEGO | | | | | | | 44.4 | 32.8 | 40.7 | 28.9 | 45.8 | 50.7 | 47.1 | 30.2 | 46.6 | 26.5 | 50.9 | 44.5 | 47.4 | 52.4 |
| SAN FRANCISCO BAY AREA | | | | | | | 37.7 | 35.1 | 37.9 | 33.9 | 28.8 | 28.3 | 25.7 | 24.8 | 25.8 | 25.8 | 30.0 | 27.8 | | |
| SAN JOAQUIN VALLEY | | | | | | 52.7 | 67.0 | 80.1 | 70.0 | 62.4 | 56.3 | 49.6 | 57.9 | 54.1 | 47.3 | 40.5 | 60.1 | 53.9 | 52.3 | 59.9 |
| SOUTH CENTRAL COAST | | | | | | 40.3 | 41.6 | 36.9 | 40.0 | 33.0 | 29.3 | 31.6 | 30.9 | 29.3 | 36.5 | 26.1 | 29.5 | 30.9 | 29.0 | 28.6 |
| SOUTH COAST | | | | | | | 94.0 | 78.2 | 76.0 | 79.0 | 72.5 | 65.5 | 68.8 | 61.5 | 65.3 | 50.2 | 72.2 | 60.1 | 62.9 | 58.4 |

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.*

## Maximum Annual Average of Quarters (National) (ug/m$^3$)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | 36.9 | 34.6 | 39.6 | 23.2 | 37.3 | 34.6 | 29.9 | 31.8 | 21.5 | 26.5 | 53.8 | 15.3 | 39.5 | 69.6 | 62.7 |
| LAKE COUNTY | | | | | | | 12.9 | | 12.6 | 11.8 | 11.3 | 10.9 | 10.7 | 10.2 | 8.6 | 7.8 | | 10.8 | | |
| LAKE TAHOE | | | | | | | 28.1 | 30.7 | 28.3 | | | 27.1 | 22.5 | 23.4 | 21.6 | 23.4 | 19.9 | 20.4 | 19.8 | 19.9 |
| MOJAVE DESERT | | | | | | 35.8 | 48.6 | 48.1 | 58.0 | 39.4 | 34.9 | 42.1 | 25.5 | 29.0 | 29.2 | 27.8 | 32.1 | 33.6 | 29.8 | 34.3 |
| MOUNTAIN COUNTIES | | | | | | | | 40.9 | 47.8 | 37.5 | 18.4 | 34.6 | 28.0 | 21.8 | 32.0 | 25.3 | 27.6 | 26.3 | 33.3 | 28.5 |
| NORTH CENTRAL COAST | | | | | | 23.0 | 25.4 | 23.9 | 24.3 | | 21.7 | 31.1 | 36.4 | 32.8 | 37.0 | 28.5 | 30.9 | 29.9 | 29.4 | 27.7 |
| NORTH COAST | | | | | | 36.2 | 31.4 | 28.0 | 25.3 | 21.8 | 22.6 | 24.3 | 26.1 | 24.6 | 23.4 | 21.1 | 24.3 | 22.4 | 24.1 | 22.2 |
| NORTHEAST PLATEAU | | | | | | 25.0 | 24.8 | 23.5 | | 23.6 | | 22.1 | 30.3 | 13.6 | 12.9 | 11.1 | 26.3 | 22.5 | 19.8 | 18.6 |
| SACRAMENTO VALLEY | | | | | | 42.8 | 41.9 | 41.7 | 42.3 | 34.7 | 31.8 | 34.5 | 30.1 | 29.8 | 28.6 | 29.0 | 38.4 | 27.9 | 30.2 | 30.9 |
| SALTON SEA | | | | | | 60.4 | 89.9 | 80.3 | 69.3 | 47.5 | 53.3 | 48.3 | 71.9 | 73.6 | 77.7 | 66.1 | 77.8 | 95.2 | 86.2 | 81.3 |
| SAN DIEGO | | | | | | 40.0 | 43.8 | 37.6 | 40.6 | 35.9 | 45.9 | 50.7 | 46.8 | 30.0 | 46.6 | 42.5 | 52.2 | 45.2 | 49.1 | 54.9 |
| SAN FRANCISCO BAY AREA | | | | | | 38.3 | 40.8 | 40.4 | 38.3 | 33.7 | 28.8 | 28.3 | 25.7 | 24.9 | 25.8 | 25.1 | 28.7 | 26.8 | 28.9 | 25.4 |
| SAN JOAQUIN VALLEY | | | | | | 67.4 | 79.3 | 79.3 | 69.9 | 62.9 | 56.3 | 50.1 | 58.2 | 54.1 | 48.2 | 39.9 | 59.5 | 53.1 | 57.4 | 59.2 |
| SOUTH CENTRAL COAST | | | | | | 41.6 | 41.5 | 36.6 | 39.9 | 33.2 | 42.8 | 32.5 | 31.1 | 29.3 | 37.0 | 25.0 | 31.3 | 31.0 | 31.5 | 28.9 |
| SOUTH COAST | | | | | | 94.5 | 93.0 | 78.2 | 76.1 | 79.0 | 72.5 | 65.5 | 68.8 | 62.8 | 65.6 | 50.2 | 72.2 | 59.1 | 63.3 | 58.1 |

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.*

# $PM_{10}$

## Calculated Days Above State 24-Hour Standard

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | 195 | 170 | 116.2 | 100.7 | 132 | 128 | 105 | 117 | 120 | 90 | 117 | 19.4 | 90.2 | 92.2 | 100.2 |
| 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 | 3 |
| MOJAVE DESERT | | | | | | 204 | 230 | 241 | 186 | 153 | 131 | 132 | 60 | 87 | 36 | 43 | 72 | 63 | 54 | 84 |
| MOUNTAIN COUNTIES | | | | | | 159 | 116 | 154.5 | 132 | 102 | 113 | 93 | 42 | 42 | 128 | 63 | 60 | 57 | 60 | 36 |
| NORTH CENTRAL COAST | | | | | | 24 | 18 | 18 | 12 | 0 | 59 | 30 | 72 | 72 | 96 | 30 | 54 | 24 | 51 | 30 |
| NORTH COAST | | | | | | 126 | 71 | 40 | 38 | 15 | 14.5 | 48 | 18 | 23 | 20 | 0 | 54 | 9 | 42 | 24 |
| NORTHEAST PLATEAU | | | | | | 21 | 26 | 25 | 12 | 24 | 6 | 24 | 54 | 18 | 18 | 24 | 66 | 60 | 36 | 36 |
| SACRAMENTO VALLEY | | | | | | 183 | 134 | 175 | 189 | 177 | 92 | 108 | 108 | 129 | 65 | 97 | 144 | 81 | 96 | 126 |
| SALTON SEA | | | | | | 252 | 294 | 286 | 294 | 186 | 239 | 274 | 306 | 312 | 320 | 265 | 324 | 330 | 341 | 328 |
| SAN DIEGO | | | | | | 105 | 146 | 60 | 90 | 42 | 143.5 | 131 | 117 | 96 | 125 | 108 | 140 | 144 | 146 | 186 |
| SAN FRANCISCO BAY AREA | | | | | | 123 | 137 | 93 | 125 | 108 | 59 | 54 | 42 | 18 | 20 | 25 | 63 | 42 | 51 | 30 |
| SAN JOAQUIN VALLEY | | | | | | 300 | 302 | 313 | 285 | 273 | 233 | 253 | 246 | 225 | 188 | 185 | 216 | 237 | 236 | 267 |
| SOUTH CENTRAL COAST | | | | | | 198 | 212 | 151 | 204 | 138 | 174 | 81 | 108 | 138 | 144 | 88 | 108 | 135 | 72 | 156 |
| SOUTH COAST | | | | | | 345 | 338 | 301 | 294 | 282 | 293 | 276 | 252 | 276 | 290 | 238 | 288 | 300 | 278 | 297 |

Table B-13

** 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 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | 12 | 12 | 14 | 8 | 30 | 22 | 9 | 16 | 27 | 15 | 32 | 4 | 19 | 18 | 15 |
| 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 | 0 |
| MOJAVE DESERT | | | | | | 0 | 8 | 21 | 30 | 6 | 0 | 0 | 3 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| MOUNTAIN COUNTIES | | | | | | 7 | 0 | 6 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| NORTH CENTRAL COAST | | | | | | 0 | 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 | 0 |
| NORTHEAST PLATEAU | | | | | | 0 | 0 | 0 | | 0 | | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| SACRAMENTO VALLEY | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| SALTON SEA | | | | | | 12 | 37 | 21 | 18 | 6 | 18 | 18 | 26 | 37 | 35 | 19 | 29 | 36 | 29 | 18 |
| SAN DIEGO | | | | | | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 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 | 0 |
| SAN JOAQUIN VALLEY | | | | | | 40 | 40 | 56 | 40 | 3 | 11 | 8 | 8 | 0 | 3 | 6 | 12 | 0 | 12 | 8 |
| SOUTH CENTRAL COAST | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 6 |
| SOUTH COAST | | | | | | 44 | 32 | 33 | 15 | 24 | 12 | 3 | 31 | 6 | 17 | 0 | 6 | 0 | 5 | 0 |

Table B-14

** 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 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 2.5 |
| LAKE COUNTY | | | | | | | 1.9 | 2.9 | 2.9 | | | | | | | | | | | |
| LAKE TAHOE | 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 | 2.0 |
| MOJAVE DESERT | 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 | 2.0 |
| 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 | 1.6 |
| NORTH CENTRAL COAST | 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 | 2.1 | 2.0 | 2.0 | 2.0 | 1.6 | 1.6 | 1.5 |
| 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 | 3.3 | 2.6 |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 13.2 | 13.0 | 13.2 | 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 | 6.0 |
| SALTON SEA | 3.1 | 2.5 | 2.5 | 2.6 | 2.6 | 2.5 | 2.4 | 2.3 | 2.3 | 2.2 | 2.1 | 17.4 | 18.8 | 17.8 | 17.4 | 15.4 | 15.5 | 14.8 | 14.3 | 12.8 |
| SAN DIEGO | 9.3 | 9.4 | 10.6 | 10.2 | 10.4 | 10.2 | 10.3 | 10.2 | 10.0 | 8.6 | 7.8 | 7.7 | 7.3 | 7.3 | 6.3 | 6.3 | 5.6 | 5.3 | 5.4 | 5.3 |
| SAN FRANCISCO BAY AREA | 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 | 6.0 |
| SAN JOAQUIN VALLEY | 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 | 8.3 | 6.3 | 5.3 |
| SOUTH CENTRAL COAST | 11.3 | 9.6 | 10.2 | 9.9 | 10.1 | 9.0 | 8.8 | 8.2 | 7.5 | 6.4 | 5.5 | 5.9 | 6.0 | 5.8 | 5.0 | 4.8 | 4.5 | 4.7 | 3.1 | 2.7 |
| SOUTH COAST | 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 | 9.4 |

Table B-15

# *Carbon Monoxide*

## Maximum 1-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 3.8 |
| LAKE COUNTY | | | | | | | 3.0 | 6.0 | 7.0 | | | | | | | | | | | |
| LAKE TAHOE | 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 | 3.8 |
| MOJAVE DESERT | 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 | 3.4 |
| 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 | 3.7 |
| NORTH CENTRAL COAST | 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 | 2.3 |
| 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 | 4.4 | 4.0 | 3.1 |
| NORTHEAST PLATEAU | | | | | 12.0 | 4.0 | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 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 | 7.8 |
| SALTON SEA | 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 | 15.6 |
| SAN DIEGO | 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 | 8.5 |
| SAN FRANCISCO BAY AREA | 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 | 7.7 |
| SAN JOAQUIN VALLEY | 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 | 6.1 |
| SOUTH CENTRAL COAST | 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 | 5.7 |
| SOUTH COAST | 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 | 15.8 |

