THE CALIFORNIA ALMANAC OF EMISSIONS AND AIR QUALITY

— 2009 Edition —

This almanac was prepared and published by the staff of the

Planning and Technical Support Division
California Air Resources Board

Principal Authors
Paul Cox, Andy Delao, Anna Komorniczak, and Robert Weller

Preface

This almanac was prepared and published by the Air Resources Board (ARB) staff to aid air quality professionals and the public in evaluating air quality in California (State). The ARB, as part of the California Environmental Protection Agency (CalEPA), 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 (U.S. EPA).

The following staff and managers of the Planning and Technical Support Division contributed to the production of this almanac: Andy Alexis, Dr. Michael Benjamin, Vijay Bhargava, Chris Halm, Martin Johnson, Darryl Look, Elizabeth Melgoza, Sylvia Zulawnick, Chris Nguyen, John Nguyen, Michael Redgrave, Dale Shimp, Webster Tasat, Jon Taylor, and Xijie Zhang. The project was approved by Dr. Linda Murchison, Chief of the Planning and Technical Support Division. The project was managed by Karen Magliano, Chief of the Air Quality Data Branch, Richard Bode, Chief of the Emission Inventory Branch, Karen Buckley, Manager of the Emission Inventory Systems Section, Mena Shah, Manager of the Air Quality Data Section, and Gayle Sweigert, Manager of the Air Quality Analysis Section.

This is the tenth 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 Delao at (916) 324-7169 or *adelao@arb.ca.gov*. For issues related to air toxics data, contact Robert Weller at (916) 322-6158 or *rweller@arb.ca.gov*.

The California Almanac of Emissions and Air Quality - 2009 Edition

Chapter 1: *Introduction*

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

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

Chapter 4: ***Air Basin Trends and Forecasts -- Criteria Pollutants***

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

Chapter 1

Introduction

Overview

This almanac contains information about current and historical air quality and emissions in California. In addition, forecasted emissions are presented. This document is a reference for anyone interested in air quality and emissions for criteria pollutants (ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide) and toxic air contaminants (TACs). When using this information, please remember that the air quality and emission values are a snapshot of data at a particular point in time. This edition of the almanac is a year 2008 snapshot of the air quality and emission inventory databases. It is important to keep in mind that 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 of data.

The information in this document is based on data maintained in ARB's emission and air quality databases. The emission and human population estimates are presented at five-year intervals from 1975 to 2020. Data for vehicle miles traveled (VMT) are also provided at five-year increments, beginning with the year 1980. The air quality statistics in this almanac are for the period 1988 to 2007 for ozone, particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. In addition, available 2008 statistics for preliminary ozone data are included for the five major air basins. Particulate matter (PM) monitoring did not begin until 1999 for $PM_{2.5}$. Therefore, $PM_{2.5}$ data cover the period 1999 through 2007. Air quality monitoring of TACs began in 1983; annual statistics for TACs are available from 1989 onward, and the data for TACs presented in this almanac covers the period 1990 to 2007.

What's New in the 2009 Almanac?

- Updated ozone statistics to reflect revised federal standard
- Updated Ozone Contour maps in Chapter 4.

Organization

This document is divided into five chapters and six appendices that include information, maps, graphs, and tabular data. Chapter 1 contains introductory material. Chapters 2 through 4 and Appendices A and B provide information on the most important criteria pollutants for which health-based ambient air quality standards have been established. Chapter 5 and Appendix C provide information on TACs. Appendix D includes information on population and VMT, and Appendix E contains information on natural emissions. In addition to this information, Appendix F provides lists of the figures and tables included in Chapters 1 through 5 along with a glossary of Air Quality and Emissions terminology.

To help the reader navigate the document, a short summary of each chapter and appendix is provided below:

- **Chapter 1** contains introductory material designed to help the reader better understand the remaining chapters. Included is information about data interpretation, emission estimation, air quality monitoring, the State and national standards, web resources, area designations for the State and national standards, and TACs. A list of air pollution contacts is provided at the end of this chapter.

- **Chapter 2** includes current emissions for oxides of nitrogen (NO_x), reactive organic gases (ROG), PM_{10}, $PM_{2.5}$, CO, and ammonia (NH_3) and air quality data for ozone, PM_{10}, $PM_{2.5}$, and CO for each air basin. The emission data also includes lists of the State's highest emitting facilities. Information is included on how air quality in California compares to other parts of the country.

- **Chapter 3** provides historical emission and air quality trends from a statewide perspective. Statewide emission and air quality trends for ozone, PM_{10}, $PM_{2.5}$, CO, lead, and NO_2 are included. In addition, emission trends for oxides of sulfur (SO_x) are included.

- **Chapter 4** provides historical emission and air quality trends for the State's five most populated regions. The pollutants covered are ozone, PM_{10}, $PM_{2.5}$, CO, and NO_2.

- **Chapter 5** contains emission, air quality, and health risk information on TACs for the State as a whole and for five of California's most populated regions. The ten TACs, including diesel PM, that pose the greatest risk in ambient (outdoor) air are covered. The air quality and health risk trends are based on measured ambient data (except for diesel PM, which is based on estimates of ambient concentrations).

- **Appendix A** includes more detailed emission data for NO_x, ROG, PM_{10}, $PM_{2.5}$, and CO organized alphabetically, by air basin. Also included is a list of the highest emitting facilities in each air basin. Air quality data are provided for the criteria pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2. Data are provided for all air basins and all counties (or county portions) within these air basins.

- **Appendix B** provides emission and air quality information similar to that found in Appendix A, but arranged by pollutant.

- **Appendix C** provides more detailed information on the ten TACs discussed in Chapter 5, 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.

- **Appendix D** provides tabulated information on surface area, population, and VMT for the State, each air basin, and for each county (or county portion) within the air basins.

- **Appendix E** provides emission estimates for natural sources, including wildfires, vegetation (biogenic sources), and oil seeps (geogenic sources).
- **Appendix F** provides lists of the figures and tables included in Chapters 1 through 5. A glossary of terms used in the Almanac is provided at the end of this appendix.

This almanac focuses on air emissions and air quality. The California Environmental Protection Agency (CalEPA) has developed 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 CalEPA's indicators, provide a continuum of information from detailed air quality trends to California's overall environmental health. The most recent set of CalEPA indicators are available at www.oehha.ca.gov/multimedia/epic/.

California Facts and Figures

California is blessed with a wide range of scenery including mountains, valleys, oceans, and deserts. In terms of size, California is larger than many nations in the world today. 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. These coastal areas range from southern California's sunny beaches to northern California's fog-shrouded redwood forests. The inland valleys, with their hot summers and cool winters, have millions of acres of cropland. The Sierra Nevada in the eastern half of California runs nearly two-thirds the length of the State. Most of the southeastern portion of the State is desert, varying from sun-baked Death Valley to 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.

Quick Facts

Over the last 20 years, California's population has nearly doubled and its economy has prospered. However, despite substantial growth, California has made dramatic progress in improving air quality.

- The population increased 33 percent and vehicle miles traveled during this same period increased 46 percent.
- Emissions of ROG and NO_x have been reduced by about 57 percent and 34 percent, respectively.
- The number of unhealthy days with concentrations exceeding the State ozone standards decreased an average of 36 percent.
- Population exposure to values above the State 8-hour ozone standard dropped an average of over 83 percent in the major urban areas.
- The entire state now meets all State and national standards with the exception of ozone and PM.

Despite the magnitude of progress, ozone and PM remain major air quality challenges.

- Today, nearly all Californians live in areas that are designated as nonattainment for the State (about 99 percent) and national (about 93 percent) health-based ozone and/or PM standards.
- Ozone and PM concentrations in the areas with the most severe problems can be as high as two to three times the level of the State standards on the worst days.
- In the major urban areas with the worst air quality problems, the State ozone and PM standards can be exceeded over 140 days per year.

Information on the following pages provides a more in-depth description of the current ozone and PM problems in California.

Quick Facts

Ozone

This map provides a quick look at the ozone air quality in California. It shows the number of unhealthy days with concentrations greater than the State ozone standard (exceedance days) that occurred in each air basin during 2007. It is important to keep in mind that the number of exceedance days reflects all sites in the basin and that the number can be influenced by a few high sites. This map does not show how air quality differs spatially within an area (see Chapter 4).

The ozone air quality problem varies across the State. There are some rural and coastal areas with none to a few exceedance days. Higher values are found in the more urbanized inland areas and desert regions, with over 50 percent of the State's population living in areas with 100 or more days exceeding the State 8-hour standard.

- California's coastal regions have a temperate climate, with relatively cool temperatures and a pattern of onshore/offshore airflow. Both of these factors favor relatively good air quality. As shown in Figure 1-1, most coastal areas, including the Bay Area, Monterey, and San Diego have a small number of exceedance days compared to the inland regions.
- Inland valleys have many more days with sunshine and high temperatures that provide favorable conditions for ozone formation. In addition, frequent temperature inversions coupled with surrounding mountains limit the dispersion of pollutants. The inland regions of the South Coast and the San Joaquin Valley have the most severe ozone air quality problems in the State.
- Further inland, the desert regions pose their own challenges to air quality progress. These regions can be the recipients of ozone transported from upwind areas. Therefore, their progress is linked to the progress made upwind. In addition, the desert regions have more days throughout the year with sunshine and high temperatures, which can contribute to locally generated ozone. The desert regions include the Mojave Desert and eastern Kern, eastern Riverside, and Imperial counties.
- Ozone air quality still poses a substantial challenge in California, but both the maximum concentrations and the number of exceedance days continue to decline. Areas have made tremendous progress over the past several decades. However, despite

Figure 1-1

this progress, the maximum measured 1-hour and 8-hour ozone concentrations in the worst areas were both about twice the level of the respective State standard during 2007. Without a doubt, there is much more to accomplish.

Particulate Matter

The following map shows the estimated number of days in which the State 24-hour PM_{10} standard was exceeded in each air basin of California in 2007. Unlike the ozone map on the previous page which shows an exact count of basinwide exceedance days, the PM_{10} map shows an estimated number of exceedance days. Because PM_{10} samples are sampled only once every 6 days, we estimate the total by extrapolating from the percentage of total monitored days that exceeded the standard. In addition, on the PM_{10} map the data for each air basin reflect only the number of estimated exceedances at the one site with the highest total, whereas the ozone map reflects a composite of exceedance days at all sites in the air basin. During 2007, in the Lake Tahoe air basin, data for the high site was incomplete.

- Generally, the greatest number of estimated exceedance days occurred at sites in the urbanized areas during 2007.
- There were also a relatively high number of days in the Great Basin Valleys Air Basin, where high winds aggravate the local PM_{10} problem.
- In the areas where the estimated number of exceedance days are highest, the South Coast, San Joaquin Valley, San Diego, and Salton Sea air basins, the number tends to be very high. All four of these areas had well over 100 estimated exceedance days during 2007: 273 in South Coast, 145 in San Joaquin Valley, 159 in San Diego, and 219 in Salton Sea.
- Although not shown here, annual PM_{10} concentrations in the worst urban areas were over twice the level of the State PM_{10} standard (in 2007, a maximum of 48 micrograms per cubic meter ($\mu g/m^3$) in the San Joaquin Valley Air Basin and 72 $\mu g/m^3$ in the South Coast Air Basin, compared with a standard of 20 $\mu g/m^3$).

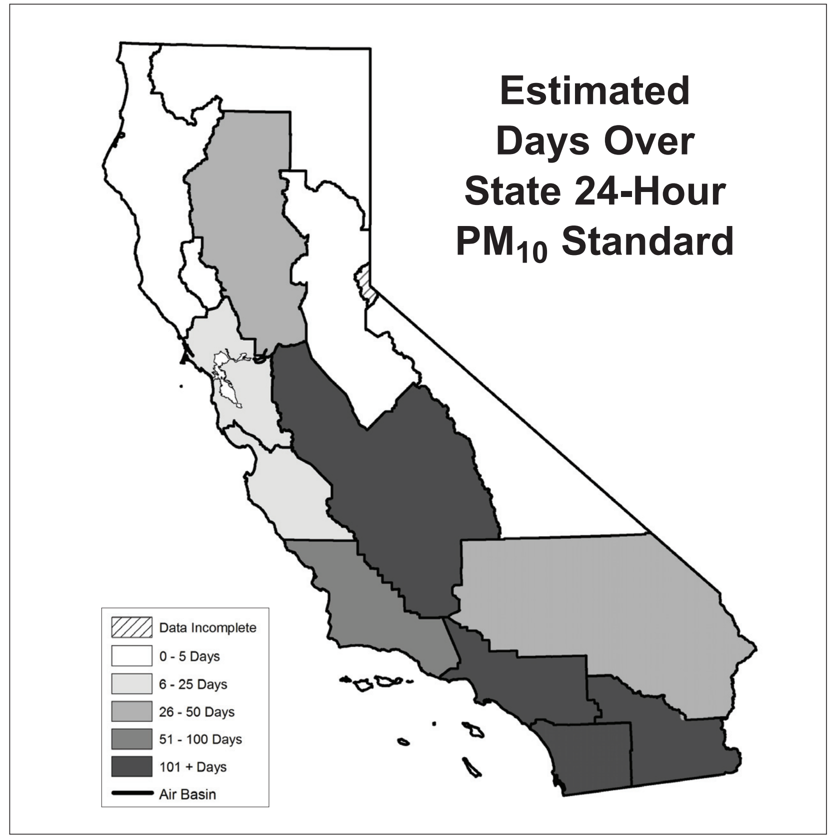


Figure 1-2

- Similar to ozone, PM_{10} still poses substantial challenges. However, over the last 20 years, almost all areas show progress, although at a slower rate relative to ozone. Additional emission controls will be needed to attain the PM_{10} standards in all areas of the State.

Interpreting the Emission and Air Quality Statistics

Interpreting Criteria Pollutant Emission and Air Quality Statistics. A number of pollutant trends are presented in this almanac. Emission and air quality trends for the same pollutant are usually 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 ozone and transported PM 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 an upwind 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. Additionally, measurements may be affected by exceptional events. Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably preventable or controllable. Example of exceptional events include high winds and wildfires. All of these factors should be kept in mind when using and interpreting the trends.

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 and areawide sources were developed using the California Emission Forecasting System (CEFS) model assuming a 2008 base year and California-specific economic projections. These economic projections were prepared by E.H. Pechan and Associates and reflect information provided by local air districts. The stationary source emission forecasts reflect control measure information received from local air districts as of September 2006. Future year emission projections for on- and off-road vehicles were developed using the ARB EMFAC2007 and OFFROAD2007 models, respectively. State Implementation Plan (SIP) and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/planning/sip/sip.htm*.

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 - 2008"*. This report is available on the web at *www.arb.ca.gov/aqd/netrpt/netrpt.htm*, or from the ARB's Planning and Technical Support Division by calling (916) 322-5350.

A number of air quality statistics or indicators are used in this document. In general, 1-hour, 8-hour, and 24-hour concentrations reflect measured values and can be summarized by day, season, or year. These data are also used to determine the number of days in which State or national standards were exceeded. For the most part, this almanac provides data summarized as annual values. In contrast to measured values, the peak indicators are calculated values based on measured data. The peak indicator is used throughout the almanac for air quality trends for State standards. It represents the maximum concentration expected to be exceeded no more than once per year, on average, based on the distribution of the data for each monitoring site. Because it is based on a robust statistical calculation using three years of data, it is relatively stable, thereby providing a trend indicator that is not highly influenced by year-to-year changes in weather. Finally, it is important to point out that the calculated number of days above the State and national PM_{10} and $PM_{2.5}$ standards differ from other pollutants in that they are statistically derived from the measured data. This is because PM monitoring does not occur every day.

Interpreting the Toxic Air Contaminant Emission and Air Quality Statistics. This almanac includes emission data, ambient concentrations, and health risk estimates for the ten toxic air contaminants (TACs) that generally pose the greatest known ambient risk in California. A TAC is defined as "a toxic air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health" (Health and Safety Code section 39655). Numerous factors influence ambient measurements of TACs, and a number of assumptions are embodied in the summary statistics. Only the most important factors are summarized below.

The toxics emission inventory for 2008 represents the most current inventory compiled by the ARB staff. The toxic emissions for stationary sources include emission data from the AB 2588 Air Toxics "Hot Spots" Program. For all source categories associated with diesel fuel combustion, all PM emitted from these sources was considered "diesel PM." The areawide source emissions were estimated by either the local air districts or the ARB staff. These toxic emission estimates were developed by speciating criteria emissions. Emission estimates for the other mobile source categories are primarily from ARB's OFFROAD2007 model, speciated for toxics. For the categories not currently included in the model, the emission estimates have been developed by either local air districts or ARB staff. Local air districts may also provide estimates for categories usually developed by ARB staff. In this case, toxic emissions for all area sources and mobile sources are estimated by speciating criteria pollutants with category specific profiles. Finally, the on-road mobile source emission estimates are based on the current model, EMFAC2007.

Air quality statistics are based on the analysis of monitoring 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. Based on available data, the ten TACs that pose the greatest known ambient risk are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM).

The ARB established the TAC network after the California Legislature enacted a program in 1983 to identify the health effects of TACs and reduce their exposure to protect the public health. The network measures the presence of TACs in the ambient air, and statewide toxics monitoring data are available from 1989 onwards. In general, TAC concentrations are sampled once every twelve days, for an average of two to three samples per month. The measured concentrations are used to represent average statewide concentrations and health risk. It is important to note that actual concentrations can vary from one location to another, and local concentrations and risks may be either higher or lower than the average values. The ARB has also been involved in efforts to better characterize local and community-wide exposures, and more information on these studies is available at *www.arb.ca.gov/ch/ch.htm*.

Since the TAC network began operation, there have been some site changes. In several cases, the site changes occurred during the middle of a year. Because the site-by-site statistics presented in Appendix C do not combine concentrations measured at different sites, an annual average for the year during which the site change occurred will be missing for those sites. Since all of the valid monthly means from each site are included in the air basin or statewide annual average, the site changes may lead to some variation in 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.

During the normal course of monitoring, most of the TACs have experienced some missing data due to sampling or analysis problems, and several TACs show substantial gaps in their data record. The every 12 days sampling schedule only allows for two or three samples to be collected at each site during any month. In order to calculate a valid annual average (a mean of monthly means), each month during the year must have at least one valid measurement. Therefore, if there are no valid data in any given month, data for the year will appear to be missing, even though some data may be available.

In some cases, TAC concentrations are below the level that an instrument can reliably measure. For these measurements, the values are assumed to be one-half the detection limit when estimating an annual average. Table 5-1 in Chapter 5 lists the detection limits for the ten TACs discussed in this almanac. 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, which can contribute significantly to individual health risk.

The health risk estimates reflect the estimated number of excess cancer cases per million people exposed over a 70-year period. These 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). However, it is important to note that there are varying degrees of uncertainty associated with these data. The risks presented are only for the ten compounds considered. In addition, the risk is for the general population's outdoor exposure, and actual health risk may be higher or lower than reported here. Furthermore, 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 other TACs that may pose a substantial health risk. Since risk data do not have precision at the tenth decimal place, risks that are less than one excess cancer case per million people are expressed as "<1".

Meteorology's Role in Air Quality

This almanac presents air quality trends for a 20-year period. These trends reflect the progress achieved through a long history of emission control programs. Besides emissions, the trends are affected by meteorology (weather) and terrain. Meteorology causes year-to-year changes in air quality trends that can mask the benefits of emission reductions. Therefore, this almanac focuses on long-term rather than short-term trends.

Meteorology does not affect all pollutants in all places the same way. Ozone is formed in the atmosphere as sunlight initiates a complex set of chemical reactions. On hot sunny days, the abundant sunlight starts the ozone-forming processes and high temperatures promote fast chemical reactions. If the air is stagnant, the ozone formed is not dispersed or diluted by cleaner air. So, the highest ozone concentrations usually occur on hot and sunny days with light breezes or calm air. In some areas, high ozone levels may represent transport from upwind regions; local weather conditions associated with transport may differ from place to place. Since hot and sunny summer days typically lead to high ozone, it is not surprising that cold and cloudy winter days have much lower concentrations.

California's terrain also plays a role in promoting high levels of pollutants. The mountains that surround the San Joaquin Valley and those that form a barrier to the east of the Los Angeles area tend to retain air within these basins, which limits the dispersion of all pollutants, including ozone.

Meteorology affects PM, though some of its effects on PM differ from its effects on ozone. Ambient PM is comprised of primary PM that is directly emitted and secondary PM that forms in the atmosphere through chemical and physical processes. Primary PM includes dust and soot, while secondary PM includes particulate nitrates and sulfates. Some areas are subject to strong winds that lift dust into the air resulting in high concentrations of primary PM. On November 29, 1991, dry hurricane-force winds in the San Joaquin Valley created a massive dust storm and extremely high PM levels. In other situations, cold, calm, and humid air can promote the buildup of secondary PM. Relatively high PM levels in the South Coast and San Joaquin Valley often occur in the winter under these meteorological conditions. Because winds disperse PM and rain washes PM out of the air, the lowest PM concentrations often occur on rainy winter days.

Meteorology impacts air quality, and year-to-year variations in meteorology can affect year-to-year changes in ambient air quality trends. As a result, meteorological variations add to the difficulty of interpreting long-term air quality trends. However, data for meteorological parameters such as temperature, wind speed, and wind direction can help characterize a year with respect to the weather conditions influencing air pollution. For example, an analysis of daily weather conditions in the South Coast Air Basin showed that there were many days during 1981, 1994, 1995, and 2003 with weather conditions favoring high levels of ozone. In contrast, there were fewer such days during 1986, 1987, 1991, and 1993. A similar analysis of daily weather conditions in the San Joaquin Valley showed a higher than average number of days with high ozone forming potential during 1994, 1996, 2001, 2002, and 2003, while 1997, 1998, and 1999 had a lower than average numbers of such days. Similar to ozone, annual average PM concentrations are also affected by meteorology – in particular, rainfall. In northern California, 1998 had many rainy days which resulted in lower annual average PM concentrations. In contrast, the following year was quite dry, and annual average PM concentrations increased. These year-to-year variations in the average meteorological conditions are reflected in the long-term pollutant trends.

A full accounting of the impact of weather on pollution levels is desirable but challenging. ARB is currently developing methods to account for these impacts when evaluating air qualiy trends.

The Web Resources Section provides information on how to access sources of meteorological data. Sources such as ARB's real-time Air Quality and Meteorological Information System (AQMIS2) allow access to various wind parameters including wind speed/direction, temperature, humidity, and visibility.

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 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.

Stationary source emissions are based on estimates made by facility operators and local air districts. Emissions from specific facilities can be identified by name and location. Area-wide emissions are estimated by ARB and local air 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 biogenic hydrocarbons, geogenic hydrocarbons, natural wind-blown dust, and wildfires.

For the inventoried emission sources, the ARB compiles emission estimates for both the criteria pollutants and TACs. Chapters 2 through 4 and Appendices A and B focus on five criteria pollutants: ozone, PM, CO, NO_2, and SO_2. Emissions related to these criteria pollutants include reactive organic gases (ROG), oxides of nitrogen (NO_x), CO, oxides of sulfur (SO_x), ammonia (NH_3), and directly emitted PM_{10} and $PM_{2.5}$.

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 ROG and NO_x precursor emissions react in the presence of sunlight. 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 precursors include NO_x, ROG, SO_x, and NH_3. 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. Emissions of *Total Organic Gases* (TOG) and *Reactive Organic Gases* (ROG) 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.

In addition to 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 PM. Excluding diesel PM, the remaining nine TACs represent about 94 percent of the potential health risk as measured through the statewide TAC air monitoring network. Although diesel PM is not currently monitored, emissions and modeled ambient concentrations indicate that diesel PM has a higher health risk than the other nine compounds combined. It is important to note that there may be other compounds that pose a substantial risk, but have not yet been identified as a concern and which data are not yet available or are currently under review.

(This page intentionally left blank)

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 1-3, there are more than 250 criteria pollutant monitoring sites in California. Currently, the ARB also monitors ambient concentrations of TACs at 17 of these sites. In addition to the California sites, a few monitoring sites are located in Mexico. These sites were established in cooperation with the 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 1-3

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 1-4 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 PM, as well as their precursors, 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 1-4

List of Counties in Each Air Basin

Great Basin Valleys Air Basin
- Alpine
- Inyo
- Mono

Lake County Air Basin
- Lake

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

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

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

Table 1-1

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

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

Northeast Plateau Air Basin
- Lassen
- Modoc
- Siskiyou

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

List of Counties in Each Air Basin

Salton Sea Air Basin
- Imperial
- Riverside (portion)

San Diego Air Basin
- San Diego

San Francisco Bay Area Air Basin
- Alameda
- Contra Costa
- Marin
- Napa
- San Francisco
- San Mateo
- Santa Clara
- Solano (portion)
- Sonoma (portion)

San Joaquin Valley Air Basin
- Fresno
- Kern (portion)
- Kings
- Madera
- Merced
- San Joaquin
- Stanislaus
- Tulare

Table 1-1 (continued)

South Central Coast Air Basin
- San Luis Obispo
- Santa Barbara
- Ventura

South Coast Air Basin
- Los Angeles (portion)
- Orange
- Riverside (portion)
- San Bernardino (portion)

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, PM_{10}, $PM_{2.5}$, CO, and lead. U.S. EPA recently revised the national PM, ozone, and lead standards. Information on the new PM standards can be found on the U.S. EPA's website at *www.epa.gov/air/particlepollution/actions.html*, on the new ozone standards at *www.epa.gov/air/ozonepollution/actions.html*, and on the new lead standards at *www.epa.gov/air/lead/actions.html*.

For most pollutants the State standards are more stringent than the national standards. 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 (an abbreviated list of the State and national ambient air quality standards can be found on page 1-22, while a complete list can be found on the ARB website at *www.arb.ca.gov/research/aaqs/aaqs.htm*). In general, the air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, the PM standards are expressed as micrograms of particulate matter per cubic meter of air ($\mu g/m^3$) and the ozone standards are expressed in parts per million (ppm).

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 plays a major role 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.

The ARB and EPA are required to periodically review its air quality standards and the most recent health studies to ensure that the standards are adequately protective of human health. Air quality standards have become more stringent over time as new studies have shown adverse impacts at lower concentration levels.

Most recently, ARB and EPA have adopted 8-hour ozone standards designed to protect the public against the chronic health effects from day-long exposures to unhealthy ozone concentrations. California also has a 1-hour standard to protect the public against acute exposures from elevated short-term ozone concentrations.

California's 8-hour ozone standard of 0.070 ppm is the most health-protective ozone standard in the country. On March 12, 2008, U.S. EPA completed their review of the most current health studies and concluded that the level of the national ozone standard at 0.08 ppm was not sufficiently protective of human health. They subsequently adopted a new standard of 0.075 ppm. It will trigger a new set of planning requirements in the next three years which will build upon our current SIP efforts. For more information on the new national ozone standard, please refer to the U.S. EPA's webpage at *www.epa.gov/air/ozonepollution/actions.html*.

State Ozone Standards:
0.070 ppm for 8 hours,
not to be exceeded *and*
0.09 ppm for 1 hour,
not to be exceeded.

National Ozone Standard:
0.075 ppm for 8 hours,
not to be exceeded,
based on the fourth highest
concentration averaged
over three years.

Table 1-2

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

Exposure to PM 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 is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; 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 lowered the level of the state PM_{10} annual standard from 30 $\mu g/m^3$ to 20 $\mu g/m^3$ and established a new annual $PM_{2.5}$ standard of 12 $\mu g/m^3$. The ARB plans to review short-term PM exposure studies in the future to determine if the current State 24-hour PM standards adequately protect public health. Additional information on the State PM standards is available on the ARB's website at *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 (annual of 15 $\mu g/m^3$ and 24-hour of 65 $\mu g/m^3$) to complement the national PM_{10} standards. In 2006, U.S. EPA strengthened the 24-hour $PM_{2.5}$ standard (to 35 $\mu g/m^3$), revoked the annual PM_{10} standard, but maintained the 24-hour PM_{10} standard. SIPs for the revised $PM_{2.5}$ standard are due in 2012.

State PM_{10} Standards:
50 $\mu g/m^3$ for 24 hours
not to be exceeded *and*
20 $\mu g/m^3$ annual arithmetic mean,
not to be exceeded.

State $PM_{2.5}$ Standard:
12 $\mu g/m^3$ annual arithmetic mean,
not to be exceeded.

National PM_{10} Standard:
150 $\mu g/m^3$ for 24 hours, not to be exceeded,
more than once per year.

National $PM_{2.5}$ Standards:
35 $\mu g/m^3$ for 24 hours based on the
98th percentile concentration averaged
over three years, not to be exceeded *and*
15 $\mu g/m^3$ 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

Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
		Concentration	Primary[3]	Secondary[4]
Ozone (O_3)	1 Hour	0.09 ppm	—	—
	8 Hour	0.070 ppm	0.075 ppm	Same as Primary Standard
Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	20 $\mu g/m^3$	—	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	—	35 $\mu g/m^3$	Same as Primary Standard
	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	
Carbon Monoxide (CO)	8 Hour	9.0 ppm	9 ppm	None
	1 Hour	20 ppm	35 ppm	
	8 Hour (Lake Tahoe)	6 ppm	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Same as Primary Standard
	1 Hour	0.18 ppm	—	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	0.030 ppm	—
	24 Hour	0.04 ppm	0.14 ppm	—
	3 Hour	—	—	0.5 ppm
	1 Hour	0.25 ppm	—	—
Lead	30 Day Average	1.5 $\mu g/m^3$	—	—
	3 Month Average	—	.15 $\mu g/m^3$	Same as Primary Standard

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
4. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Table 1-5

(This page intentionally left blank)

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 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 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, ozone and PM 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. The U.S. EPA combines unclassified and attainment into one designation for ozone, PM_{10}, $PM_{2.5}$ and CO. More detailed information on the area designation categories can be found on the ARB's website at *www.arb.ca.gov/desig/desig.htm*.

Ozone - State Area Designations

On April 28, 2005, the ARB approved the nation's most health-protective ozone standard, with special consideration for children's health. The new 8-hour average standard of 0.070 ppm will further protect California's most vulnerable population from the chronic adverse health effects associated with ground-level ozone, or smog. ARB retained the 1-hour standard of 0.09 ppm to continue to protect the public from health effects associated with acute short-term exposures.

Figure 1-5 shows the State ozone designations which became effective July 26, 2007. The designation map on this page reflects the designations as approved by the Board. These designations reflect both the 1-hour and 8-hour standards. In order to be designated as attainment, an area must meet both standards. Because the 8-hour standard is more health-protective, there are now more nonattainment areas than during previous years, when only the 1-hour standard was in effect.

As indicated on the map, only a few areas attain the State ozone standards. However, new air quality plans and emission controls strategies will continue to reduce emissions and move areas closer to attainment.

Figure 1-5

(This page intentionally left blank)

Ozone - National 8-Hour Area Designations

In contrast to State designations, there are only two designation categories for ozone — attainment/unclassified and nonattainment.

Figure 1-6 shows the designations for the national 8-hour standard, which were current as of September 2008, and are based on the previous standard of 0.08 ppm. An area violates the national 8-hour ozone standard if the calculated fourth highest 8-hour concentrations averaged over a three-year period exceeds the level of the standard at any monitoring site in the region. There are 15 nonattainment areas in California, including the State's five largest urban areas. In addition, a number of smaller counties and rural areas exceed the standard. U.S. EPA is required to revise these designations in light of the recently revised standard of 0.075. ARB will submit recommendations for designations in March 2009 to the U.S. EPA. Final designations will be made by EPA in March 2010.

Figure 1-6

PM_{10} - State Area Designations

The majority of California is designated as nonattainment for the State PM_{10} standards. Three areas in the northern half of the State, Siskiyou County, Lake County, and Northern Sonoma Air District, have been 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.

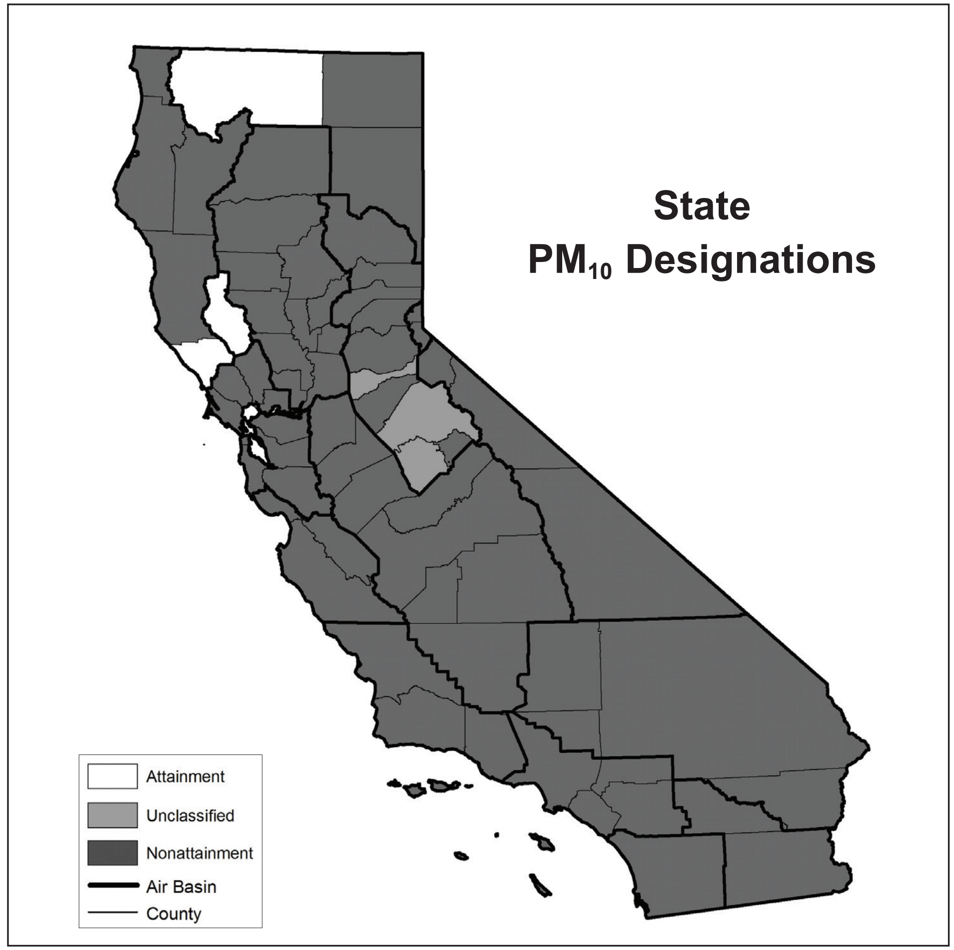


Figure 1-7

PM_{10} - National Area Designations

In contrast to the State PM_{10} designations, there are only two designation categories for the national PM_{10} standard: attainment/unclassified and nonattainment. Areas designated as nonattainment for the national PM_{10} standard are required to develop and implement plans designed to meet the standard. Areas designated as nonattainment, but which meet the national PM_{10} standard, include the South Coast Air Basin, Sacramento County, Mammoth Lakes, Trona (northwestern San Bernardino County), and that portion of San Bernardino County outside of the South Coast Air Basin.

Figure 1-8

$PM_{2.5}$ - State Area Designations

California adopted the new $PM_{2.5}$ standard in 2002. Approximately half of California is designated as nonattainment for the State $PM_{2.5}$ standard, with the Lake County, Lake Tahoe, and North Central Coast air basins and San Luis Obispo County designated as attainment. 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 are also helping reduce $PM_{2.5}$. In addition, as required by legislation enacted in 2003 (Senate Bill 656), ARB assembled a list of measures that can be used by air districts to further reduce PM and PM precursors. Air districts recently adopted implementation schedules for a subset of these measures to address the nature and severity of their PM problem. This list is available on the web at *www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm*.

Figure 1-9

$PM_{2.5}$ - National Area Designations

The U.S. EPA promulgated first time area designations for $PM_{2.5}$ in early 2005. The San Joaquin Valley and South Coast air basins were the only two areas designated as nonattainment and submitted SIPs to the U.S. EPA in 2008 and 2007, respectively. These air basins include major urban areas, as well as some rural areas. Reactions in the atmosphere from precursor gases emitted from combustion sources and direct particulate emissions from mobile sources and burning activities lead to high $PM_{2.5}$ concentrations in these areas.

U.S. EPA promulgated area designations for the recently tightened 24-hour $PM_{2.5}$ standard which will be effective in Spring 2009. Nonattainment areas will submit SIPs in early 2012. Meanwhile, actions taken to reduce ozone, PM_{10}, and diesel PM will also help in reducing $PM_{2.5}$.

The following areas have been designated as nonattainment for the revised National $PM_{2.5}$ standard by the U.S. EPA.

- Butte County AQMD (partial)
- Imperial County APCD (partial)
- South Coast AQMD
- El Dorado County AQMD (partial)
- Placer County APCD (partial)
- Sacramento Metropolitan AQMD
- Yolo-Solano AQMD (partial)
- Bay Area AQMD
- San Joaquin Valley APCD
- Feather River AQMD (partial)

Figure 1-10

Carbon Monoxide - State Area Designations

Currently, there are no areas in the State that exceed the State CO standards. The City of Calexico, in Imperial County, was the last area with concentrations exceeding the standards.

California has made tremendous progress in reducing CO concentrations in the last 12 years, during which a number of areas were redesignated as attainment. Most recently, the City of Calexico was redesignated as attainment. Los Angeles County was also redesignated as attainment in early 2005. Much of the progress in reducing ambient CO is attributable to motor vehicle controls and the introduction of cleaner fuels.