Table B-16

## Maximum 8-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 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 | 1.8 |
| LAKE COUNTY | | | | | | | 2.2 | 2.6 | 3.1 | | | | | | | | | | | |
| LAKE TAHOE | 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 | 3.0 |
| MOJAVE DESERT | 6.3 | 4.9 | 5.7 | 4.6 | 4.0 | 5.9 | 7.1 | 8.3 | 7.1 | 5.4 | 5.9 | 5.6 | 5.0 | 7.5 | 4.0 | 3.6 | 5.4 | 4.3 | 3.3 | 2.2 |
| 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 | 1.5 |
| NORTH CENTRAL COAST | 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 | 1.4 |
| 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 | 2.6 | 2.3 | 2.5 |
| NORTHEAST PLATEAU | | | | | 10.4 | 1.8 | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 14.1 | 12.4 | 13.3 | 13.9 | 10.0 | 12.3 | 15.9 | 14.0 | 12.3 | 8.6 | 9.4 | 8.4 | 7.4 | 7.2 | 7.2 | 7.1 | 6.6 | 6.3 | 5.3 | 4.3 |
| SALTON SEA | 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 | 11.6 |
| SAN DIEGO | 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 | 4.7 |
| SAN FRANCISCO BAY AREA | 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 | 5.1 |
| SAN JOAQUIN VALLEY | 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 | 4.5 |
| SOUTH CENTRAL COAST | 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 | 4.0 | 4.6 | 4.2 | 4.3 | 3.4 | 2.4 |
| SOUTH COAST | 20.9 | 19.7 | 27.7 | 19.7 | 19.6 | 27.5 | 21.8 | 16.8 | 17.4 | 18.8 | 14.6 | 18.2 | 13.8 | 17.5 | 17.1 | 13.3 | 11.2 | 10.1 | 7.6 | 10.1 |

Table B-17

# *Carbon Monoxide*

## Days Above State 8-Hour Standard

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 0 | 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 | 139 | 139 | 121 | 96 | 87 | 80 | 67 | 39 | 24 | 13 | 12 | 9 | 1 | 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 | 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 | 0 |
| NORTHEAST PLATEAU | | | | | 1 | 0 | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 6 | 6 | 12 | 13 | 5 | 12 | 22 | 14 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SALTON SEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 17 | 11 | 15 | 12 | 13 | 7 | 6 | 4 |
| SAN DIEGO | 1 | 0 | 5 | 2 | 1 | 5 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SAN FRANCISCO BAY AREA | 4 | 8 | 24 | 8 | 2 | 4 | 10 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SAN JOAQUIN VALLEY | 12 | 7 | 7 | 13 | 4 | 5 | 24 | 10 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH CENTRAL COAST | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH COAST | 67 | 79 | 64 | 58 | 50 | 73 | 71 | 50 | 51 | 39 | 29 | 27 | 17 | 26 | 18 | 13 | 11 | 6 | 0 | 1 |

Table B-18

** 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 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | 0 | 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 | 24 | 28 | 28 | 10 | 12 | 9 | 5 | 5 | 0 | 1 | 0 | 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 | 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 | 0 |
| NORTHEAST PLATEAU | | | | | 1 | 0 | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 4 | 5 | 12 | 12 | 3 | 9 | 22 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SALTON SEA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 15 | 9 | 10 | 8 | 11 | 6 | 6 | 3 |
| SAN DIEGO | 1 | 0 | 3 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SAN FRANCISCO BAY AREA | 4 | 7 | 21 | 8 | 1 | 4 | 9 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SAN JOAQUIN VALLEY | 9 | 6 | 7 | 11 | 4 | 6 | 18 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH CENTRAL COAST | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH COAST | 57 | 66 | 54 | 49 | 40 | 65 | 67 | 42 | 41 | 34 | 19 | 19 | 14 | 19 | 13 | 10 | 7 | 3 | 0 | 1 |

Table B-19

# *Nitrogen Dioxide*

## Peak 1-Hour Indicator (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | | | | | | | | | | | | | | |
| LAKE COUNTY | | | | | | | | | | | | | | | | | | | | |
| LAKE TAHOE | 0.085 | 0.079 | 0.079 | 0.073 | 0.076 | 0.073 | 0.074 | 0.078 | 0.076 | 0.078 | 0.062 | 0.061 | 0.062 | 0.062 | 0.061 | 0.060 | 0.057 | 0.058 | 0.068 | 0.063 |
| MOJAVE DESERT | 0.147 | 0.138 | 0.136 | 0.130 | 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 | 0.096 |
| MOUNTAIN COUNTIES | | | | 0.046 | 0.046 | | | | | | | | | | | | | | | |
| NORTH CENTRAL COAST | 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 | 0.046 |
| NORTH COAST | | | | | | | | | | | 0.054 | 0.053 | 0.053 | 0.053 | 0.049 | 0.050 | 0.054 | 0.053 | 0.052 | 0.042 |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 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 | 0.085 |
| SALTON SEA | 0.150 | 0.149 | 0.124 | 0.085 | 0.083 | 0.084 | 0.089 | 0.092 | 0.091 | 0.088 | 0.088 | 0.153 | 0.182 | 0.178 | 0.178 | 0.150 | 0.145 | 0.170 | 0.161 | 0.153 |
| SAN DIEGO | 0.225 | 0.183 | 0.193 | 0.193 | 0.203 | 0.216 | 0.233 | 0.210 | 0.189 | 0.169 | 0.155 | 0.145 | 0.129 | 0.129 | 0.126 | 0.116 | 0.122 | 0.117 | 0.126 | 0.122 |
| SAN FRANCISCO BAY AREA | 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 | 0.100 |
| SAN JOAQUIN VALLEY | 0.134 | 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 | 0.109 | 0.107 |
| SOUTH CENTRAL COAST | 0.139 | 0.140 | 0.136 | 0.132 | 0.130 | 0.123 | 0.119 | 0.119 | 0.120 | 0.114 | 0.104 | 0.104 | 0.112 | 0.114 | 0.110 | 0.097 | 0.089 | 0.086 | 0.083 | 0.079 |
| SOUTH COAST | 0.378 | 0.324 | 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 | 0.202 | 0.185 | 0.213 | 0.216 | 0.200 |

Table B-20

# *Nitrogen Dioxide*

## Maximum 1-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | | | | | | | | | | | | | | |
| LAKE COUNTY | | | | | | | | | | | | | | | | | | | | |
| LAKE TAHOE | 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 | 0.088 |
| MOJAVE DESERT | 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 | 0.101 |
| MOUNTAIN COUNTIES | | | | 0.050 | 0.040 | | | | | | | | | | | | | | | 0.043 |
| NORTH CENTRAL COAST | 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 | 0.049 |
| NORTH COAST | | | | | | 0.030 | | | | 0.080 | 0.050 | 0.079 | 0.078 | 0.044 | 0.061 | 0.052 | 0.066 | 0.042 | 0.052 | 0.080 |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 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 | 0.090 |
| SALTON SEA | 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 | 0.139 | 0.138 |
| SAN DIEGO | 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 | 0.126 |
| SAN FRANCISCO BAY AREA | 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 | 0.080 |
| SAN JOAQUIN VALLEY | 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 | 0.173 |
| SOUTH CENTRAL COAST | 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 | 0.064 |
| SOUTH COAST | 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 | 0.262 |

Table B-21

## Maximum Annual Average (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.012 |
| MOJAVE DESERT | 0.021 | 0.021 | 0.025 | 0.021 | 0.016 | 0.018 | 0.026 | 0.019 | 0.014 | 0.025 | 0.020 | 0.024 | 0.023 | 0.021 | 0.020 | 0.022 | 0.024 | 0.025 | 0.024 | 0.025 |
| MOUNTAIN COUNTIES | | | | | | | | | | | | | | | | | | | | |
| NORTH CENTRAL COAST | 0.011 | 0.014 | 0.015 | 0.014 | 0.005 | 0.014 | 0.014 | 0.012 | 0.011 | 0.012 | 0.012 | 0.012 | | 0.011 | 0.010 | 0.010 | 0.005 | 0.007 | 0.007 | 0.007 |
| NORTH COAST | | | | | | | | | | | | 0.008 | 0.009 | | 0.010 | 0.010 | 0.010 | 0.011 | 0.010 | 0.010 |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 0.016 | 0.019 | 0.021 | 0.022 | 0.022 | 0.025 | 0.019 | 0.023 | 0.024 | 0.021 | 0.017 | 0.022 | 0.022 | 0.022 | 0.019 | 0.021 | 0.021 | 0.019 | 0.019 | 0.020 |
| SALTON SEA | 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 | 0.016 |
| SAN DIEGO | 0.027 | 0.031 | 0.032 | 0.030 | 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 | 0.022 |
| SAN FRANCISCO BAY AREA | 0.029 | 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 | 0.019 |
| SAN JOAQUIN VALLEY | 0.030 | 0.028 | 0.031 | 0.030 | 0.030 | 0.032 | 0.033 | 0.031 | 0.030 | 0.027 | 0.024 | 0.024 | 0.029 | 0.029 | 0.024 | 0.023 | 0.027 | 0.024 | 0.022 | 0.024 |
| SOUTH CENTRAL COAST | 0.018 | 0.031 | 0.030 | 0.022 | 0.017 | 0.024 | 0.027 | 0.025 | 0.024 | 0.022 | 0.023 | 0.022 | 0.024 | 0.019 | 0.020 | 0.021 | 0.022 | 0.020 | 0.019 | 0.017 |
| SOUTH COAST | 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 | 0.040 |

Table B-22

# *Sulfur Dioxide*

## Peak 1-Hour Indicator (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | | | | | | | | | | | | | | |
| LAKE COUNTY | | | | | | | | | | | | | | | | | | | | |
| LAKE TAHOE | | | | | | | | | | | | | | | | | | | | |
| MOJAVE DESERT | 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 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| MOUNTAIN COUNTIES | | | | | | | | | | | | | | | | | | | | |
| NORTH CENTRAL COAST | 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 | 0.03 |
| NORTH COAST | | | | | | | | | | | 0.01 | 0.01 | | | | | | | | |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 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 | 0.02 |
| SALTON SEA | 0.02 | 0.02 | | | | | | | | | | | | 0.04 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 |
| SAN DIEGO | 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 | 0.05 |
| SAN FRANCISCO BAY AREA | 0.07 | 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 | 0.04 | 0.05 | 0.06 | 0.06 | 0.05 |
| SAN JOAQUIN VALLEY | 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 | 0.12 | 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 | 0.16 |
| SOUTH COAST | 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 | 0.04 |

Table B-23

# *Sulfur Dioxide*

## Maximum 24-Hour Concentration (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | | | | | | | | | | | | | | |
| LAKE COUNTY | | | | | | | | | | | | | | | | | | | | |
| LAKE TAHOE | | | | | | | | | | | | | | | | | | | | |
| MOJAVE DESERT | 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 | 0.01 |
| MOUNTAIN COUNTIES | | | | | | | | | | | | | | | | | | | | |
| NORTH CENTRAL COAST | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 |
| NORTH COAST | | | | | | 0.01 | | | | 0.01 | 0.00 | 0.00 | | | | | | | | |
| NORTHEAST PLATEAU | | | | | | | | | | | | | | | | | | | | |
| SACRAMENTO VALLEY | 0.01 | 0.01 | 0.01 | 0.01 | | 0.02 | 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 | 0.01 |
| SALTON SEA | 0.01 | 0.00 | | | | | | | | | | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.00 | 0.00 |
| SAN DIEGO | 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 | 0.01 |
| SAN FRANCISCO BAY AREA | 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 | 0.02 |
| SAN JOAQUIN VALLEY | 0.05 | 0.03 | 0.05 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | | 0.01 | 0.00 | 0.01 | |
| SOUTH CENTRAL COAST | 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 | 0.02 |
| SOUTH COAST | 0.04 | 0.06 | 0.04 | 0.04 | 0.02 | 0.04 | 0.02 | 0.04 | 0.02 | 0.03 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.04 | 0.02 | 0.02 |

Table B-24

## Maximum Annual Average (ppm)

| AIR BASIN | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREAT BASIN VALLEYS | | | | | | | | | | | | | | | | | | | | |
| LAKE COUNTY | | | | | | | | | | | | | | | | | | | | |
| LAKE TAHOE | | | | | | | | | | | | | | | | | | | | |
| MOJAVE DESERT | 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 | 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 | | 0.01 | 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 |
| SALTON SEA | 0.00 | 0.00 | | | | | | | | | | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SAN DIEGO | 0.00 | 0.00 | 0.01 | 0.00 | 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 |
| SAN FRANCISCO BAY AREA | 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 | 0.00 |
| SAN JOAQUIN VALLEY | 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 | 0.01 | 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 | 0.00 | 0.00 |
| SOUTH COAST | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Table B-25

# 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*

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# *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 populous 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. The ten toxic air contaminants (TACs) presented here are the same as the TACs discussed in Chapter 5: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Based on available data, these TACs pose the most substantial health risks in California. There may be other TACs that pose a substantial risk, but for which data are not available.

The countywide emissions data represent tons per year from the 2003 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 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 normally developed by ARB staff. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC 2002, version 2.2 (April 2003, with SCAG June 2002 activity data). Again, the emission estimates have been speciated for toxics.

Readers may note that the stationary source diesel PM emission estimates differ from those presented in previous editions of the almanac and 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 and have been calculated with updated methodologies developed for new regulations. These regulations are those that were recommended in the Diesel Risk Reduction Plan. 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.

In addition to the emissions data, air quality and health risk data are available for 1990 through 2002. 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 reflects data collected only at monitoring sites operated by the ARB.

# *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 | 25 | 17 | 56 |
| 1,3-Butadiene | 6 | 4 | 14 |
| Carbon Tetrachloride | 0 | 0 | 0 |
| Hexavalent Chromium | < .01 | < .01 | 0.02 |
| *para*-DiChlorobenzene | < 1 | < 1 | < 1 |
| Formaldehyde | 24 | 28 | 73 |
| Methylene Chloride | < 1 | 2 | 1 |
| Perchloroethylene | < 1 | 4 | 3 |
| Diesel PM | 0 | 18 | 14 |

Table C-1

## Lake County Air Basin

| TAC | Lake |
|---|---|
| Acetaldehyde | 40 |
| Benzene | 79 |
| 1,3-Butadiene | 19 |
| Carbon Tetrachloride | 0 |
| Hexavalent Chromium | < .01 |
| *para*-DiChlorobenzene | 3 |
| Formaldehyde | 92 |
| Methylene Chloride | 8 |
| Perchloroethylene | 13 |
| Diesel PM | 51 |

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 |
| Hexavalent Chromium | < .01 | < .01 |
| *para*-DiChlorobenzene | 2 | < 1 |
| Formaldehyde | 76 | 28 |
| Methylene Chloride | 5 | 4 |
| Perchloroethylene | 6 | 2 |
| Diesel PM | 31 | 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 | 113 | 61 | 5 | 160 |
| Benzene | 94 | 89 | 9 | 245 |
| 1,3-Butadiene | 42 | 21 | 2 | 53 |
| Carbon Tetrachloride | 0.02 | < .01 | < .01 | 0.10 |
| Hexavalent Chromium | 0.29 | 0.02 | < .01 | 0.01 |
| *para*-DiChlorobenzene | 6 | 19 | 1 | 23 |
| Formaldehyde | 350 | 164 | 15 | 491 |
| Methylene Chloride | 14 | 98 | 4 | 79 |
| Perchloroethylene | 14 | 50 | 5 | 110 |
| Diesel PM | 153 | 222 | 14 | 608 |

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 | 44 | 81 | 24 | 107 | 18 | 67 | 12 | 57 |
| Benzene | 51 | 77 | 90 | 43 | 89 | 24 | 151 | 37 | 102 |
| 1,3-Butadiene | 17 | 24 | 21 | 11 | 22 | 6 | 47 | 11 | 26 |
| Carbon Tetrachloride | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexavalent Chromium | < .01 | < .01 | < .01 | < .01 | < .01 | < .01 | < .01 | < .01 | 0.08 |
| *para*-DiChlorobenzene | 2 | 2 | 7 | < 1 | 5 | 1 | 1 | < 1 | 3 |
| Formaldehyde | 71 | 98 | 146 | 54 | 177 | 37 | 177 | 38 | 136 |
| Methylene Chloride | 5 | 5 | 17 | 2 | 20 | 6 | 2 | < 1 | 9 |
| Perchloroethylene | 5 | 7 | 18 | 3 | 15 | 5 | 4 | < 1 | 9 |
| Diesel PM | 33 | 37 | 57 | 16 | 72 | 36 | 54 | 4 | 53 |

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 | 109 | 17 | 64 |
| Benzene | 199 | 22 | 95 |
| 1,3-Butadiene | 61 | 14 | 18 |
| Carbon Tetrachloride | 0 | 0 | 0 |
| Hexavalent Chromium | 0.01 | < .01 | < .01 |
| *para*-DiChlorobenzene | 22 | 3 | 14 |
| Formaldehyde | 272 | 38 | 132 |
| Methylene Chloride | 72 | 8 | 53 |
| Perchloroethylene | 101 | 12 | 84 |
| Diesel PM | 320 | 64 | 138 |

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 | 89 | 67 | 31 | 20 |
| Benzene | 16 | 91 | 71 | 70 | 30 |
| 1,3-Butadiene | 16 | 25 | 17 | 15 | 14 |
| Carbon Tetrachloride | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hexavalent Chromium | < .01 | < .01 | 0.01 | 0.03 | < .01 |
| *para*-DiChlorobenzene | 2 | 7 | 5 | 3 | < 1 |
| Formaldehyde | 36 | 162 | 126 | 79 | 40 |
| Methylene Chloride | 5 | 18 | 14 | 13 | 2 |
| Perchloroethylene | 6 | 28 | 20 | 15 | 3 |
| Diesel PM | 40 | 218 | 150 | 90 | 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 | 22 | 83 |
| Benzene | 99 | 11 | 100 |
| 1,3-Butadiene | 24 | 5 | 64 |
| Carbon Tetrachloride | 0.00 | 0.00 | 0.00 |
| Hexavalent Chromium | < .01 | < .01 | < .01 |
| *para*-DiChlorobenzene | 2 | < 1 | 2 |
| Formaldehyde | 135 | 36 | 161 |
| Methylene Chloride | 4 | 1 | 6 |
| Perchloroethylene | 6 | 2 | 8 |
| Diesel PM | 62 | 53 | 124 |

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 |
| Hexavalent Chromium | < .01 | < .01 | < .01 | < .01 | 0.02 | < .01 | < .01 | 0.02 | < .01 | < .01 | < .01 |
| *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 | 785 | 211 | 130 | 209 | 112 | 326 | 79 |

1. This Air Basin includes only a portion of this county.

Table C-9

## Salton Sea Air Basin

| TAC | Imperial | Riverside[1] |
|---|---|---|
| Acetaldehyde | 101 | 37 |
| Benzene | 155 | 80 |
| 1,3-Butadiene | 39 | 18 |
| Carbon Tetrachloride | 0 | 0 |
| Hexavalent Chromium | 0.02 | < .01 |
| *para*-DiChlorobenzene | 9 | 17 |
| Formaldehyde | 293 | 112 |
| Methylene Chloride | 20 | 64 |
| Perchloroethylene | 26 | 42 |
| Diesel PM | 273 | 166 |

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 | 533 |
| Benzene | 966 |
| 1,3-Butadiene | 229 |
| Carbon Tetrachloride | 0.12 |
| Hexavalent Chromium | 0.23 |
| *para*-DiChlorobenzene | 158 |
| Formaldehyde | 1400 |
| Methylene Chloride | 381 |
| Perchloroethylene | 618 |
| Diesel PM | 1704 |

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 | 308 | 173 | 55 | 36 | 150 | 153 | 270 | 113 | 94 |
| Benzene | 432 | 351 | 127 | 68 | 215 | 252 | 539 | 127 | 133 |
| 1,3-Butadiene | 94 | 69 | 28 | 14 | 42 | 62 | 109 | 44 | 27 |
| Carbon Tetrachloride | 0.03 | 1.46 | < .01 | < .01 | 0 | < .01 | < .01 | < .01 | 0.02 |
| Hexavalent Chromium | 0.03 | < .01 | < .01 | < .01 | < .01 | 0.02 | 0.02 | 0.02 | < .01 |
| *para*-DiChlorobenzene | 77 | 50 | 13 | 7 | 41 | 39 | 92 | 15 | 21 |
| Formaldehyde | 654 | 488 | 148 | 89 | 356 | 411 | 736 | 328 | 202 |
| Methylene Chloride | 260 | 132 | 35 | 19 | 119 | 119 | 323 | 42 | 84 |
| Perchloroethylene | 184 | 106 | 43 | 12 | 115 | 114 | 223 | 27 | 46 |
| Diesel PM | 910 | 705 | 162 | 112 | 773 | 400 | 914 | 162 | 302 |

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[1] | Kings | Madera | Merced | San Joaquin | Stanislaus | Tulare |
|---|---|---|---|---|---|---|---|---|
| Acetaldehyde | 250 | 198 | 98 | 65 | 80 | 169 | 128 | 138 |
| Benzene | 338 | 527 | 69 | 88 | 104 | 244 | 171 | 165 |
| 1,3-Butadiene | 81 | 57 | 36 | 25 | 37 | 56 | 52 | 103 |
| Carbon Tetrachloride | < .01 | < .01 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexavalent Chromium | 0.05 | 0.04 | 0.02 | < .01 | < .01 | 0.03 | 0.03 | < .01 |
| *para*-DiChlorobenzene | 45 | 36 | 7 | 7 | 12 | 32 | 26 | 21 |
| Formaldehyde | 580 | 794 | 288 | 170 | 186 | 404 | 297 | 308 |
| Methylene Chloride | 129 | 70 | 15 | 16 | 26 | 75 | 61 | 46 |
| Perchloroethylene | 130 | 82 | 20 | 20 | 38 | 90 | 66 | 58 |
| Diesel PM | 1027 | 764 | 191 | 220 | 319 | 696 | 467 | 535 |

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 | 85 | 104 | 129 |
| Benzene | 129 | 298 | 259 |
| 1,3-Butadiene | 36 | 57 | 108 |
| Carbon Tetrachloride | 0. | < .01 | 0.05 |
| Hexavalent Chromium | < .01 | < .01 | 0.03 |
| *para*-DiChlorobenzene | 14 | 22 | 38 |
| Formaldehyde | 206 | 472 | 344 |
| Methylene Chloride | 44 | 106 | 160 |
| Perchloroethylene | 61 | 77 | 73 |
| Diesel PM | 251 | 268 | 479 |

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 | 959 | 330 | 209 | 207 |
| Benzene | 2588 | 917 | 417 | 431 |
| 1,3-Butadiene | 518 | 172 | 91 | 99 |
| Carbon Tetrachloride | 0.51 | < .01 | < .01 | < .01 |
| Hexavalent Chromium | 0.37 | 0.05 | 0.04 | 0.04 |
| *para*-DiChlorobenzene | 494 | 155 | 68 | 71 |
| Formaldehyde | 3177 | 1051 | 607 | 568 |
| Methylene Chloride | 2618 | 1061 | 260 | 473 |
| Perchloroethylene | 1761 | 556 | 183 | 238 |
| Diesel PM | 4570 | 1678 | 999 | 801 |

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 2002. Annual average concentrations and health risks are listed by site for California's five most populous air basins. The ten TACs presented here are ones that pose the most substantial health risk in California based on available data: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel PM. The ambient data for all TACs except diesel PM are based on concentrations measured at sites in California's TAC monitoring network. The annual average concentration is calculated as the mean of the monthly means, and the concentration is available only if a full year of data is available. The associated 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 for 70 years.