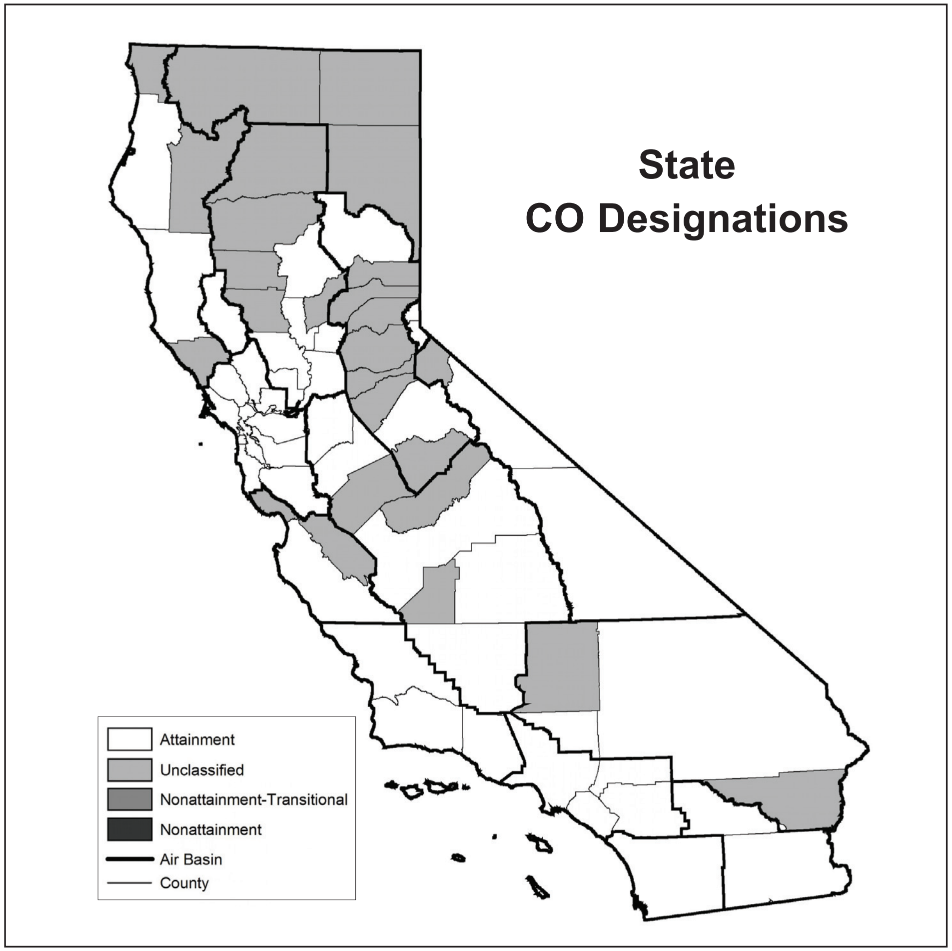


Figure 1-11

Carbon Monoxide - National Area Designations

The U.S. EPA uses only two designation categories for CO: attainment/unclassified and nonattainment. All areas of California are currently designated as attainment/unclassified for the national CO standards. The South Coast Air Basin was the final area to meet the requirements for attainment, and the U.S. EPA redesignated the South Coast as attainment effective June 11, 2007.

Most CO is directly emitted by cars and trucks, and the ARB's motor vehicle controls should be sufficient to continue controlling the problem in the coming years.

Figure 1-12

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 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 are not 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 ARB'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 into the air. This law charges the ARB with the responsibility for identifying substances as TACs, setting priorities for control, adopting control strategies, and promoting alternative processes. The ARB has designated almost 200 compounds as TACs. Additionally, the ARB has implemented control strategies for a number of compounds that pose high health 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 PM). In addition to diesel PM, benzene and 1,3-butadiene are also significant contributors to overall ambient public health risk in California.

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 TACs, diesel PM does not have ambient monitoring data because an accepted measurement method does not currently exist. 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). Currently, the diesel PM estimates are being reviewed to reflect control measures that were outlined in the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (October 2000).

Chapter 5 and Appendix C include 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 known ambient risk based on air quality data, or concentration estimates in the case of diesel PM. 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. Chapter 5 also discusses dioxins, based on available data. Note that other TACs may pose significant health risks, but sufficient air quality data are unavailable for these compounds.

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 TACs 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 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*.

Since Statewide TAC monitoring started in 1989, the ARB has substantially increased its knowledge about TACs, and the data indicate that 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 TACs, 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 1-13

Climate Change

The earth's climate has been warming for the past century. It is believed that this warming trend is related to the release of certain gases, commonly referred to as "greenhouse gases", into the atmosphere. The greenhouse gases (GHG) include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbons. Climate research has identified other greenhouse agents that can drive climate change, particularly tropospheric ozone and atmospheric aerosols (particles containing sulfate, black carbon or other carbonaceous compounds).

Greenhouse gases absorb infrared energy that would otherwise escape from the earth. As the infrared energy is absorbed, the air surrounding the earth is heated. An overall warming trend has been recorded since the late 19^{th} century, with the most rapid warming occurring over the past two decades. The 10 warmest years of the last century all occurred within the last 15 years, and it appears that the decade of the 1990s was the warmest in human history.

It is a fact that human activities have increased the atmospheric abundance of greenhouse gases. There are uncertainties as to exactly what the climate changes will be in various local areas, and what the effects of clouds will be in determining the rate at which the mean temperature will increase. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and the consequence of these effects on the economy. Already, some of these effects have been seen in California.

The United States is one of the leading emitters of greenhouse gases in the world. California's transportation sector is the single largest contributor of GHGs in the State. In the absence of controls, the State's inventory of greenhouse gases would mirror the growth in population. Transportation and land use trends in California would continue to increase greenhouse gas production.

The passage of AB 4420, in 1988, first gave responsibility to the California Energy Commission (CEC), in consultation with the ARB and other agencies, to report on the State's GHG emissions. SB 1771, passed in 2000, required that the CEC update the State's GHG inventory by January 2002 and every five years thereafter. More information on the CEC's climate change activities can be found on the web at *www.energy.ca.gov/climatechange/index.html*.

In 2002, recognizing that global warming would impact California, the legislature approved AB 1493. This bill directed the ARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles. ARB staff's proposal implementing these regulations was approved by the ARB in September 2004. These regulations will be reviewed and may be modified by the California Legislature. More information on ARB's Climate Change regulations can be found on the web at *www.arb.ca.gov/cc/cc.htm*.

In 2006, the responsiblity for maintaining and updating the State's GHG inventory was transferred to the ARB with the passage of AB1803. This is codified in H&SC Section 39607.4 and requires that the ARB manintain and update the State's GHG inventory beginning in January 2007. Also approved was the California Global Warming Solutions Act of 2006 (AB 32) which requires that the ARB develop a strategy to reduce greenhouse gas emissions to 1990 levels by 2020. The Scoping Plan developed by ARB to fulfill this requirement is a comprehensive set of actions designed to reduce overall greenhouse gas emissions in the State, improve our environment, reduce our dependence on foreign oil, diversify our energy sources, save energy, create new jobs, and enhance public health. The Plan was adopted by the Board on December 11, 2008.

California Air Quality Regulation

The responsibility for controlling air pollution in California is shared between 35 local air districts, the ARB, and the U.S. EPA. 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 TACs.
- Provide technical support to the local districts.
- Oversee local district compliance with State and federal law.
- Approve local air quality plans and submit SIPs 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 SIPs.

List of Air Pollution Contacts

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

Antelope Valley Air Quality Management 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.asp

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

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

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

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

Great Basin Unified Air Pollution Control District
All of Alpine, Inyo, and Mono counties
(760) 872-8211
www.gbuapcd.org

Imperial County Air Pollution Control District
All of Imperial County
(760) 482-4606
www.imperialcounty.net/ag/Departments/Air Pollution.htm

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/index.asp?nid=433

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) 233-5522
apcd@modoccounty.us

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.myairdistrict.com

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) 745-2330
www.placer.ca.gov/air.aspx

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) 586-2600
www.sdapcd.org

San Joaquin Valley 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) 781-5912
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
www.co.siskiyou.ca.us/agcomm/airpollution.htm

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 and central portions 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
www.tuolumnecounty.ca.gov

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 crank-case 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 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 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 PM, 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 acts to phaseout MTBE in gasoline.

2000: Tighter emission standards for off-road diesel equipment, such as tractors and generators, take effect nationwide.

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

ARB enacts Diesel Risk Reduction Plan.

2001: First California standards for large spark ignition off-road engines such as forklifts and pumps take effect.

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.

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.

Regulations requiring cleaner fuels in locomotives take effect.

Goods Movement emission reduction plan adopted.

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

Regulations requiring cleaner fuels in ship auxiliary engines and cleaner port-side equipment take effect.

1990 Greenhouse Gas Emission Inventory and mandatory reporting requirements adopted by ARB.

2008: ARB adopts Climate Change Scoping Plan.

ARB adopts Statewide Bus and Truck Regulation.

Upcoming Milestones:

2009: Greenhouse gas emission standards for passenger cars and light trucks take effect.

Regulations reducing diesel emissions from California's estimated 180,000 off-road vehicles used in construction, mining, airport ground support and other industries takes effect.

2011: Tighter emission standards for off-road diesel equipment take effect.

Web Resources (www.arb.ca.gov/californiaalmanac)

Much of the information used to develop the Almanac is accessible through a variety of databases and tools available on the ARB website at *www.arb.ca.gov/californiaalmanac*.

Data

Real-time Air Quality Data - Air Quality and Meteorological Information System (AQMIS2) - Allows access to near real-time air quality and meteorological data. These data are available in tabular summary reports.

Historical Air Quality Data - Aerometric Data Analysis and Management System (iADAM) - Allows access to historical data (data for record) in tabular summary reports or displayed as graphs.

Emission Inventory Data - Allows access to historical and projected emissions, vehicle activity, and human population. Data are available for 2006, as well as for the years 1975-2020 at five year intervals.

Facility Search Engine - Allows users to locate criteria or toxics emissions data for a specific facility.

Top 25 Source Categories - Provides users with emissions for the top 25 highest emitting source categories by geographic area.

Community Level Emissions - Community Health Air Pollution Information System (CHAPIS) - Allows users to query and view emissions using a map interface.

Toxics Emission Factors - California Air Toxics Emission Factor database (CATEF) - Provides over 2000 emission factors to estimate toxic air emissions for specific industrial processes or emissions.

Information

Area Designations - Provides information regarding the designation of areas in California with respect to the State ambient air quality standards.

Air Quality Standards - Provides information on State and national air quality standards.

Central California Air Quality Studies (CCAQS) - Comprises two studies with the goal of providing an improved understanding of PM and visibility in central California.

Climate Change - Information regarding ARB's Climate Change Program.

Goods Movement Plan (GMP) - Presentation materials and policy information on California's Goods Movement Plan.

Community Health - Provides information on Community Health progams in place.

Air Quality Data Monitoring Sites - Air monitoring web site with access to the most recent quality assurance information on any particular air monitoring site. This information consists of pollutants monitored, location, operation information, and photos of the site, if available.

Transport - Information on the movement of ozone and ozone precursors between basins or regions and established mitigation requirements.

(This page intentionally left blank)

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. It should be noted that emission inventories are developed for many purposes, including SIPs, Goods Movement activities, and for other planning and regulatory needs. For this edition of the Almanac, the current emissions data represent a calendar year 2008 snapshot that was developed by growing the 2006 inventory to 2008 and by updating the mobile source estimates using the EMFAC2007 and OFFROAD2007 models.

National, State, and local agencies have implemented many control measures during the three decades to improve air quality. As a result, all national air pollutant standards are attained statewide, except for ozone and particulate matter. However, the challenges that California faces in attainment of these two pollutants is substantial. The severity of California's ozone and $PM_{2.5}$ air quality problem is illustrated in Figures 2-1 through 2-2.

Figure 2-1 shows the national 8-hour ozone design values for the top 15 urban areas in the nation, based on data for 2005 to 2007. The design values in all these areas exceed the national 8-hour standard of 0.075 ppm. Six of the top 15 areas are located in California, with the South Coast Air Basin and San Joaquin Valley areas ranking first and second. This table indicates that we are still far from attainment of the national standard.

In contrast, the $PM_{2.5}$ problem is prevalent in both the eastern United States and in California. Figure 2-2 shows the top $PM_{2.5}$ areas in the nation and their design values for 2005 to 2007. California has two areas that rank in the top 15 in the nation. Values in California's two areas continue to be significantly above the level of the standard.

Although we face many challenges in attaining ozone and $PM_{2.5}$ standards statewide, we have made substantial progress. This progress is a result of our long history of emission control programs and as part of the recently adopted 2007 SIP. The 2007 SIP includes a new series of far reaching and aggressive emission control programs to be developed and implemented at the local, State, and National levels over the next 15 years. These programs are designed to bring the entire State into attainment for the current ozone and $PM_{2.5}$ standards.

The summary table shows emission data by three major source categories: stationary, area-wide, and mobile sources. Emission data for natural sources are provided in Appendix E. 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), PM_{10}, $PM_{2.5}$, CO, and ammonia (NH_3).

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.

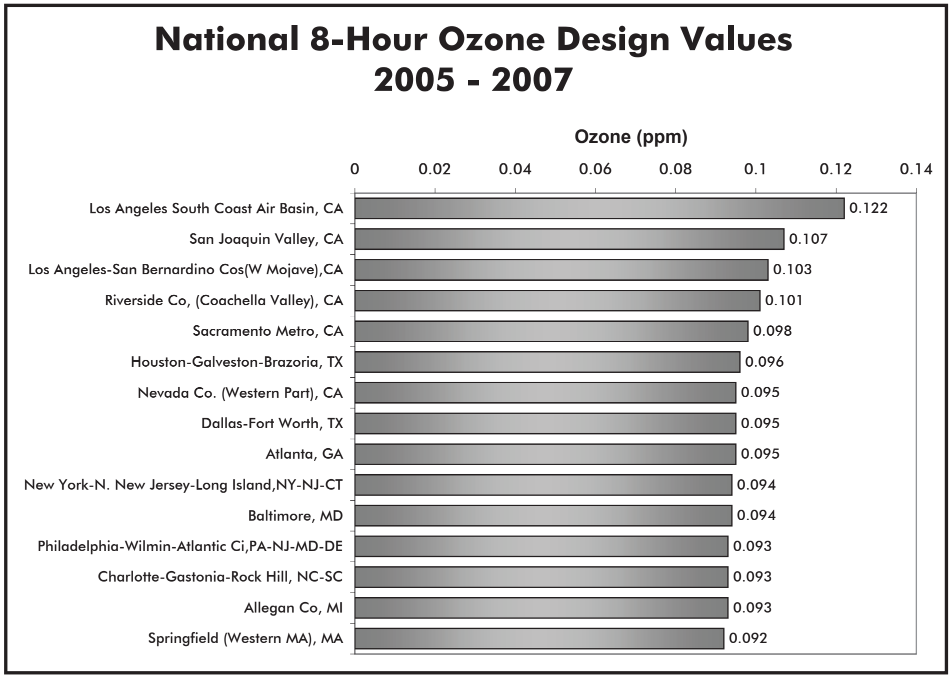


Figure 2-1

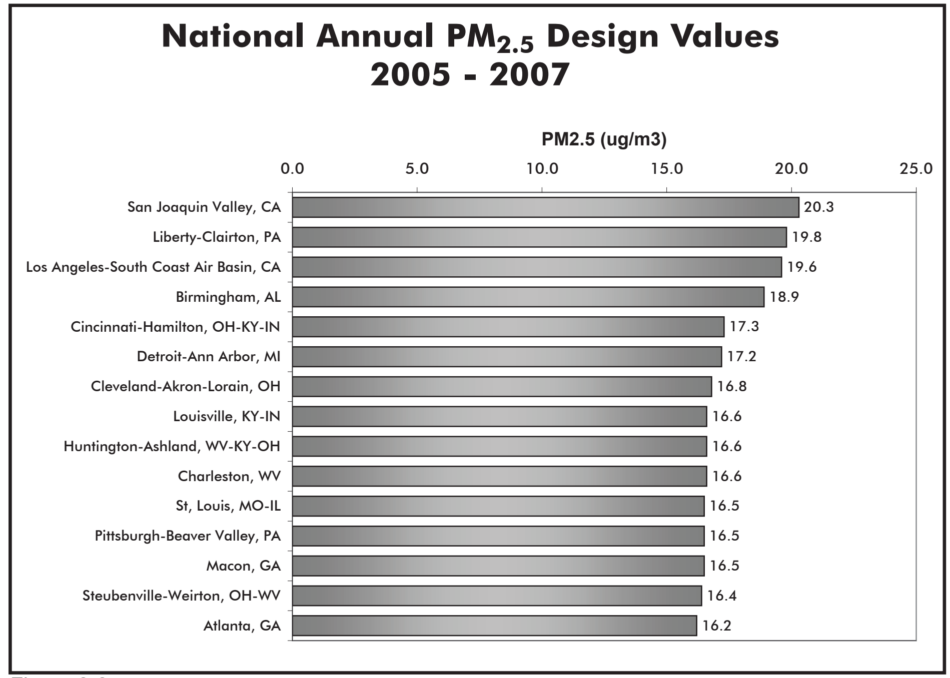


Figure 2-2

2008 Statewide Emission Inventory
Summary

Division Major Category	Emissions (tons/day, annual average) ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
Stationary Sources	**427**	**317**	**368**	**109**	**161**	**95**	**91**
Fuel Combustion	32	245	262	39	34	31	14
Waste Disposal	53	4	3	1	1	1	58
Cleaning And Surface Coatings	142	0	0	0	1	1	0
Petroleum Production And Marketing	135	12	8	40	4	3	2
Industrial Processes	65	56	94	30	121	58	17
Area-Wide Sources	**652**	**1968**	**95**	**6**	**1791**	**448**	**610**
Solvent Evaporation	408	0	0	0	0	0	34
Miscellaneous Processes	243	1968	95	6	1791	448	575
Mobile Sources	**1135**	**9042**	**2747**	**166**	**160**	**133**	**55**
Light Duty Passenger Vehicles	231	2207	189	2	16	9	25
Light and Medium Duty Trucks	231	2568	300	2	19	13	27
Heavy Duty Trucks	119	796	1020	1	40	34	2
Other Onroad	51	529	75	0	2	2	1
Aircraft and Trains	47	313	198	5	13	13	-
Ocean Going Vessels & Commercial Harbor Craft	14	40	315	154	23	22	-
Pleasure Crafts	137	740	40	0	9	7	-
Recreational Vehicles	69	192	2	1	1	1	-
Off-road Equipment	190	1546	503	0	30	27	-
Other Off-road	45	113	104	0	6	6	0
Total Statewide - All Sources**	***2213***	***11327***	***3209***	***281***	***2112***	***677***	***756***

* Includes directly emitted particulate matter only.
** Natural sources are provided in Appendix E. 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 131 tons/day of PM_{10}.

Table 2-1

2008 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3*
	Emissions (tons/day, annual average)						
Stationary Sources (division total)	**427**	**317**	**368**	**109**	**161**	**95**	**91**
Fuel Combustion (major category total)	32	245	262	39	34	31	14
- Electric Utilities	3	36	26	4	6	6	10
- Cogeneration	4	35	22	2	4	3	1
- Oil And Gas Production (Combustion)	9	19	21	2	2	2	0
- Petroleum Refining (Combustion)	3	14	25	12	3	3	1
- Manufacturing And Industrial	3	52	65	14	5	5	1
- Food And Agricultural Processing	4	43	33	1	2	2	0
- Service And Commercial	5	38	53	3	6	6	0
- Other (Fuel Combustion)	2	8	17	1	5	4	0
Waste Disposal (major category total)	53	4	3	1	1	1	58
- Sewage Treatment	1	0	0	0	0	0	2
- Landfills	9	2	1	1	1	0	11
- Incinerators	2	3	2	0	0	0	0
- Soil Remediation	0	0	0	0	0	0	0
- Other (Waste Disposal)	41	0	0	0	0	0	45
Cleaning And Surface Coatings (major category total)	142	0	0	0	1	1	0
- Laundering	1	0	0	0	0	0	0
- Degreasing	34	0	0	0	0	0	0
- Coatings And Related Process Solvents (sub-category total)	65	0	0	0	1	1	0
- Auto Marine, & Aircraft	*23*	*0*	*0*	*0*	*0*	*0*	*0*
- Paper & Fabric	*3*	*0*	*0*	*0*	*0*	*0*	*0*
- Metal, Wood, & Plastic	*23*	*0*	*0*	*0*	*0*	*0*	*0*
- Other	*16*	*0*	*0*	*0*	*1*	*1*	*0*

* Includes directly emitted particulate matter only.

Table 2-2

2008 Statewide Emission Inventory by Sub-Category

Division / Major Category / Sub-Category	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
	Emissions (tons/day, annual average)						
Stationary Sources (division total) ***(continued)***							
Cleaning And Surface Coatings (major category) *(continued)*							
- Printing	16	0	0	0	0	0	0
- Adhesives And Sealants	20	0	0	0	0	0	0
- Other (Cleaning And Surface Coatings)	6	0	0	0	0	0	0
Petroleum Production And Marketing (major category total)	135	12	8	40	4	3	2
- Oil And Gas Production	42	2	3	0	0	0	0
- Petroleum Refining	12	10	5	39	4	3	2
- Petroleum Marketing (sub-category total)	80	0	0	0	0	0	0
- Fuel Distribution Losses	*6*	*0*	*0*	*0*	*0*	*0*	*0*
- Fuel Storage Losses	*2*	*0*	*0*	*0*	*0*	*0*	*0*
- Vehicle Refueling	*40*	*0*	*0*	*0*	*0*	*0*	*0*
- Other	*32*	*0*	*0*	*0*	*0*	*0*	*0*
- Other (Petroleum Production And Marketing)	0	0	0	0	0	0	0
Industrial Processes (major category total)	65	56	94	30	121	58	17
- Chemical	22	1	2	4	4	4	1
- Food And Agriculture	20	2	9	1	16	7	0
- Mineral Processes	5	42	65	21	67	24	1
- Metal Processes	0	1	1	0	1	1	0
- Wood And Paper	4	2	2	0	14	9	0
- Glass And Related Products	0	1	10	3	2	1	1
- Electronics	0	0	0	0	0	0	0
- Other (Industrial Processes)	14	6	5	1	17	12	15

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2008 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average)						
	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
Area-Wide Sources (division total)	**652**	**1968**	**95**	**6**	**1791**	**448**	**610**
Solvent Evaporation (major category total)	408	0	0	0	0	0	34
- Consumer Products	240	0	0	0	0	0	0
- Architectural Coatings And Related Process Solvent (sub-category total)	86	0	0	0	0	0	0
- Architectural Coating	*73*	*0*	*0*	*0*	*0*	*0*	*0*
- Thinning & Cleanup Solvents	*13*	*0*	*0*	*0*	*0*	*0*	*0*
- Pesticides/Fertilizers (sub-category total)	51	0	0	0	0	0	34
- Farm Use	*49*	*0*	*0*	*0*	*0*	*0*	*0*
- Commercial Use	*2*	*0*	*0*	*0*	*0*	*0*	*0*
- Asphalt Paving / Roofing	32	0	0	0	0	0	0
- Other (Solvent Evaporation)	-	-	-	-	-	-	-
Miscellaneous Processes (major category total)	243	1968	95	6	1791	448	575
- Residential Fuel Combustion (sub-category total)	53	779	69	4	113	109	6
- Wood Combustion	*50*	*752*	*10*	*1*	*108*	*104*	*6*
- Cooking And Space Heating	*3*	*23*	*49*	*2*	*5*	*5*	*0*
- Other	*0*	*4*	*10*	*0*	*1*	*1*	*0*
- Farming Operations (sub-category total)	116	0	0	0	163	40	505
- Tilling,Harvesting, & Growing	*0*	*0*	*0*	*0*	*130*	*19*	*0*
- Livestock	*116*	*0*	*0*	*0*	*33*	*20*	*505*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2008 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	Emissions (tons/day, annual average)						
	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
Area-Wide Sources (division total) ***(continued)***							
Miscellaneous Processes (major category) *(continued)*							
- Construction And Demolition (sub-category total)	0	0	0	0	209	21	0
- Building	*0*	*0*	*0*	*0*	*120*	*12*	*0*
- Road Construction Dust	*0*	*0*	*0*	*0*	*90*	*9*	*0*
- Paved Road Dust	0	0	0	0	395	59	0
- Unpaved Road Dust	0	0	0	0	479	48	0
- Fugitive Windblown Dust (sub-category total)	0	0	0	0	287	45	0
- Farm Lands	*0*	*0*	*0*	*0*	*161*	*28*	*0*
- Pasture Lands	*0*	*0*	*0*	*0*	*13*	*2*	*0*
- Unpaved Roads	*0*	*0*	*0*	*0*	*113*	*15*	*0*
- Fires	1	10	0	0	1	1	0
- Managed Burning And Disposal (sub-category total)	67	1177	26	2	110	100	4
- Agricultural Burning	*22*	*233*	*13*	*1*	*29*	*27*	*3*
- Non-Agricultural Burning	*44*	*930*	*12*	*2*	*79*	*72*	*1*
- Other	*1*	*14*	*0*	*0*	*2*	*1*	*0*
- Cooking	7	0	0	0	32	24	0
- Other (Miscellaneous Processes)	0	1	0	0	1	1	61

* Includes directly emitted particulate matter only.

** Agricultural burning includes the prescribed burning of prunings and field crops. Non-agricultural burning includes prescribed burning activities associated with range improvement, forest management, wildland fire use, and weed abatement.

Table 2-2 (continued)

2008 Statewide Emission Inventory by Sub-Category

Division / Major Category / Sub-Category	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
	Emissions (tons/day, annual average)						
Mobile Sources (division total)	**1135**	**9042**	**2747**	**166**	**160**	**133**	**55**
On-Road Motor Vehicles (major category total)	632	6099	1585	5	77	58	55
- Light Duty Passenger (sub-category total)	231	2207	189	2	16	9	25
- Non-Evaporative	*122*	*2206*	*187*	*2*	*16*	*9*	*25*
- Evaporative	*109*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*1*	*2*	*0*	*0*	*0*	*0*
- Light Duty Trucks(<3750 lbs.) (sub-category total)	79	812	74	1	4	2	5
- Non-Evaporative	*43*	*809*	*66*	*0*	*4*	*2*	*5*
- Evaporative	*36*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*3*	*8*	*0*	*0*	*0*	*0*
- Light Duty Trucks (>3750 lbs) (sub-category total)	104	1160	146	1	11	7	12
- Non-Evaporative	*55*	*1160*	*146*	*1*	*11*	*7*	*12*
- Evaporative	*48*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*0*	*0*	*0*	*0*
- Medium Duty Trucks (sub-category total)	49	596	80	1	5	3	10
- Non-Evaporative	*31*	*595*	*79*	*1*	*5*	*3*	*10*
- Evaporative	*17*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*1*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs) (sub-category total)	24	197	33	0	1	0	2
- Non-Evaporative	*15*	*197*	*33*	*0*	*1*	*0*	*2*
- Evaporative	*9*	*0*	*0*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (>10000 lbs) (sub-category total)	8	64	9	0	0	0	0
- Non-Evaporative	*5*	*64*	*9*	*0*	*0*	*0*	*0*
- Evaporative	*4*	*0*	*0*	*0*	*0*	*0*	*0*
- Medium Heavy Duty Gas Trucks (sub-category total)	16	147	16	0	0	0	0
- Non-Evaporative	*12*	*147*	*16*	*0*	*0*	*0*	*0*
- Evaporative	*4*	*0*	*0*	*0*	*0*	*0*	*0*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2008 Statewide Emission Inventory by Sub-Category

Division / Major Category / Sub-Category	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
	Emissions (tons/day, annual average)						
Mobile Sources (division total) *(continued)*							
On-Road Motor Vehicles (major category) *(continued)*							
- Heavy Heavy Duty Gas Trucks (sub-category total)	9	127	18	0	0	0	0
- Non-Evaporative	*8*	*127*	*18*	*0*	*0*	*0*	*0*
- Evaporative	*1*	*0*	*0*	*0*	*0*	*0*	*0*
- Light Heavy Duty Gas Trucks (<10000 lbs)	1	5	28	0	0	0	0
- Light Heavy Duty Gas Trucks (>10000 lbs)	1	4	22	0	0	0	0
- Medium Heavy Duty Diesel Trucks	3	28	137	0	4	3	0
- Heavy Heavy Duty Diesel Trucks	57	224	757	1	34	30	0
- Motorcycles (Mcy) (sub-category total)	44	413	11	0	0	0	0
- Non-Evaporative	*35*	*413*	*11*	*0*	*0*	*0*	*0*
- Evaporative	*9*	*0*	*0*	*0*	*0*	*0*	*0*
- Heavy Duty Diesel Urban Buses	1	6	29	0	1	0	0
- Heavy Duty Gas Urban Buses (sub-category total)	1	11	2	0	0	0	0
- Non-Evaporative	*1*	*11*	*2*	*0*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- School Buses (sub-category total)	1	13	14	0	1	0	0
- Non-Evaporative	*1*	*10*	*1*	*0*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*3*	*13*	*0*	*1*	*0*	*0*
- Other Buses (sub-category total)	2	21	10	0	0	0	0
- Non-Evaporative	*1*	*19*	*3*	*0*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*1*	*6*	*0*	*0*	*0*	*0*
- Motor Homes (sub-category total)	2	66	10	0	0	0	0
- Non-Evaporative	*2*	*65*	*6*	*0*	*0*	*0*	*0*
- Evaporative	*0*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*0*	*0*	*4*	*0*	*0*	*0*	*0*

* Includes directly emitted particulate matter only.

Table 2-2 (continued)

2008 Statewide Emission Inventory by Sub-Category

Division Major Category Sub-Category	ROG	CO	NO_x	SO_x	PM_{10}*	$PM_{2.5}$*	NH_3
	Emissions (tons/day, annual average)						
Mobile Sources (division total) *(continued)*							
Other Mobile Sources (major category total)	502	2943	1162	160	82	75	0
- Aircraft	35	278	57	4	9	9	0
- Trains	12	35	141	1	4	4	0
- Ocean Going Vessels (sub-category total)	10	20	250	154	20	20	0
- Residual Oil	*8*	*16*	*204*	*146*	*19*	*18*	*0*
- Diesel	*1*	*3*	*46*	*9*	*1*	*1*	*0*
- Commercial Harbor Craft	5	20	65	0	3	3	*0*
- Pleasure Craft (sub-category total)	137	740	40	0	9	7	*0*
- Non-Evaporative	*95*	*739*	*37*	*0*	*9*	*7*	*0*
- Evaporative	*42*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*1*	*1*	*2*	*0*	*0*	*0*	*0*
- Off-Road Recreational Vehicles (sub-category total)	69	192	2	1	1	1	0
- All-Terrain Vehicles	*17*	*49*	*1*	*0*	*0*	*0*	*0*
- Motorcycles	*41*	*67*	*0*	*0*	*0*	*0*	*0*
- Snowmobiles	*8*	*22*	*0*	*0*	*0*	*0*	*0*
- Golf Carts, Specialty Carts & Minibikes	*3*	*53*	*1*	*0*	*0*	*0*	*0*
- Off-Road Equipment (sub-category total)	190	1546	503	0	30	27	0
- Lawn And Garden Equipment	*90*	*564*	*13*	*0*	*2*	*1*	*0*
- Non-Evaporative	*47*	*561*	*7*	*0*	*1*	*1*	*0*
- Evaporative	*42*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*1*	*3*	*6*	*0*	*0*	*0*	*0*
- Commercial & Industrial Equipment	*99*	*969*	*489*	*0*	*28*	*26*	*0*
- Non-Evaporative	*22*	*624*	*25*	*0*	*2*	*2*	*0*
- Evaporative	*11*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*65*	*253*	*448*	*0*	*26*	*24*	*0*
- Natural Gas	*0*	*91*	*17*	*0*	*0*	*0*	*0*
- Farm Equipment (sub-category total)	21	113	104	0	6	6	0
- Non-Evaporative	*2*	*63*	*2*	*0*	*0*	*0*	*0*
- Evaporative	*3*	*0*	*0*	*0*	*0*	*0*	*0*
- Diesel	*16*	*50*	*102*	*0*	*6*	*6*	*0*
- Fuel Storage and Handling	24	0	0	0	0	0	0
Total Statewide - All Sources**	***2213***	***11327***	***3209***	***281***	***2112***	***677***	***756***

* Includes directly emitted particulate matter only.

** Natural sources are provided in Appendix E. 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 131 tons/day of PM_{10}.

Table 2-2 (continued)

Ozone
2008 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 85 percent of the total statewide NO_x emissions. Area-wide sources, which include residential fuel combustion and managed burning and disposal, contribute only a small portion of the total NO_x emissions.

ROG Sources - Statewide

ROG are VOCs 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. 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, farming operations, and other evaporative emissions.

NO_X Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	368	11%
Area-wide Sources	95	3%
On-Road Mobile	1585	49%
Gasoline Vehicles	627	20%
Diesel Vehicles	957	30%
Other Mobile	1162	36%
Gasoline Vehicles	278	9%
Diesel Vehicles	810	25%
Other	74	2%
Total Statewide	***3209***	***100%***

Table 2-3

ROG Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	427	19%
Area-wide Sources	652	29%
On-Road Mobile	632	29%
Gasoline Vehicles	570	26%
Diesel Vehicles	62	3%
Other Mobile	502	23%
Gasoline Vehicles	367	17%
Diesel Vehicles	100	5%
Other	36	2%
Total Statewide	***2213***	***100%***

Table 2-4

Largest Stationary Sources Statewide

Largest Stationary Sources of NO_x Statewide

Air Basin	Facility Name	City	Tons/Year
Mojave Desert	Cemex Quarry	Apple Valley	4955
Mojave Desert	TXI Riverside Cement Company	Oro Grande	4446
Mojave Desert	California Portland Cement	Mojave	3126
Mojave Desert	Mitsubishi Cement	Lucerne Valley	2789
San Francisco Bay Area	Valero Refining Company - California	Benicia	2253
Mojave Desert	Searles Valley Minerals	Trona	1982
San Francisco Bay Area	Tesoro Refining And Marketing	Martinez	1635
San Francisco Bay Area	Hanson Permanente Cement	Cupertino	1364
San Francisco Bay Area	Shell Martinez Refinery	Martinez	1279
Mojave Desert	PG&E Topock Compressor Station	Needles	1261

Table 2-5

Largest Stationary Sources of ROG Statewide

Air Basin	Facility Name	City	Tons/Year
San Francisco Bay Area	Chevron Products Company	Richmond	1152
San Francisco Bay Area	Shell Martinez Refinery	Martinez	991
San Francisco Bay Area	Tesoro Refining And Marketing	Martinez	969
San Francisco Bay Area	New United Motor Manufacturing	Fremont	661
South Coast	ExxonMobil Oil Corporation	Torrance	626
South Coast	Chevron Products	El Segundo	588
South Coast	BP West Coast Products Carson Refinery	Carson	526
San Joaquin Valley	Equilon Enterprises	Bakersfield	395
San Joaquin Valley	E&J Gallo Winery	Fresno	381
San Diego	National Steel & Shipbuilding General Dynamics	San Diego	298

Table 2-6

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.

Statewide Emissions Maps - Ozone Precursors

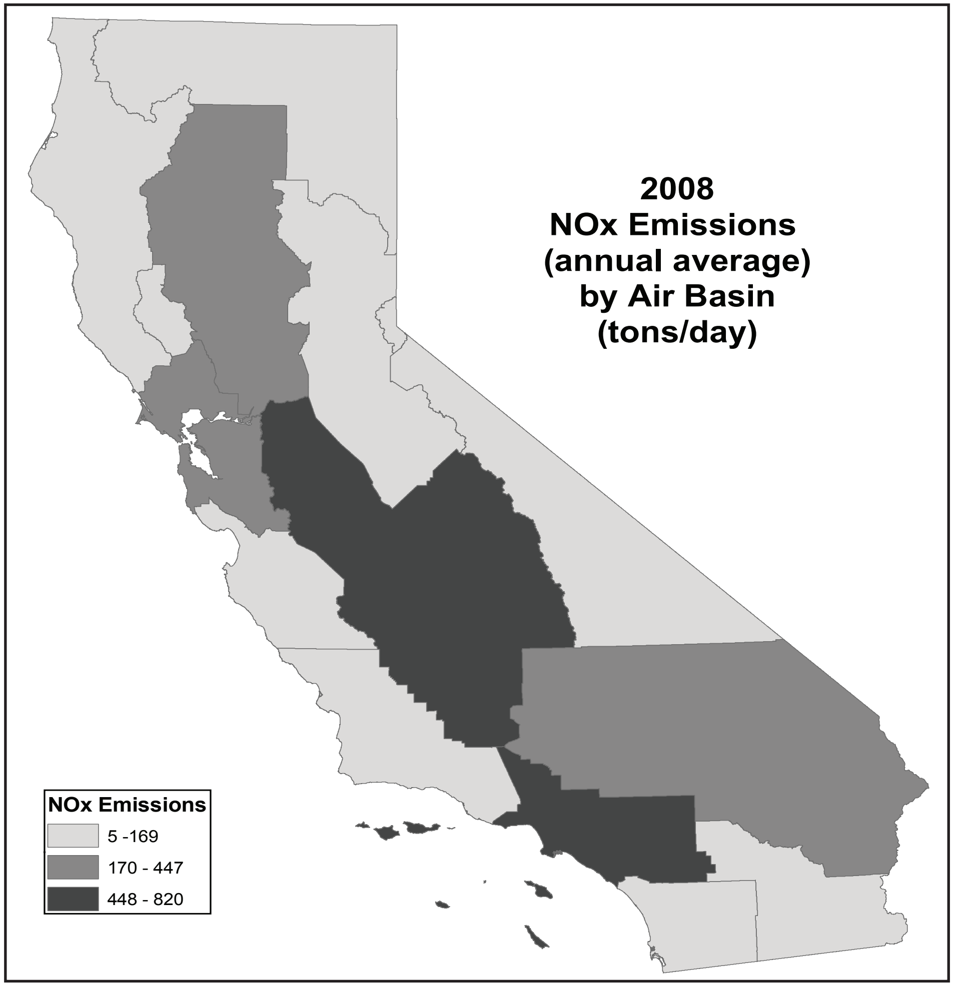


Figure 2-3

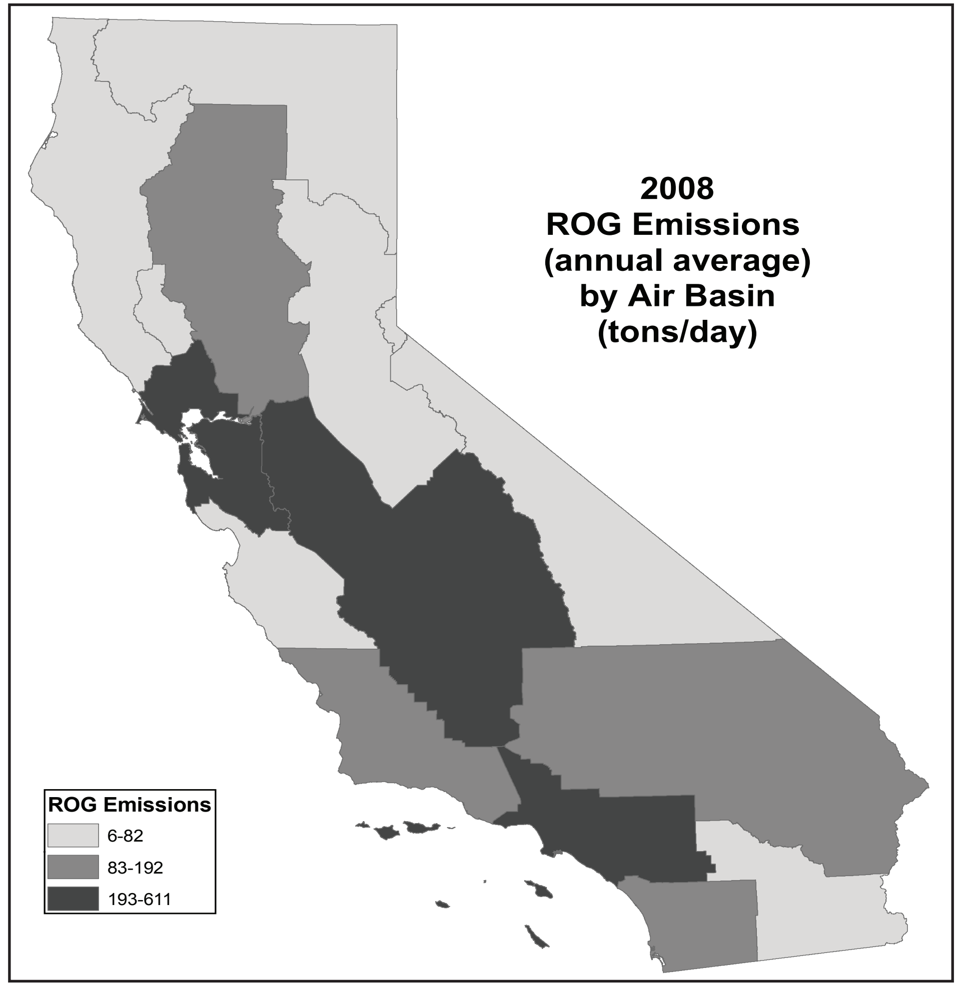


Figure 2-4

(This page intentionally left blank)

Ozone - 2007 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 still exceed the State 1-hour and national 8-hour standards in 11 of the 15 air basins. California's highest ozone concentrations occur in the South Coast Air Basin, where the peak 1-hour and 8-hour indicators are close to two times the level of the State standards.

Ozone concentrations are generally lower near the coast than they are inland. The inland regions typically experience some of the higher ozone concentrations. This is because there are many more days with hot temperatures and stagnant conditions that are conducive to ozone formation. Typically, they also have mountain ranges which keep pollutants trapped. Based on current ozone concentrations, substantial additional emission control measures will be needed to attain the standards throughout the State. 2007 air quality data for California's five largest air basins can be found in Chapter 4, along with preliminary 2008 ozone data.

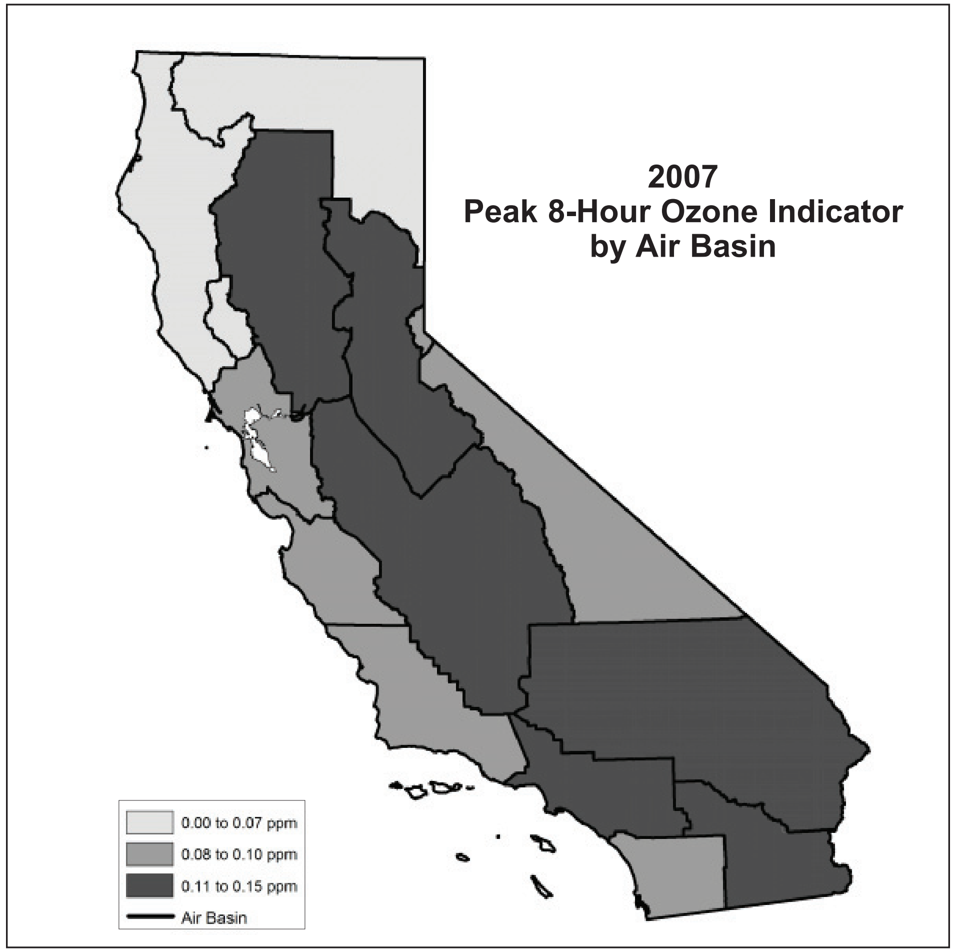


Figure 2-5

Ozone - 2007 Air Quality Tables

Peak 1-Hour and 8-Hour Indicator and Exceedance Days by Air Basin

AIR BASIN	2007 Maximum Peak Indicator in parts per million		Number of Days in 2007 above the Standard		
			State		National
	1-Hour	8-Hour	1-Hour	8-Hour	8-Hour
Great Basin Valleys Air Basin	0.097	0.095	3	35	18
Lake County Air Basin	0.074	0.067	0	0	0
Lake Tahoe Air Basin	0.080	0.076	0	5	0
Mojave Desert Air Basin	0.135	0.120	50	124	98
Mountain Counties Air Basin	0.126	0.114	19	88	57
North Central Coast Air Basin	0.097	0.086	1	17	3
North Coast Air Basin	0.076	0.067	0	0	0
Northeast Plateau Air Basin	0.077	0.073	0	0	0
Sacramento Valley Air Basin	0.132	0.118	15	61	34
Salton Sea Air Basin	0.130	0.117	39	99	68
San Diego Air Basin	0.116	0.101	21	50	27
San Francisco Bay Area Air Basin	0.122	0.095	4	9	2
San Joaquin Valley Air Basin	0.142	0.124	69	138	110
South Central Coast Air Basin	0.113	0.101	9	76	35
South Coast Air Basin	0.159	0.140	96	127	108

Table 2-7

National 8-Hour Nonattainment Areas: Design Values and 8-Hour Exceedance Days by Area*

Area	Design Values	Exceedance Days	Percent above Standard
South Coast Air Basin	0.122	108	63%
San Joaquin Valley	0.107	110	43%
Sacramento Metro Area	0.098	38	31%
Ventura	0.088	21	17%
San Diego	0.089	27	19%
San Francisco Bay Area	0.077	2	3%
Western Nevada	0.095	37	27%
Central Mountain Counties	0.090	6	20%
Southern Mountain Counties	0.085	35	13%
Eastern Kern	0.085	6	13%
Coachella Valley	0.101	63	35%
Antelope Valley and Western Mojave Desert	0.103	96	37%
Imperial	0.087	27	16%
Butte County	0.084	12	12%
Sutter Buttes	0.081	7	8%

* Based on areas designated nonattainment for the 0.08 ppm standard in 2004. EPA will be revising designations in 2010, based on the new 0.075 ppm standard.

Table 2-8

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

Great Basin Valleys Air Basin
- Death Valley Nat'l Monument

Lake Tahoe Air Basin
- South Lake Tahoe-1901 Airport Rd

Mojave Desert Air Basin
- Joshua Tree-National Monument
- Hesperia-Olive Street
- Phelan-Beekley Rd & Phelan Rd
- Lancaster-43301 Division Street
- Victorville-14306 Park Avenue

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

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

Northeast Plateau Air Basin
- Yreka-Foothill Drive

Sacramento Valley Air Basin
- Folsom-Natoma Street
- Sloughhouse
- Sacramento-Del Paso Manor
- Auburn-Dewitt C Avenue
- Roseville-N Sunrise Blvd

Salton Sea Air Basin
- Palm Springs-Fire Station
- Indio-Jackson Street
- El Centro-9th Street
- Westmorland-W 1st Street
- Calexico-Ethel Street

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

San Francisco Bay Area Air Basin
- Livermore-793 Rincon Avenue
- San Martin-Murphy Avenue
- Bethel Island Road
- Concord-2975 Treat Blvd
- Gilroy-9th Street

San Joaquin Valley Air Basin
- Arvin-Bear Mountain Blvd
- Sequoia and Kings Canyon Nat'l Park
- Edison
- Fresno-1st Street
- Bakersfield-5558 California Avenue
- Oildale-3311 Manor Street

South Central Coast Air Basin
- Simi Valley-Cochran Street
- Carrizo Plains School-9640 Carrizo
- Ojai-Ojai Avenue
- Piru-3301 Pacific Avenue
- Red Hills

South Coast Air Basin
- Crestline
- San Bernardino-4th Street
- Fontana-Arrow Highway
- Redlands-Dearborn
- Santa Clarita

Table 2-9

Sites with 8-hour peak indicator values above the level of the State ozone standard during 2007. 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 8-hour ozone standard. If more than five sites are listed, there were multiple sites with the same maximum concentration.

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

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

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

The levels and chemical make-up of ambient PM vary widely from one area to another. In some areas, PM levels vary strongly by season. This is due to seasonal activity increase for some emissions sources and to weather conditions that are conducive to the build-up of PM. Seasonal sources of PM include wildfires, agricultural processes, dust storms, and residential wood burning. Stagnant conditions and cool temperatures during the winter contribute to the formation of secondary ammonium nitrate, leading to higher ambient $PM_{2.5}$ concentrations. Warm, stagnant conditions during the summer lead to the formation of secondary ammonium sulfate, contributing to higher $PM_{2.5}$ 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 summarized emission inventory data for directly emitted PM_{10} and $PM_{2.5}$, summarized 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.

Consistent with last year's almanac, is the reporting of both State and national statistics for PM_{10} and $PM_{2.5}$. State and national values 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 PM and national $PM_{2.5}$ standards use local conditions while the national PM_{10} standard uses standard conditions for data reporting.

Directly Emitted Particulate Matter (PM_{10})

2008 Statewide Emission Inventory - Directly Emitted PM_{10} by Category

Area-wide sources account for about 85 percent of the statewide emissions of directly emitted PM_{10}. The major area-wide source of PM_{10} is fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Fugitive dust emissions from unpaved and paved roads are related to motor vehicle population levels due to vehicular travel on both types of roads. Other sources of PM_{10} emissions include brake and tire wear, residential wood burning, and industrial sources. Exhaust emissions from mobile sources contribute a relatively small portion of directly emitted PM_{10} emissions 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.

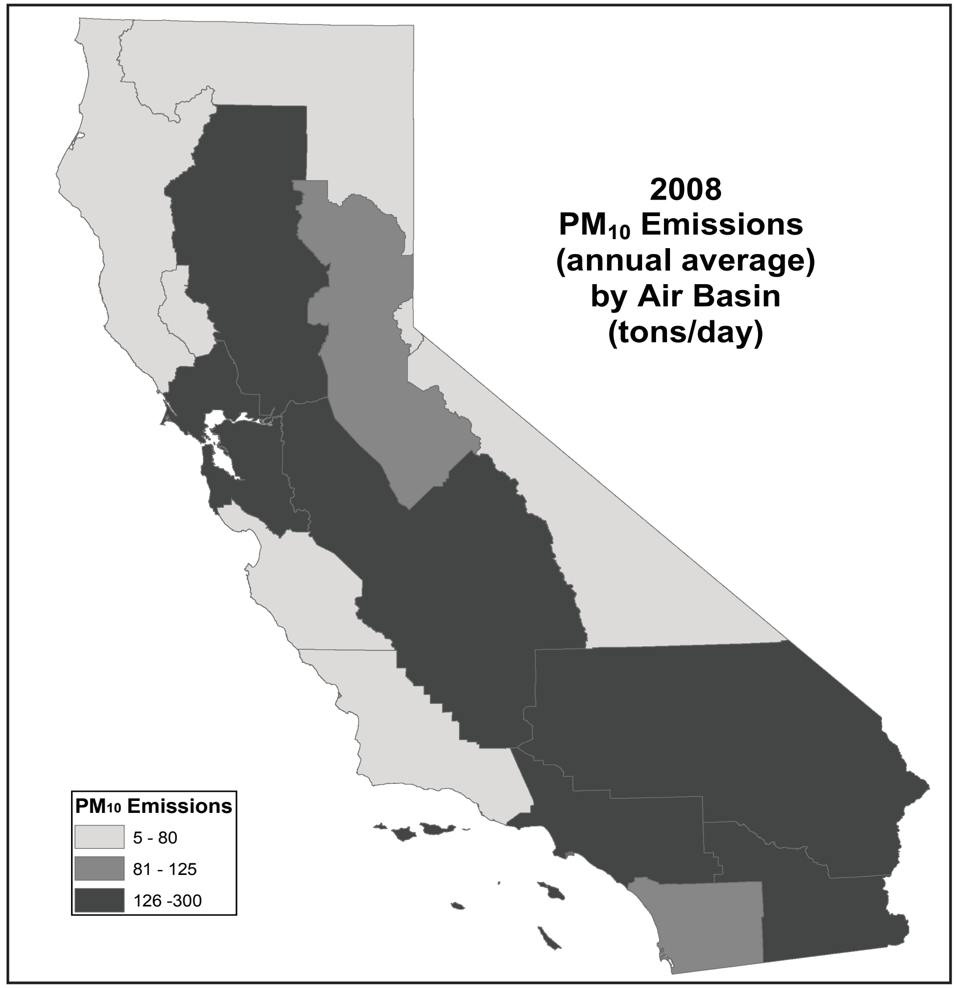


Figure 2-6

PM_{10} Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	161	8%
Area-wide Sources	1791	85%
On-Road Mobile	77	4%
Gasoline Vehicles	37	2%
Diesel Vehicles	40	2%
Other Mobile	82	4%
Gasoline Vehicles	33	2%
Diesel Vehicles	41	2%
Other	9	0%
Total Statewide	***2112***	***100%***

Table 2-10

Largest Stationary Sources Statewide

Largest Stationary Sources of Directly Emitted PM_{10} Statewide

Air Basin	Facility Name	City	Tons/Year
Mojave Desert	Service Rock Products	Palmdale	3054
Mojave Desert	U.S. Borax	Boron	1156
Mojave Desert	Mitsubishi Cement	Lucerne Valley	754
Mojave Desert	TXI Riverside Cement Company	Oro Grande	728
Mojave Desert	Cemex Quarry	Apple Valley	721
Mountain Counties	SierraPine Ltd Ampine Division	Martell	518
Mojave Desert	National Cement	Lebec	462
Mojave Desert	Granite Construction - Littlerock Facility	Palmdale	432
Mojave Desert	Searles Valley Minerals	Trona	356
San Francisco Bay Area	Shell Martinez Refinery	Martinez	355

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 editions of the almanac. The list of facilities does not include military bases, landfills, or airports.

Table 2-11

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

2008 Statewide Emission Inventory - Directly Emitted $PM_{2.5}$ by Category

Area-wide sources account for about 66 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.

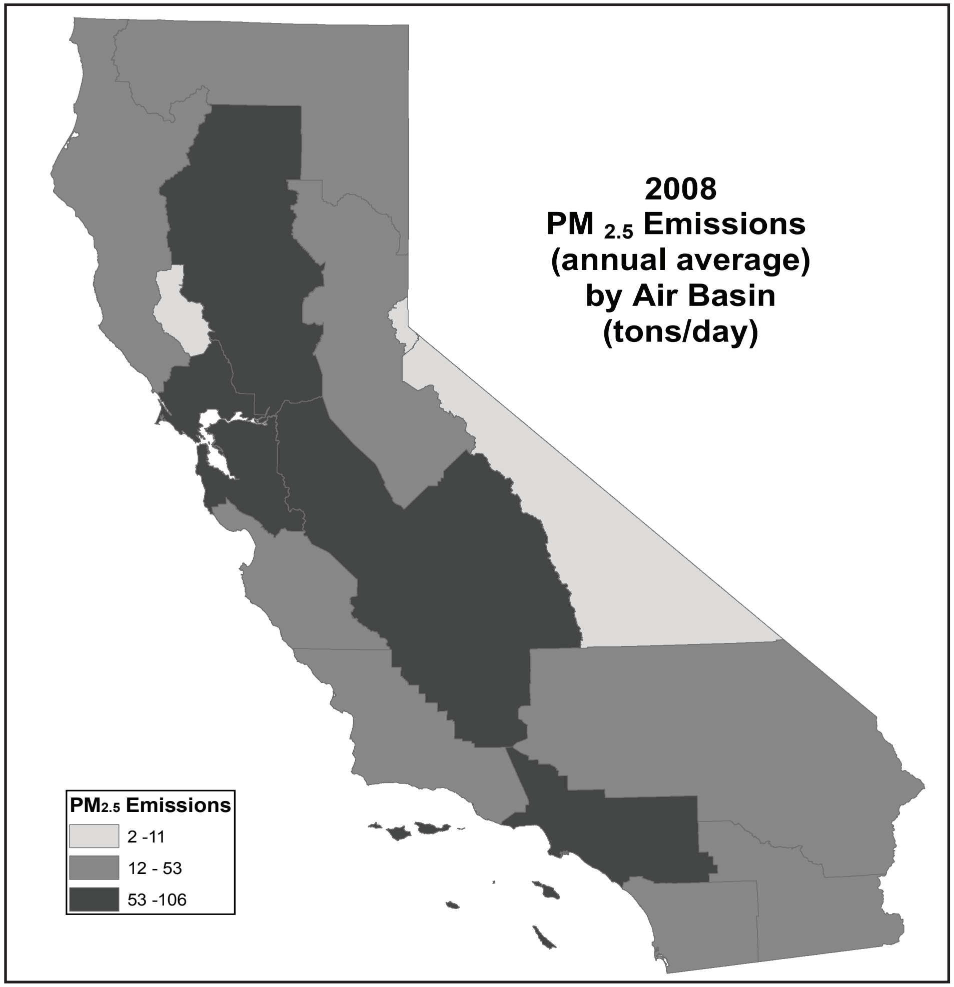


Figure 2-7

$PM_{2.5}$ Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	95	14%
Area-wide Sources	448	66%
On-Road Mobile	58	9%
Gasoline Vehicles	23	3%
Diesel Vehicles	35	5%
Other Mobile	75	11%
Gasoline Vehicles	29	4%
Diesel Vehicles	38	6%
Other	9	1%
Total Statewide	***677***	***100%***

Table 2-12

Largest Stationary Sources Statewide

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

Air Basin	Facility Name	City	Tons/Year
Mojave Desert	Mitsubishi Cement	Lucerne Valley	596
Mojave Desert	Service Rock Products	Palmdale	477
Mountain Counties	SierraPine Ltd Ampine Division	Martell	414
Mojave Desert	TXI Riverside Cement Company	Oro Grande	362
San Francisco Bay Area	Shell Martinez Refinery	Martinez	343
Mojave Desert	Cemex Quarry	Apple Valley	338
South Coast	ExxonMobil Oil Corporation	Torrance	329
Mojave Desert	National Cement	Lebec	298
South Coast	BP West Coast Products Carson Refinery	Carson	282
South Coast	Tesoro Refining And Marketing	Wilmington	257

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 editions of the almanac.
The list of facilities does not include military bases, landfills, or airports.

Table 2-13

PM_{10} - 2007 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 2007 occurred in the Salton Sea, South Coast, San Diego, Mojave Desert, South Central Coast, Great Basin Valleys, and Northeast Plateau air basins. The 2007 data are summarized in Table 2-14. The highest 24-hour concentrations generally occurred in the desert areas where wind-blown dust contributes to local PM_{10} problems. However, the 2007 maximum 24-hour concentrations are not equivalent to the values used for area designations, which consider frequency of occurrence and potential impact from exceptional or unusual events. Current area designations can be found on the ARB website at *www.arb.ca.gov/desig/desig.htm*.

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.

The table on the following page lists the highest value for each statistic. Within an air basin, the highest value for each statistic may reflect a different site or different monitor. For example, the State and national maximum 24-hour concentrations in the Great Basin Valleys, Mojave Desert, and Mountain Counties air basins reflect measurements from two different sites.

In addition, the State and national requirements for data completeness are different. This may result in marked differences between the State and national values for the same statistic (e.g. in the Mountain Counties and the San Diego air basins, due to differing State and national data completeness criteria, the State and national maximum annual averages reflect values from two different sites.)

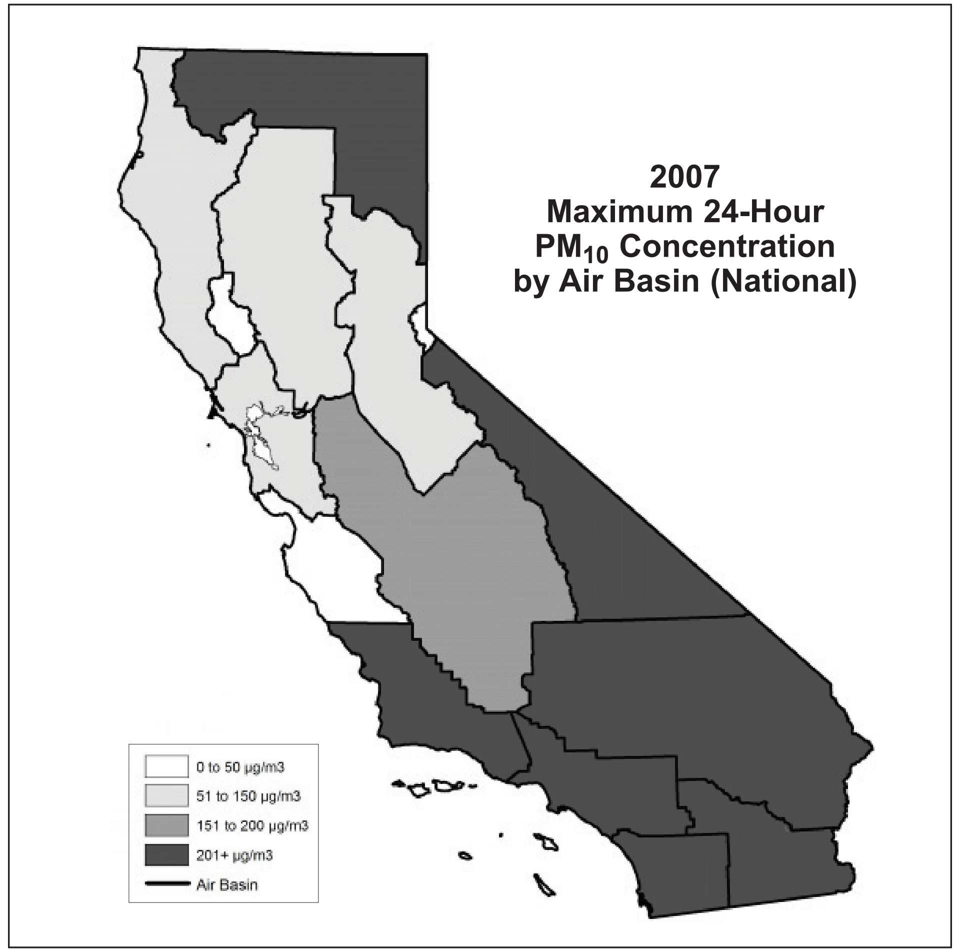


Figure 2-8

PM_{10} - 2007 Air Quality Tables

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

AIR BASIN	2007 Maximum 24-Hour Concentration in micrograms/cubic meter		2007 Maximum Annual Average of Quarters in micrograms/cubic meter
	State	National	State
Great Basin Valleys Air Basin	8338.0	10020.0	14.6
Lake County Air Basin	19.0	*	8.9
Lake Tahoe Air Basin	55.6	*	*
Mojave Desert Air Basin	339.0	358.0	36.0
Mountain Counties Air Basin	116.0	127.0	16.3
North Central Coast Air Basin	51.0	49.0	25.4
North Coast Air Basin	53.8	51.2	20.6
Northeast Plateau Air Basin	189.0	205.0	4.6
Sacramento Valley Air Basin	119.0	119.0	28.1
Salton Sea Air Basin	296.0	291.0	65.5
San Diego Air Basin	392.0	394.0	58.5
San Francisco Bay Area Air Basin	77.8	72.9	25.6
San Joaquin Valley Air Basin	135.0	172.1	48.5
South Central Coast Air Basin	399.7	320.3	33.9
South Coast Air Basin	1155.0	1212.0	72.2

* Data provided may be incomplete or may not meet the reporting criteria required for the related standard.
** The 24-hour PM10 max for each basin is based on data obtained from federal reference monitors and federal equivalent monitors operating in the basin.

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.

Table 2-14

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

Great Basin Valleys Air Basin
- Mono Lake North Shore
- Flat Rock-Highway 190
- Dirty Sox
- Keeler-Cerro Gordo Road
- Shell Cut-Highway 190

Lake Tahoe Air Basin
- South Lake Tahoe-Sandy Way

Mojave Desert Air Basin
- Victorville-14306 Park Avenue
- Lucerne Valley-Middle School
- Barstow
- Lancaster-43301 Division Street
- Hesperia-Olive Street

Mountain Counties Air Basin
- Yosemite Village-Visitor Center
- Quincy-N Church Street

North Central Coast Air Basin
- Davenport

North Coast Air Basin
- Eureka-I Street
- Weaverville-Courthouse

Northeast Plateau Air Basin
- Yreka-Foothill Drive

Sacramento Valley Air Basin
- Woodland-Gibson Road
- Paradise-Fire Station #1
- Sacramento-3801 Airport Road
- Sacramento-Del Paso Manor
- Chico-Manzanita Avenue

Salton Sea Air Basin
- Brawley-220 Main Street
- Calexico-Ethel Street
- Westmorland-W 1st Street
- Indio-Jackson Street
- El Centro-9th Street

San Diego Air Basin
- Otay Mesa-Paseo International
- San Diego-1110 Beardsley Street
- Escondido-E Valley Parkway
- San Diego-Overland Avenue
- El Cajon-Redwood Avenue

San Francisco Bay Area Air Basin
- San Jose-Tully Road
- Livermore-793 Rincon Avenue
- San Francisco-Arkansas Street
- San Jose-Jackson Street
- Fremont-Chapel Way

San Joaquin Valley Air Basin
- Bakersfield-Golden State Highway
- Corcoran-Patterson Avenue
- Bakersfield-5558 California Avenue
- Clovis-N Villa Avenue
- Hanford-NWS/NOAA
- Oildale-3311 Manor Street

South Central Coast Air Basin
- Santa Barbara-700 East Canon Perdido
- Las Flores Canyon #1
- El Rio-Rio Mesa School #2
- El Capitan Beach
- Nipomo-Hillview Road

South Coast Air Basin
- Perris
- Riverside-Rubidoux
- Anaheim-Pampas Lane
- Norco-Norconian
- Ontario-1408 Francis Street

Table 2-15

Sites with 24-hour PM_{10} concentrations above the level of the State PM_{10} standard during 2007. 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 five sites are listed, there were multiple sites with the same maximum concentration.

(This page intentionally left blank)

$PM_{2.5}$ - 2007 Air Quality

As explained in the Introduction section of Chapter 1, the U.S. EPA has promulgated national 24-hour and annual average standards for $PM_{2.5}$. The ARB has established a more health-protective State annual average $PM_{2.5}$ standard.

The 2007 data from California's $PM_{2.5}$ network are summarized in Table 2-17. Sites in the San Diego Air Basin recorded the highest national 24-hour concentrations, while sites in the San Joaquin Valley Air Basin recorded the highest 98th percentile 24-hour concentrations (see footnote on the following page for an explanation of the 98th percentile statistic). However, the 2007 maximum 24-hour concentrations are not equivalent to the values used for area designations, which consider frequency of occurrence and potential impact from exceptional or unusual events. Sites in the South Coast and San Joaquin Valley air basins recorded the highest annual average concentrations in the State. The annual averages for these areas were nearly twice the level of the State annual $PM_{2.5}$ standard. Current area designations can be found on the ARB website at *www.arb.ca.gov/desig/adm/adm.htm*.

The table on the following page lists the highest value for each statistic. Within an air basin, the highest value for each statistic may reflect a different site or monitor. In addition, the State and national requirements for data completeness are different. This may result in marked differences between the State and national values for the same statistic (e.g. maximum 24-hour concentrations in the Mountain Counties and South Central Coast air basins, and maximum 24-hour concentrations and maximum annual averages for the Salton Sea and San Joaquin Valley air basins.)

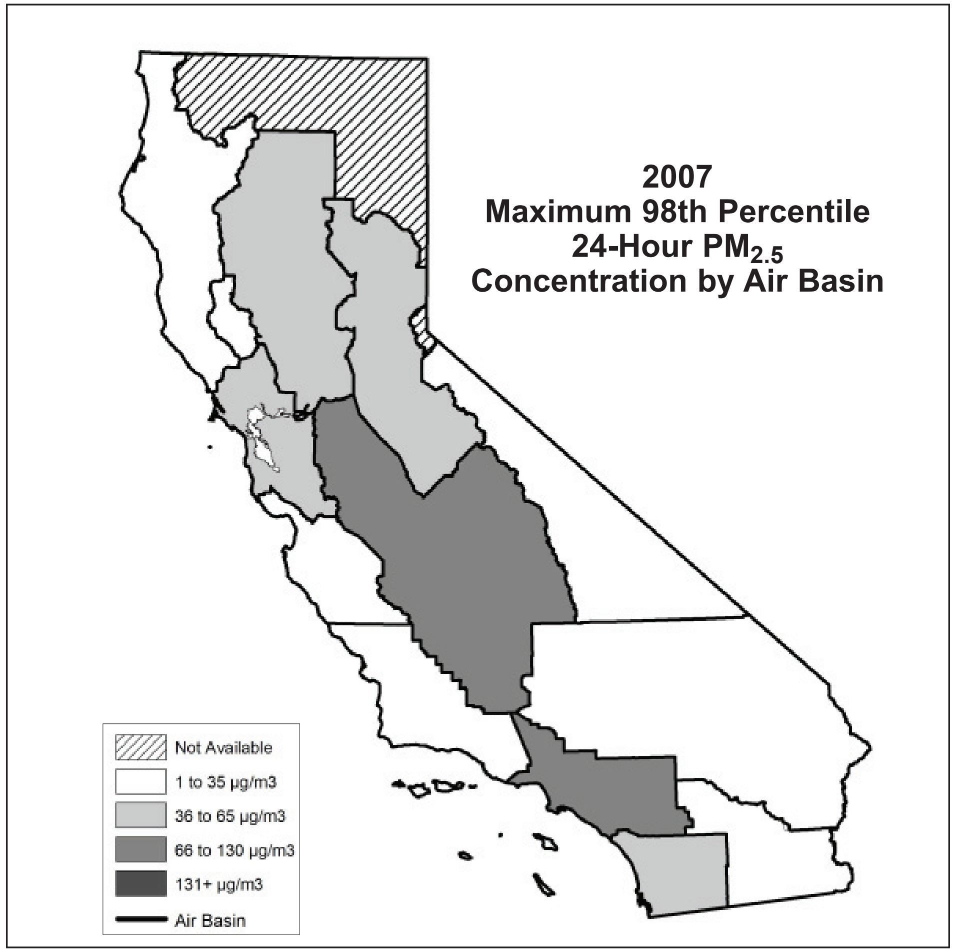


Figure 2-9

$PM_{2.5}$ - 2007 Air Quality Tables

Maximum 24-Hour, 98th Percentile, and Annual $PM_{2.5}$ Concentrations by Air Basin

AIR BASIN	2007 Maximum 24-Hr Concentration in micrograms/cubic meter		98th Percentile 24-Hr Conc. ($\mu g/m^3$)*	2007 Average of Quarterly Means in micrograms/cubic meter*	
	State	National		State	National
Great Basin Valleys	57.0	57.0	35.0	5.8	5.8
Lake County	9.5	9.5	9.1	3.3	3.3
Lake Tahoe	Incomplete Data	Incomplete Data	Incomplete Data	Incomplete Data	Incomplete Data
Mojave Desert	28.0	28.0	20.0	9.7	9.7
Mountain Counties	134.0	72.0	41.0	14.2	13.0
North Central Coast	20.9	20.9	19.4	7.0	7.0
North Coast	33.8	33.8	27.2	7.6	7.6
Northeast Plateau	Incomplete Data	Incomplete Data	Incomplete Data	Incomplete Data	Incomplete Data
Sacramento Valley	83.7	61.0	53.0	14.4	12.3
Salton Sea	95.0	52.7	29.5	23.2	8.6
San Diego	151.0	126.2	37.7	13.3	13.3
San Francisco Bay Area	57.5	57.5	39.2	13.3	10.7
San Joaquin Valley	154.0	104.0	73.0	25.2	22.0
South Central Coast	108.0	48.8	31.8	13.4	11.6
South Coast	82.8	82.8	70.7	19.8	20.9

* 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.

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.

Table 2-16

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, 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 2-10). This is also true in the San Francisco Bay Area and Sacramento regions. 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, both the coarse fraction and the $PM_{2.5}$ fraction drove the PM concentrations.

In the eastern South Coast region, PM_{10} and $PM_{2.5}$ concentrations remain high throughout the year (refer to Figure 2-11). 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

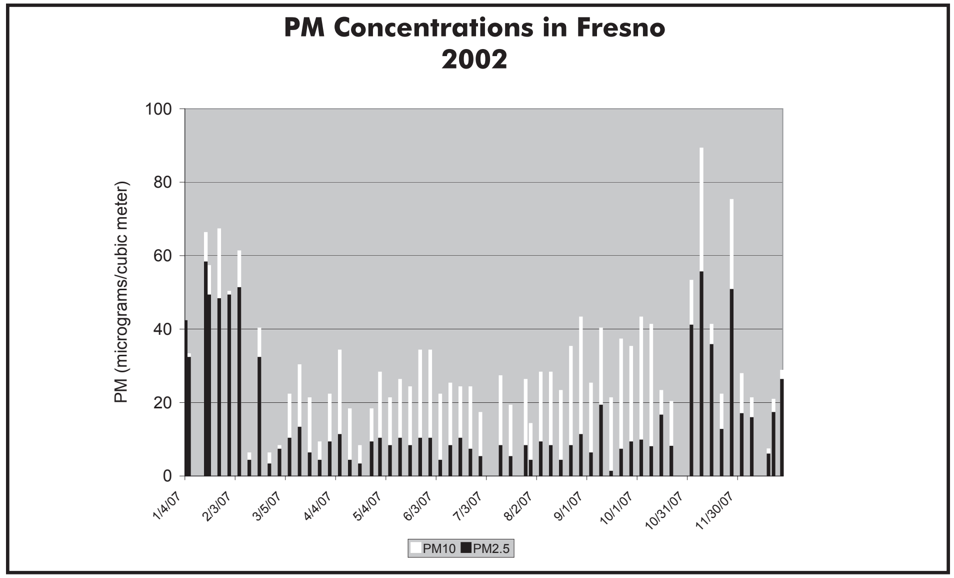


Figure 2-10

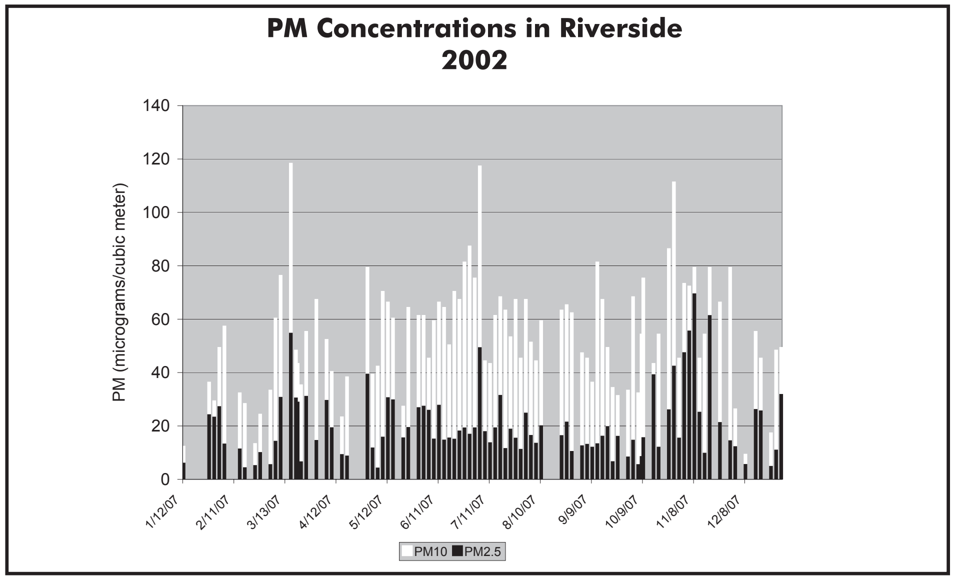


Figure 2-11

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 processes. 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 eight percent of $PM_{2.5}$ (Schauer and Cass, 1998).

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 NO_x, 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.

Estimated Secondary Portion of $PM_{2.5}$ (annual average) (2004-2006)	
Air Basin	Secondary $PM_{2.5}$ (%)
Great Basin Valleys	30
Lake County	20
Lake Tahoe	20
Mojave Desert	30
Mountain Counties	10
North Central Coast	30
North Coast	20
Northeast Plateau	20
Sacramento Valley	30
Salton Sea	30
San Diego	50
San Francisco Bay Area	40
San Joaquin Valley	50
South Central Coast	50
South Coast	60

Table 2-17

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.

A detailed description of PM_{10} and $PM_{2.5}$ characteristics in each of California's 35 air districts by air basin is included in the ARB's technical report titled *"Characterization of Ambient PM_{10} and $PM_{2.5}$ in California,"* which can be found on the ARB website at *www.arb.ca.gov/pm/pm.htm.*

San Joaquin Valley Air Basin

Figures 2-12 and 2-13 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 NO_x emissions from mobile and stationary combustion sources, combined with ammonia. 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.