For diesel PM, the ARB previously made a preliminary estimation of concentrations for the State's 15 air basins using a PM-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 PM. Details on the method and the resulting estimates can be found in the ARB report entitled: *"Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,"* (October 2000).

Numerous factors influence the ambient TAC 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. 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** | **2002** |
| Acetaldehyde | Annual Avg | | | | | | | | | | | 1.10 | 1.31 | |
| | Health Risk | | | | | | | | | | | 5 | 6 | |
| Benzene | Annual Avg | | | | | | | | | | | 0.69 | | 0.62 |
| | Health Risk | | | | | | | | | | | 64 | | 57 |
| 1,3-Butadiene | Annual Avg | | | | | | | | | | | 0.15 | | 0.14 |
| | Health Risk | | | | | | | | | | | 55 | | 51 |
| Carbon Tetrachloride | Annual Avg | | | | | | | | | | | 0.09 | | 0.09 |
| | Health Risk | | | | | | | | | | | 24 | | 24 |
| Chromium, Hexavalent | Annual Avg | | | | | | | | | | | 0.12 | | |
| | Health Risk | | | | | | | | | | | 19 | | |
| *para*-Dichlorobenzene | Annual Avg | | | | | | | | | | | 0.10 | | 0.15 |
| | Health Risk | | | | | | | | | | | 7 | | 10 |
| Formaldehyde | Annual Avg | | | | | | | | | | | 3.05 | 3.80 | |
| | Health Risk | | | | | | | | | | | 22 | 28 | |
| Methylene Chloride | Annual Avg | | | | | | | | | | | 1.32 | | 1.00 |
| | Health Risk | | | | | | | | | | | 5 | | 3 |
| Perchloroethylene | Annual Avg | | | | | | | | | | | 0.18 | | 0.15 |
| | Health Risk | | | | | | | | | | | 7 | | 6 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | | | | | | | | | | | **208** | **34** | **151** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | 3.16 | 3.89 | | 3.06 | 2.46 | 0.79 | | | 1.94 | 2.70 | 1.70 | 1.93 | 1.96 |
| | Health Risk | 15 | 19 | | 15 | 12 | 4 | | | 9 | 13 | 8 | 9 | 10 |
| 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 | 1.01 |
| | Health Risk | 444 | 362 | 319 | 244 | 308 | 227 | 177 | 137 | 154 | 151 | 117 | 98 | 93 |
| 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 | 0.28 |
| | Health Risk | 294 | 234 | 272 | 282 | 283 | 227 | 192 | 158 | 182 | 181 | 130 | 123 | 106 |
| Carbon Tetrachloride | Annual Avg | 0.14 | 0.13 | | | | 0.10 | 0.08 | | 0.11 | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 37 | 35 | | | | 28 | 22 | | 30 | | 25 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | 0.65 | 0.37 | 0.43 | 1.24 | | | 0.23 | 0.20 | 0.19 | | 0.12 |
| | Health Risk | | | 97 | 55 | 64 | 186 | | | 34 | 29 | 28 | | 18 |
| *para*-Dichlorobenzene | Annual Avg | | 0.23 | 0.22 | 0.19 | 0.14 | 0.20 | 0.10 | 0.11 | | | 0.13 | 0.15 | 0.17 |
| | Health Risk | | 15 | 15 | 12 | 9 | 13 | 7 | 7 | | | 8 | 10 | 11 |
| Formaldehyde | Annual Avg | 4.05 | 3.59 | | 3.66 | 3.92 | 4.58 | | | 4.72 | 6.07 | 4.14 | 4.87 | 5.48 |
| | Health Risk | 30 | 26 | | 27 | 29 | 34 | | | 35 | 45 | 30 | 36 | 40 |
| 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 | 0.60 |
| | Health Risk | 11 | 6 | 5 | 7 | 7 | 6 | 5 | 4 | 4 | | 3 | 2 | 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 | 0.25 |
| | Health Risk | 48 | 31 | 24 | 25 | 26 | 19 | 18 | 15 | 20 | | 15 | 12 | 10 |
| 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** | **314** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| Acetaldehyde | Annual Avg | 2.68 | 2.78 | 2.50 | 2.89 | 2.35 | 1.28 | 2.33 | | | 1.43 | 0.84 | 1.45 | 1.30 |
| | Health Risk | 13 | 13 | 12 | 14 | 11 | 6 | 11 | | | 7 | 4 | 7 | 6 |
| 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 | | 0.13 |
| | Health Risk | | | | 36 | 40 | 35 | 25 | | | 16 | 19 | | 20 |
| *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 | 4.32 |
| | Health Risk | 26 | 22 | 17 | 24 | 26 | 30 | 43 | | | 29 | 18 | 32 | 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** | **58** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 | | 0.71 |
| | Health Risk | 327 | 227 | 241 | 185 | 188 | 157 | | 115 | 108 | 103 | 92 | | 65 |
| 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 | | 0.20 |
| | Health Risk | 223 | 165 | 197 | 216 | 168 | 169 | | 137 | 127 | 121 | 104 | | 75 |
| Carbon Tetrachloride | Annual Avg | 0.14 | 0.13 | | | | 0.10 | | | 0.12 | | 0.10 | | 0.09 |
| | Health Risk | 37 | 34 | | | | 26 | | | 31 | | 26 | | 24 |
| Chromium, Hexavalent | Annual Avg | | | 0.44 | 0.34 | 0.22 | 0.25 | | 0.15 | 0.11 | 0.12 | 0.12 | | 0.08 |
| | Health Risk | | | 66 | 51 | 33 | 38 | | 22 | 16 | 18 | 18 | | 12 |
| *para*-Dichlorobenzene | Annual Avg | | 0.17 | 0.26 | 0.19 | 0.12 | 0.17 | | 0.16 | | | 0.13 | | 0.18 |
| | Health Risk | | 11 | 17 | 13 | 8 | 11 | | 10 | | | 8 | | 12 |
| 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 | | 0.27 |
| | Health Risk | 7 | 3 | 3 | 4 | 3 | 3 | | 3 | 2 | | 2 | | 1 |
| Perchloroethylene | Annual Avg | 0.48 | 0.36 | 0.35 | 0.43 | 0.32 | 0.32 | | 0.23 | 0.19 | | 0.17 | | 0.10 |
| | Health Risk | 19 | 14 | 14 | 17 | 13 | 13 | | 9 | 8 | | 7 | | 4 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | **647** | **486** | **538** | **521** | **447** | **445** | | **330** | **292** | **242** | **284** | **27** | **193** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | 1.87 | 2.54 | 1.86 | 2.19 | 2.08 | 0.89 | 1.84 | | | 1.36 | 1.49 | 1.58 | 1.66 |
| | Health Risk | 9 | 12 | 9 | 11 | 10 | 4 | 9 | | | 7 | 7 | 8 | 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 | | 0.41 |
| | Health Risk | | | 50 | 50 | 55 | 56 | 33 | | | 29 | 52 | | 62 |
| *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 | 4.36 |
| | Health Risk | 13 | 20 | 11 | 20 | 18 | 19 | 31 | | | 26 | 23 | 35 | 32 |
| 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** | **102** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| 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 Hexavalent Chromium 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-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** | **2002** |
| 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 | 1.41 |
| | Health Risk | 12 | 15 | 12 | 13 | 11 | 5 | 10 | 9 | 7 | 8 | 6 | 7 | 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 | 0.77 |
| | Health Risk | 317 | 269 | 242 | 201 | 222 | 175 | 134 | 124 | 116 | 111 | 90 | 80 | 71 |
| 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 | 0.21 |
| | Health Risk | 200 | 170 | 187 | 212 | 187 | 173 | 146 | 142 | 133 | 123 | 94 | 94 | 79 |
| Carbon Tetrachloride | Annual Avg | 0.14 | 0.13 | | 0.11 | | 0.10 | 0.08 | | 0.11 | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 36 | 35 | | 28 | | 27 | 21 | | 30 | | 25 | 23 | 24 |
| 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 | 0.16 |
| | Health Risk | | 11 | 13 | 11 | 8 | 11 | 7 | 9 | | | 9 | 10 | 11 |
| 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 | 4.16 |
| | Health Risk | 22 | 23 | 16 | 24 | 23 | 26 | 37 | 33 | 28 | 30 | 23 | 30 | 31 |
| 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 | 0.57 |
| | Health Risk | 6 | 5 | 3 | 4 | 4 | 4 | 3 | 4 | 3 | 3 | 3 | 2 | 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 | 0.15 |
| | Health Risk | 23 | 22 | 16 | 18 | 16 | 15 | 13 | 11 | 10 | | 8 | 7 | 6 |
| 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** | **231** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| 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 | 0.42 |
| | Health Risk | 178 | 155 | 112 | 125 | 116 | 115 | 54 | | 71 | 57 | 49 | 41 | 39 |
| 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 | 0.12 |
| | Health Risk | 106 | 97 | 72 | 120 | 95 | 101 | 75 | | 90 | 66 | 51 | 50 | 43 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.11 | | 0.10 | 0.08 | | | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 35 | 34 | | 28 | | 27 | 20 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | | 7 | 7 | 7 | 8 | 7 | | | | 7 | 9 | 10 |
| 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 | 0.23 |
| | Health Risk | 3 | 2 | 2 | 3 | 2 | 2 | 2 | | | | 2 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.19 | 0.21 | 0.13 | 0.11 | 0.09 | 0.12 | 0.07 | | | | 0.08 | 0.06 | 0.05 |
| | Health Risk | 8 | 8 | 5 | 5 | 3 | 5 | 3 | | | | 3 | 2 | 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** | **119** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| 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 Hexavalent Chromium 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-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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | 1.32 | | | | 0.98 | 0.40 | | 0.75 | 0.54 | | | 0.57 | 0.54 |
| | Health Risk | 6 | | | | 5 | 2 | | 4 | 3 | | | 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 | | 0.09 |
| | Health Risk | | | | 29 | 26 | 37 | 18 | 19 | 15 | | 18 | | 13 |
| *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 | 2.03 |
| | Health Risk | 13 | | | | 10 | 12 | | 12 | 11 | | | 11 | 15 |
| 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** | **31** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| 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 | 0.63 |
| | Health Risk | 6 | 7 | 5 | 6 | 6 | 2 | 4 | 4 | 3 | 4 | 3 | 4 | 3 |