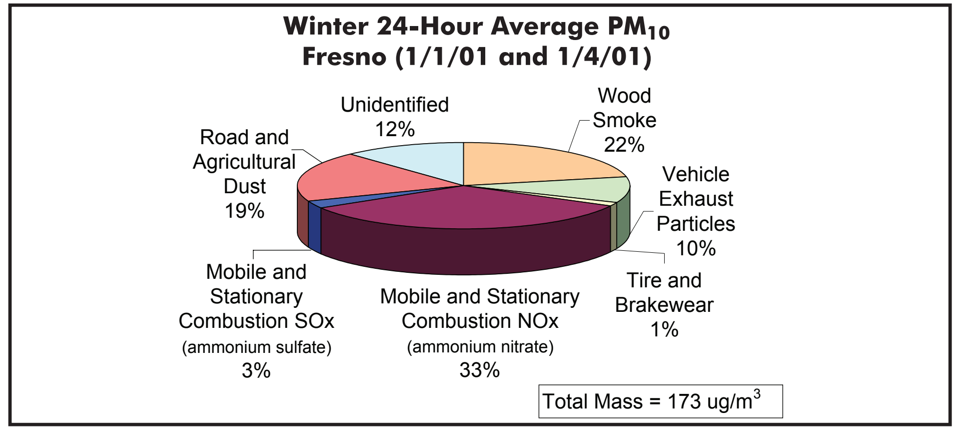


Figure 2-12

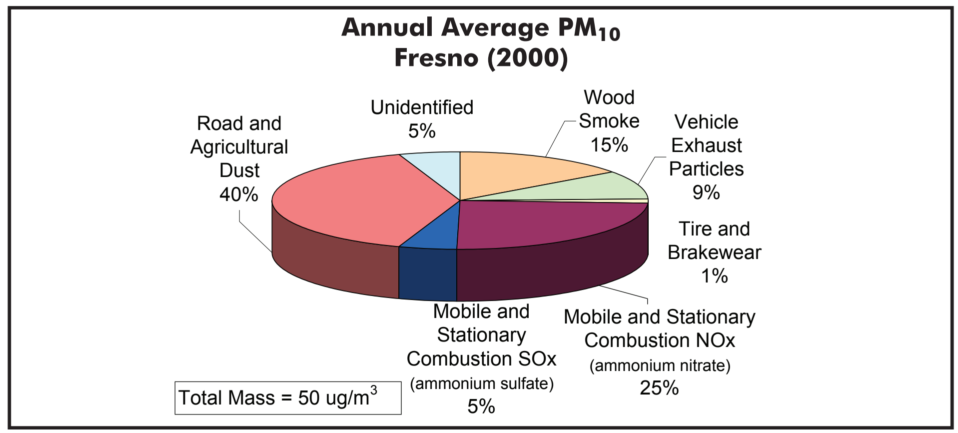


Figure 2-13

San Francisco Bay Area Air Basin

Figures 2-14 and 2-15 illustrate source contributions to ambient PM_{10} and $PM_{2.5}$ during the winter in the San Francisco Bay Area. The data are from the source apportionment analysis conducted by the Bay Area Air Quality Management District using samples collected during two special studies (Fairley, 1996, 2001).

During the winter, in San Jose, high PM concentrations are associated with high levels of wood smoke, primarily from residential wood combustion, and cooking. NO_x emitted from mobile and stationary combustion sources, in combination with ammonia, 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 $PM_{2.5}$.

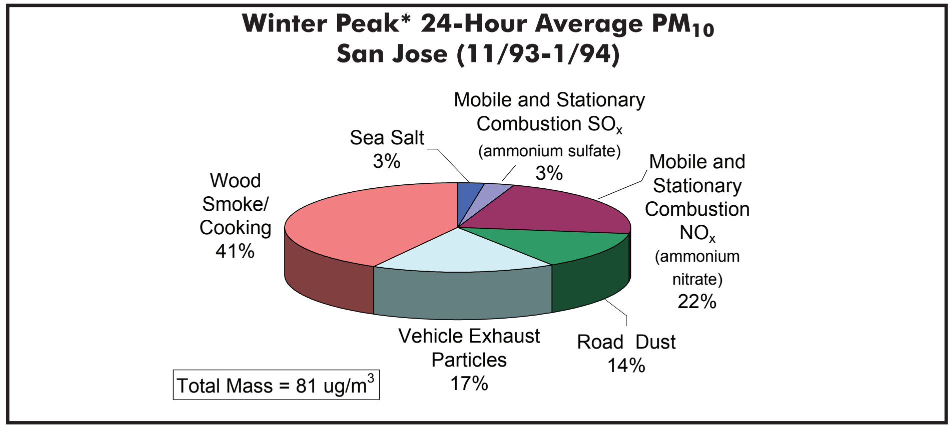


Figure 2-14

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

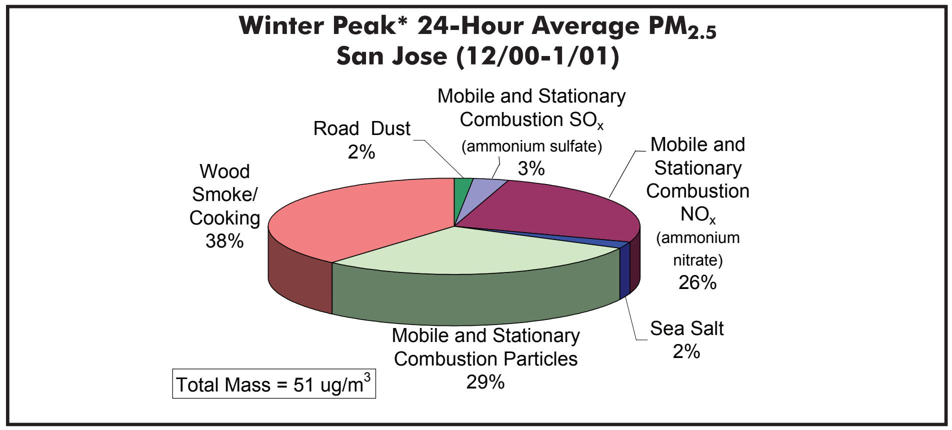


Figure 2-15

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

Sacramento Valley Air Basin

Figures 2-16 and 2-17 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 ammonia to form ammonium nitrate, are the largest contributor to ambient PM levels. Vehicle exhaust and wood smoke from residential wood combustion also contribute significantly to the ambient PM concentrations in the winter. While road and other dust is a significant component of ambient PM_{10}, its contribution to $PM_{2.5}$ is minor.

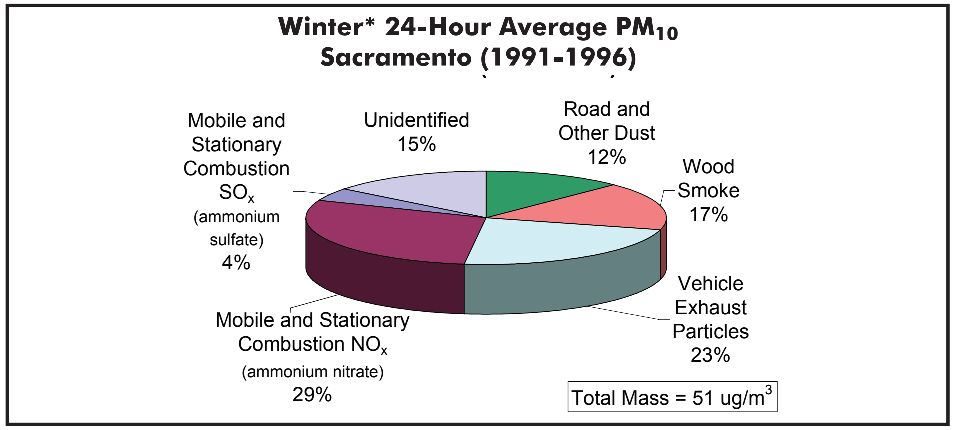


Figure 2-16 * Average of days with PM_{10} > 40 ug/m3

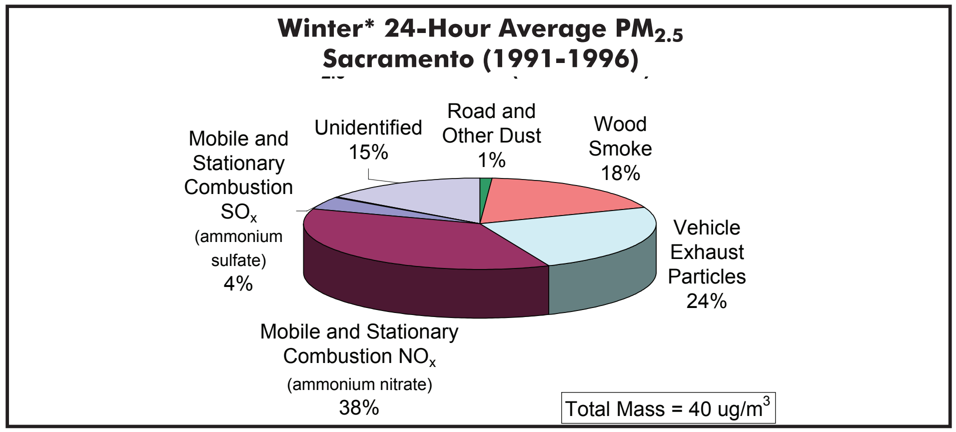


Figure 2-17 * Average of days with PM_{10} > 40 ug/m3

South Coast Air Basin

Data for Figures 2-18, 2-19, 2-20, and 2-21 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}. NO_x and SO_x emitted from mobile and stationary combustion sources, combined with ammonia, 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.

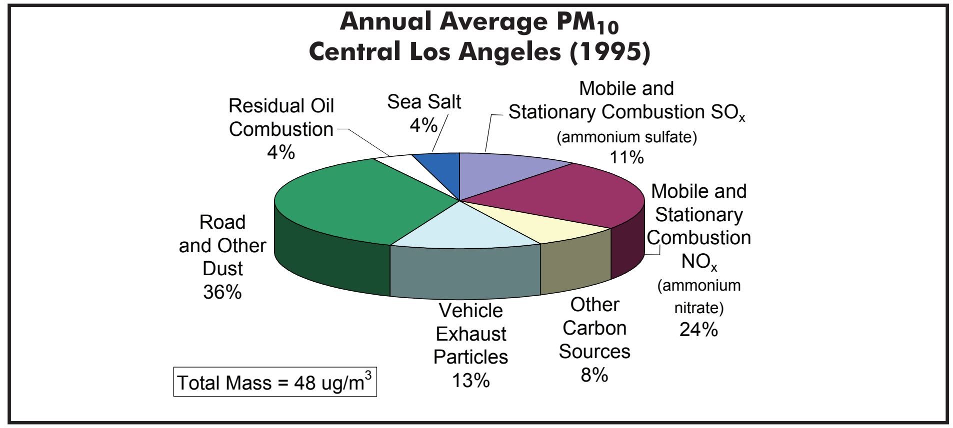


Figure 2-18

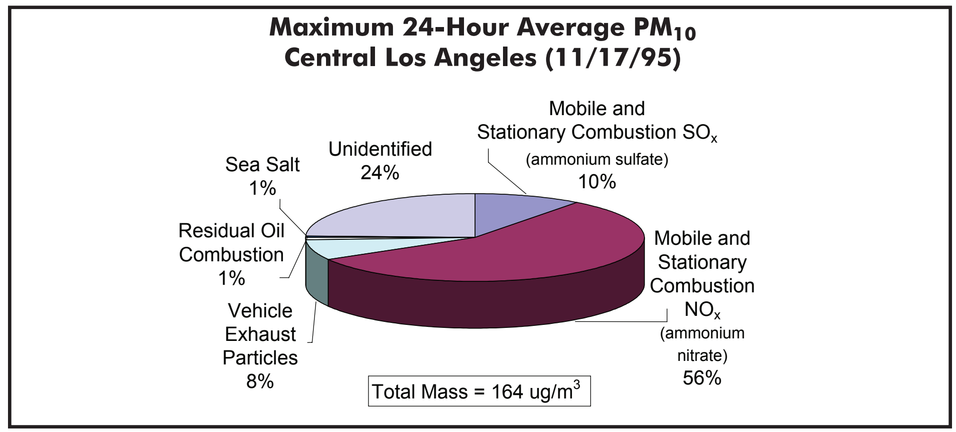


Figure 2-19

South Coast Air Basin (cont'd)

On an annual basis, in Rubidoux, dust from roads and construction is the major contributor to ambient PM_{10}. Ammonium nitrate is a significant contributor to PM_{10} in the South Coast. Ammonia in the presence of NO_x from mobile and stationary combustion sources binds to form ammonium nitrate. Vehicle exhaust particles and emissions from other carbon sources also contribute to both annual and episodic ambient PM_{10} levels.

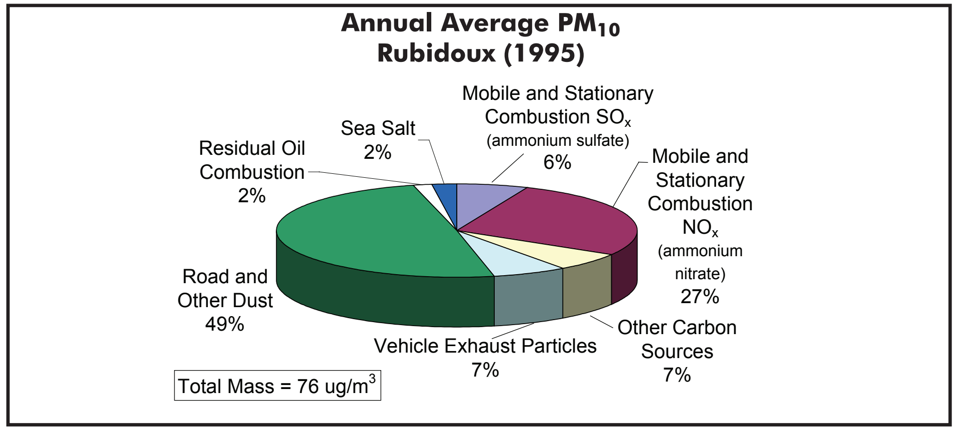


Figure 2-20

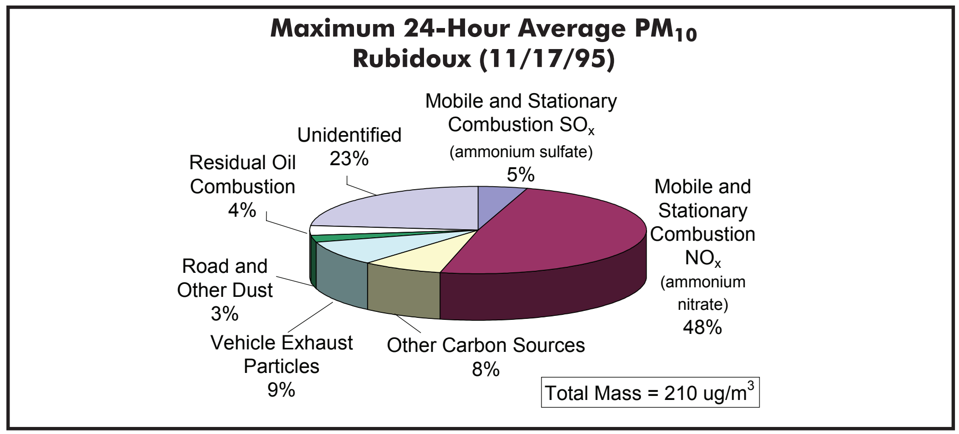


Figure 2-21

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

2008 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 80 percent of the statewide CO emissions. Diesel-powered on-road and other mobile 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.

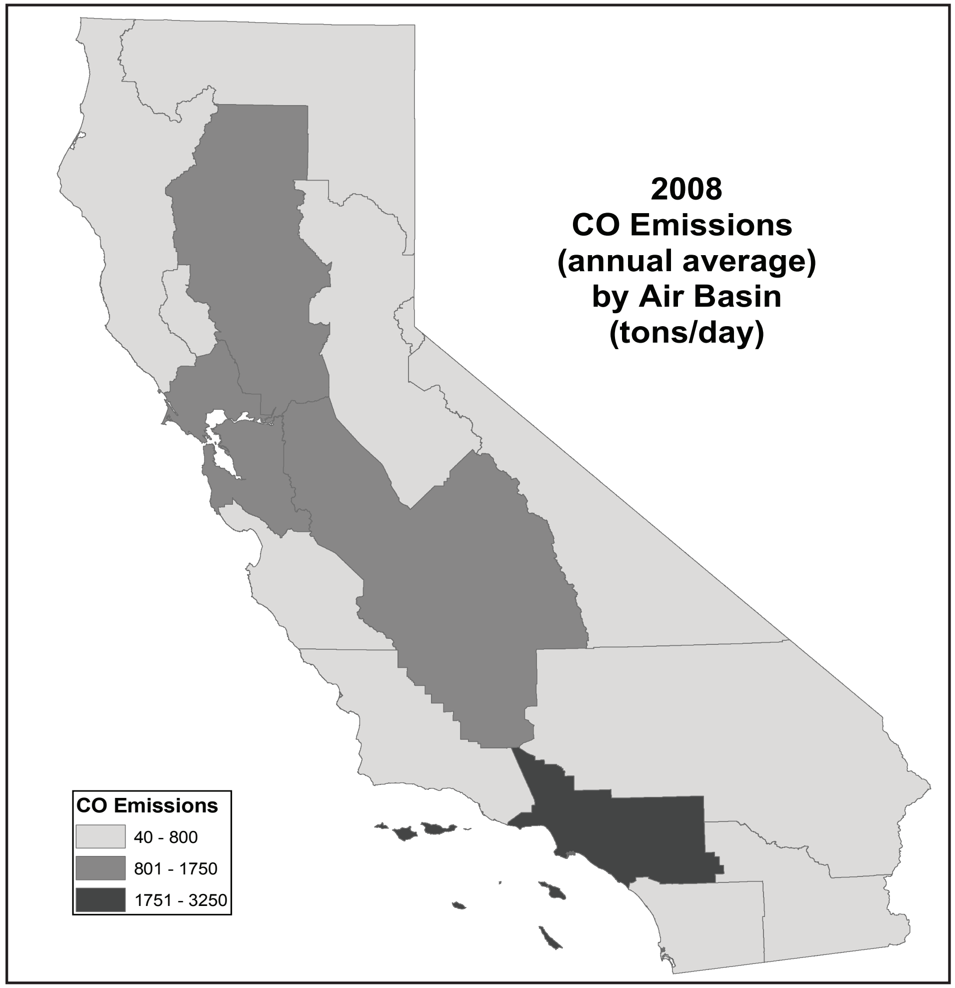


Figure 2-22

CO Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	317	3%
Area-wide Sources	1968	17%
On-Road Mobile	6099	54%
Gasoline Vehicles	5831	51%
Diesel Vehicles	267	2%
Other Mobile	2943	26%
Gasoline Vehicles	2208	19%
Diesel Vehicles	366	3%
Other	369	3%
Total Statewide	***11327***	***100%***

Table 2-18

Carbon Monoxide - 2007 Air Quality

The State and national CO standards are now attained statewide in California. The requirements for cleaner vehicles and fuels have been primarily responsible for the reductions in CO, despite significant increases in population, the number of vehicle miles traveled each day, and the apparent impact of emissions from Mexico.

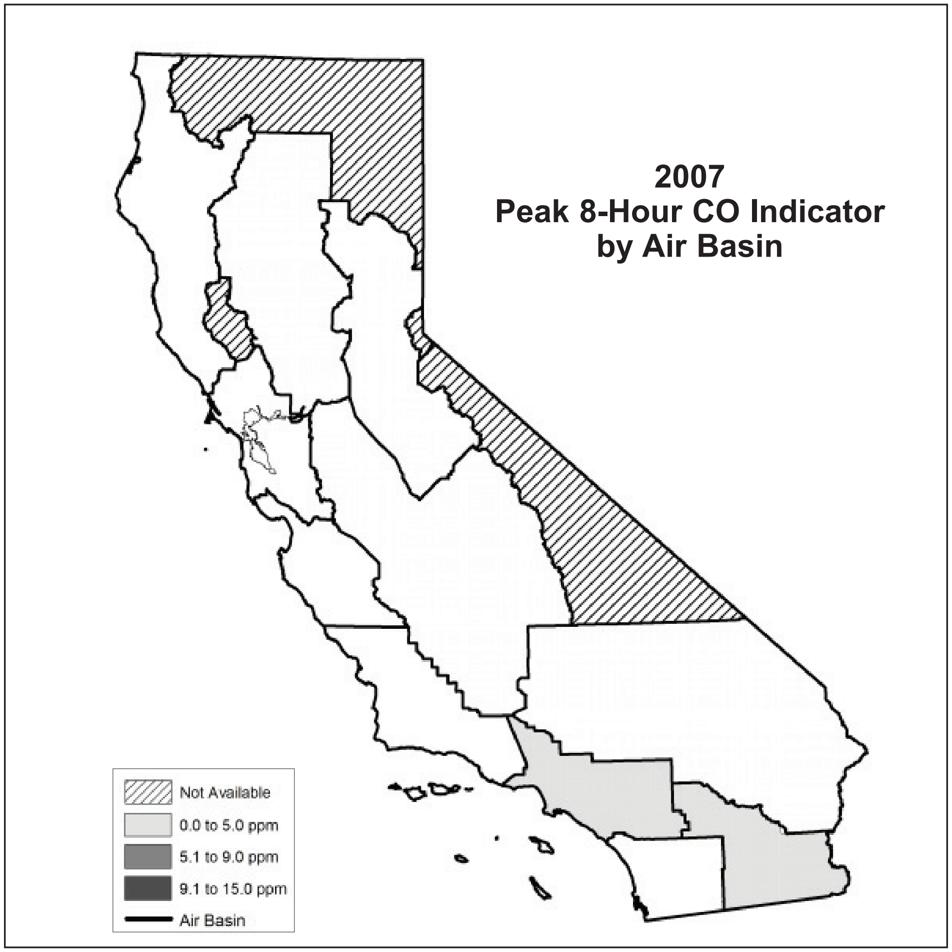


Figure 2-23

Carbon Monoxide - 2007 Air Quality Tables

Maximum Peak 8-Hour Indicator by Air Basin

AIR BASIN	2007 Maximum Peak 8-Hour Indicator in parts per million	Number of Days in 2007 above 8-Hour Standard	
		State	National
Great Basin Valleys	No Data	No Data	No Data
Lake County	No Data	No Data	No Data
Lake Tahoe	No Data	No Data	No Data
Mojave Desert	1.6	0	0
Mountain Counties	0.5	0	0
North Central Coast	1.0	0	0
North Coast	1.6	0	0
Northeast Plateau	No Data	No Data	No Data
Sacramento Valley	4.2	0	0
Salton Sea	7.3	0	0
San Diego	4.3	0	0
San Francisco Bay Area	3.4	0	0
San Joaquin Valley	3.4	0	0
South Central Coast	1.7	0	0
South Coast	6.0	0	0

Table 2-19

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

No Sites had Peak 8-Hour Indicator Values above the State CO Standard

Ammonia

2008 Statewide Emission Inventory - Ammonia by Category

Area-wide sources account for 81 percent of the statewide emissions of ammonia. The major area-wide source of ammonia is livestock waste. Ammonia emissions from on-road vehicles are produced by three-way catalyst equipped gasoline vehicles. Ammonia emissions from stationary sources are primarily related to NO_x emission controls, the manufacture of a variety of products, and waste disposal.

Ammonia emission sources have strong geographic differences. In the San Joaquin Valley, ammonia emissions are dominated by livestock and other agricultural sources. However, in the South Coast Air Basin, motor vehicle sources are more significant.

NH_3 Emissions (annual average)		
Emissions Source	**tons/day**	**Percent**
Stationary Sources	91	12%
Area-wide Sources	610	81%
On-Road Mobile	55	7%
Gasoline Vehicles	55	7%
Diesel Vehicles	1	0%
Other Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other	0	0%
Total Statewide	***756***	***100%***

* No data available

Table 2-20

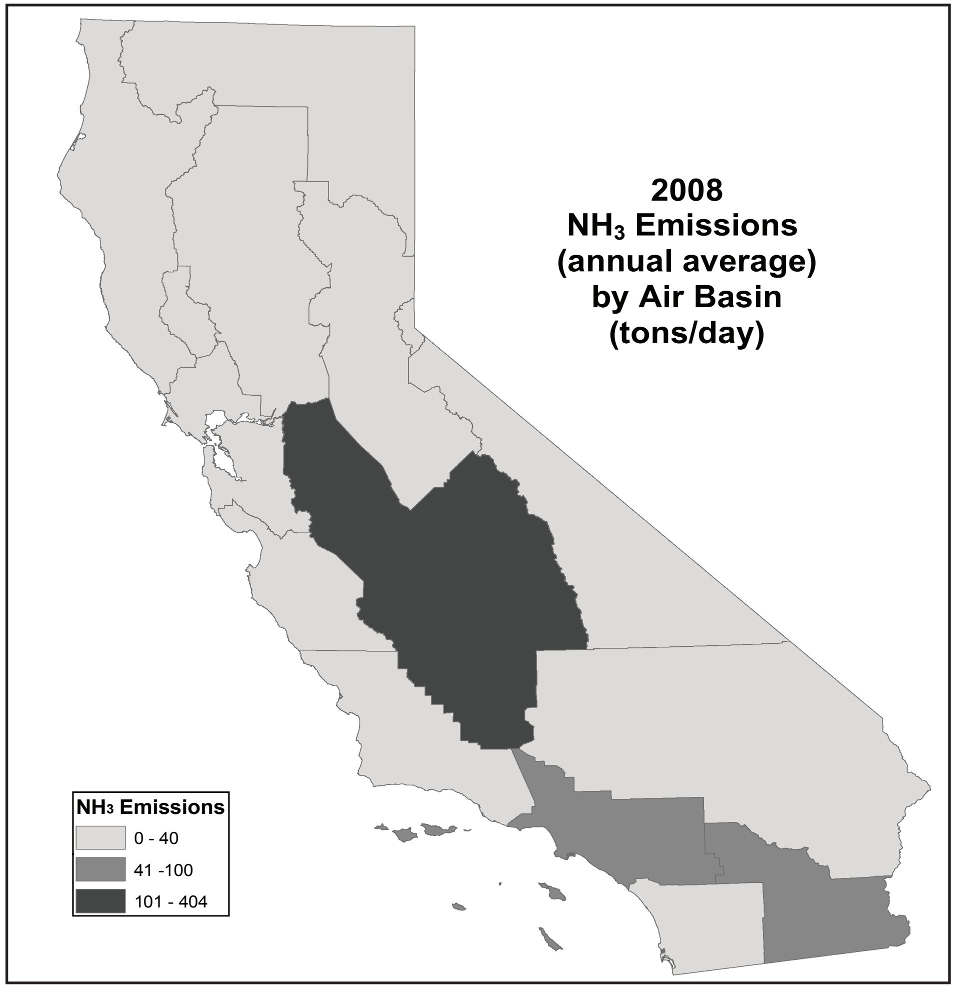


Figure 2-24

(This page intentionally left blank)

Chapter 3

Statewide Trends and Forecasts -- Criteria Pollutants

Introduction
Emission Trends and Forecasts

The most current emissions data available are from 2008. Any data prior to this year are derived from historical emissions data where available, and backcasted emissions based on historical socio-economic growth and control information. Future year data are forecasted from the 2008 base year and control measures reported through September 2006. Forecasts take into account emissions data, projected growth rates, and future adopted control measures to calculate emissions in future years.

On a statewide basis, emissions of NO_x increased between 1975 and 1980, decreased slightly in 1985, and are forecasted to decline between 1990 and 2020. Emissions of ROG decrease steadily between 1975 and 2020. 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 an increase from 1975 to 1990, a slight decrease in 1995, hold relatively constant from 1995 to 2010, and then a slow increase after 2010. Direct $PM_{2.5}$ emissions decreased from 1975 to 1985, increased from 1985 to 1990, decreased slightly between 1990 and 1995, held relatively constant from 1995 to 2015, and are predicted to increase after 2015.

Emissions of CO have decreased since 1985 and are forecasted to continue declining. The recent decreases in NO_x, ROG, and CO are occurring even with increases in population and VMT.

Statewide SO_x emissions decreased sharply from 1975 through 1985, decreased steadily through 1995, and remained relatively constant through 2010. On-shore SO_x emissions are projected to increase moderately through 2020. Off-shore emissions are projected to increase substantially through 2020 due to increased shipping activity. In 2005, off-shore emissions represent approximately 38 percent of the statewide SO_x emission inventory. By 2020, off-shore emissions are forecasted to comprise 52 percent of the statewide SO_x emissions.

Statewide Emissions (tons/day, annual average)										
Pollutant	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
NO_X	4886	4898	4744	4940	4387	3972	3513	2981	2476	2173
ROG	7058	6566	5990	4733	3803	3141	2455	2127	1993	1950
PM_{10}	1857	1889	1971	2215	2112	2174	2134	2139	2202	2275
$PM_{2.5}$	713	687	685	751	686	693	686	682	690	707
SO_X	1277	953	534	511	303	297	301	294	337	394
CO	42175	37958	35270	30084	22405	17203	13127	10543	9134	8369

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 1988 through 2007, statewide maximum 8-hour ozone values decreased 47 percent, and maximum 8-hour carbon monoxide values dropped 73 percent. These air quality improvements occurred at the same time the State's population increased 33 percent and the average daily VMT increased 46 percent. Ambient annual average PM_{10} values in the non-desert areas also show improvement: a 23 percent decrease from 1989 to 2007. While the air quality improvements are impressive, additional emission controls will be needed to offset future growth.

Percent Change in Air Quality and Growth

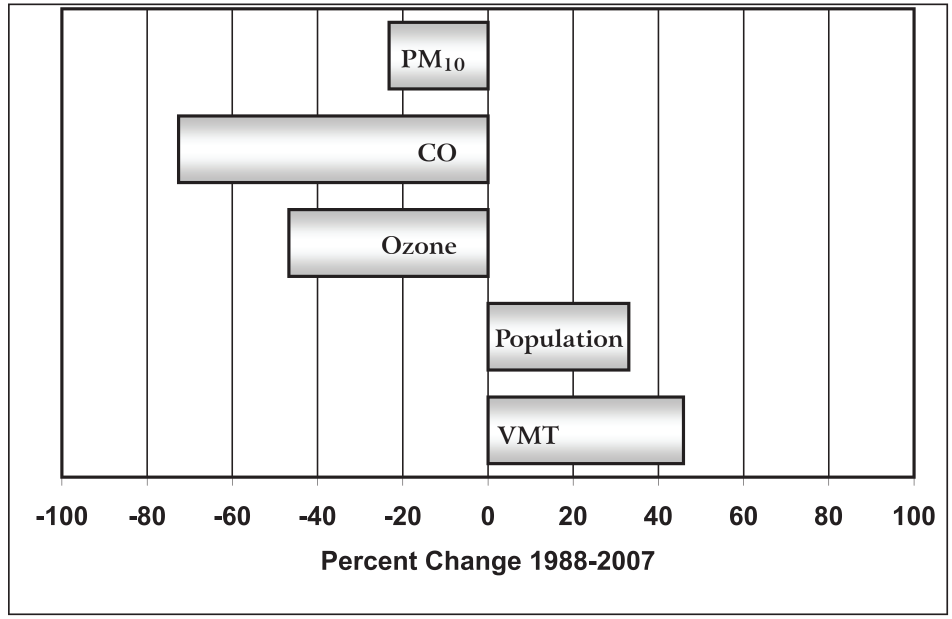


Figure 3-1

Statewide Population and VMT Trends									
Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	23782000	26402401	29828496	31711849	34095209	36896218	39135677	41635800	44135923
Avg. Daily VMT/1000	403567	538319	691049	733629	799848	955234	958079	1033400	1104522

Table 3-2

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 23 percent from 1990 to 2000. NO_x emissions are projected to decrease by 66 percent between 2000 and 2020. 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.

NOx emissions from other mobile categories on the whole decreased from 1990 to 2020. The two largest NOx contributors in the other mobile category are off-road equipment and ships. The emissions from off-road equipment decrease significantly over the entire forecast period. However, the emissions from ships have increased to better reflect actual shipping activity resulting in a fairly constant NO_x emission level for the trend and forecast period for the other mobile category as a whole. Stationary source NO_x emissions dropped by 68 percent between 1980 and 2005. 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. 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.*

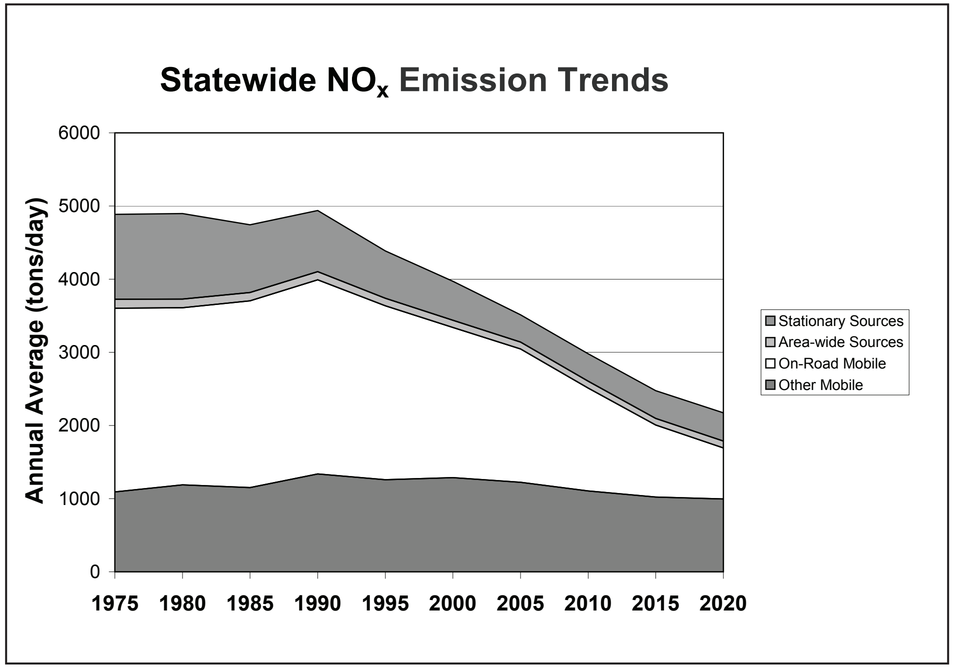


Figure 3-2

ROG Emission Trends and Forecasts

ROG emissions in California are projected to decrease by over 72 percent between 1975 and 2020, 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 2020 as more stringent emission standards are adopted and implemented. Substantial reductions have also been obtained for area-wide sources through the vapor recovery program for service stations, bulk plants, and other fuel distribution operations. There are also on-going programs to reduce overall solvent ROG emissions from coatings, consumer products, cleaning and degreasing solvents, and other substances used within California. Again, 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*.

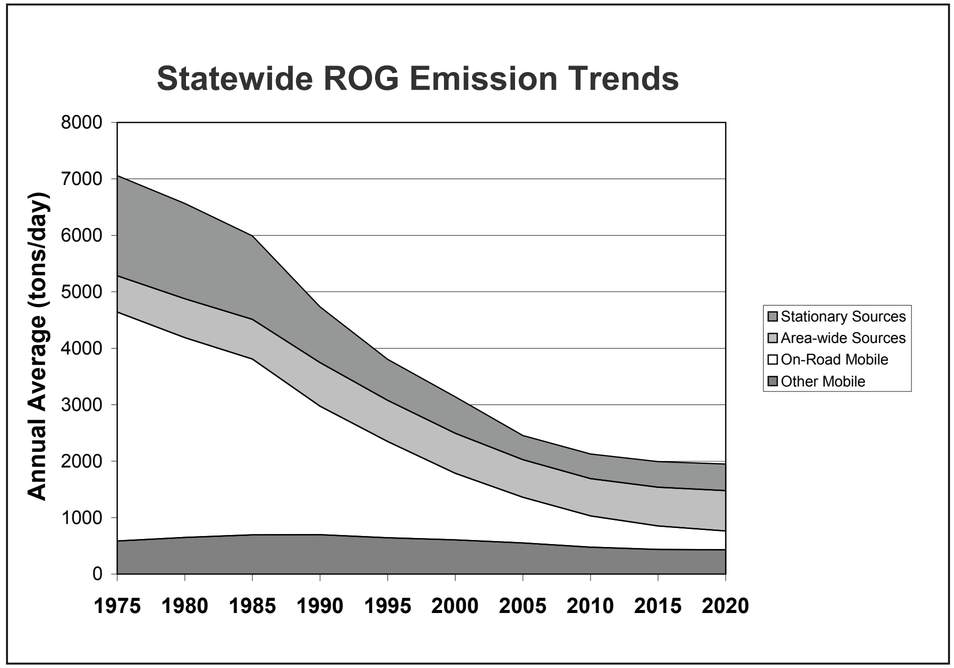


Figure 3-3

Emission Trends and Forecasts - Ozone Precursors

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***4886***	***4898***	***4744***	***4940***	***4387***	***3972***	***3513***	***2981***	***2476***	***2173***
Stationary Sources	1161	1170	926	837	647	533	372	376	378	387
Area-wide Sources	122	118	115	111	104	99	95	92	92	93
On-Road Mobile	2510	2421	2552	2654	2377	2053	1823	1407	984	699
Gasoline Vehicles	2197	2014	1958	1839	1574	1160	754	504	359	263
Diesel Vehicles	312	407	593	815	803	893	1069	904	625	435
Other Mobile	1093	1189	1152	1338	1258	1287	1223	1105	1022	995
Gasoline Fuel	51	57	62	72	70	69	75	68	64	64
Diesel Fuel	914	999	948	1091	984	968	861	740	602	497
Other Fuel	128	132	142	174	205	249	287	297	356	435

Table 3-3

ROG Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***7058***	***6566***	***5990***	***4733***	***3803***	***3141***	***2455***	***2127***	***1993***	***1950***
Stationary Sources	1773	1688	1476	986	727	647	429	436	454	472
Area-wide Sources	645	689	704	773	727	710	666	659	685	713
On-Road Mobile	4054	3540	3116	2275	1706	1179	808	555	417	334
Gasoline Vehicles	4015	3487	3044	2184	1645	1120	743	497	373	302
Diesel Vehicles	39	53	72	91	62	59	65	58	44	33
Other Mobile	586	649	694	698	643	606	552	476	437	430
Gasoline Fuel	415	461	517	497	457	436	396	340	316	315
Diesel Fuel	121	135	126	147	138	129	114	91	71	59
Other Fuel	50	53	50	54	48	41	42	45	51	57

Table 3-4

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 peak 8-hour and 1-hour indicators declined by over 42 percent and over 49 percent respectively from 1988 to 2007.