| 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 | 0.45 |
| | Health Risk | 202 | 169 | 138 | 138 | 129 | 116 | 66 | 56 | 66 | 55 | 52 | 39 | 42 |
| 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 | 0.14 |
| | Health Risk | 135 | 108 | 103 | 138 | 108 | 104 | 82 | 70 | 82 | 64 | 56 | 50 | 51 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.11 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 34 | 33 | | 29 | | 26 | 21 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 8 | 8 | 8 | 7 | 8 | 9 | 8 | | | 7 | 9 | 10 |
| 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 | 2.57 |
| | Health Risk | 14 | 13 | 11 | 11 | 12 | 15 | 19 | 14 | 13 | 15 | 13 | 17 | 19 |
| Methylene Chloride | Annual Avg | 1.04 | 2.32 | 0.65 | 0.72 | 0.59 | 0.60 | 0.58 | 0.55 | | | 0.53 | 0.27 | 0.22 |
| | Health Risk | 4 | 8 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.20 | 0.23 | 0.17 | 0.13 | 0.08 | 0.09 | 0.07 | 0.07 | | | 0.08 | 0.06 | 0.05 |
| | Health Risk | 8 | 9 | 7 | 5 | 3 | 4 | 3 | 3 | | | 3 | 2 | 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** | **152** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | | | | | | 0.49 | 1.59 | 1.22 | 1.27 | 1.69 | 1.19 | 1.27 | 1.37 |
| | Health Risk | | | | | | 2 | 8 | 6 | 6 | 8 | 6 | 6 | 7 |
| Benzene | Annual Avg | | | | | | 1.14 | 0.78 | 0.57 | 0.70 | 0.71 | 0.58 | 0.55 | 0.51 |
| | Health Risk | | | | | | 106 | 72 | 53 | 65 | 66 | 54 | 51 | 47 |
| 1,3-Butadiene | Annual Avg | | | | | | 0.21 | 0.21 | 0.16 | 0.20 | 0.15 | 0.13 | 0.14 | 0.10 |
| | Health Risk | | | | | | 78 | 79 | 60 | 75 | 58 | 47 | 52 | 37 |
| Carbon Tetrachloride | Annual Avg | | | | | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | | | | | | 26 | 21 | | | | 25 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | | | | 0.26 | 0.13 | 0.10 | 0.10 | 0.10 | 0.10 | | 0.08 |
| | Health Risk | | | | | | 39 | 19 | 15 | 15 | 16 | 16 | | 12 |
| *para*-Dichlorobenzene | Annual Avg | | | | | | 0.11 | 0.11 | 0.12 | | | 0.11 | 0.13 | 0.15 |
| | Health Risk | | | | | | 7 | 7 | 8 | | | 7 | 9 | 10 |
| Formaldehyde | Annual Avg | | | | | | 1.92 | 3.48 | 3.12 | 2.99 | 3.67 | 2.79 | 3.44 | 3.15 |
| | Health Risk | | | | | | 14 | 26 | 23 | 22 | 27 | 21 | 25 | 23 |
| Methylene Chloride | Annual Avg | | | | | | 0.54 | 0.64 | 0.50 | | 0.50 | 0.58 | 0.26 | 0.10 |
| | Health Risk | | | | | | 2 | 2 | 2 | | 2 | 2 | 1 | 0 |
| Perchloroethylene | Annual Avg | | | | | | 0.09 | 0.12 | 0.04 | | | 0.07 | 0.06 | 0.05 |
| | Health Risk | | | | | | 4 | 5 | 2 | | | 3 | 2 | 2 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | | | | | | **278** | **239** | **169** | **183** | **177** | **181** | **169** | **162** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| Acetaldehyde | Annual Avg | | 2.29 | | 1.89 | 1.40 | 0.67 | | | 1.50 | | 1.43 | 1.60 | 1.55 |
| | Health Risk | | 11 | | 9 | 7 | 3 | | | 7 | | 7 | 8 | 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 | 0.63 |
| | Health Risk | | 224 | 124 | 125 | 133 | 115 | 73 | 92 | 76 | 74 | 68 | 56 | 58 |
| 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 | 0.19 |
| | Health Risk | | 173 | 99 | 129 | 134 | 113 | 88 | 87 | 100 | 80 | 73 | 68 | 73 |
| Carbon Tetrachloride | Annual Avg | | 0.12 | | 0.11 | | 0.10 | 0.08 | | | | 0.10 | 0.09 | 0.09 |
| | Health Risk | | 32 | | 28 | | 26 | 21 | | | | 25 | 23 | 23 |
| Chromium, Hexavalent | Annual Avg | | | 0.21 | 0.15 | 0.14 | 0.22 | 0.10 | 0.11 | 0.10 | 0.10 | 0.13 | | 0.06 |
| | Health Risk | | | 31 | 22 | 21 | 33 | 16 | 16 | 15 | 15 | 20 | | 9 |
| *para*-Dichlorobenzene | Annual Avg | | | 0.10 | 0.10 | 0.14 | 0.13 | 0.11 | 0.14 | | | 0.10 | 0.14 | 0.15 |
| | Health Risk | | | 7 | 7 | 9 | 8 | 7 | 9 | | | 7 | 9 | 10 |
| Formaldehyde | Annual Avg | | 2.32 | | 1.64 | 2.01 | 2.41 | | | 3.42 | | 3.56 | 4.32 | 4.16 |
| | Health Risk | | 17 | | 12 | 15 | 18 | | | 25 | | 26 | 32 | 31 |
| Methylene Chloride | Annual Avg | | 0.62 | 0.54 | 0.69 | 0.59 | 0.58 | 0.50 | 0.52 | | | 0.50 | 0.27 | 0.24 |
| | Health Risk | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 1 | 1 |
| Perchloroethylene | Annual Avg | | 0.14 | 0.10 | 0.10 | 0.06 | 0.07 | 0.04 | 0.04 | | | 0.06 | 0.05 | 0.03 |
| | Health Risk | | 6 | 4 | 4 | 2 | 3 | 2 | 2 | | | 2 | 2 | 1 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | | **465** | **267** | **338** | **323** | **321** | **209** | **208** | **223** | **169** | **230** | **199** | **214** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| 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 Hexavalent Chromium 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-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** | **2002** |
| 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 | 0.29 | 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 Hexavalent Chromium 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** | **2002** |
| 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 | 0.80 |
| | Health Risk | 7 | 9 | 5 | 6 | 5 | | 4 | 4 | 5 | 5 | 3 | 3 | 4 |
| 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 | 0.52 |
| | Health Risk | 186 | 181 | 127 | | 113 | 97 | 60 | 48 | 64 | 60 | 54 | 42 | 48 |
| 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 | 0.15 |
| | Health Risk | 126 | 121 | 82 | | 106 | 94 | 77 | 68 | 77 | 68 | 58 | 49 | 55 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.14 | | | | 0.10 | 0.08 | | 0.12 | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 35 | 36 | | | | 26 | 20 | | 30 | | 26 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | 0.22 | 0.25 | 0.25 | | 0.14 | | | 0.10 | 0.12 | | 0.12 |
| | Health Risk | | | 33 | 37 | 37 | | 21 | | | 15 | 18 | | 18 |
| *para*-Dichlorobenzene | Annual Avg | | 0.10 | 0.10 | | 0.10 | 0.11 | 0.10 | 0.11 | | | 0.11 | 0.13 | 0.15 |
| | Health Risk | | 7 | 7 | | 7 | 7 | 7 | 7 | | | 7 | 9 | 10 |
| 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 | 2.07 |
| | Health Risk | 13 | 14 | 9 | 10 | 12 | | 17 | 16 | 17 | 20 | 12 | 11 | 15 |
| 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 | 0.14 |
| | Health Risk | 2 | 2 | 2 | | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.13 | 0.11 | 0.12 | | 0.07 | 0.06 | 0.07 | 0.09 | 0.03 | | 0.11 | 0.05 | 0.04 |
| | Health Risk | 5 | 5 | 5 | | 3 | 2 | 3 | 4 | 1 | | 4 | 2 | 1 |
| 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** | **175** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 | 1.24 |
| | Health Risk | 9 | 9 | 7 | 8 | 6 | 3 | 6 | 6 | 6 | 8 | 5 | 6 | 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 | 0.55 |
| | Health Risk | 227 | 196 | 126 | 122 | 123 | 107 | 68 | 66 | 71 | 64 | 58 | 50 | 51 |
| 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 | 0.15 |
| | Health Risk | 154 | 135 | 89 | 127 | 121 | 99 | 83 | 73 | 88 | 67 | 59 | 56 | 55 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.11 | | 0.10 | 0.08 | | 0.11 | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 34 | 34 | | 29 | | 26 | 20 | | 30 | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 7 | 7 | 9 | 7 | 8 | 7 | 9 | | | 7 | 9 | 10 |
| 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 | 3.13 |
| | Health Risk | 18 | 13 | 11 | 12 | 13 | 15 | 22 | 20 | 21 | 25 | 19 | 23 | 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 | 0.16 |
| | Health Risk | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 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 | 0.04 |
| | Health Risk | 5 | 5 | 4 | 19 | 3 | 3 | 3 | 2 | 2 | | 3 | 2 | 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** | **172** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| 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 | 0.75 |
| | Health Risk | 5 | 6 | 5 | 6 | 6 | 3 | 4 | 4 | 3 | 4 | 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 | 0.42 |
| | Health Risk | 186 | 112 | 95 | 74 | 100 | 75 | | 58 | 56 | | 51 | 39 | 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 | 0.11 |
| | Health Risk | 105 | 69 | 69 | 85 | 98 | 77 | | 61 | 57 | | 51 | 41 | 40 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.10 | | 0.10 | | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 35 | 34 | | 27 | | 26 | | | | | 25 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | 0.24 | 0.20 | 0.17 | 0.20 | 0.11 | 0.10 | 0.10 | 0.11 | 0.10 | | 0.05 |
| | Health Risk | | | 37 | 30 | 25 | 29 | 16 | 15 | 15 | 16 | 16 | | 8 |
| *para*-Dichlorobenzene | Annual Avg | | 0.10 | 0.11 | 0.13 | 0.12 | 0.11 | | 0.13 | | | | 0.15 | 0.15 |
| | Health Risk | | 7 | 7 | 8 | 8 | 7 | | 8 | | | | 10 | 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 | 2.56 |
| | Health Risk | 9 | 10 | 8 | 11 | 15 | 13 | 15 | 17 | 15 | 18 | 16 | 19 | 19 |
| Methylene Chloride | Annual Avg | 0.58 | 0.59 | 0.81 | 1.01 | 0.57 | 0.57 | | 0.62 | | | 0.65 | 0.16 | 0.13 |
| | Health Risk | 2 | 2 | 3 | 3 | 2 | 2 | | 2 | | | 2 | 1 | 0 |
| Perchloroethylene | Annual Avg | 0.24 | 0.23 | 0.21 | 0.14 | 0.13 | 0.15 | | 0.10 | | | 0.08 | 0.06 | 0.05 |
| | Health Risk | 9 | 9 | 8 | 6 | 5 | 6 | | 4 | | | 3 | 2 | 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** | **146** |

* Concentrations for Hexavalent Chromium 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-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** | **2002** |
| Acetaldehyde | Annual Avg | 1.56 | 1.78 | 1.46 | 1.66 | | | 1.23 | | | 1.17 | 0.92 | 1.11 | 1.20 |
| | Health Risk | 8 | 9 | 7 | 8 | | | 6 | | | 6 | 4 | 5 | 6 |
| 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 | 0.56 |
| | Health Risk | 231 | 203 | 179 | 140 | | 106 | 79 | 82 | 84 | 91 | 69 | 54 | 52 |
| 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 | 0.13 |
| | Health Risk | 145 | 125 | 125 | 150 | | 105 | 95 | 88 | 90 | 90 | 68 | 61 | 50 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | | | 0.10 | 0.08 | | | | 0.10 | 0.09 | 0.09 |
| | Health Risk | 35 | 33 | | | | 27 | 21 | | | | 25 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | 0.24 | 0.18 | | | 0.10 | 0.11 | | 0.10 | 0.10 | | 0.04 |
| | Health Risk | | | 36 | 26 | | | 16 | 17 | | 15 | 15 | | 6 |
| *para*-Dichlorobenzene | Annual Avg | | | 0.12 | 0.13 | | 0.12 | 0.11 | 0.13 | | | | 0.15 | 0.15 |
| | Health Risk | | | 8 | 8 | | 8 | 7 | 8 | | | | 10 | 10 |
| Formaldehyde | Annual Avg | 2.01 | 1.76 | 1.42 | 2.06 | | | 3.14 | | | 2.84 | 2.32 | 2.63 | 3.41 |
| | Health Risk | 15 | 13 | 10 | 15 | | | 23 | | | 21 | 17 | 19 | 25 |
| Methylene Chloride | Annual Avg | 0.59 | 1.07 | 1.87 | 1.25 | | 0.70 | 0.61 | 0.52 | | 0.52 | 0.87 | 0.19 | 0.18 |
| | Health Risk | 2 | 4 | 7 | 4 | | 2 | 2 | 2 | | 2 | 3 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.33 | 0.31 | 0.32 | 0.26 | | 0.35 | 0.17 | 0.15 | | | 0.10 | 0.07 | 0.07 |
| | Health Risk | 13 | 12 | 13 | 10 | | 14 | 7 | 6 | | | 4 | 3 | 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** | **177** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 | 0.97 |
| | Health Risk | 6 | 7 | 6 | 7 | 7 | 3 | 5 | 5 | 4 | 5 | 4 | 5 | 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 | 0.51 | 0.49 |
| | Health Risk | 208 | 158 | 137 | 107 | 129 | 90 | 71 | 70 | 70 | 79 | 60 | 47 | 45 |
| 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 | 0.12 |
| | Health Risk | 125 | 97 | 97 | 117 | 115 | 91 | 78 | 75 | 74 | 83 | 60 | 51 | 45 |
| Carbon Tetrachloride | Annual Avg | 0.13 | 0.13 | | 0.10 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 35 | 34 | | 27 | | 26 | 20 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | 7 | 8 | 8 | 10 | 8 | 7 | 8 | | | | 10 | 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 | 2.99 |
| | Health Risk | 12 | 11 | 9 | 13 | 17 | 16 | 19 | 19 | 17 | 20 | 16 | 19 | 22 |
| 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 | 0.16 |
| | Health Risk | 2 | 3 | 5 | 4 | 3 | 2 | 2 | 2 | | 2 | 3 | 1 | 1 |
| Perchloroethylene | Annual Avg | 0.28 | 0.27 | 0.26 | 0.20 | 0.21 | 0.25 | 0.15 | 0.13 | | | 0.09 | 0.06 | 0.06 |
| | Health Risk | 11 | 11 | 11 | 8 | 8 | 10 | 6 | 5 | | | 4 | 2 | 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** | **154** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | | | | 1.55 | 1.11 | 0.54 | 1.15 | 1.17 | 0.96 | 1.41 | 0.89 | 1.10 | 1.33 |
| | Health Risk | | | | 8 | 5 | 3 | 6 | 6 | 5 | 7 | 4 | 5 | 6 |
| Benzene | Annual Avg | | | | 1.10 | 1.14 | 0.85 | 0.67 | | 0.55 | 0.64 | 0.52 | 0.50 | 0.54 |
| | Health Risk | | | | 102 | 106 | 78 | 62 | | 51 | 59 | 48 | 46 | 50 |
| 1,3-Butadiene | Annual Avg | | | | 0.30 | 0.25 | 0.21 | 0.22 | | 0.17 | 0.15 | 0.14 | 0.16 | 0.15 |
| | Health Risk | | | | 111 | 94 | 77 | 81 | | 64 | 56 | 54 | 59 | 58 |
| Carbon Tetrachloride | Annual Avg | | | | 0.11 | | 0.10 | 0.08 | | | | | 0.09 | 0.09 |
| | Health Risk | | | | 29 | | 26 | 21 | | | | | 23 | 23 |
| Chromium, Hexavalent | Annual Avg | | | | 0.15 | 0.13 | 0.16 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.06 |
| | Health Risk | | | | 23 | 19 | 24 | 16 | 15 | 15 | 15 | 15 | 15 | 9 |
| *para*-Dichlorobenzene | Annual Avg | | | | 0.10 | 0.13 | 0.10 | 0.12 | | | | | 0.13 | 0.15 |
| | Health Risk | | | | 7 | 8 | 7 | 8 | | | | | 9 | 10 |
| Formaldehyde | Annual Avg | | | | 2.08 | 1.78 | 2.04 | 2.99 | 3.42 | 2.63 | 4.15 | 2.76 | 3.25 | 4.47 |
| | Health Risk | | | | 15 | 13 | 15 | 22 | 25 | 19 | 31 | 20 | 24 | 33 |
| Methylene Chloride | Annual Avg | | | | 0.81 | 0.50 | 0.53 | 0.58 | | | | | 0.36 | 0.09 |
| | Health Risk | | | | 3 | 2 | 2 | 2 | | | | | 1 | 0 |
| Perchloroethylene | Annual Avg | | | | 0.06 | 0.27 | 0.05 | 0.05 | | | | | 0.02 | 0.02 |
| | Health Risk | | | | 2 | 11 | 2 | 2 | | | | | 0.9 | 1 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | | | | **300** | **258** | **234** | **220** | **46** | **154** | **168** | **141** | **183** | **190** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 Hexavalent Chromium 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** | **2002** |
| Acetaldehyde | Annual Avg | | | | | 0.96 | 0.25 | 0.90 | 0.93 | 0.88 | | 0.77 | 0.39 | 0.95 |
| | Health Risk | | | | | 5 | 1 | 4 | 4 | 4 | | 4 | 2 | 5 |
| Benzene | Annual Avg | | | | | 0.91 | 0.75 | 0.44 | 0.46 | 0.45 | 0.48 | 0.39 | 0.34 | 0.34 |
| | Health Risk | | | | | 84 | 70 | 40 | 42 | 42 | 44 | 36 | 32 | 32 |
| 1,3-Butadiene | Annual Avg | | | | | 0.19 | 0.17 | 0.14 | 0.12 | 0.14 | 0.11 | 0.10 | 0.09 | 0.08 |
| | Health Risk | | | | | 73 | 63 | 51 | 46 | 52 | 40 | 36 | 35 | 29 |
| Carbon Tetrachloride | Annual Avg | | | | | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | | | | | | 26 | 20 | | | | 25 | 23 | 24 |
| Chromium, Hexavalent | Annual Avg | | | | | 0.13 | 0.19 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 | | 0.05 |
| | Health Risk | | | | | 19 | 29 | 16 | 15 | 15 | 15 | 15 | | 7 |
| *para*-Dichlorobenzene | Annual Avg | | | | | 0.28 | 0.17 | 0.10 | 0.15 | | | 0.10 | 0.13 | 0.15 |
| | Health Risk | | | | | 19 | 11 | 7 | 10 | | | 7 | 9 | 10 |
| Formaldehyde | Annual Avg | | | | | 1.71 | 1.78 | 2.52 | 2.42 | 2.42 | | 2.25 | 1.57 | 3.12 |
| | Health Risk | | | | | 13 | 13 | 19 | 18 | 18 | | 17 | 12 | 23 |
| Methylene Chloride | Annual Avg | | | | | 0.82 | 0.54 | 0.50 | 0.50 | | | 0.52 | 0.23 | 0.08 |
| | Health Risk | | | | | 3 | 2 | 2 | 2 | | | 2 | 1 | 0 |
| Perchloroethylene | Annual Avg | | | | | 0.07 | 0.05 | 0.06 | 0.06 | | | 0.05 | 0.03 | 0.03 |
| | Health Risk | | | | | 3 | 2 | 2 | 3 | | | 2 | 1 | 1 |
| Diesel PM | Annual Avg | No Monitoring Data Available | | | | | | | | | | | | |
| | Health Risk | | | | | | | | | | | | | |
| **Total Health Risk** | | | | | | **219** | **217** | **161** | **140** | **131** | **99** | **144** | **115** | **131** |

* Concentrations for Hexavalent Chromium 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** | **2002** |
| 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 | 0.09 | 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 Hexavalent Chromium 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-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** | **2002** |
| Acetaldehyde | Annual Avg | 1.29 | | | 1.37 | 1.04 | 0.39 | 1.03 | 1.05 | 0.92 | 1.23 | 0.83 | 0.74 | 1.14 |
| | Health Risk | 6 | | | 7 | 5 | 2 | 5 | 5 | 4 | 6 | 4 | 4 | 6 |
| 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 | 0.44 |
| | Health Risk | 187 | 174 | 125 | 92 | 95 | 74 | 51 | 51 | 47 | 52 | 42 | 39 | 41 |
| 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 | 0.12 |
| | Health Risk | 142 | 125 | 106 | 108 | 83 | 70 | 66 | 60 | 58 | 48 | 45 | 47 | 44 |
| Carbon Tetrachloride | Annual Avg | 0.12 | 0.12 | | 0.11 | | 0.10 | 0.08 | | | | 0.09 | 0.09 | 0.09 |
| | Health Risk | 33 | 32 | | 29 | | 26 | 21 | | | | 25 | 23 | 24 |
| 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 | 0.15 |
| | Health Risk | | | 7 | 7 | 14 | 9 | 7 | 10 | | | 7 | 9 | 10 |
| Formaldehyde | Annual Avg | 1.57 | | | 1.77 | 1.75 | 1.91 | 2.76 | 2.92 | 2.52 | 3.61 | 2.51 | 2.41 | 3.79 |
| | Health Risk | 12 | | | 13 | 13 | 14 | 20 | 22 | 19 | 27 | 18 | 18 | 28 |
| 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 | 0.08 |
| | Health Risk | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | | 2 | 2 | 1 | 0 |
| Perchloroethylene | Annual Avg | 0.07 | 0.07 | 0.06 | 0.05 | 0.17 | 0.05 | 0.06 | 0.05 | | | 0.06 | 0.03 | 0.03 |
| | Health Risk | 3 | 3 | 3 | 2 | 7 | 2 | 2 | 2 | | | 2 | 1 | 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** | **154** |

* Concentrations for Hexavalent Chromium 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 1980 through 2010. 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.

Surface areas were calculated based on United States Census Bureau data from the 2000 Census. The surface areas shown reflect land portions of air basins only and exclude water bodies, including bays, lakes, and rivers.

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 1980 through 2010 are found in ARB's revised motor vehicle emissions inventory model, EMFAC2002 version 2.2 (refer to *www.arb.ca.gov/msei/msei.htm*). The VMT estimates have been revised from those published in last year's Almanac,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-1999), 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 (916/322-7062).