During 1988 to 2007, the statewide population grew by 33 percent and the number of vehicle miles traveled each day was up more than 46 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 (LEV) standards, which equate to about 95 percent fewer smog-forming emissions than vehicles produced in the 1970s.

In recent years, increases in population and driving are partially offsetting the benefits of ARB's emission control programs. As part of the SIP, California will be implementing a comprehensive set of new programs. These programs will include new emission control standards as well as very innovative incentive programs to accelerate clean air technologies and reduce emissions from goods movement. These programs are now being developed and implemented at the National, State, and local levels.

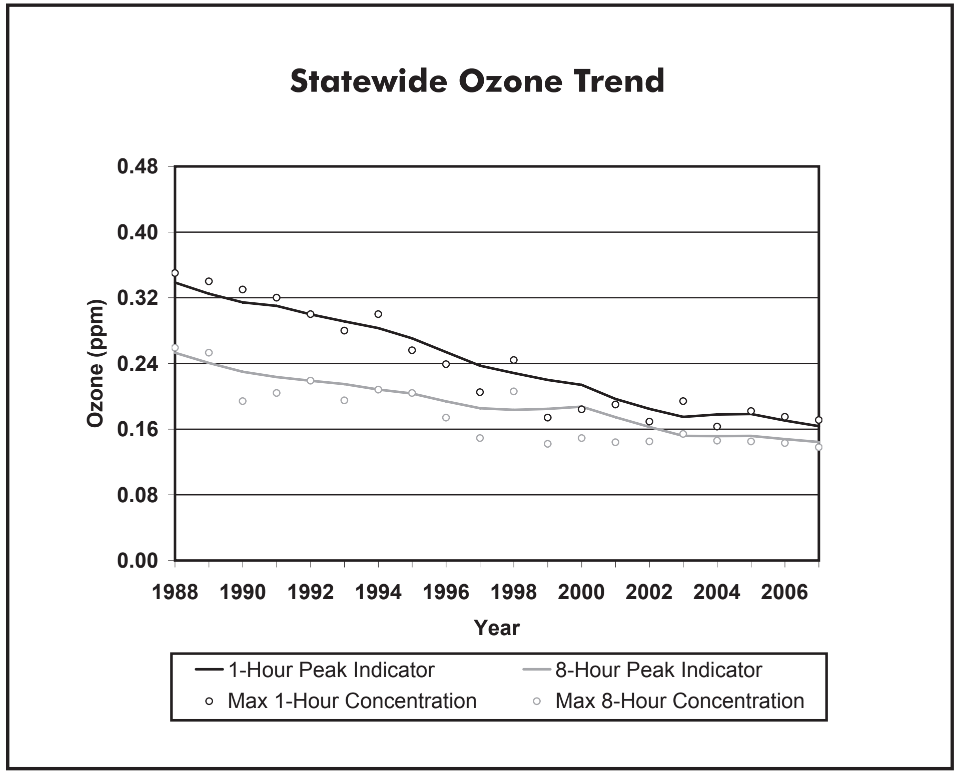


Figure 3-4

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 an 8-hour ozone concentration outdoors that is higher than 0.070 ppm, the level of the State 8-hour 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 daily 8-hour ozone exposures during the year and presents the result as an average per exposed person. For a more detailed discussion see Appendix B.

In Figure 3-5, the population-weighted exposures have been graphed from 1988 to 2007 in order to provide a visual representation of how the ozone exposures, in ppm-hours/person, are distributed over the years and how they compare with the increase in population. These values are meant to be a general representation of ozone exposure in the South Coast Air Basin. This graph gives a good indication of how ozone exposures have been steadily declining while the population has been increasing. For example, in Table 3-5 South Coast shows the highest exposure of all five air basins, however, the graph makes it clear that this exposure has been significantly declining and is now one fifth of what it was two decades ago.

The population-weighted exposures in Table 3-5 are listed for each year, from 1988 through 2007, for the five most populated areas of California. While these areas do not encompass all of California's ozone nonattainment areas, they do include the urban areas where 86 percent of the State's population lives.

This table also lists the percent of the total population represented in the exposure value. This reflects the percent of the total population in the area that was exposed to an ozone concentration above the level of the State 8-hour standard for at least one 8-hour period during the year. This method provides a reasonable approach for comparing exposures among various regions and for assessing trends in exposure reductions.

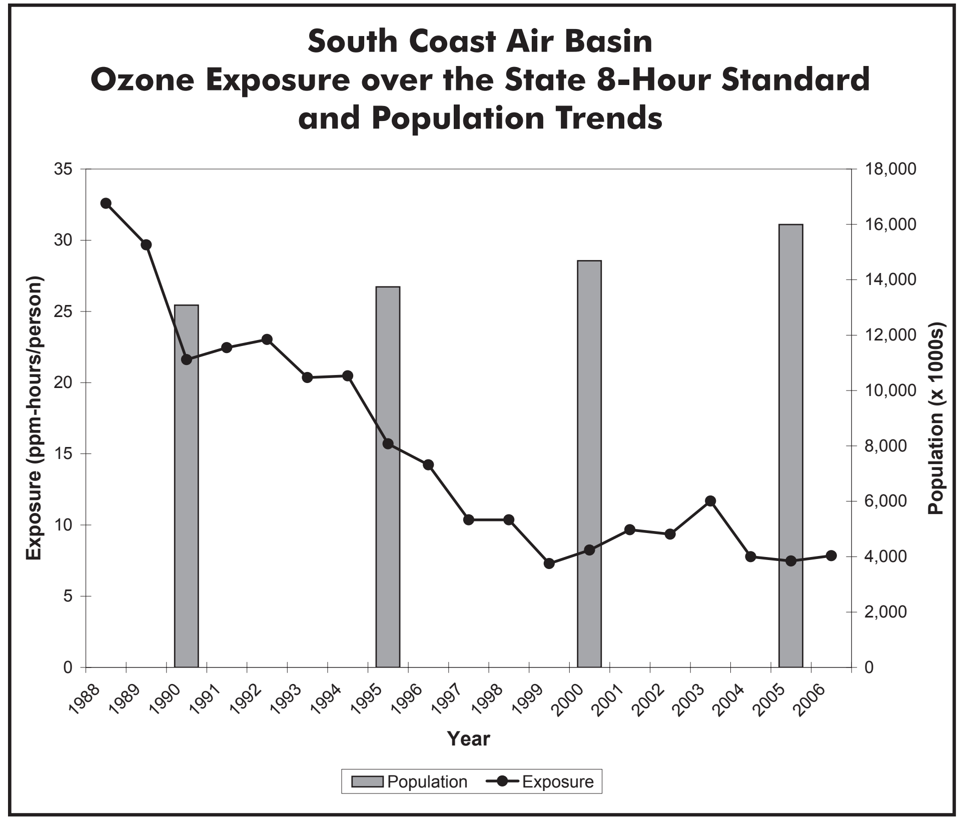


Figure 3-5

Ozone Exposures Over the State 8-Hour Standard: Population-Weighted (ppm-hours / person)																				
	1988	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
South Coast Air Basin																				
Exposure	32.59	29.67	21.62	22.45	23.03	20.36	20.47	15.70	14.22	10.36	10.36	7.29	8.24	9.67	9.36	11.68	7.77	7.47	7.85	6.66
% Pop. Represented *	100%	100%	100%	100%	100%	100%	100%	98%	98%	99%	92%	95%	97%	97%	81%	97%	100%	98%	84%	100%
San Francisco Bay Area Air Basin																				
Exposure	2.90	1.39	0.98	0.87	1.18	0.92	0.74	1.68	1.58	0.23	1.52	1.21	0.62	0.73	0.68	0.67	0.33	0.27	0.90	0.16
% Pop. Represented	90%	59%	41%	41%	51%	66%	36%	88%	60%	68%	42%	64%	18%	34%	36%	68%	42%	41%	44%	9%
San Joaquin Valley Air Basin																				
Exposure	18.83	13.76	10.86	12.23	11.65	12.50	11.02	11.52	13.96	9.50	11.70	12.02	11.49	12.18	12.86	12.17	7.50	6.32	8.22	5.18
% Pop. Represented	98%	98%	98%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
San Diego Air Basin																				
Exposure	10.88	10.97	9.63	7.54	6.25	5.31	5.19	4.59	3.49	1.96	3.58	2.76	2.85	2.41	1.77	2.12	1.64	1.39	2.38	1.40
% Pop. Represented	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	94%	90%	100%	86%	54%	100%	42%	73%	99%
Broader Sacramento Metropolitan Area																				
Exposure	8.19	4.54	4.88	5.64	5.49	2.77	4.41	4.82	5.15	2.09	4.23	4.58	3.19	3.51	4.68	3.72	2.28	2.88	3.94	1.51
% Pop. Represented	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* *% Population Represented* is the percent of the total population residing in an area exposed to an ozone concentration above the level of the State 8-hr standard for at least one 8-hour period during the year.

Table 3-5

(This page intentionally left blank)

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 3-6 shows the upwind areas that impact downwind areas throughout the State.

The ozone problem in the southern desert areas and some rural areas is significantly impacted by transported pollutants. National ozone air quality plans take into account the shared responsibility between upwind and downwind areas where transport can at times be signficant. Areas impacted by overwhelming transport, although designated nonattainment, are not required to adopt an air quality plan to meet State standards 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 LEVs. More detailed information about ozone transport is available on the web at *www.arb.ca.gov/aqd/transport/transport.htm*.

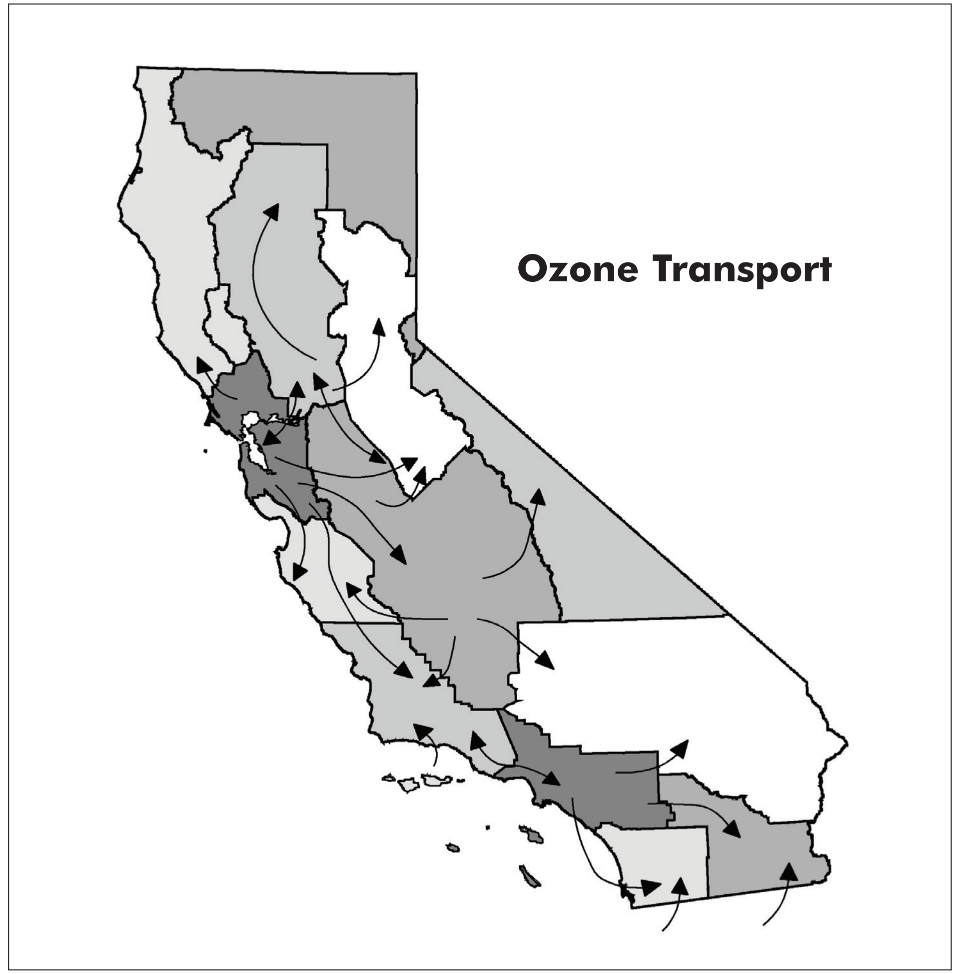


Figure 3-6

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, increase in 2000, decrease in 2005, and are projected to slowly increase after 2005. 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 generally increase through the forecast period. Other area-wide sources include farming operations, construction and demolition, and fugitive wind blown dust from agricultural lands. Emissions from these categories have compensating effects resulting in a fairly constant statewide emission level; emissions increase slightly over the forecast period. The increase in emissions of unpaved and paved road dust are due to increases in VMT over these roads. Exhaust emissions from diesel mobile sources dropped by 38 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.

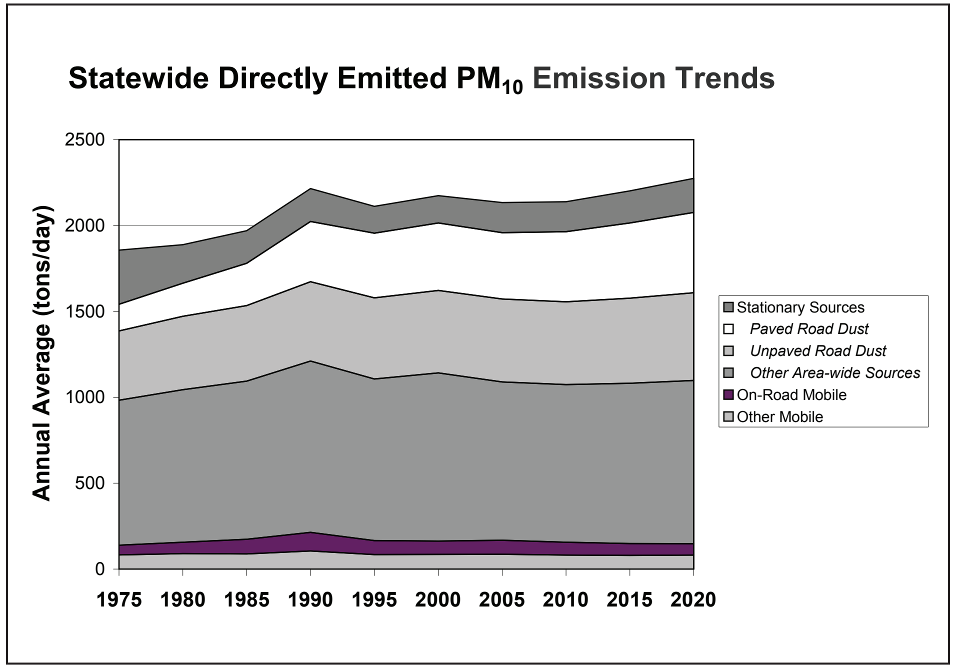


Figure 3-7

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***1857***	***1889***	***1971***	***2215***	***2112***	***2174***	***2134***	***2139***	***2202***	***2275***
Stationary Sources	315	224	190	192	157	159	175	174	187	198
Area-wide Sources	1403	1508	1607	1810	1790	1853	1791	1808	1867	1928
Paved Road Dust	156	192	246	350	376	393	386	408	438	467
Unpaved Road Dust	403	427	439	461	473	480	483	483	495	511
Other Area-wide Sources	844	888	921	998	941	979	922	918	933	950
On-Road Mobile	57	66	85	109	82	77	81	75	69	66
Gasoline Vehicles	23	20	22	27	29	33	39	42	47	51
Diesel Vehicles	34	46	63	82	53	44	42	33	23	15
Other Mobile	82	90	88	105	84	85	87	82	79	82
Gasoline Fuel	6	7	9	10	11	12	12	15	18	22
Diesel Fuel	58	64	60	70	52	50	46	38	27	18
Other Fuel	18	19	20	25	22	24	28	29	34	41

Table 3-6

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

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

$PM_{2.5}$ emissions decrease from 1975 to 1980 as a result of reduced stationary source emissions. Emissions increase slightly between 1980 and 1990, hold steady through 2010, and are projected to increase after 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 through the forecast period. Other area-wide source emissions also increase slightly over the forecast period. The increase in emissions of unpaved and paved road dust are due to increases in VMT over these roads. Exhaust emissions from diesel mobile sources dropped by 38 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.

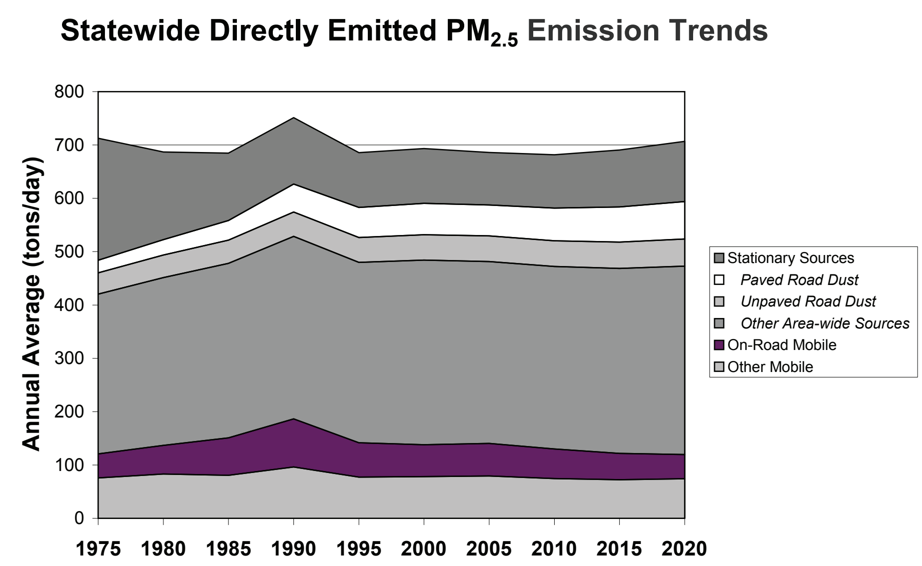


Figure 3-8

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***713***	***687***	***685***	***751***	***686***	***693***	***686***	***682***	***690***	***707***
Stationary Sources	229	164	126	124	103	103	98	100	107	113
Area-wide Sources	363	386	408	440	441	453	447	452	462	475
Paved Road Dust	23	29	37	53	56	59	58	61	66	70
Unpaved Road Dust	40	42	44	46	47	47	48	48	49	51
Other Area-wide Sources	300	315	327	342	338	346	341	342	347	353
On-Road Mobile	45	54	70	90	65	60	61	55	49	45
Gasoline Vehicles	14	11	12	14	16	19	23	25	28	31
Diesel Vehicles	31	42	58	76	49	41	38	30	21	14
Other Mobile	76	83	81	96	77	78	79	75	72	74
Gasoline Fuel	4	5	7	8	8	9	9	11	14	17
Diesel Fuel	54	59	55	64	48	46	42	35	25	17
Other Fuel	18	18	19	24	22	24	28	29	34	40

Table 3-7

.

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 3-9 shows the statewide annual average for 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 annual average 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 2007 provides a better indication of trends. Over this period, the three-year average of the annual average shows a decrease of more than 35 percent. However, there is a great deal of variability, especially during the late 1990's. Much of this variability may be due to meteorology rather than changes in emissions. Currently, over 99 percent of Californians live in air basins with concentrations that violate the State PM_{10} standards during at least part of the year. As a result, PM is commanding greater attention.

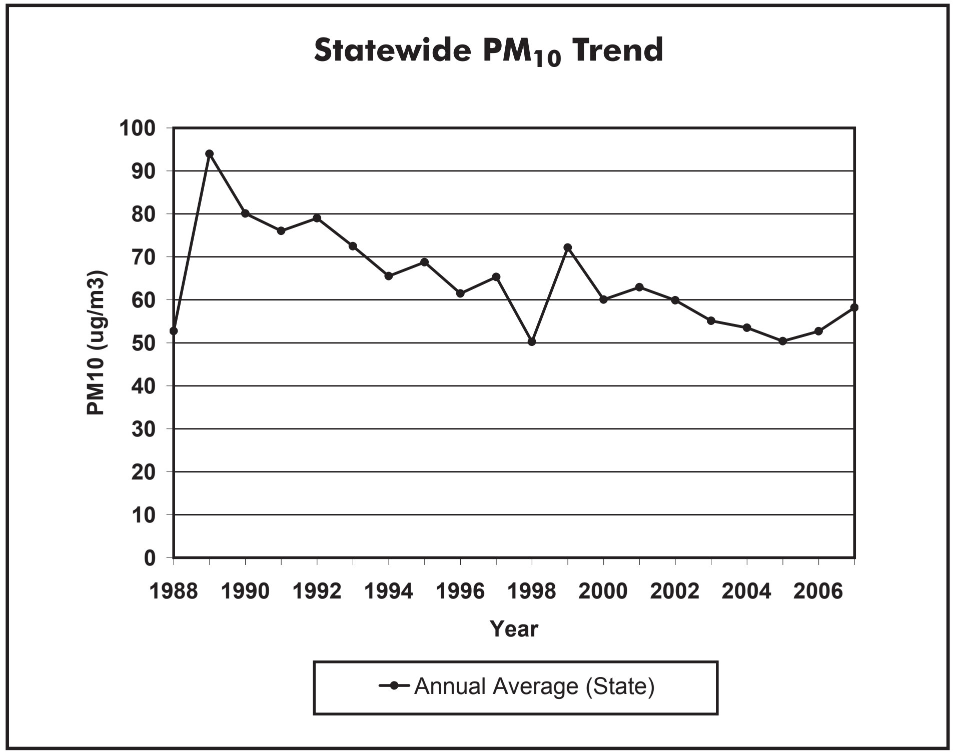


Figure 3-9

In 2003, the Legislature enacted Senate Bill 656 (SB 656) to reduce public exposure to PM_{10} and $PM_{2.5}$. As a first step in the implementation of SB 656, in November 2004, the ARB approved an extensive list of the most readily available, feasible, cost-effective control measures that can be employed by air districts to reduce PM_{10} and $PM_{2.5}$. Recently, air districts adopted implementation schedules for the subset of measures selected to address the nature and severity of their PM problem. The goal is to make progress towards attaining the State and national PM_{10} and $PM_{2.5}$ standards.

Statewide Air Quality - $PM_{2.5}$

Comprehensive monitoring for $PM_{2.5}$ began in 1999, therefore only limited data are available to evaluate statewide trends. Currently, most urban areas in the State, as well as several isolated sub-areas violate the State $PM_{2.5}$ annual average standard. Activities that contribute to high $PM_{2.5}$ concentrations include direct particulate emissions from mobile sources and burning, as well as the formation of $PM_{2.5}$ from the reactions of precursor gases.

Figure 3-10 shows the maximum statewide annual average $PM_{2.5}$ concentrations from 1999 through 2007 from the national perspective. The national annual average is also used in the air basin summaries in Chapter 4. The trend line reflects, for the most part, the South Coast Air Basin. Over the eight year period, the annual average shows a decrease of over 27 percent. Similar to PM_{10}, year-to-year changes in meteorology can mask the impacts of emission control programs.

As with PM_{10}, $PM_{2.5}$ represents one of the most serious health challenges in California. The measures adopted as part of SB 656 to reduce PM_{10} and $PM_{2.5}$ (program description can be found on the ARB website at *www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm*), as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$.

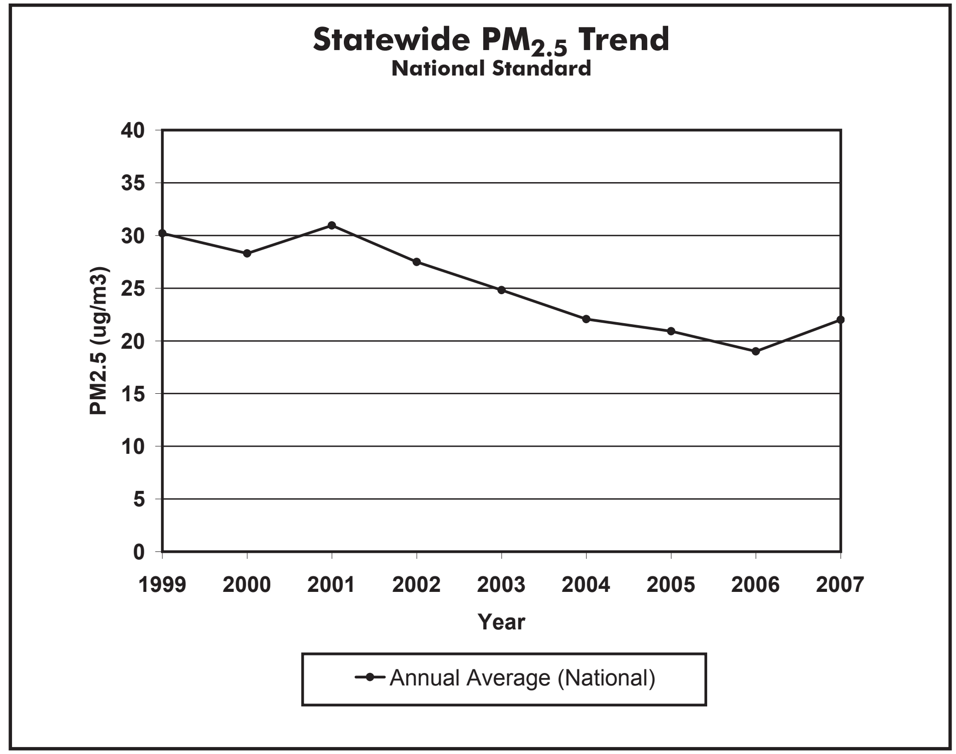


Figure 3-10

Carbon Monoxide (CO)

Emission Trends and Forecasts - Carbon Monoxide

Since 1975, even though 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 78 percent in 2005. 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 2020. CO emissions from other mobile sources are also projected to decrease through 2010 as more stringent emissions standards are implemented with moderate increases expected after 2010. 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.

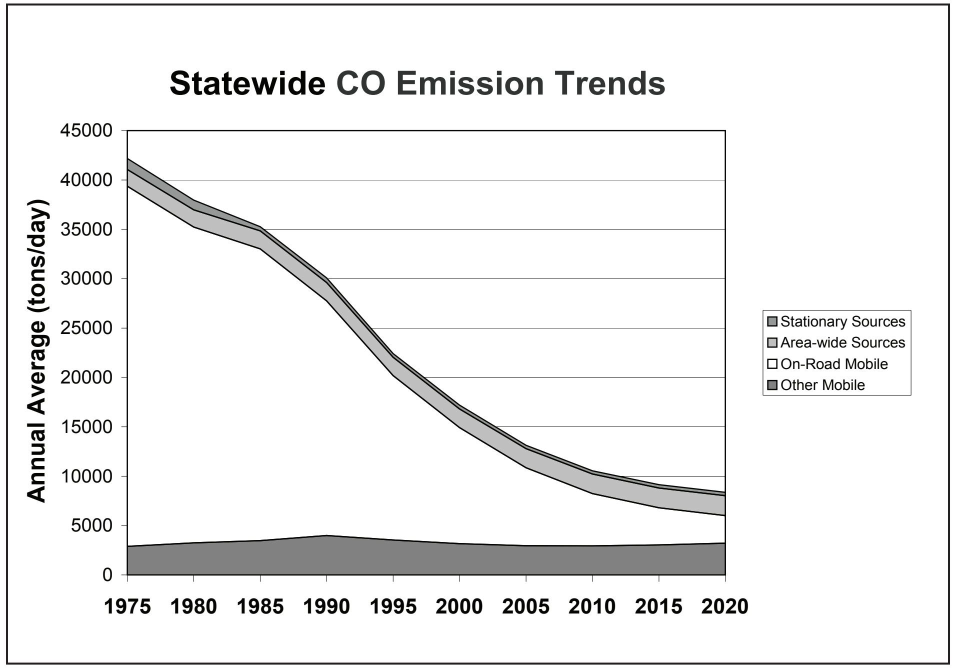


Figure 3-11

CO Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***42175***	***37958***	***35270***	***30084***	***22405***	***17203***	***13127***	***10543***	***9134***	***8369***
Stationary Sources	1110	983	426	470	371	387	337	325	337	350
Area-wide Sources	1699	1745	1828	1850	1856	1897	1944	1983	1998	2020
On-Road Mobile	36483	31987	29546	23775	16644	11762	7895	5290	3759	2793
Gasoline Vehicles	36342	31796	29281	23432	16339	11491	7612	5034	3553	2623
Diesel Vehicles	141	191	265	343	305	271	283	256	207	170
Other Mobile	2883	3244	3470	3988	3534	3157	2951	2944	3039	3205
Gasoline Fuel	2091	2378	2657	3065	2687	2392	2217	2177	2220	2324
Diesel Fuel	400	453	443	533	479	421	368	368	391	422
Other Fuel	392	414	370	390	368	344	366	399	429	459

Table 3-8

Statewide Air Quality - Carbon Monoxide

Similar to ozone, CO 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 67 percent from 1988 to 2007. California now meets all CO standards.

The introduction of cleaner fuels has helped bring the entire State into attainment. The U.S. EPA recently redesignated the South Coast as attainment, effective June 11, 2007. While cleaner fuels will have a continuing impact on CO 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 LEVs, and measures to promote less polluting modes of transportation.

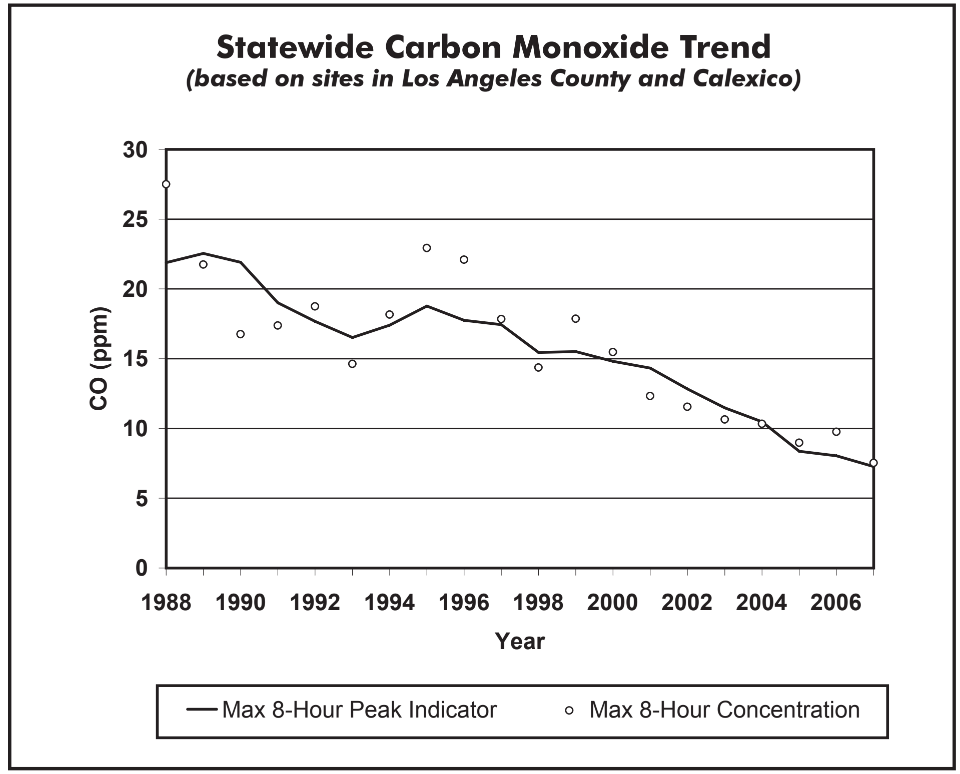


Figure 3-12

Statewide Air Quality - Lead

The decrease in lead emissions and ambient lead concentrations over the past 32 years is California's most dramatic success story. For the purpose of understanding the progress and impact of emission controls a more exhaustive historical record is provided.

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. 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 TAC in 1997.

Additionally, the EPA recently reviewed the national lead standard and has revised the standard to 0.15 $\mu g/m^3$ as of October 15, 2008 with an effective date of January 15, 2009. The most recent maximum concentration reflected in Figure 3-13 is 0.05 $\mu g/m^3$ which, while not the same as the measurement used for attainment, reflects very low values and shows considerable progress has occurred.

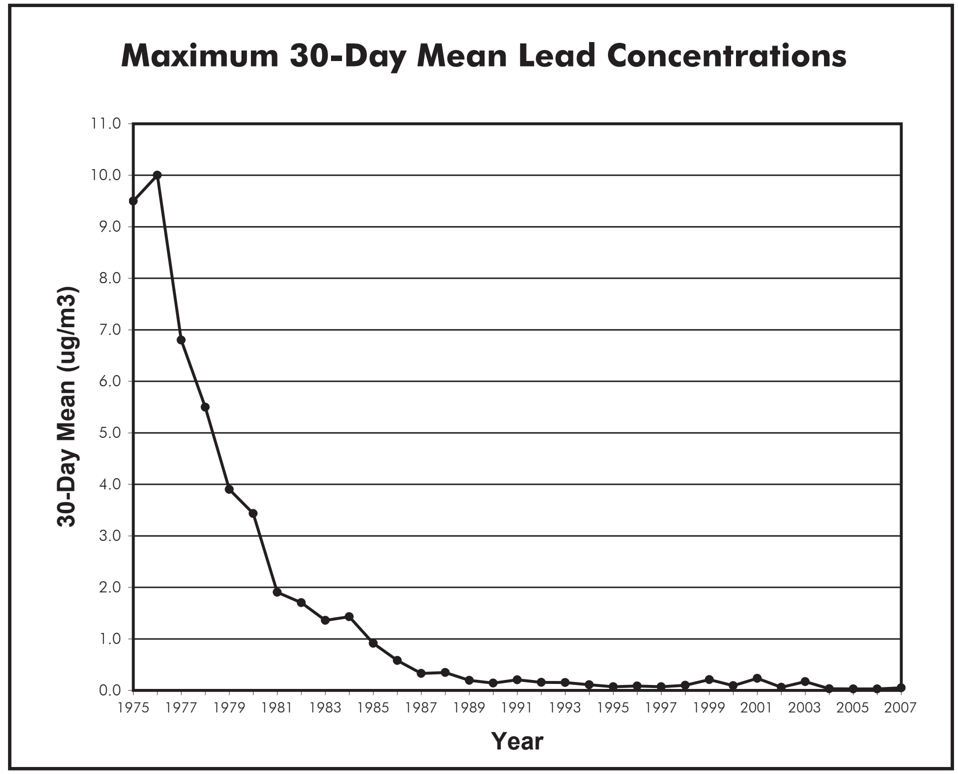


Figure 3-13

Sulfur Dioxide
Emission Trends and Forecasts - Oxides of Sulfur

Oxides of Sulfur (SO_x) are 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 2005. Emissions in 2005 are about 76 percent less than emissions in 1975. Sulfur dioxide emissions from stationary sources decreased between 1975 and 2005 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 land-based on- and off-road gasoline and diesel-fueled engines and vehicles have also decreased due to lower sulfur content in the fuel; and recent regulations adopted by the ARB will reduce the sulfur content in fuel used by commercial harbor craft such as tug boats and fishing vessels beginning in 2006. However, as shown in the table below, the SO_x emissions from the "other mobile" categories are expected to increase in the future. This is due to the significant growth in shipping activities predicted for California and the high-sulfur fuels that ocean-going ships typically use. The ARB recently adopted a regulation for fuels used in ship auxiliary engines that will help offset this trend. Substantial reductions in SO_x emissions will occur with implementation of this regulation.

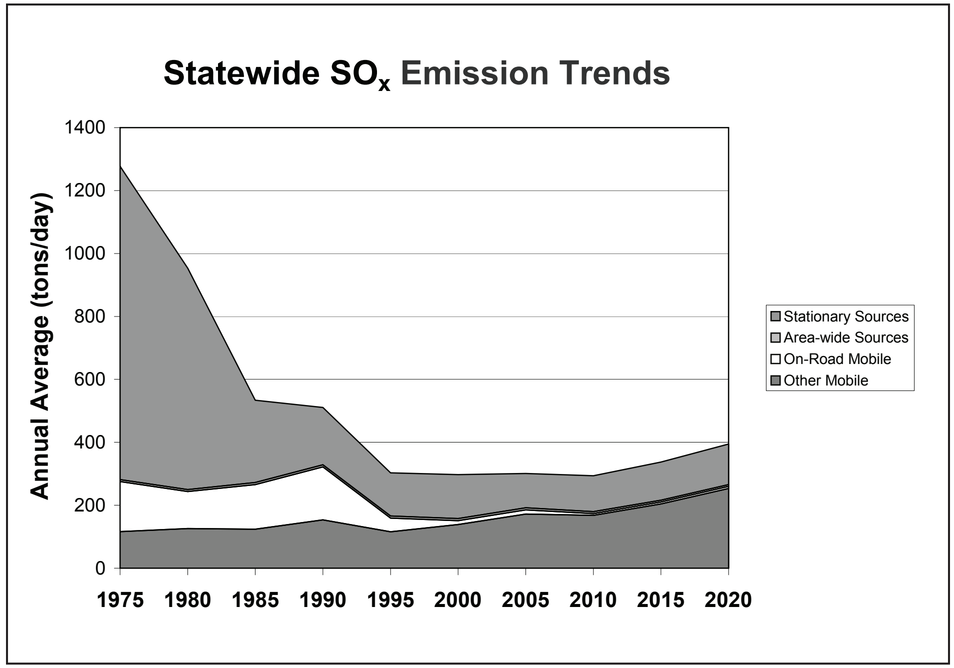


Figure 3-14

SO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***1277***	***953***	***534***	***511***	***303***	***297***	***301***	***294***	***337***	***394***
Stationary Sources	995	704	262	182	138	140	109	114	121	129
Area-wide Sources	6	6	7	7	7	7	6	6	6	6
On-Road Mobile	159	118	142	168	43	13	14	6	6	6
Gasoline Vehicles	112	54	56	62	37	5	5	4	5	5
Diesel Vehicles	47	64	85	106	7	7	9	1	1	1
Other Mobile	116	126	124	154	116	139	172	168	204	253
Gasoline Fuel	5	3	4	6	4	1	1	1	1	1
Diesel Fuel	63	73	63	73	15	14	14	6	6	7
Other Fuel	49	49	57	75	97	124	157	161	197	245

Table 3-9

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 decreased by 28 percent between 1980 and 2005 and are projected to decrease by almost 38 percent from 2005 to 2020 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 reduce NO_x emissions.

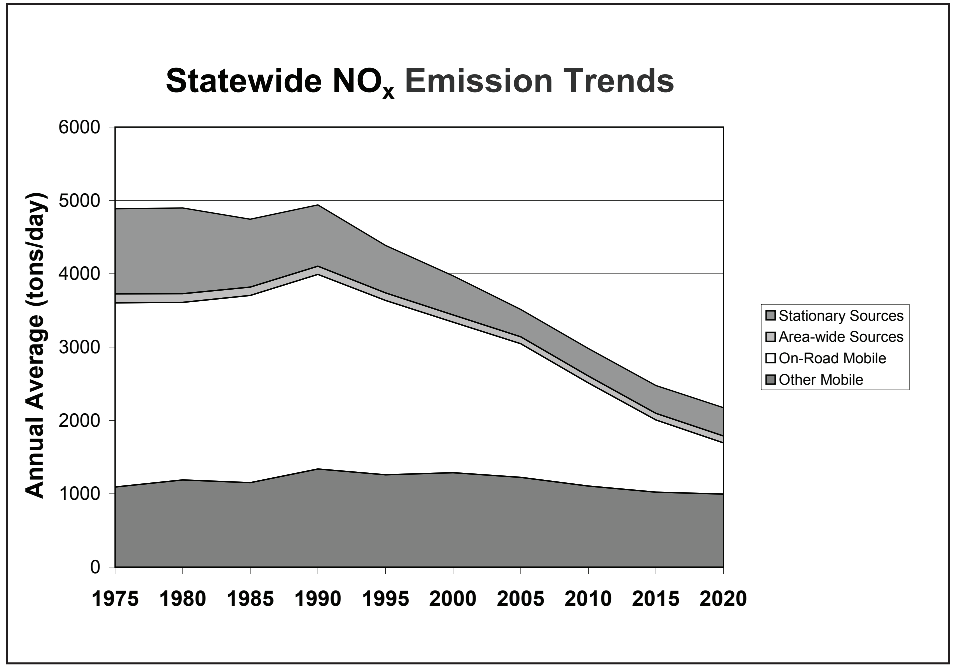


Figure 3-15

NO_x Emission Trends (tons/day, annual average)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
All Sources	***4886***	***4898***	***4744***	***4940***	***4387***	***3972***	***3513***	***2981***	***2476***	***2173***
Stationary Sources	1161	1170	926	837	647	533	372	376	378	387
Area-wide Sources	122	118	115	111	104	99	95	92	92	93
On-Road Mobile	2510	2421	2552	2654	2377	2053	1823	1407	984	699
Gasoline Vehicles	2197	2014	1958	1839	1574	1160	754	504	359	263
Diesel Vehicles	312	407	593	815	803	893	1069	904	625	435
Other Mobile	1093	1189	1152	1338	1258	1287	1223	1105	1022	995
Gasoline Fuel	51	57	62	72	70	69	75	68	64	64
Diesel Fuel	914	999	948	1091	984	968	861	740	602	497
Other Fuel	128	132	142	174	205	249	287	297	356	435

Table 3-10

Statewide Air Quality - Nitrogen Dioxide

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 1988, maximum NO_2 concentrations have decreased over 76 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 NO_2 standard and unclassified/attainment for the national NO_2 standard. Projections show NO_x emissions will continue to decline, thereby assuring continued attainment.

ARB revised the State 1-hour and adopted a new annual NO_2 standard on February 22, 2007. The South Coast is the only area with annual average NO_2 concentrations that exceed the level of the new State standard.

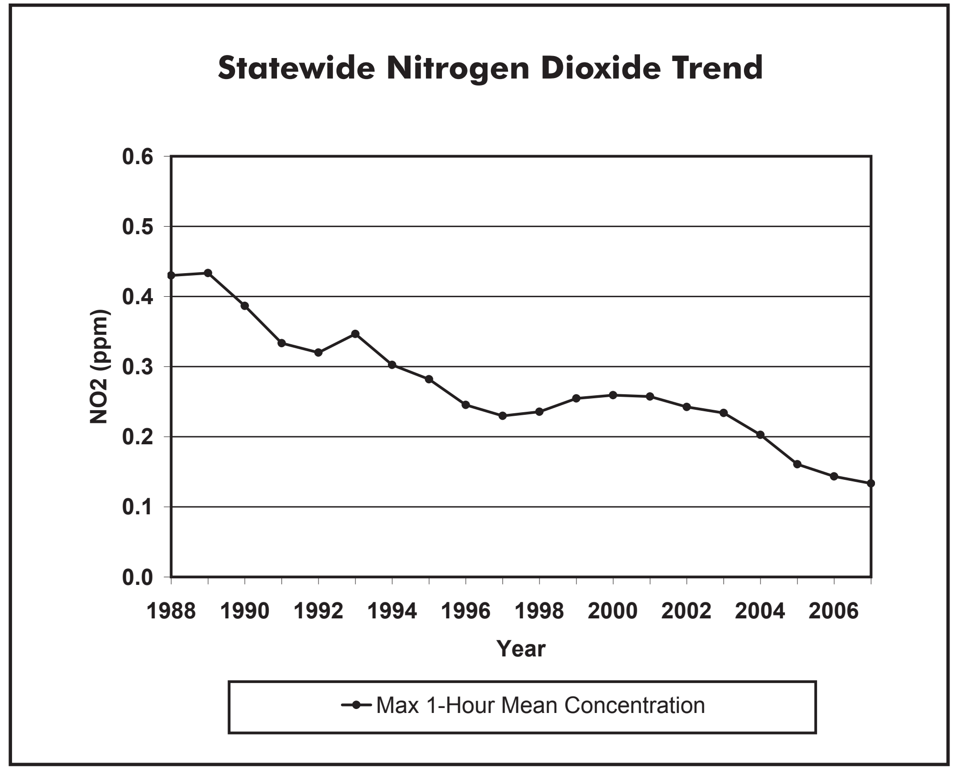


Figure 3-16

(This page intentionally left blank)

Chapter 4

Air Basin Trends and Forecasts -- Criteria Pollutants

Introduction

This chapter provides a look at emissions and air quality in California's five major air basins (data for individual counties are provided in Appendix A). Emissions data include past trends and projections of future emissions levels. The air quality statistics include values reflecting both the State and national ambient air quality standards. Below we will briefly discuss some of the statistics used to characterize ozone and PM air quality in this chapter.

In addition to maximum concentrations and number of days above the standards, the ozone statistics include the peak indicator and the three-year average of the 4^{th} highest 8-hour concentration. The peak indicator represents the maximum concentration expected to be exceeded no more than once per year, on average, based on the distribution of data at a particular monitoring site. Because it is based on a robust statistical calculation using three years of data, the peak indicator is relatively stable and provides a trend indicator that is not highly influenced by year-to-year changes in weather. The 1-hour and 8-hour peak indicators are calculated from measured data and relate to State standards. In contrast, the three-year average of the 4^{th} highest concentration is related to the national 8-hour ozone standard. (Please note that a different indicator was used for determining compliance with the national 1-hour ozone standard.) These statistics are reported for the end year of the three year period. For example, the 2007 peak indicator reflects data for the years 2005 through 2007.

The peak indicator and the three-year average of the 4^{th} high are generally called "design values" and are the concentrations that are compared to the standard for the purpose of determining attainment status. However, values for these statistics that are included in this almanac may not satisfy data completeness requirements or the boundaries of a nonattainment area, which may differ from county or air basin boundaries. Data conforming to the established design value requirements are available for the national 8-hour ozone standard on the web at *www.arb.ca.gov/airqualitytoday* under "recent year's ozone air quality." Historical data is also available on the web at *www.arb.ca.gov/adam*. Furthermore, when evaluating these statistics, keep in mind that they represent data for a three-year period.

Some of the PM statistics included in this chapter also relate to the State and national standards and differ from one another because the requirements of the standards are different. For example, there is a maximum 24-hour $PM_{2.5}$ concentration listed for State purposes and another for national purposes. During some years or in some areas the two numbers may differ. These differences occur because the monitors acceptable for the two standards are different. The situation is similar for the State and national annual average. Both reflect a summary statistic based on one year of data. However in this case, both the acceptable monitors and the calculation methods differ. Finally, it is important to note that air quality statistics based on a single year of data (for example, the yearly count of days above the standard) can fluctuate from year-to-year because of variations in weather. As a result, this almanac compares three-year averages when characterizing the percentage increase or decrease in days above the standard. In this case, the number of exceedance days for 1988 (which represents an average of 1986, 1987, and 1988) is then compared to the 2007 value (which represents an average of 2005, 2006, and 2007), giving a much more stable indicator of long-term progress.

(This page intentionally left blank)

South Coast Air Basin

Introduction - Area Description

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 28 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 the nation. As a result, controlling the contributing emission sources poses a great challenge to State and local air pollution control agencies.

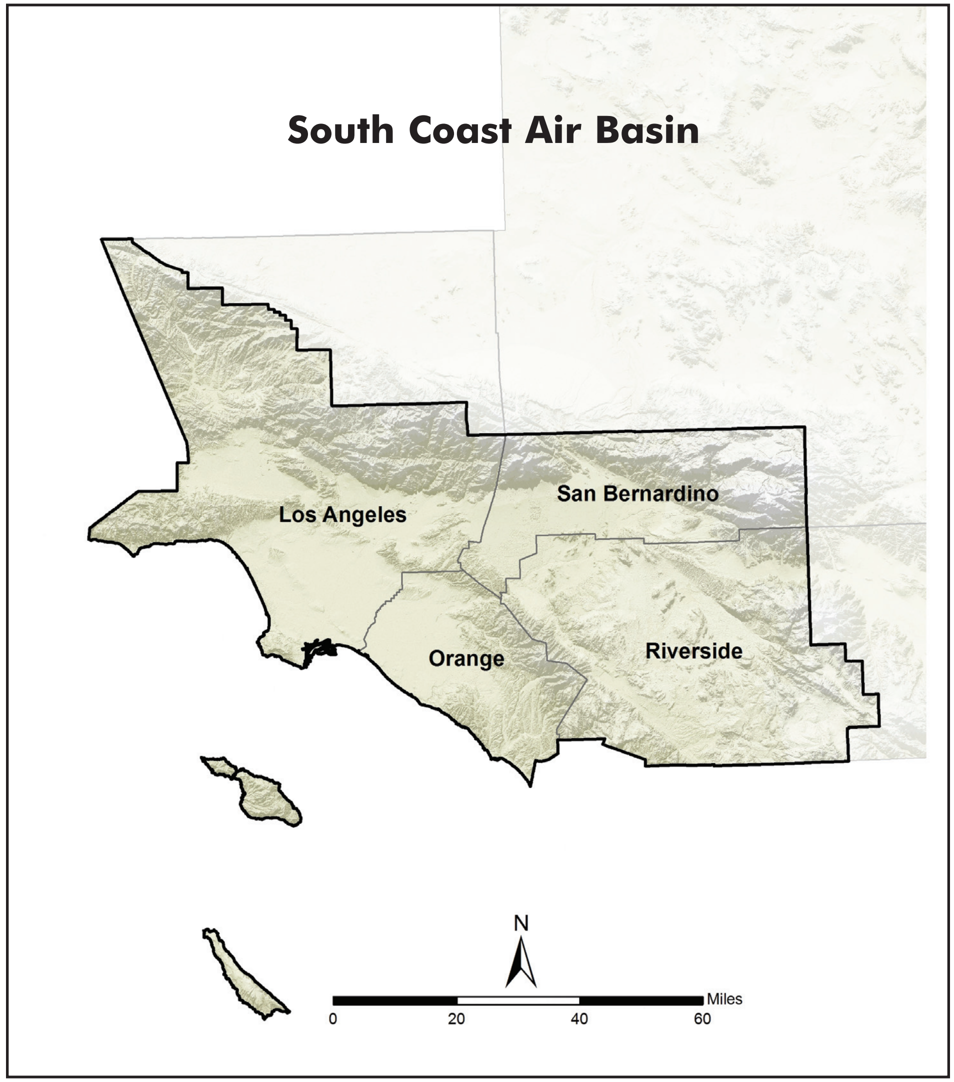


Figure 4-1

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 2020. 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. The emission levels for SO_x have decreased since 1975. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced fuel sulfur content. The increase in SO_x emissions from 2005 onward is due to predicted growth in shipping activities.

SIP and conformity inventory forecasts may differ from the forecasts presented in this almanac. For more information on these forecasts, please see the ARB SIP web page at *www.arb.ca.gov/planning/sip/sip.htm*.

South Coast Air Basin Emissions (tons/day, annual average)										
Pollutant	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
NO_X	1691	1530	1561	1558	1332	1177	985	742	580	468
ROG	2718	2279	2211	1793	1365	1090	735	576	526	505
PM_{10}	223	232	253	337	323	320	281	286	297	307
$PM_{2.5}$	125	114	113	125	108	108	103	102	102	103
SO_X	413	197	106	83	59	52	52	39	43	48
CO	16544	13605	13148	10749	7777	5648	4124	2950	2476	2203

Table 4-1

South Coast Air Basin

Population and VMT

Both population and the daily VMT grew from 1980 to 2005 and are projected to continue to grow at high rates in the South Coast Air Basin from 2005 to 2020. 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.

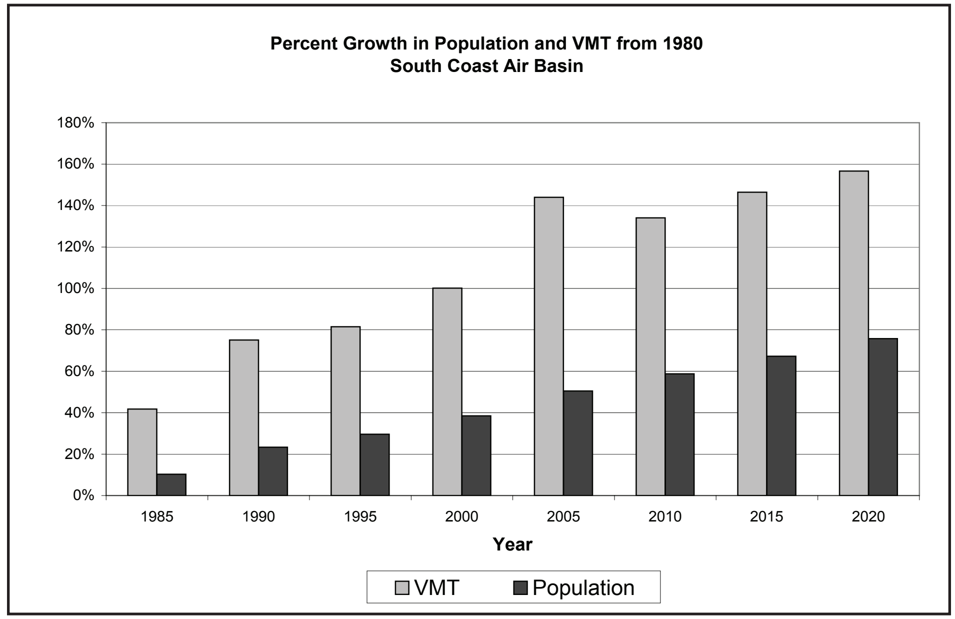


Figure 4-2

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	10604663	11698030	13083594	13745292	14685008	15954332	16839106	17738828	18638550
Avg. Daily VMT/1000	161397	228818	282561	292884	323009	393767	377734	397696	414267

Table 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 2020, 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	2015	2020
All Sources	***1691***	***1530***	***1561***	***1558***	***1332***	***1177***	***985***	***742***	***580***	***468***
Stationary Sources	307	266	230	182	131	113	59	56	52	52
Area-wide Sources	60	54	49	42	35	30	27	23	22	23
On-Road Mobile	998	880	955	953	831	692	586	400	285	204
Gasoline Vehicles	927	777	796	725	616	455	295	178	127	92
Diesel Vehicles	71	103	159	228	215	237	291	222	158	111
Other Mobile	326	330	327	381	334	341	313	263	220	190
Gasoline Fuel	27	27	29	32	28	29	28	24	22	21
Diesel Fuel	267	270	266	313	264	266	241	209	164	129
Other Fuel	32	32	33	36	41	47	44	31	34	39

Table 4-3

ROG Emission Trends (tons/day, annual average)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
All Sources	***2718***	***2279***	***2211***	***1793***	***1365***	***1090***	***735***	***576***	***526***	***505***
Stationary Sources	582	476	490	443	297	264	106	109	114	120
Area-wide Sources	164	174	189	228	197	190	160	144	149	155
On-Road Mobile	1734	1382	1269	875	650	438	297	183	139	113
Gasoline Vehicles	1725	1368	1250	852	635	425	280	169	129	105
Diesel Vehicles	9	13	19	23	15	13	17	14	11	8
Other Mobile	238	247	263	247	221	198	172	140	123	117
Gasoline Fuel	183	192	208	186	164	151	130	104	92	88
Diesel Fuel	40	40	39	45	40	39	34	27	21	17
Other Fuel	15	15	15	15	16	9	8	9	11	13

Table 4-4

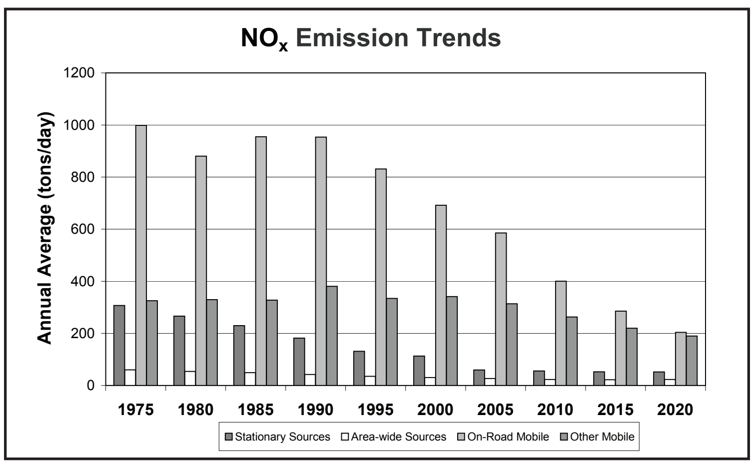


Figure 4-3

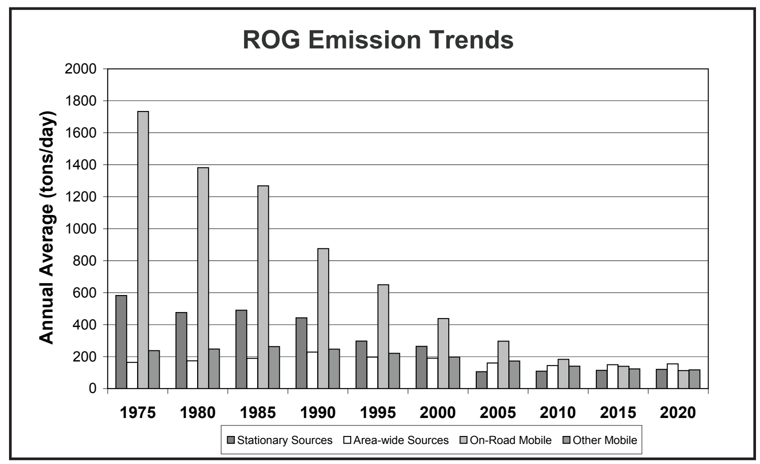


Figure 4-4

South Coast Air Basin

Ozone Air Quality Trend

Ozone air quality 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 ppm. Today, the maximum measured concentrations are less than one-third of that. The 2007 ozone season in the South Coast was on a par with 2006. The 2007 peak 8-hour indicator value was 42 percent lower than the 1988 value. The 2008 three-year average of the maximum 8-hour concentration was over 41 percent lower than 1990. The number of days above the standards has also declined dramatically, and the trend for 1-hour ozone is similar to that for 8-hour.

Although ozone has improved substantially over time, progress has leveled off during the last several years. This may be attributable to changes in the mix and reactivity of precursor emissions in the South Coast. While the basinwide trends show a slower rate of improvement during recent years, progress in some subregions of the Basin (for example, the coastal area and some of the inland valley areas) is still occurring. Continuing implementation of the aggressive emissions control measures will ensure continued progress throughout the Basin.

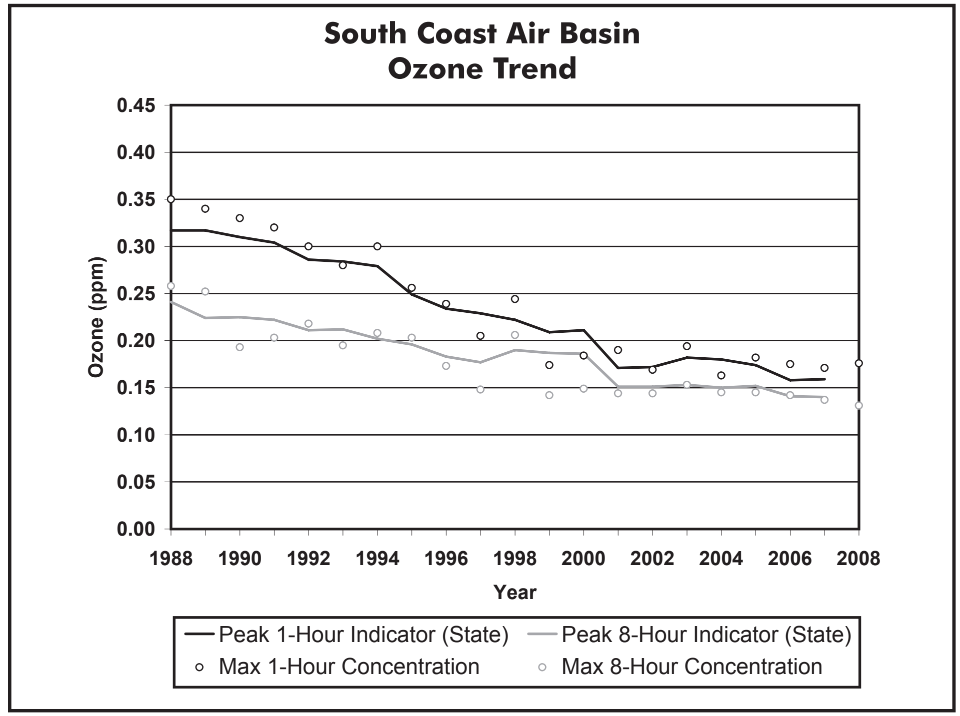


Figure 4-5

The ARB has identified the South Coast Air Basin as a transport contributor to several downwind areas — Mojave Desert Air Basin, Salton Sea Air Basin, San Diego Air Basin, and 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.

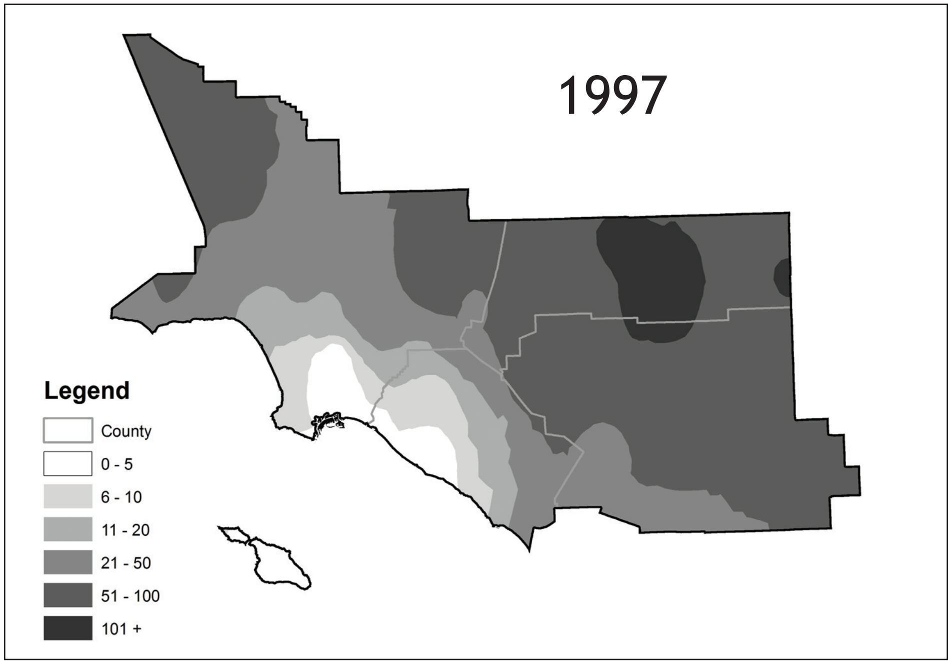
OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[1]
Peak 8-Hour Indicator (State)	0.241	0.224	0.225	0.222	0.211	0.212	0.202	0.196	0.183	0.177	0.190	0.187	0.186	0.151	0.151	0.153	0.150	0.152	0.141	0.140	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.131	0.127	0.127	0.121	0.122	
Peak 1-Hour Indicator (State)	0.317	0.317	0.310	0.304	0.286	0.284	0.279	0.249	0.234	0.229	0.222	0.209	0.211	0.171	0.172	0.182	0.180	0.174	0.158	0.159	
4th High 1-Hr. in 3 Yrs[2]	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	0.184	0.169	0.184	0.171	0.173	0.164	0.164	
Max. 8-Hr. Concentration	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	0.145	0.145	0.142	0.137	0.131
Maximum 1-Hr. Concentration	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	0.163	0.182	0.175	0.171	0.176
Days Above State 8-Hr. Std.	215	221	192	188	199	205	176	173	165	175	139	146	147	154	147	153	152	138	130	127	140
Days Above Nat. 8-Hr. Std.[3]	207	210	181	176	191	183	164	150	141	155	120	120	126	128	132	133	115	116	114	108	120
Days Above State 1-Hr. Std.	216	211	185	184	190	185	165	153	141	144	107	111	115	121	116	125	105	99	102	96	99

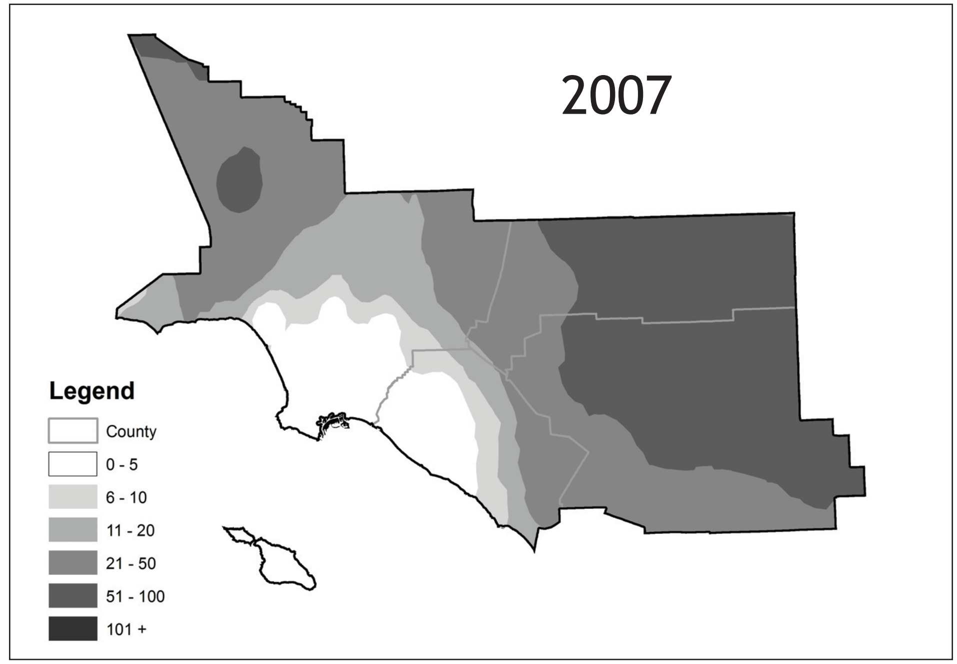
[1] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.
[2] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.
[3] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.

Table 4-5

South Coast Air Basin

Ozone Contour Maps - 3-year Average of National 8-Hour Exceedance Days





NOTE: Values used in these maps are for long-term sites only. Long-term sites are used to more accurately represent a trend over a period, by comparing the same or similar sites over a long period.

Figure 4-6

Figure 4-7

Another way to look at ozone air quality is to evaluate how widespread the problem is within a region. The maps on this page illustrate how the number of days exceeding the national 8-hour standard have changed across the South Coast Air Basin over the last decade. Three-year averages are used to help mitigate the impact of changes in meteorology.

Overall, the two maps show a substantial reduction in the number of exceedance days over the last 10 years. During the 1997 time period, about half of the South Coast had more than 50 exceedance days, with more than 100 days in the worst areas. This is equivalent to more than three months during a year with ozone concentrations above the level of the standard. The coastal areas were cleaner than the inland areas. However, only a small portion of the coastal area had ten or fewer exceedance days.

The 2007 map shows a dramatic expansion of clean areas, especially those in the range of zero to five exceedance days. These are the areas that currently meet the national standard, and they include about a third of Orange County and a fourth of Los Angeles County, where the majority of the Basin population lives and works. The areas with 6 to 10 and 11 to 20 exceedance days has also grown substantially. Ozone air quality in the inland areas is still worse than in areas nearer the coast. Even so, the areas with the highest number of exceedance days are limited to the northwestern portion of Los Angeles County and portions of Riverside and San Bernardino counties. However, despite the dramatic improvements in these areas, a large percentage of the basinwide population still experiences more than 50 exceedance days per year.

(This page intentionally left blank)

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, dust from construction and demolition operations, and other sources. The increase in activity of these area-wide sources reflects the increased growth and VMT in the air basin.

PM 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_{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**	**2015**	**2020**
All Sources	***223***	***232***	***253***	***337***	***323***	***320***	***281***	***286***	***297***	***307***
Stationary Sources	60	44	32	29	22	22	20	25	26	28
Area-wide Sources	122	145	173	249	255	254	213	219	231	241
On-Road Mobile	18	20	25	32	25	24	27	25	24	24
Gasoline Vehicles	10	8	9	11	11	13	16	16	18	20
Diesel Vehicles	8	12	16	21	13	11	11	8	6	4
Other Mobile	24	24	23	27	21	21	21	18	16	15
Gasoline Fuel	2	3	3	4	4	4	4	5	6	7
Diesel Fuel	19	19	18	21	15	15	14	11	8	5
Other Fuel	2	2	2	3	3	2	3	2	2	3

Table 4-6

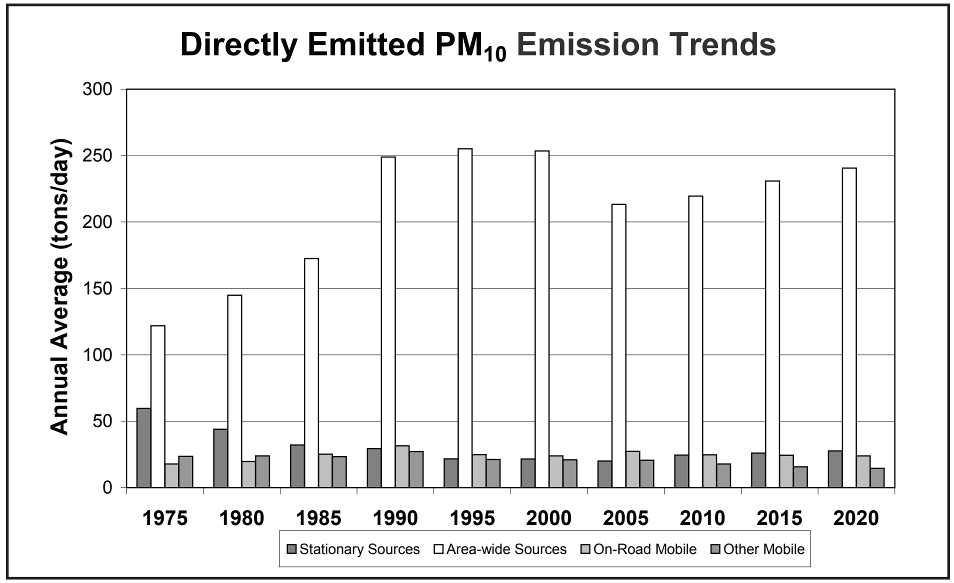


Figure 4-8

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

Direct emissions of $PM_{2.5}$ have decreased slightly in the South Coast Air Basin since 1975. Stationary source emissions have been decreasing, while area-wide emissions have been increasing. A more significant 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, dust from construction and demolition operations, and other sources. The increase in activity of these area-wide sources reflects the increased growth and VMT in the air basin.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***125***	***114***	***113***	***125***	***108***	***108***	***103***	***102***	***102***	***103***
Stationary Sources	52	34	23	24	16	16	13	15	16	17
Area-wide Sources	39	43	49	52	54	56	51	53	56	58
On-Road Mobile	13	15	20	25	19	18	20	18	17	16
Gasoline Vehicles	6	5	5	6	7	8	10	10	12	13
Diesel Vehicles	7	11	15	19	12	10	10	8	5	4
Other Mobile	21	22	21	25	19	19	18	16	14	12
Gasoline Fuel	2	2	2	3	3	3	3	4	4	5
Diesel Fuel	18	18	16	19	14	13	12	10	7	5
Other Fuel	2	2	2	3	3	2	3	2	2	3

Table 4-7

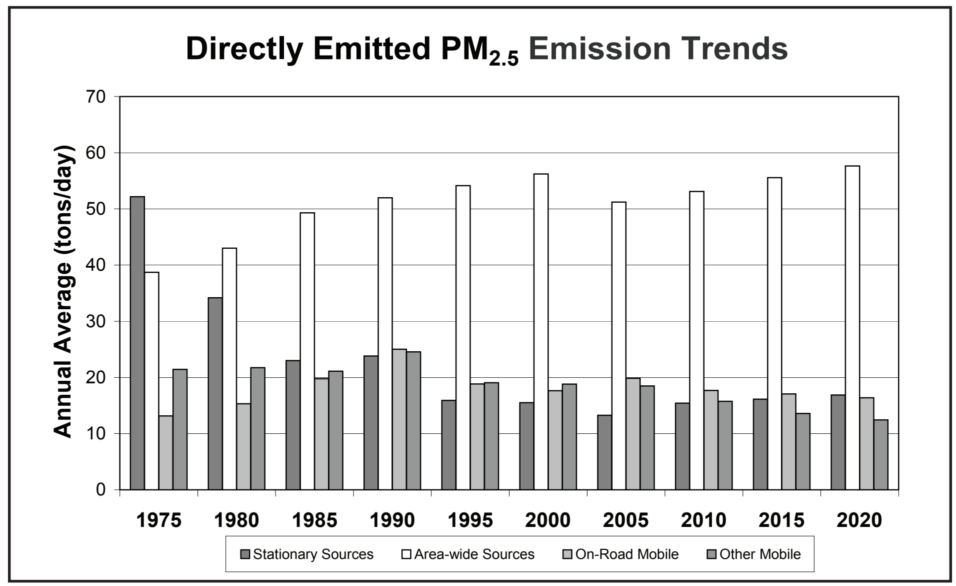


Figure 4-9

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 three-year average of the annual average (State) decreased by 35 percent. Although the values in the late 1990's 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 1989, there were 305 calculated days above the State standard and 34 calculated days above the national standard. By 2007, there were 273 calculated State standard exceedance days and 13 national standard exceedance days. The high 24-hour concentration in 2007 was due to a national windblown dust event.

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.

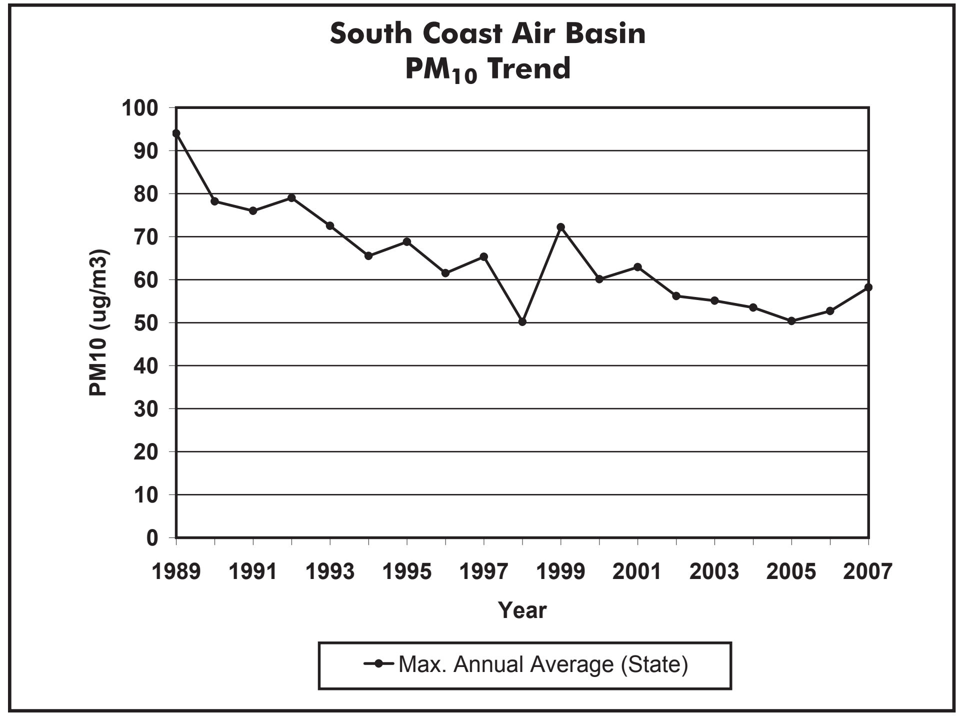


Figure 4-10

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	287	271	475	179	649	231	161	219	162	208	116	183	139	219	126	159	133	131	135	1155
Max. 24-Hr. Concentration (Nat)	287	271	475	179	649	231	210	219	185	208	116	183	139	219	130	164	137	131	142	1212
Max. Annual Average (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	56.2	55.1	53.5	50.4	52.7	58.2
Max. Annual Average (Nat)	103.7	93.0	78.2	76.1	79.0	72.5	65.5	68.8	62.8	65.6	58.7	72.2	59.1	63.3	58.1	55.6	54.8	51.8	55.1	60.7
Calc Days Above State 24-Hr Std		305	275	250	243	251	244	226	251	257	171	261	248	240	228	201	210	198	214	209
Calc Days Above Nat 24-Hr Std		34	19	12	12	18	6	25	6	6	0	6	0	6	0	6	0	0	0	13

Table 4-8

South Coast Air Basin

$PM_{2.5}$ Air Quality Trend

Figure 4-11 shows the annual average $PM_{2.5}$ concentrations (national) in the South Coast Air Basin from 1999 through 2007. Overall, the annual average concentrations have decreased over 37 percent. The State annual average concentrations also show a declining trend, although the trend looks less pronounced, due to differences in State and national monitoring methods. The 98th percentile of 24 hour $PM_{2.5}$ concentrations has also declined within the last nine years. The South Coast Air Basin is currently designated as nonattainment for the State and national $PM_{2.5}$ standards. Measures adopted as part of the upcoming $PM_{2.5}$ SIP, as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$ in this region.