## *Great Basin Valleys Air Basin*

### *Surface Area = 13986 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 27700 | 27900 | 29390 | 30870 | 32200 | 34300 | 36000 |
| Avg. Daily VMT/1000 | 687 | 763 | 935 | 899 | 937 | 1093 | 1310 |

Table D-1

## Alpine County

### *Surface Area = 739 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1100 | 1100 | 1090 | 1170 | 1200 | 1300 | 1400 |
| Avg. Daily VMT/1000 | 26 | 27 | 36 | 37 | 41 | 47 | 55 |

Table D-2

## Inyo County

### *Surface Area = 10203 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 17900 | 18000 | 18200 | 18300 | 18100 | 18800 | 19400 |
| Avg. Daily VMT/1000 | 404 | 418 | 547 | 536 | 565 | 656 | 778 |

Table D-3

## Mono County

### *Surface Area = 3044 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 8700 | 8800 | 10100 | 11400 | 12900 | 14200 | 15200 |
| Avg. Daily VMT/1000 | 257 | 318 | 352 | 326 | 331 | 390 | 477 |

Table D-4

# *Lake County Air Basin*

## *Surface Area = 1258 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 36800 | 45600 | 51000 | 56600 | 58600 | 69200 | 77600 |
| Avg. Daily VMT/1000 | 807 | 1090 | 1276 | 1495 | 1545 | 1825 | 2236 |

Table D-5

## *Lake Tahoe Air Basin*

### *Surface Area = 224 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 36200 | 36200 | 39400 | 43700 | 46700 | 55300 | 62800 |
| Avg. Daily VMT/1000 | 600 | 695 | 856 | 1024 | 1082 | 1245 | 1484 |

Table D-6

## El Dorado County

### *Surface Area = 157 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 27700 | 27500 | 30000 | 32800 | 34500 | 40700 | 46200 |
| Avg. Daily VMT/1000 | 418 | 447 | 535 | 625 | 643 | 738 | 887 |

Table D-7 A portion of El Dorado County lies within the Mountain Counties Air Basin.

## Placer County

### *Surface Area = 66 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 8500 | 8700 | 9400 | 10900 | 12200 | 14600 | 16600 |
| Avg. Daily VMT/1000 | 182 | 248 | 321 | 399 | 439 | 507 | 597 |

Table D-8 Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

# *Mojave Desert Air Basin*

## *Surface Area = 27287 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 357400 | 485700 | 676400 | 749300 | 820700 | 921200 | 1012700 |
| Avg. Daily VMT/1000 | 5320 | 9087 | 18237 | 20231 | 22576 | 27466 | 32784 |

Table D-9

## Kern County

## *Surface Area = 3786 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 82600 | 96300 | 111400 | 115400 | 112900 | 130700 | 147700 |
| Avg. Daily VMT/1000 | 1672 | 2473 | 3218 | 3607 | 4022 | 5018 | 6201 |

Table D-10 A portion of Kern County lies within the San Joaquin Valley Air Basin.

## Los Angeles County

## *Surface Area = 1522 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 97500 | 160500 | 231300 | 262100 | 300200 | 319300 | 333000 |
| Avg. Daily VMT/1000 | 1982 | 3240 | 6300 | 6147 | 6567 | 8132 | 9933 |

Table D-11 A portion of Los Angeles County lies within the South Coast Air Basin.

## Riverside County

## *Surface Area = 3054 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 10400 | 13100 | 18500 | 22200 | 25800 | 31000 | 35900 |
| Avg. Daily VMT/1000 | 73 | 123 | 245 | 322 | 390 | 455 | 517 |

Table D-12 Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

## San Bernardino County

*Surface Area = 18923 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 166900 | 215800 | 315200 | 349600 | 381800 | 440200 | 496100 |
| Avg. Daily VMT/1000 | 1593 | 3251 | 8474 | 10155 | 11597 | 13861 | 16133 |

Table D-13 A portion of San Bernardino County lies within the South Coast Air Basin.

# *Mountain Counties Air Basin*

## *Surface Area = 12226 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 229600 | 272800 | 345920 | 385760 | 410550 | 471900 | 522200 |
| Avg. Daily VMT/1000 | 5217 | 6739 | 9171 | 10431 | 11084 | 13252 | 15639 |

Table D-14

## Amador County

## *Surface Area = 593 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 19500 | 22200 | 30450 | 33400 | 35300 | 37600 | 39300 |
| Avg. Daily VMT/1000 | 565 | 700 | 983 | 1127 | 1149 | 1468 | 1712 |

Table D-15

## Calaveras County

## *Surface Area = 1020 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 20900 | 25000 | 32450 | 38350 | 40700 | 47800 | 53400 |
| Avg. Daily VMT/1000 | 569 | 689 | 985 | 1172 | 1209 | 1542 | 2016 |

Table D-16

## El Dorado County

## *Surface Area = 1553 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 58800 | 71600 | 97300 | 112100 | 123800 | 146300 | 165800 |
| Avg. Daily VMT/1000 | 1230 | 1661 | 2204 | 2685 | 2874 | 3386 | 3780 |

Table D-17 A portion of El Dorado County lies within the Lake Tahoe Air Basin.

## Mariposa County

***Surface Area = 1451 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 11200 | 12500 | 14400 | 16450 | 17050 | 19600 | 21500 |
| Avg. Daily VMT/1000 | 264 | 310 | 449 | 503 | 487 | 570 | 691 |

Table D-18

## Nevada County

***Surface Area = 958 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 52500 | 64700 | 79000 | 87100 | 92300 | 106300 | 117300 |
| Avg. Daily VMT/1000 | 1117 | 1582 | 2062 | 2273 | 2434 | 2869 | 3456 |

Table D-19

## Placer County

***Surface Area = 908 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 12000 | 15100 | 20500 | 21800 | 22200 | 26500 | 30200 |
| Avg. Daily VMT/1000 | 237 | 344 | 412 | 504 | 746 | 918 | 1034 |

Table D-20 Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

## Plumas County

***Surface Area = 2553 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 17400 | 18600 | 19800 | 20800 | 20800 | 21900 | 22700 |
| Avg. Daily VMT/1000 | 350 | 403 | 562 | 615 | 667 | 736 | 818 |

Table D-21

## Sierra County

***Surface Area = 953 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 3100 | 3200 | 3320 | 3560 | 3600 | 3700 | 3800 |
| Avg. Daily VMT/1000 | 68 | 77 | 100 | 92 | 99 | 109 | 122 |

Table D-22

## Tuolumne County

***Surface Area = 2235 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 34200 | 39900 | 48700 | 52200 | 54800 | 62200 | 68200 |
| Avg. Daily VMT/1000 | 817 | 973 | 1414 | 1460 | 1419 | 1654 | 2010 |

Table D-23

## *North Central Coast Air Basin*

### *Surface Area = 5156 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 506400 | 565800 | 623000 | 645950 | 712600 | 798400 | 877000 |
| Avg. Daily VMT/1000 | 9059 | 12267 | 16058 | 16656 | 18324 | 19953 | 21723 |

Table D-24

## Monterey County

### *Surface Area = 3321 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 292100 | 327400 | 356800 | 360400 | 402400 | 450300 | 493100 |
| Avg. Daily VMT/1000 | 5757 | 7645 | 9911 | 10123 | 11346 | 12276 | 13237 |

Table D-25

## San Benito County

### *Surface Area = 1389 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 25200 | 29900 | 36900 | 44350 | 53800 | 63600 | 72000 |
| Avg. Daily VMT/1000 | 579 | 830 | 1188 | 1353 | 1498 | 1711 | 1983 |

Table D-26

## Santa Cruz County

### *Surface Area = 445 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 189100 | 208500 | 229300 | 241200 | 256400 | 284500 | 311900 |
| Avg. Daily VMT/1000 | 2723 | 3792 | 4959 | 5180 | 5480 | 5966 | 6503 |

Table D-27

# *North Coast Air Basin*

## *Surface Area = 12339 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 244400 | 258200 | 286750 | 303250 | 310800 | 336900 | 357500 |
| Avg. Daily VMT/1000 | 5480 | 6531 | 8691 | 9098 | 9210 | 10258 | 11726 |

Table D-28

## Del Norte County

## *Surface Area = 1008 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 18300 | 19100 | 24450 | 27850 | 27600 | 31500 | 34500 |
| Avg. Daily VMT/1000 | 413 | 406 | 575 | 594 | 565 | 676 | 829 |

Table D-29

## Humboldt County

## *Surface Area = 3572 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 108900 | 110600 | 119400 | 125000 | 126500 | 132500 | 136500 |
| Avg. Daily VMT/1000 | 2111 | 2418 | 3152 | 3207 | 3194 | 3482 | 3927 |

Table D-30

## Mendocino County

## *Surface Area = 3508 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 67000 | 73400 | 80600 | 83800 | 86700 | 95500 | 103200 |
| Avg. Daily VMT/1000 | 1315 | 1549 | 2142 | 2302 | 2363 | 2709 | 3198 |

Table D-31

## Sonoma County
### *Surface Area = 1071 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 38200 | 42300 | 49300 | 53100 | 57000 | 63600 | 68900 |
| Avg. Daily VMT/1000 | 1392 | 1886 | 2452 | 2638 | 2734 | 2998 | 3313 |

Table D-32 A portion of Sonoma County lies within the San Francisco Bay Area Air Basin.

## Trinity County
### *Surface Area = 3179 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 12000 | 12800 | 13000 | 13500 | 13000 | 13800 | 14400 |
| Avg. Daily VMT/1000 | 249 | 272 | 370 | 357 | 354 | 393 | 459 |

Table D-33

# *Northeast Plateau Air Basin*

## *Surface Area = 14788 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 70500 | 75200 | 81025 | 83875 | 88050 | 97100 | 103800 |
| Avg. Daily VMT/1000 | 1507 | 1707 | 2291 | 2518 | 2251 | 2521 | 2897 |

Table D-34

## Lassen County

## *Surface Area = 4557 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 21800 | 24300 | 27700 | 28900 | 34150 | 39800 | 43400 |
| Avg. Daily VMT/1000 | 397 | 450 | 609 | 721 | 720 | 813 | 931 |

Table D-35

## Modoc County

## *Surface Area = 3944 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 8700 | 9400 | 9675 | 9975 | 9400 | 10100 | 10700 |
| Avg. Daily VMT/1000 | 184 | 197 | 241 | 259 | 250 | 296 | 352 |

Table D-36

## Siskiyou County

## *Surface Area = 6287 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 40000 | 41500 | 43650 | 45000 | 44500 | 47200 | 49700 |
| Avg. Daily VMT/1000 | 926 | 1060 | 1441 | 1538 | 1281 | 1412 | 1614 |

Table D-37

## *Sacramento Valley Air Basin*

### *Surface Area = 14994 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1500900 | 1688200 | 1977600 | 2155550 | 2344950 | 2647200 | 2904700 |
| Avg. Daily VMT/1000 | 27881 | 35762 | 47540 | 52178 | 54681 | 62630 | 70184 |

Table D-38

## Butte County

### *Surface Area = 1639 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 144900 | 161600 | 183200 | 197500 | 203900 | 235000 | 259800 |
| Avg. Daily VMT/1000 | 2525 | 3140 | 4320 | 4549 | 4496 | 4996 | 5762 |

Table D-39

## Colusa County

### *Surface Area = 1151 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 12900 | 14600 | 16300 | 17850 | 18900 | 24200 | 29200 |
| Avg. Daily VMT/1000 | 362 | 441 | 531 | 547 | 550 | 636 | 751 |

Table D-40

## Glenn County

### *Surface Area = 1314 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 21500 | 22900 | 24850 | 26400 | 26550 | 31800 | 36700 |
| Avg. Daily VMT/1000 | 522 | 651 | 725 | 772 | 685 | 789 | 947 |

Table D-41

## Placer County

***Surface Area = 429 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 97900 | 114900 | 145000 | 179000 | 215200 | 257300 | 292500 |
| Avg. Daily VMT/1000 | 2231 | 2783 | 3736 | 4672 | 6034 | 7428 | 8373 |

Table D-42 Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

## Sacramento County

***Surface Area = 966 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 787900 | 890700 | 1046900 | 1120700 | 1229700 | 1368500 | 1486500 |
| Avg. Daily VMT/1000 | 14618 | 18996 | 24774 | 27057 | 27090 | 30519 | 33091 |

Table D-43

## Shasta County

***Surface Area = 3785 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 116600 | 129100 | 148000 | 159700 | 164400 | 185700 | 203500 |
| Avg. Daily VMT/1000 | 2190 | 2728 | 3802 | 4009 | 4068 | 4633 | 5504 |

Table D-44

## Solano County

***Surface Area = 511 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 63800 | 76000 | 98300 | 109100 | 121300 | 136300 | 149000 |
| Avg. Daily VMT/1000 | 961 | 1258 | 2085 | 2334 | 2703 | 3152 | 3522 |

Table D-45 A portion of Solano County lies within the San Francisco Bay Area Air Basin.