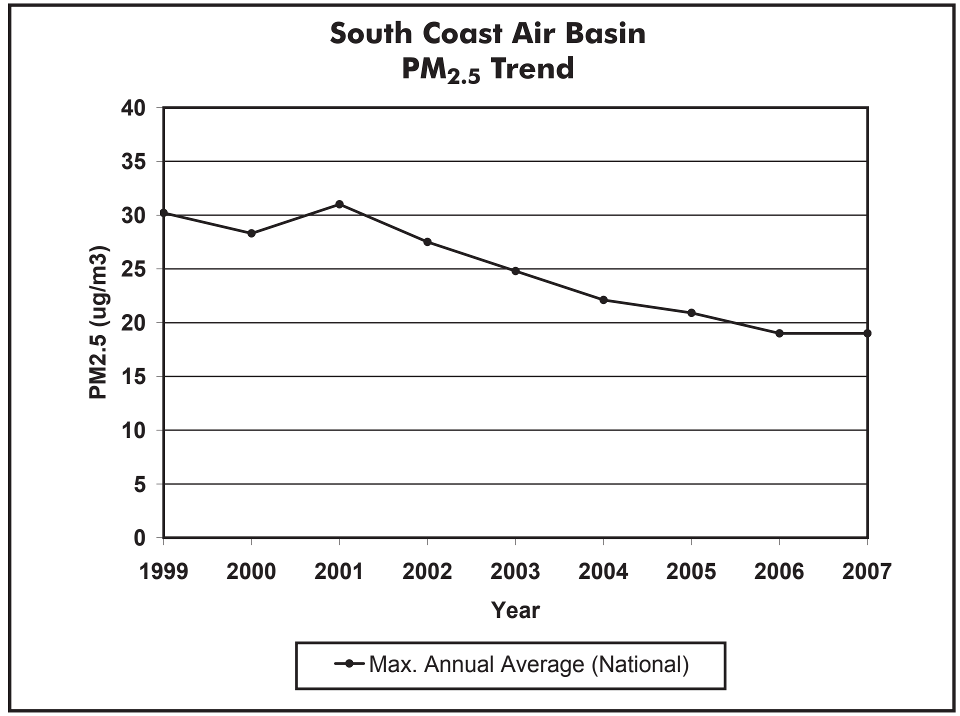


Figure 4-11

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												121.4	119.6	104.0	82.1	121.2	93.8	132.6	72.2	82.8
Max. 24-Hr. Concentration (Nat)												121.4	119.6	98.0	82.1	121.2	93.8	132.6	72.2	82.8
98th Percentile of 24-Hr Conc.												85.6	83.0	74.3	66.3	76.6	72.4	58.3	54.4	70.7
Annual Average (State)													24.0	25.0	25.8	24.8	16.6	21.0	16.6	19.8
Avg. of Qtrly. Means (Nat)												30.2	28.3	31.0	27.5	24.8	22.1	20.9	19.0	19.0

Table 4-9

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 have declined since 1990 and are projected to decline through 2010 as more stringent emission standards are adopted.

CO Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***16544***	***13605***	***13148***	***10749***	***7777***	***5648***	***4124***	***2950***	***2476***	***2203***
Stationary Sources	288	278	66	92	60	46	56	47	48	49
Area-wide Sources	85	70	106	70	79	104	109	112	115	119
On-Road Mobile	14958	11988	11627	9103	6385	4414	2979	1818	1306	973
Gasoline Vehicles	14926	11940	11558	9013	6307	4350	2905	1756	1254	929
Diesel Vehicles	33	48	69	90	78	64	73	62	52	43
Other Mobile	1212	1268	1348	1485	1253	1084	980	973	1007	1063
Gasoline Fuel	957	1011	1090	1198	987	858	769	740	744	771
Diesel Fuel	132	135	135	161	137	123	110	120	138	156
Other Fuel	123	123	123	126	129	103	101	113	125	136

Table 4-10

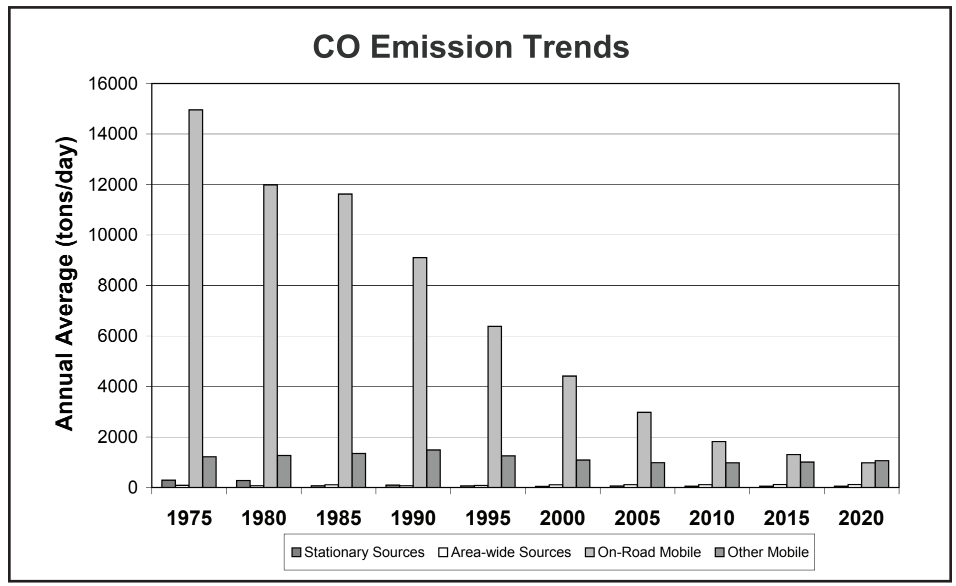


Figure 4-12

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 more than 72 percent in the peak 8-hour indicator since 1988. The number of exceedance days has also declined. During 1988 there were 73 days above the State standard and 65 days above the national standard. However, since 2003, there were no exceedance days for either standard.

The entire South Coast Air Basin is now designated as attainment for both the state and national CO standards. Ongoing reductions from motor vehicle control programs should continue the downward trend in ambient CO concentrations.

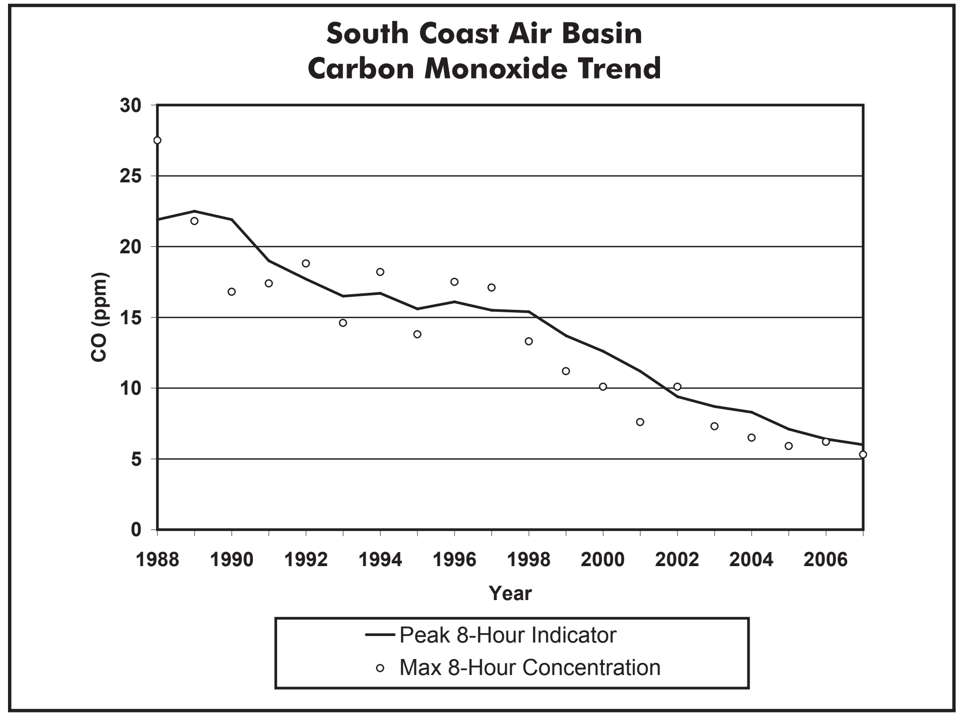


Figure 4-13

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator (State)	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.5	15.4	13.7	12.6	11.2	9.4	8.7	8.3	7.1	6.4	6.0
Max. 1-Hr. Concentration	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	12.2	10.4	7.4	8.4	7.8
Max. 8-Hr. Concentration (State)	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	7.3	6.5	5.9	6.2	5.3
Days Above State 8-Hr. Std.	73	71	50	51	39	29	27	17	26	18	13	11	6	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	65	67	42	41	34	19	19	14	19	13	10	7	3	0	1	0	0	0	0	0

Table 4-11

South Coast Air Basin

Nitrogen Dioxide

Oxides of Nitrogen Emission Trends and Forecasts

Oxides of nitrogen (NO_x) and nitrogen dioxide (NO_2) 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**	**2015**	**2020**
All Sources	***1691***	***1530***	***1561***	***1558***	***1332***	***1177***	***985***	***742***	***580***	***468***
Stationary Sources	307	266	230	182	131	113	59	56	52	52
Area-wide Sources	60	54	49	42	35	30	27	23	22	23
On-Road Mobile	998	880	955	953	831	692	586	400	285	204
Gasoline Vehicles	927	777	796	725	616	455	295	178	127	92
Diesel Vehicles	71	103	159	228	215	237	291	222	158	111
Other Mobile	326	330	327	381	334	341	313	263	220	190
Gasoline Fuel	27	27	29	32	28	29	28	24	22	21
Diesel Fuel	267	270	266	313	264	266	241	209	164	129
Other Fuel	32	32	33	36	41	47	44	31	34	39

Table 4-12

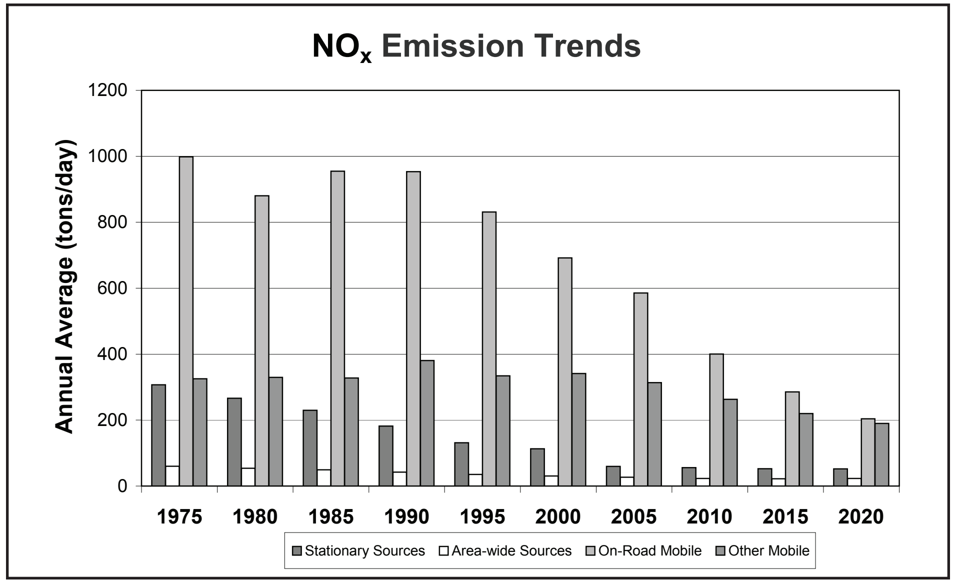


Figure 4-14

South Coast Air Basin

Nitrogen Dioxide Air Quality Trend

Over the last 20 years, NO_2 values have decreased significantly in the South Coast Air Basin. The peak 1-hour indicator for 2007 was over 67 percent lower than what it was during 1988. The South Coast Air Basin attained the State 1-hour NO_2 standard in 1994, bringing the entire State into attainment.

The national annual average standard has not been exceeded since 1991. A new state annual average standard was adopted by the ARB in February 2007. The new standard is just barely exceeded in the South Coast.

NO_2 is formed from NO_x emissions, 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 NO_x emissions. These measures are expected to bring the South Coast into attainment of the State annual average standard.

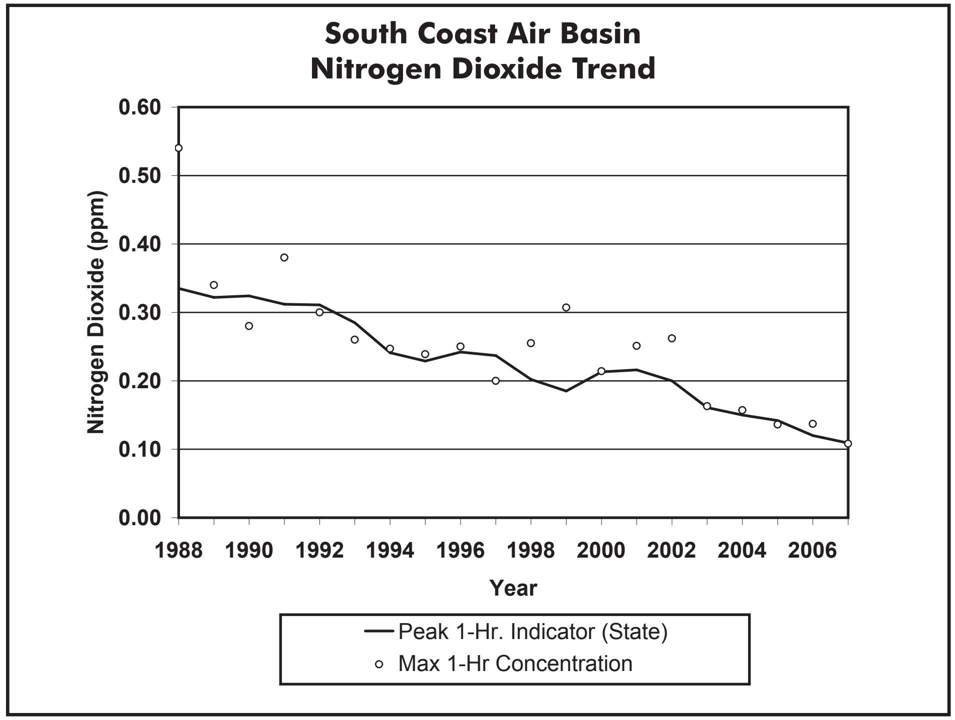


Figure 4-15

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator (State)	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	0.161	0.150	0.142	0.120	0.109
Max. 1-Hr. Concentration	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	0.163	0.157	0.136	0.137	0.108
Max. Annual Average (Nat)	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	0.035	0.034	0.031	0.031	0.031
Max. Annual Average (State)	0.061	0.057	0.056	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.050	0.044	0.041	0.040	0.036	0.033	0.031	0.031	0.031

Table 4-13

San Francisco Bay Area Air Basin

Introduction - Area Description

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.

About 19 percent of California's population resides in the San Francisco Bay Area, and pollution sources in the region account for about 15 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 inland areas such as the South Coast, San Joaquin Valley, and Sacramento regions. This is due to a more favorable climate, with cooler temperatures and better ventilation. However, exceedances of the State ozone and PM standards continue to occur in the San Francisco Bay Area Air Basin, and still pose challenges to State and local air pollution control agencies.

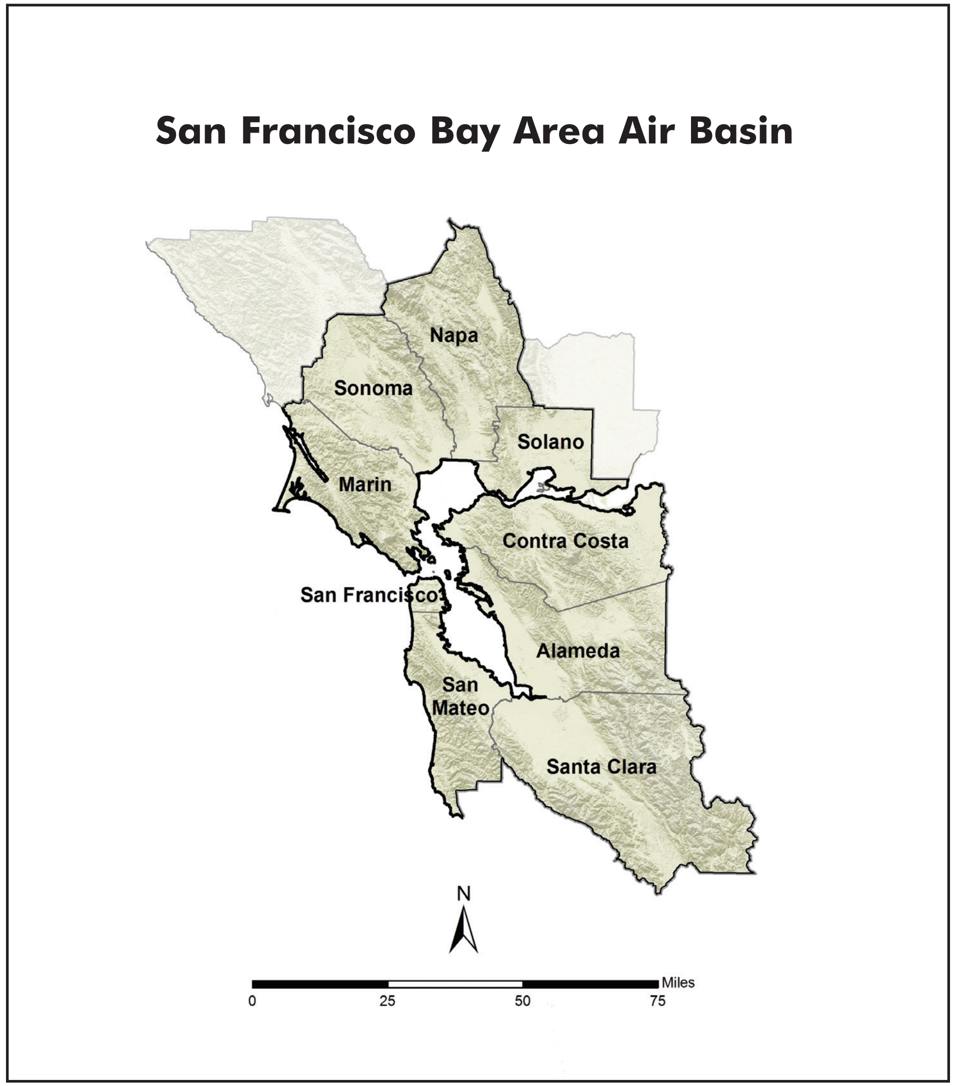


Figure 4-16

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. 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 reduce ROG emissions. The emission levels for SO_x have decreased since 1975. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced fuel sulfur content. The increase in SO_x emissions from 2005 onward is due to predicted growth in shipping activities. An increase in petroleum refining emissions is also seen.

San Francisco Bay Area Air Basin Emissions (tons/day, annual average)										
Pollutant	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
NO_X	928	904	808	787	718	614	488	414	335	284
ROG	1413	1327	1075	804	707	572	420	359	331	318
PM_{10}	178	179	192	192	188	216	207	216	225	235
$PM_{2.5}$	80	78	78	84	82	84	81	82	83	85
SO_X	212	199	111	115	75	73	64	62	66	70
CO	9056	8314	6991	5308	3901	2944	2021	1596	1340	1206

Table 4-14

San Francisco Bay Area Air Basin

Population and VMT

Compared with the statewide totals, population and the number of vehicle miles traveled each day grew steeply until 1990, having slowed in recent years and are projected to continue at a slower rate in the San Francisco Bay Area Air Basin through 2020. During that 40-year period, the population is projected to increase about 52 percent, from about 5.1 million in 1980 to about 7.7 million in 2020. During the same period, the daily VMT is projected to increase 109 percent, from 93 million miles per day in 1980 to over 194 million miles per day in 2020. While these growth rates are lower than the growth rates seen in other areas, they still represent substantial increases.

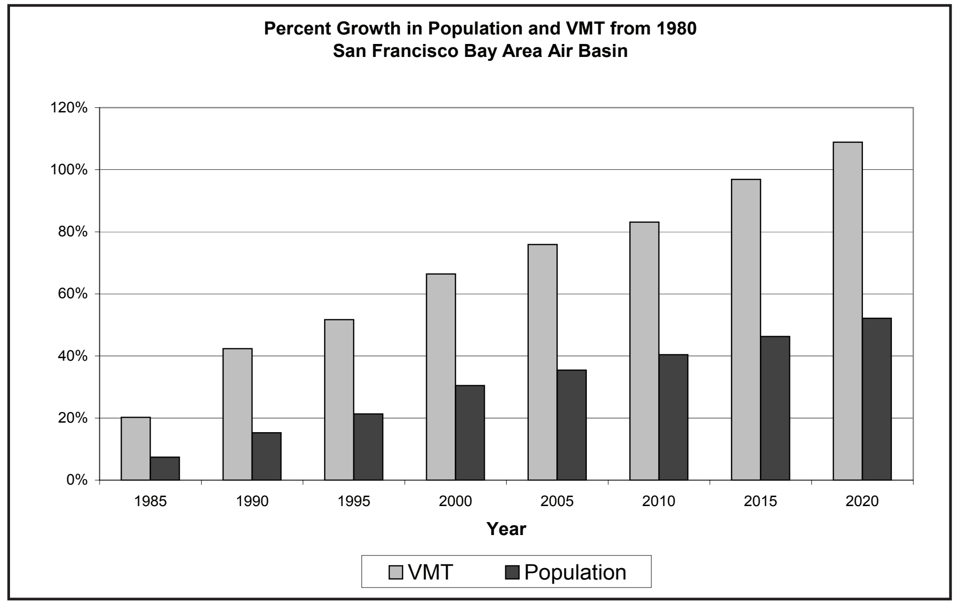


Figure 4-17

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	5095406	5473956	5874273	6182722	6647035	6900697	7154533	7453884	7753235
Avg. Daily VMT/1000	93109	111964	132558	141224	154959	163790	170505	183332	194476

Table 4-15

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 2020. 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.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***928***	***904***	***808***	***787***	***718***	***614***	***488***	***414***	***335***	***284***
Stationary Sources	229	206	135	127	116	87	52	51	53	56
Area-wide Sources	11	12	13	16	17	17	17	17	18	18
On-Road Mobile	542	540	500	453	385	312	234	181	124	88
Gasoline Vehicles	516	493	427	356	296	215	128	86	59	42
Diesel Vehicles	26	47	73	97	89	98	106	94	64	46
Other Mobile	145	145	160	191	200	198	186	165	140	122
Gasoline Fuel	10	10	11	13	14	13	13	11	10	10
Diesel Fuel	115	115	125	151	157	152	140	123	97	75
Other Fuel	20	21	24	27	30	33	33	31	33	36

Table 4-16

ROG Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***1413***	***1327***	***1075***	***804***	***707***	***572***	***420***	***359***	***331***	***318***
Stationary Sources	280	265	195	156	185	161	114	107	110	112
Area-wide Sources	110	109	106	111	97	93	87	89	92	95
On-Road Mobile	915	841	654	425	319	223	139	97	72	57
Gasoline Vehicles	912	836	647	417	314	218	133	92	68	54
Diesel Vehicles	3	5	7	8	5	5	5	5	4	3
Other Mobile	108	112	119	112	106	96	81	66	57	54
Gasoline Fuel	83	85	90	79	74	66	56	44	38	36
Diesel Fuel	16	16	18	21	23	21	19	15	12	10
Other Fuel	10	11	12	12	10	8	6	7	8	8

Table 4-17

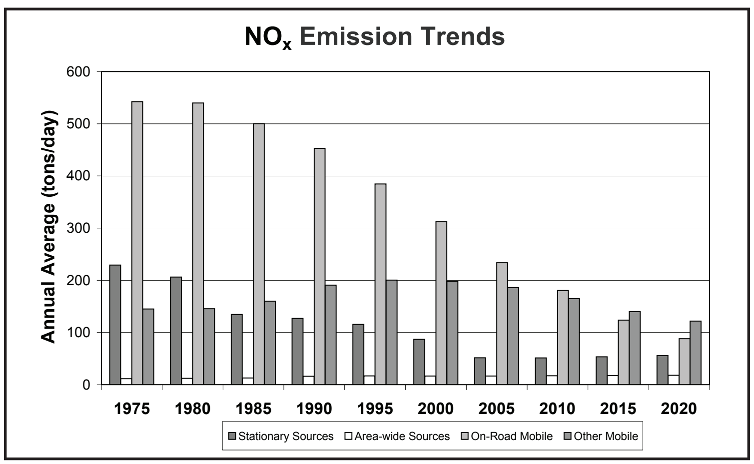


Figure 4-18

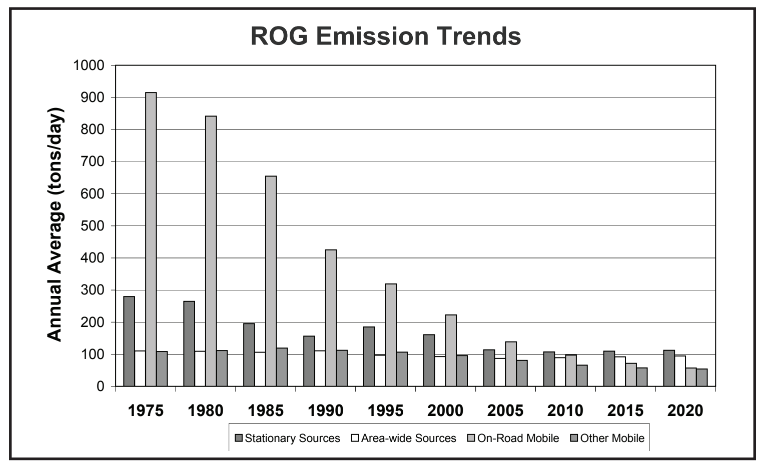


Figure 4-19

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 and San Joaquin Valley Air Basins. The peak 1-hour and 8-hour indicators have declined by nearly 18 percent during the last 20 years. The number of days when State and national standards are exceeded show a similar trend. Although the long-term trends indicate improving air quality, since 2000 the peak indicators have been relatively flat. This may be attributable to changes in the mix and reactivity of precursor emissions in the San Francisco Bay. Continuing implementation of the aggressive emissions control measures will ensure continued progress throughout the Basin.

Meteorology can cause ozone and ozone precursor emissions to 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.

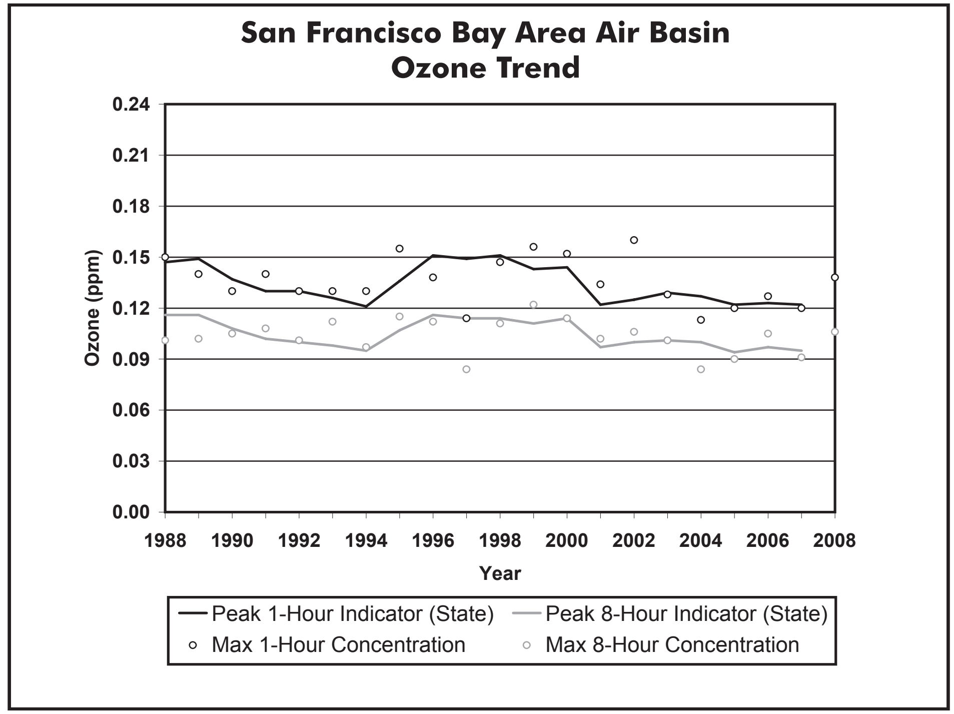


Figure 4-20

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[1]
Peak 8-Hour Indicator (State)	0.116	0.116	0.108	0.102	0.100	0.098	0.095	0.107	0.116	0.114	0.114	0.111	0.114	0.097	0.100	0.101	0.100	0.094	0.097	0.095	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.084	0.078	0.080	0.077	
Peak 1-Hour Indicator (State)	0.147	0.149	0.137	0.130	0.130	0.126	0.121	0.136	0.151	0.149	0.151	0.143	0.144	0.122	0.125	0.129	0.127	0.122	0.123	0.122	
4th High 1-Hr. in 3 Yrs[2]	0.140	0.140	0.130	0.130	0.130	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126	0.124	0.123	0.123	0.113	0.118	0.120	
Max. 8-Hr. Concentration	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	0.084	0.090	0.105	0.091	0.106
Maximum 1-Hr. Concentration	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	0.113	0.120	0.127	0.120	0.138
Days Above State 8-Hr. Std.	44	34	17	26	30	23	20	30	37	10	29	28	17	21	19	20	13	9	22	9	19
Days Above Nat. 8-Hr. Std.[3]	34	24	13	16	18	18	13	22	25	5	24	18	9	13	15	12	7	5	17	2	12
Days Above State 1-Hr. Std.	41	22	14	23	23	19	13	28	34	8	29	20	12	15	16	19	7	9	18	4	9

[1] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.

[2] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.

[3] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.

Table 4-18

San Francisco Bay Area Air Basin
Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} increased in the San Francisco Bay Area Air Basin between 1975 and 2005 and are projected to continue increasing through 2020. 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 VMT are growing, due to adoption of more stringent emission standards.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***178***	***179***	***192***	***192***	***188***	***216***	***207***	***216***	***225***	***235***
Stationary Sources	38	27	23	20	22	20	16	17	17	18
Area-wide Sources	121	131	145	144	143	174	170	179	190	200
On-Road Mobile	7	9	11	12	10	10	10	10	10	10
Gasoline Vehicles	5	5	5	5	5	6	6	7	8	8
Diesel Vehicles	2	4	6	8	5	4	3	3	2	1
Other Mobile	12	12	13	16	13	12	11	10	8	7
Gasoline Fuel	1	1	1	2	2	2	2	2	2	3
Diesel Fuel	8	8	9	10	9	8	8	6	4	3
Other Fuel	3	3	3	4	3	2	2	1	2	2

Table 4-19

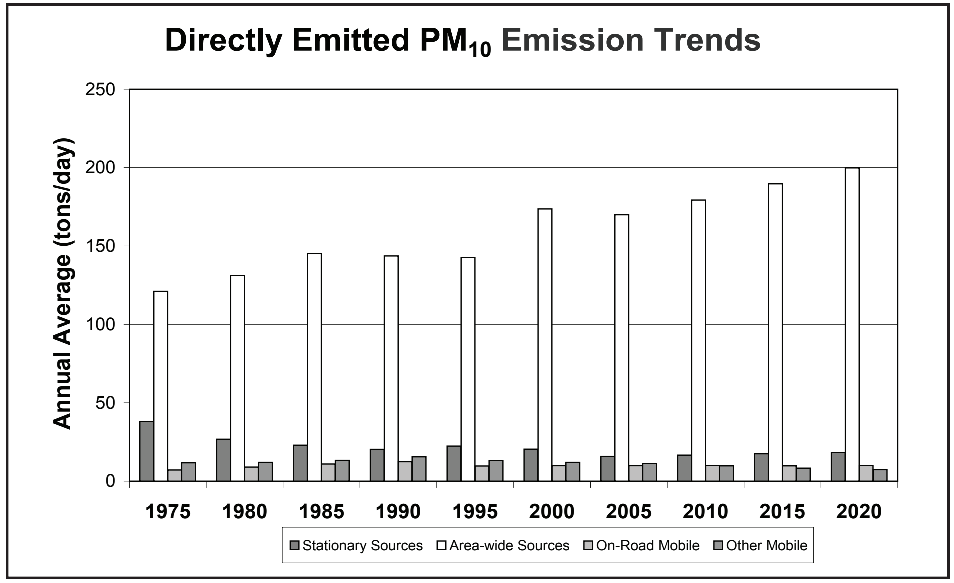


Figure 4-21

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

Direct emissions of $PM_{2.5}$ remained relatively constant in the San Francisco Bay Area Air Basin between 1975 and 2005 and are projected to increase slightly through 2020. Emissions from stationary sources declined slightly, while area-wide sources increased. This increase in area-wide sources is primarily due to growth in fugitive dust sources. Emissions of directly emitted $PM_{2.5}$ from diesel motor vehicles have been decreasing since 1990 even though population and VMT are growing, due to adoption of more stringent emission standards.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***80***	***78***	***78***	***84***	***82***	***84***	***81***	***82***	***83***	***85***
Stationary Sources	27	21	14	13	15	15	12	12	13	14
Area-wide Sources	37	40	43	47	48	51	52	54	56	59
On-Road Mobile	5	7	8	10	7	7	7	7	7	7
Gasoline Vehicles	3	3	2	3	3	3	4	4	5	5
Diesel Vehicles	2	4	6	7	4	4	3	3	2	1
Other Mobile	11	11	12	14	12	11	10	9	7	6
Gasoline Fuel	1	1	1	1	1	1	1	2	2	2
Diesel Fuel	7	7	8	9	8	8	7	6	4	2
Other Fuel	3	3	3	4	3	2	2	1	2	2

Table 4-20

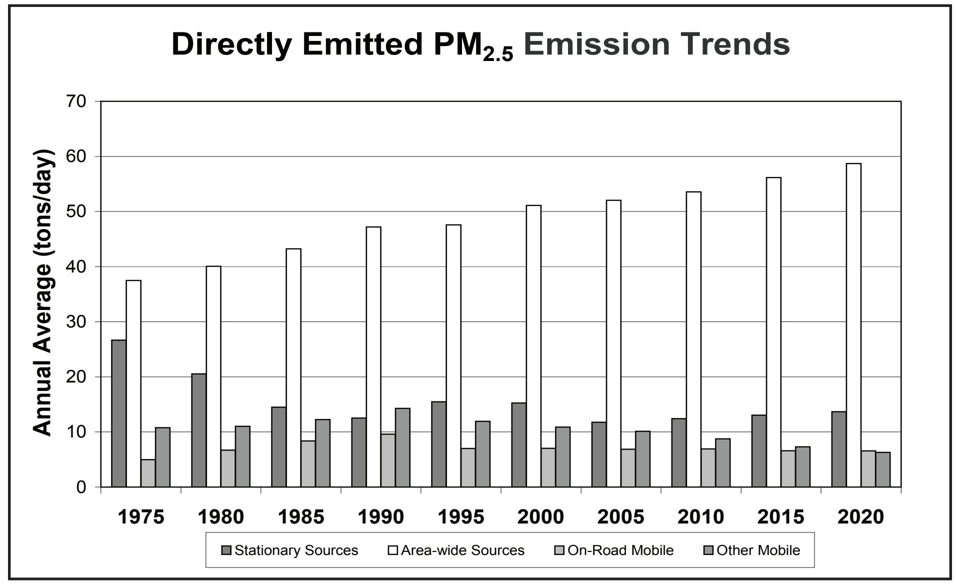


Figure 4-22

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 three-year average of the annual average (State) decreased by 23 percent.

Calculated exceedance days for the State 24-hour standard dropped from a high of 76 days during 1989 to 24 days during 2007. 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.

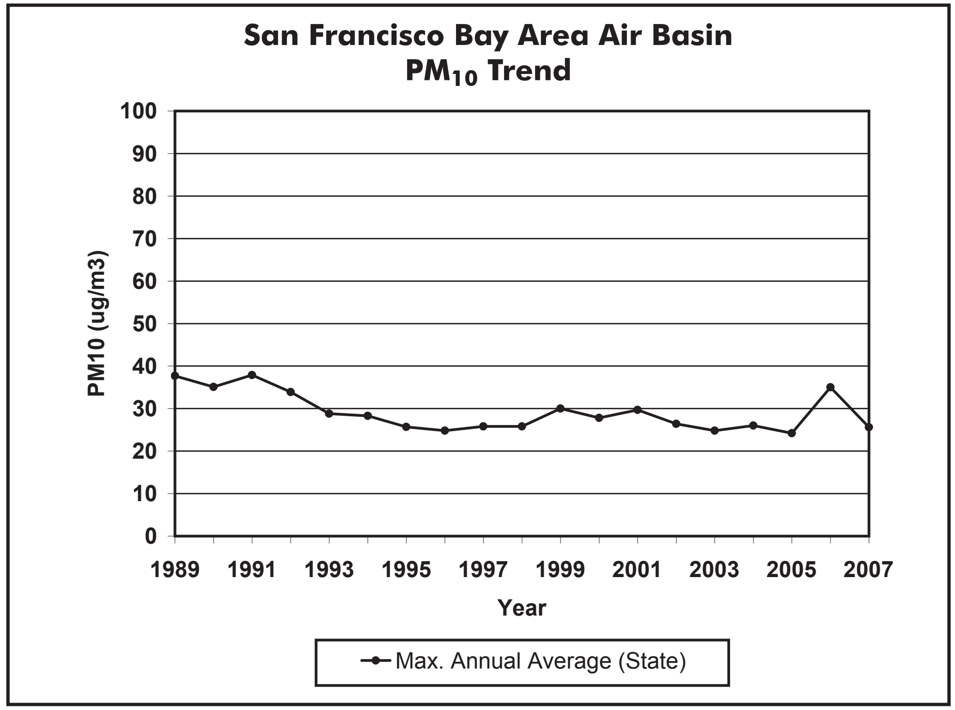


Figure 4-23

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	146	147	165	155	112	93	97	74	76	85	100	117	80	114	84	60	65	81	106	78
Max. 24-Hr. Concentration (Nat)	146	150	165	155	112	101	97	75	77	95	92	119	76	109	80	58	63	78	104	73
Max. Annual Average (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	29.7	26.4	24.8	26.0	24.2	35.0	25.6
Max. Annual Average (Nat)	33.8	40.8	35.2	38.3	33.7	28.8	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9	30.6	24.2	25.3	23.5	34.1	24.8
Calc Days Above State 24-Hr Std		76	70	91	53	37	36	24	12	18	18	37	42	48	24	18	25	23	77	24
Calc Days Above Nat 24-Hr Std		0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-21

San Francisco Bay Area Air Basin

$PM_{2.5}$ Air Quality Trend

Annual average $PM_{2.5}$ concentrations (national) in the San Francisco Bay Area have decreased in the last nine years. The 98th percentile of 24-hour $PM_{2.5}$ concentrations also declined during the last nine-year period. The State annual average concentration trend however, remained relatively constant during the last eight years, due to differences in State and national monitoring methods. Similar to PM_{10}, year-to-year changes in meteorology can mask the impacts of emission control programs. Measures adopted as part of SB 656, as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$ in this region.