## Sutter County
### *Surface Area = 603 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 52600 | 57800 | 64800 | 74200 | 79400 | 90400 | 99600 |
| Avg. Daily VMT/1000 | 895 | 1164 | 1616 | 1769 | 1921 | 2333 | 2922 |

Table D-46

## Tehama County
### *Surface Area = 2951 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 39100 | 44000 | 49850 | 54600 | 56000 | 63400 | 71500 |
| Avg. Daily VMT/1000 | 714 | 823 | 1295 | 1325 | 1279 | 1427 | 1658 |

Table D-47

## Yolo County
### *Surface Area = 1013 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 113900 | 123500 | 141800 | 154600 | 169200 | 188600 | 205000 |
| Avg. Daily VMT/1000 | 2200 | 2932 | 3519 | 3924 | 4577 | 5206 | 5812 |

Table D-48

## Yuba County
### *Surface Area = 631 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 49800 | 53100 | 58600 | 61900 | 60400 | 66000 | 71400 |
| Avg. Daily VMT/1000 | 663 | 846 | 1137 | 1220 | 1278 | 1511 | 1842 |

Table D-49

# *Salton Sea Air Basin*

## *Surface Area = 6304 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 230100 | 270400 | 354200 | 422200 | 471600 | 572800 | 669500 |
| Avg. Daily VMT/1000 | 5232 | 7060 | 11284 | 13002 | 11392 | 12677 | 14181 |

Table D-50

## Imperial County

## *Surface Area = 4174 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 92500 | 98600 | 110100 | 136200 | 146100 | 182500 | 217500 |
| Avg. Daily VMT/1000 | 2289 | 2695 | 3800 | 4019 | 4090 | 4725 | 5490 |

Table D-51

## Riverside County

## *Surface Area = 2129 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 137600 | 171800 | 244100 | 286000 | 325500 | 390300 | 452000 |
| Avg. Daily VMT/1000 | 2943 | 4365 | 7484 | 8983 | 7302 | 7952 | 8691 |

Table D-52 Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

## *San Diego Air Basin and County*

### *Surface Area = 4200 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1873300 | 2109300 | 2504900 | 2615200 | 2830100 | 3149900 | 3388400 |
| Avg. Daily VMT/1000 | 31707 | 43517 | 63591 | 67943 | 73909 | 82660 | 87481 |

Table D-53

# *San Francisco Bay Area Air Basin*

## *Surface Area = 5340 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 5095400 | 5473900 | 5874400 | 6182500 | 6639400 | 7180000 | 7544800 |
| Avg. Daily VMT/1000 | 90066 | 109789 | 133990 | 144854 | 159271 | 172581 | 193300 |

Table D-54

## Alameda County

## *Surface Area = 738 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1109500 | 1196000 | 1276100 | 1335100 | 1452000 | 1580200 | 1671200 |
| Avg. Daily VMT/1000 | 19704 | 24193 | 28991 | 29721 | 32844 | 33918 | 40723 |

Table D-55

## Contra Costa County

## *Surface Area = 720 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 658500 | 710900 | 806300 | 872800 | 954100 | 1021400 | 1071400 |
| Avg. Daily VMT/1000 | 12175 | 15390 | 19335 | 21371 | 23780 | 26978 | 29988 |

Table D-56

## Marin County

## *Surface Area = 520 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 222700 | 220200 | 229900 | 238400 | 247500 | 257600 | 263500 |
| Avg. Daily VMT/1000 | 3714 | 4521 | 5620 | 6028 | 6652 | 7690 | 7857 |

Table D-57

## Napa County
### *Surface Area = 754 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 99300 | 102900 | 111000 | 117300 | 125200 | 135700 | 143900 |
| Avg. Daily VMT/1000 | 1479 | 1739 | 2184 | 2693 | 3000 | 3575 | 3887 |

Table D-58

## San Francisco County
### *Surface Area = 47 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 680500 | 727500 | 723200 | 739900 | 780800 | 793500 | 787500 |
| Avg. Daily VMT/1000 | 8350 | 10041 | 11687 | 11939 | 12661 | 12607 | 13867 |

Table D-59

## San Mateo County
### *Surface Area = 449 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 588100 | 617300 | 648200 | 675900 | 710300 | 765800 | 794600 |
| Avg. Daily VMT/1000 | 12253 | 14516 | 17965 | 20271 | 21677 | 23538 | 25136 |

Table D-60

## Santa Clara County
### *Surface Area = 1291 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1300200 | 1410500 | 1495300 | 1573500 | 1692000 | 1867400 | 1987800 |
| Avg. Daily VMT/1000 | 24779 | 29689 | 35537 | 38834 | 43103 | 46770 | 52405 |

Table D-61

## Solano County

### *Surface Area = 318 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 173400 | 197300 | 244200 | 258400 | 274000 | 307800 | 336500 |
| Avg. Daily VMT/1000 | 3332 | 4282 | 5656 | 5725 | 6469 | 7543 | 8429 |

Table D-62 A portion of Solano County lies within the Sacramento Valley Air Basin.

## Sonoma County

### *Surface Area = 504 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 263200 | 291300 | 340200 | 371200 | 403500 | 450600 | 488400 |
| Avg. Daily VMT/1000 | 4280 | 5418 | 7015 | 8272 | 9085 | 9962 | 11008 |

Table D-63 A portion of Sonoma County lies within the North Coast Air Basin.

## *San Joaquin Valley Air Basin*

### *Surface Area = 23490 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1979800 | 2275800 | 2645200 | 2972600 | 3210800 | 3666300 | 4090900 |
| Avg. Daily VMT/1000 | 32884 | 42075 | 60357 | 71772 | 81055 | 94209 | 107741 |

Table D-64

## Fresno County

### *Surface Area = 5963 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 517400 | 582800 | 670200 | 756000 | 804500 | 893300 | 970900 |
| Avg. Daily VMT/1000 | 8036 | 10288 | 14149 | 16980 | 18920 | 21821 | 24732 |

Table D-65

## Kern County

### *Surface Area = 4355 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 323500 | 377500 | 436600 | 503600 | 553000 | 640600 | 723900 |
| Avg. Daily VMT/1000 | 6239 | 8024 | 11219 | 12695 | 14819 | 17533 | 20632 |

Table D-66 A portion of Kern County lies within the Mojave Desert Air Basin.

## Kings County

### *Surface Area = 1391 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 74200 | 83900 | 101900 | 115900 | 130200 | 149600 | 165300 |
| Avg. Daily VMT/1000 | 980 | 1249 | 1828 | 2887 | 3114 | 3545 | 3885 |

Table D-67

## Madera County

***Surface Area = 2136 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 63900 | 74800 | 88500 | 109900 | 126600 | 152600 | 178900 |
| Avg. Daily VMT/1000 | 1562 | 1957 | 2512 | 2819 | 3553 | 4540 | 5442 |

Table D-68

## Merced County

***Surface Area = 1929 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 135500 | 157000 | 179400 | 199000 | 210500 | 239900 | 266700 |
| Avg. Daily VMT/1000 | 2511 | 2963 | 4849 | 5640 | 6331 | 7152 | 8365 |

Table D-69

## San Joaquin County

***Surface Area = 1399 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 350200 | 417200 | 481900 | 522100 | 567000 | 645600 | 727800 |
| Avg. Daily VMT/1000 | 5748 | 7691 | 10881 | 13190 | 14866 | 17052 | 19318 |

Table D-70

## Stanislaus County

***Surface Area = 1494 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 267700 | 302000 | 373600 | 415300 | 449800 | 522700 | 587600 |
| Avg. Daily VMT/1000 | 3784 | 4823 | 8291 | 9585 | 10549 | 11992 | 13392 |

Table D-71

## Tulare County

***Surface Area = 4824 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 247400 | 280600 | 313100 | 350800 | 369200 | 422000 | 469800 |
| Avg. Daily VMT/1000 | 4024 | 5080 | 6628 | 7976 | 8903 | 10574 | 11975 |

Table D-72

# *South Central Coast Air Basin*

## *Surface Area = 7887 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 988800 | 1119300 | 1255900 | 1319000 | 1405100 | 1540000 | 1668200 |
| Avg. Daily VMT/1000 | 13928 | 19051 | 26992 | 28218 | 30885 | 33432 | 35736 |

Table D-73

## San Luis Obispo County

## *Surface Area = 3304 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 156600 | 184200 | 217800 | 230200 | 247700 | 287000 | 323100 |
| Avg. Daily VMT/1000 | 2649 | 3735 | 5200 | 5418 | 5974 | 6668 | 7533 |

Table D-74

## Santa Barbara County

## *Surface Area = 2737 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 300000 | 338200 | 369000 | 383700 | 400700 | 434400 | 467700 |
| Avg. Daily VMT/1000 | 4819 | 6496 | 9216 | 9004 | 9585 | 10233 | 10736 |

Table D-75

## Ventura County

## *Surface Area = 1845 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 532200 | 596900 | 669100 | 705100 | 756700 | 818600 | 877400 |
| Avg. Daily VMT/1000 | 6460 | 8820 | 12576 | 13796 | 15326 | 16531 | 17467 |

Table D-76

# *South Coast Air Basin*

## *Surface Area = 6480 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 10604600 | 11698000 | 13083500 | 13744900 | 14654200 | 15932600 | 16946000 |
| Avg. Daily VMT/1000 | 158732 | 221550 | 275902 | 290888 | 317873 | 337083 | 358938 |

Table D-77

## Los Angeles County

## *Surface Area = 2538 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 7402800 | 8030400 | 8629000 | 8839000 | 9260200 | 9849800 | 10272200 |
| Avg. Daily VMT/1000 | 111447 | 152496 | 178897 | 181009 | 190484 | 194908 | 202547 |

Table D-78 A portion of Los Angeles County lies within the Mojave Desert Air Basin.

## Orange County

## *Surface Area = 789 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 1944800 | 2166300 | 2412000 | 2604500 | 2854600 | 3099700 | 3266700 |
| Avg. Daily VMT/1000 | 28211 | 41177 | 53543 | 58532 | 65356 | 70251 | 74629 |

Table D-79

## Riverside County

## *Surface Area = 2024 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 521700 | 651500 | 925600 | 1070600 | 1203600 | 1443300 | 1671600 |
| Avg. Daily VMT/1000 | 8452 | 12671 | 22304 | 26846 | 34479 | 40563 | 46039 |

Table D-80 Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

## San Bernardino County

***Surface Area = 1129 square miles***

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 735300 | 849800 | 1116900 | 1230800 | 1335800 | 1539800 | 1735500 |
| Avg. Daily VMT/1000 | 10622 | 15206 | 21158 | 24501 | 27554 | 31361 | 35723 |

Table D-81 A portion of San Bernardino County lies within the Mojave Desert Air Basin.

## *California*

### *Surface Area = 155959 square miles*

| Parameter | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Population | 23781900 | 26402300 | 29828585 | 31711255 | 34036350 | 37473100 | 40262100 |
| Avg. Daily VMT/1000 | 389107 | 517683 | 677171 | 731207 | 796075 | 872885 | 957360 |

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