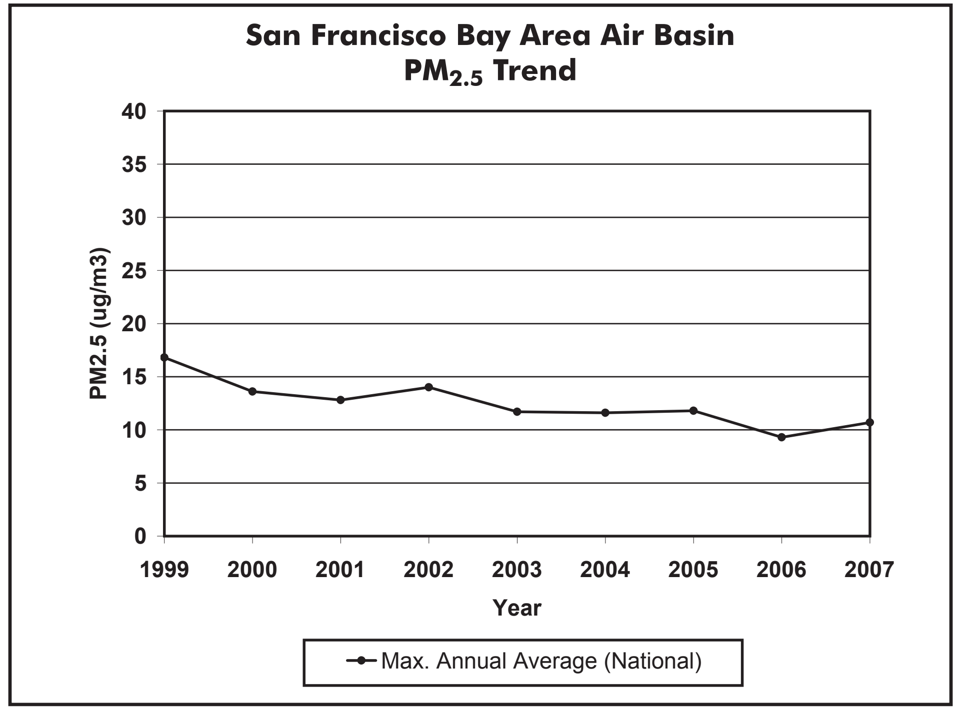


Figure 4-24

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												90.5	67.2	107.5	84.5	56.1	73.7	55.6	75.3	57.5
Max. 24-Hr. Concentration (Nat)												90.5	67.2	107.5	76.7	56.1	73.7	54.6	75.3	57.5
98th Percentile of 24-Hr Conc.												63.2	55.3	57.1	57.5	37.4	39.8	40.9	36.6	39.2
Annual Average (State)													11.6	12.9	14.0	11.7	12.7	11.8	12.4	13.3
Avg. of Qtrly. Means (Nat)												16.8	13.6	12.8	14.0	11.7	11.6	11.8	9.3	10.7

Table 4-22

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 VMT. Commercial and industrial fuel combustion 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**	**2015**	**2020**
All Sources	***9056***	***8314***	***6991***	***5308***	***3901***	***2944***	***2021***	***1596***	***1340***	***1206***
Stationary Sources	47	56	75	66	66	55	43	45	48	50
Area-wide Sources	114	121	129	149	149	154	161	163	169	174
On-Road Mobile	8391	7615	6209	4446	3077	2203	1338	914	631	460
Gasoline Vehicles	8381	7597	6182	4414	3050	2177	1312	889	611	444
Diesel Vehicles	9	18	27	32	27	26	25	25	20	16
Other Mobile	504	521	578	646	608	532	479	474	493	521
Gasoline Fuel	400	415	462	512	471	409	364	350	359	375
Diesel Fuel	57	57	64	79	82	71	62	63	68	74
Other Fuel	46	49	53	55	55	52	54	61	66	72

Table 4-23

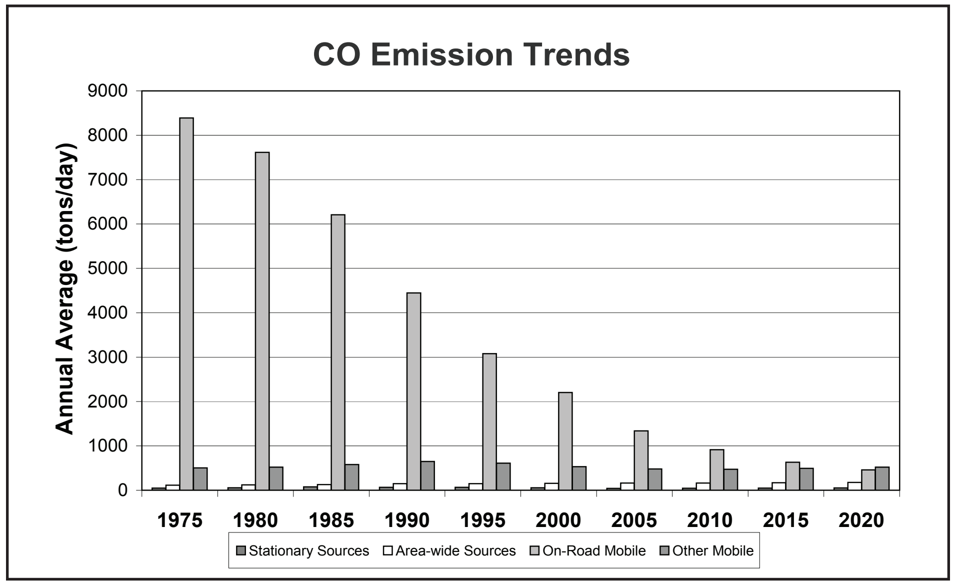


Figure 4-25

San Francisco Bay Area Air Basin

Carbon Monoxide Air Quality Trend

Similar to other areas of the State, CO concentrations in the San Francisco Bay Area Air Basin have declined substantially over the last 20 years. The peak 8-hour indicator value during 2007 is 32 percent of what it was during 1988 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 CO 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.

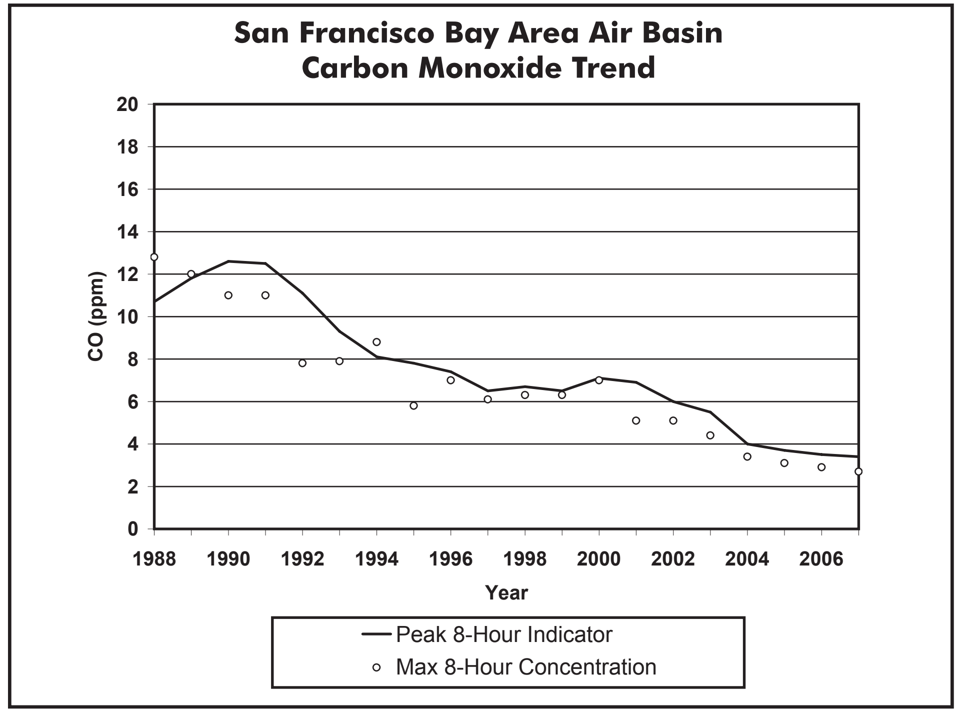


Figure 4-26

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator (State)	10.7	11.8	12.6	12.5	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9	6.0	5.5	4.0	3.7	3.5	3.4
Max. 1-Hr. Concentration	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	8.6	4.8	4.5	5.5	5.5
Max. 8-Hr. Concentration (State)	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	4.4	3.4	3.1	2.9	2.7
Days Above State 8-Hr. Std.	4	10	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	9	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-24

San Francisco Bay Area Air Basin
Nitrogen Dioxide
Oxides of Nitrogen Emission Trends and Forecasts

Emissions of NO_x and NO_2 have decreased in the San Francisco Bay Area Air Basin since 1975 and are projected to continue declining through 2020. 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.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***928***	***904***	***808***	***787***	***718***	***614***	***488***	***414***	***335***	***284***
Stationary Sources	229	206	135	127	116	87	52	51	53	56
Area-wide Sources	11	12	13	16	17	17	17	17	18	18
On-Road Mobile	542	540	500	453	385	312	234	181	124	88
Gasoline Vehicles	516	493	427	356	296	215	128	86	59	42
Diesel Vehicles	26	47	73	97	89	98	106	94	64	46
Other Mobile	145	145	160	191	200	198	186	165	140	122
Gasoline Fuel	10	10	11	13	14	13	13	11	10	10
Diesel Fuel	115	115	125	151	157	152	140	123	97	75
Other Fuel	20	21	24	27	30	33	33	31	33	36

Table 4-25

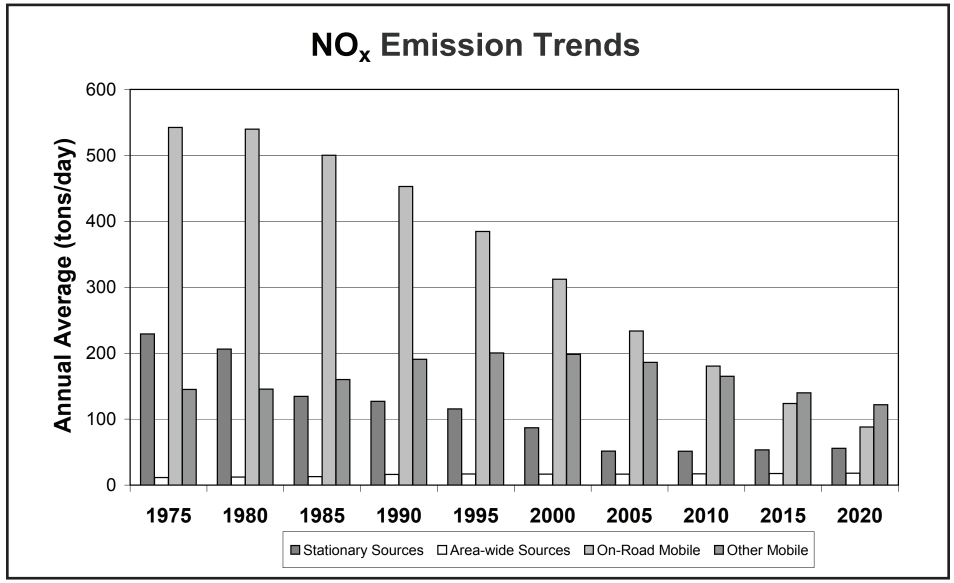


Figure 4-27

San Francisco Bay Area Air Basin

Nitrogen Dioxide Air Quality Trend

The San Francisco Bay Area has attained both the State and national NO_2 standards for more than 20 years. During this time-period, there have been no concentrations that exceeded the level of the State 1-hour or the national annual standard. Ambient concentrations continue to be well below the level of both standards. The peak 1-hour indicator has declined by 56 percent in the San Francisco Bay Area since 1988. This downward trend is expected to continue.

NO_2 is formed from NO_x emissions, 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 NO_x emissions.

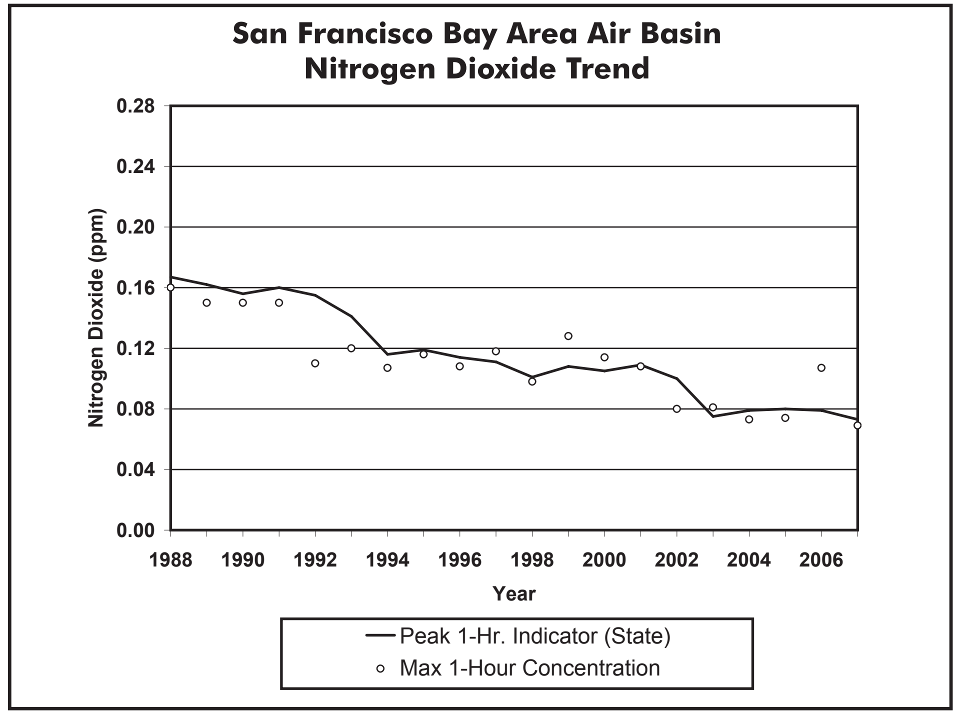


Figure 4-28

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator (State)	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	0.075	0.079	0.080	0.079	0.073
Max. 1-Hr. Concentration	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	0.081	0.073	0.074	0.107	0.069
Max. Annual Average (Nat)	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	0.018	0.017	0.019	0.018	0.017
Max. Annual Average (State)	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	0.018	0.017	0.019	0.016	0.017

Table 4-26

San Joaquin Valley Air Basin

Introduction - Area Description

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, with most of the area lying below 1,000 feet in elevation and most of the population living below 500 feet. 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 13 percent of the total statewide criteria pollutant emissions.

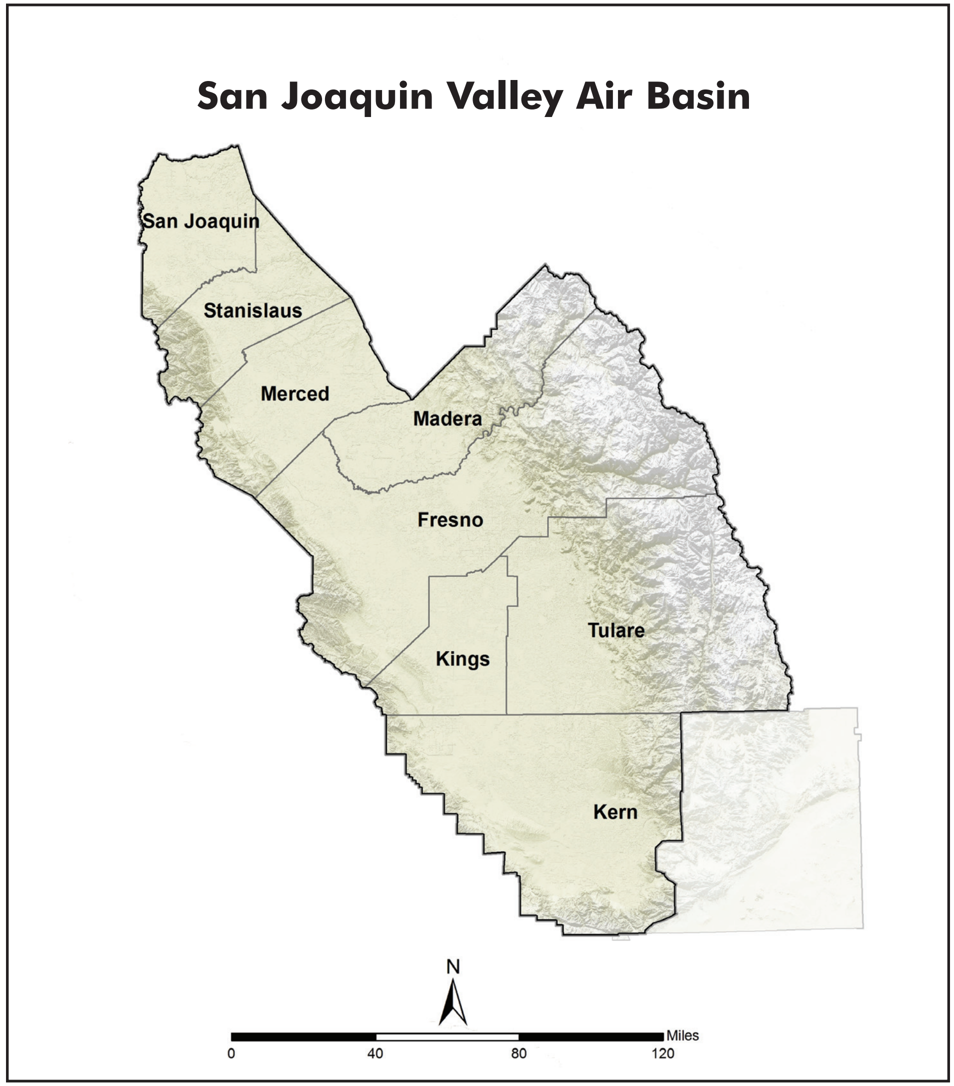


Figure 4-29

San Joaquin Valley Air Basin
Emission Trends and Forecasts

The emission levels in the San Joaquin Valley Air Basin have been decreasing since 1990 with the exception of PM_{10}, which has remained relatively unchanged. 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. The emission levels for SO_x have decreased since 1975. This is mainly due to the switch from fuel oil to natural gas for electric generation and to reduced fuel sulfur content. The SO_x emissions increase slightly after 2010. This increase is seen mainly in the industrial fuel combustion categories.

San Joaquin Valley Air Basin Emissions (tons/day, annual average)										
Pollutant	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
NO_X	689	829	822	827	732	652	595	524	398	316
ROG	1107	1185	1037	620	490	437	387	361	346	345
PM_{10}	290	287	289	357	347	349	304	302	303	310
$PM_{2.5}$	126	118	114	125	116	115	107	104	101	102
SO_X	298	271	128	99	32	35	25	24	25	28
CO	3557	3508	3237	3008	2392	1956	1528	1272	1086	988

Table 4-27

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 has grown and is projected to grow at a much faster rate than most other areas of the State. The population is projected to increase about 159 percent, from nearly two million in 1980 to over five million in 2020. During the same period, the daily VMT is projected to increase by 295 percent, from nearly 33 million miles per day in 1980 to over 129 million miles per day in 2020. These growth rates are much higher than the growth rates in other areas.

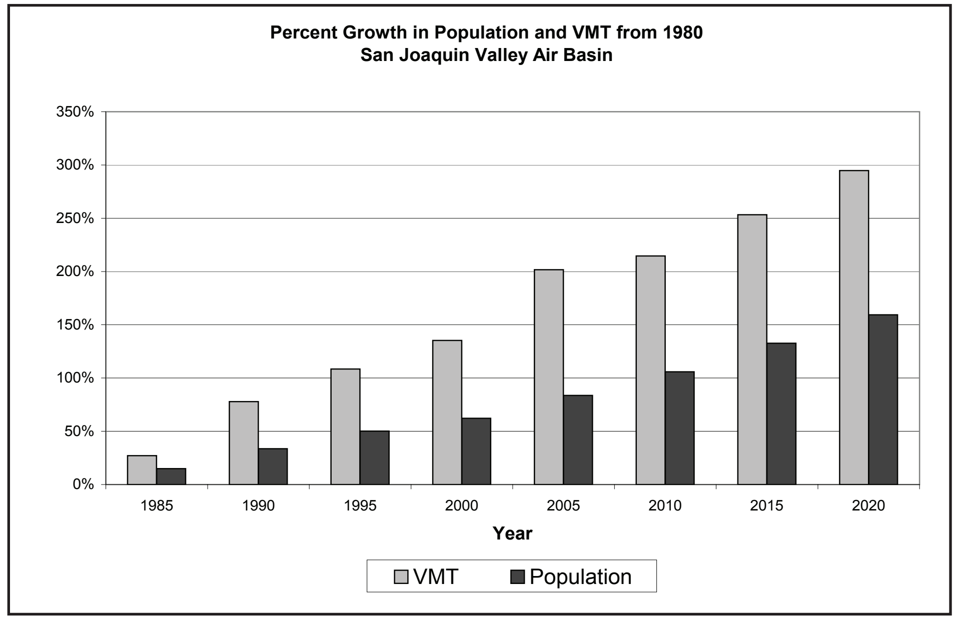


Figure 4-30

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1979840	2275776	2645311	2972667	3212225	3637150	4076050	4605243	5134435
Avg. Daily VMT/1000	32804	41697	58326	68389	77176	98950	103176	115884	129484

Table 4-28

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 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.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***689***	***829***	***822***	***827***	***732***	***652***	***595***	***524***	***398***	***316***
Stationary Sources	234	318	311	250	179	115	83	79	74	75
Area-wide Sources	20	20	20	20	19	19	18	18	17	17
On-Road Mobile	245	261	293	344	344	339	339	298	204	140
Gasoline Vehicles	158	158	152	160	150	117	77	55	39	29
Diesel Vehicles	87	103	141	184	194	221	262	243	165	111
Other Mobile	189	230	196	213	191	179	154	129	103	83
Gasoline Fuel	4	5	5	6	6	6	6	6	6	6
Diesel Fuel	180	220	187	203	181	169	143	118	92	72
Other Fuel	5	5	4	4	4	5	5	5	6	6

Table 4-29

ROG Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***1107***	***1185***	***1037***	***620***	***490***	***437***	***387***	***361***	***346***	***345***
Stationary Sources	637	709	580	188	95	92	82	84	85	87
Area-wide Sources	120	127	134	141	150	147	147	152	161	171
On-Road Mobile	285	271	250	216	174	131	95	72	53	41
Gasoline Vehicles	274	257	231	193	158	114	78	55	40	32
Diesel Vehicles	11	14	18	23	16	17	17	17	13	9
Other Mobile	65	78	74	75	71	67	63	54	48	46
Gasoline Fuel	31	39	43	42	40	38	36	32	30	30
Diesel Fuel	24	30	25	28	26	23	19	15	11	8
Other Fuel	10	9	6	6	5	6	7	7	7	7

Table 4-30

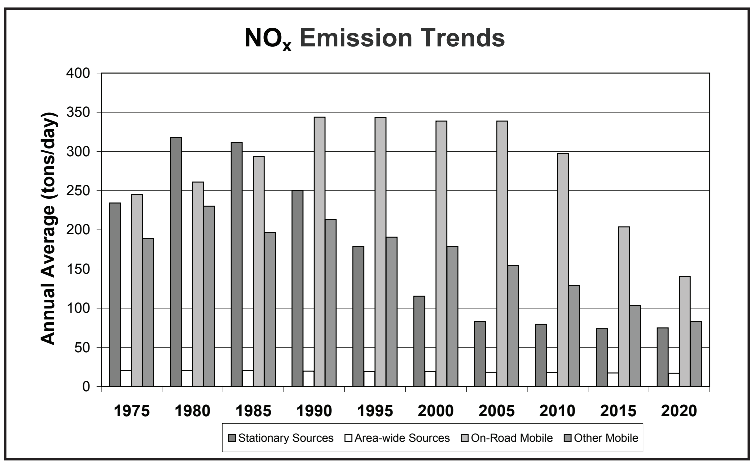


Figure 4-31

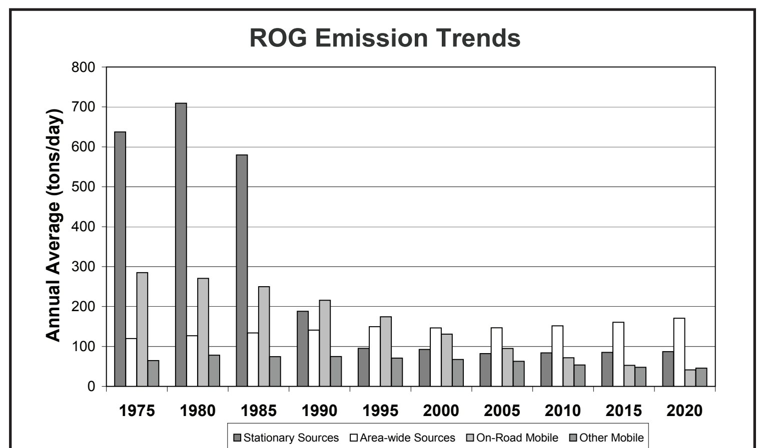


Figure 4-32

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. Looking at ozone air quality from a historical perspective is challenging because of the lack of long-term monitors prior to 1990. Furthermore, monitoring did not include the sites in the worst portions of the basin until 1990. For this reason we are using 1990 as the beginning year to characterize trends.

Similar to other areas of the State, exceedance days have declined at a faster rate than peak levels. Peak levels declined by an average of 10 percent while the number of State and national 8-hour exceedance days declined by 17 percent and 21 percent respectively. Most of this progress has occurred since 2003. However, the number of exceedance days in 2005 and 2007 were among the lowest in this 18 year period.

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 Sacramento region and the San Francisco Bay Area Air Basin.

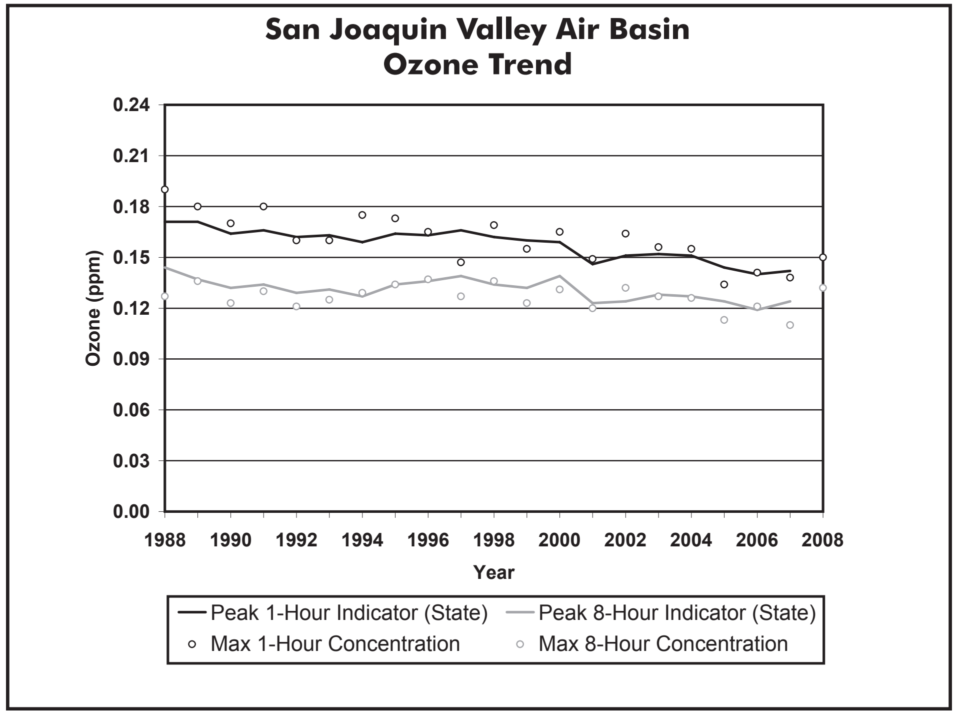


Figure 4-33

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[1]
Peak 8-Hour Indicator (State)	0.144	0.137	0.132	0.134	0.129	0.131	0.127	0.134	0.136	0.139	0.134	0.132	0.139	0.123	0.124	0.128	0.127	0.124	0.119	0.124	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.121	0.116	0.112	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	0.116	0.113	0.110	0.107	
Peak 1-Hour Indicator (State)	0.171	0.171	0.164	0.166	0.162	0.163	0.159	0.164	0.163	0.166	0.162	0.160	0.159	0.146	0.151	0.152	0.151	0.144	0.140	0.142	
4th High 1-Hr. in 3 Yrs[2]	0.170	0.180	0.170	0.160	0.160	0.160	0.160	0.164	0.165	0.164	0.161	0.161	0.161	0.146	0.151	0.151	0.151	0.149	0.135	0.135	
Max. 8-Hr. Concentration	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	0.126	0.113	0.121	0.110	0.132
Maximum 1-Hr. Concentration	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	0.155	0.134	0.141	0.138	0.150
Days Above State 8-Hr. Std.	200	182	179	167	169	174	166	163	164	169	127	175	158	192	181	172	167	124	141	138	150
Days Above Nat. 8-Hr. Std.[3]	178	159	153	145	155	144	137	142	143	138	112	153	144	162	158	160	143	102	120	110	127
Days Above State 1-Hr. Std.	156	148	131	133	127	125	118	124	120	110	90	123	114	123	127	137	106	83	90	69	95

[1] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.

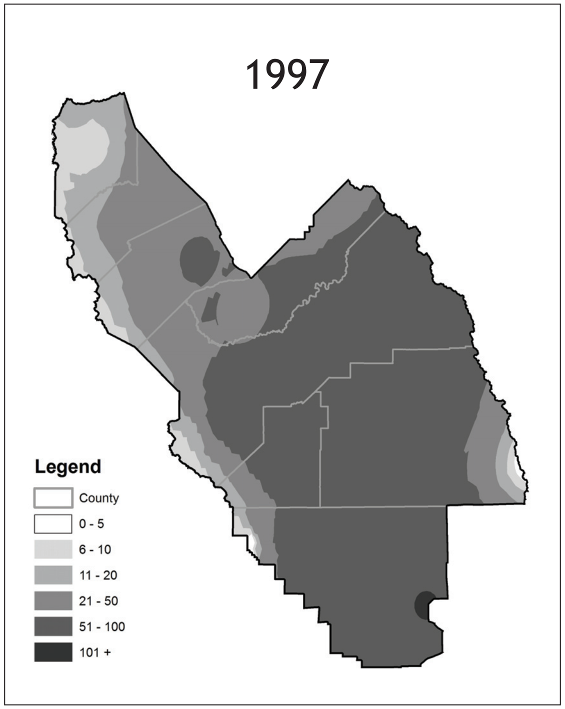
[2] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.

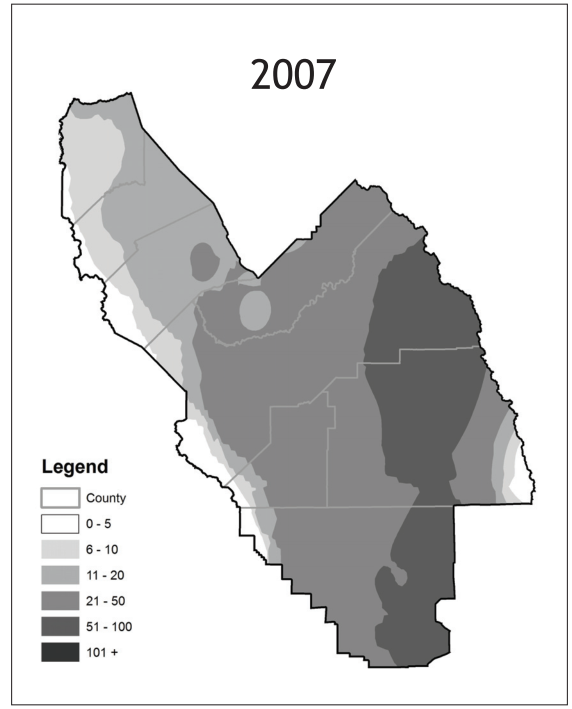
[3] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.

Table 4-31

San Joaquin Valley Air Basin

Ozone Contour Maps - 3-year Average of National 8-Hour Exceedance Days





NOTE: Values used in these maps are for long-term sites only. Long-term sites are used ito more accurately represent a trend over a period, by comparing the same or similar sites over a long period.

Figure 4-34

Figure 4-35

Another way to look at ozone air quality is to evaluate how widespread the problem is within the air basin, using data for all sites. The maps on this page illustrate the reduction in days exceeding the national 8-hour standard over the last decade throughout the basin. The use of three-year averages helps to mitigate the changes in meteorology.

Similar to the South Coast, the two maps show a substantial reduction in the number of exceedance days over the last ten years. During the 1997 time period, more than half of the San Joaquin Valley had between 51 and 100 exceedance days. The worst site had about 97 days, which is equivalent to about three months during a year with ozone concentrations above the level of the standard. Areas in the northern San Joaquin Valley were cleaner than areas in the central and southern Valley. However, only a relatively small portion of the Basin averaged ten or fewer exceedance days.

The 2007 map shows an expansion of cleaner areas. A larger portion of San Joaquin and Stanislaus counties now meet the national 8-hour ozone standard. Much of the rest of the Valley experiences an average of 11 to 50 exceedance days per year. Areas with more than 51 exceedance days are generally limited to the eastern portion of the central and southern San Joaquin Valley. While the extent of these areas is much smaller than the 1997 timeframe, the areas of poor ozone air quality are also the most heavily populated. Even though these areas still pose a challenge, the worst sites show an average reduction in exceedance days of more than 35 percent over the last decade.

(This page intentionally left blank)

San Joaquin Valley Air Basin
Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} have remained relatively unchanged between 1975 and 2005 and are projected to remain unchanged through 2020. 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, dust from farming operations, waste burning, and residential fuel combustion (including wood).

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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 PM_{10} Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***290***	***287***	***289***	***357***	***347***	***349***	***304***	***302***	***303***	***310***
Stationary Sources	57	41	34	27	26	27	25	25	26	28
Area-wide Sources	208	215	224	292	293	296	255	254	259	266
On-Road Mobile	12	14	18	23	17	15	15	14	11	10
Gasoline Vehicles	2	2	2	2	3	3	4	5	5	6
Diesel Vehicles	10	12	16	21	14	12	11	9	6	4
Other Mobile	13	16	14	15	11	11	10	9	7	6
Gasoline Fuel	0	1	1	1	1	1	1	1	2	2
Diesel Fuel	12	14	12	13	10	9	8	6	4	3
Other Fuel	1	1	1	1	1	1	1	2	2	2

Table 4-32

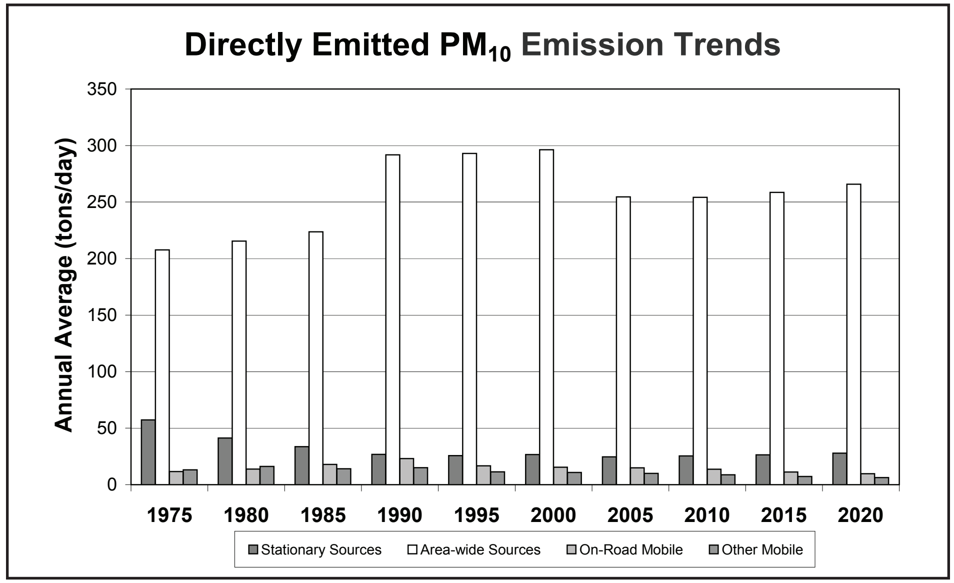


Figure 4-36

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

Direct emissions of $PM_{2.5}$ decreased from 1975 to 2005 and are projected to continue decreasing through 2020. $PM_{2.5}$ 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, dust from farming operations, waste burning, and residential fuel combustion (including wood).

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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 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**	**2015**	**2020**
All Sources	***126***	***118***	***114***	***125***	***116***	***115***	***107***	***104***	***101***	***102***
Stationary Sources	46	31	23	17	17	17	17	18	18	19
Area-wide Sources	58	60	62	74	74	75	69	68	68	70
On-Road Mobile	10	12	16	20	14	13	12	11	9	7
Gasoline Vehicles	1	1	1	1	2	2	2	3	3	3
Diesel Vehicles	9	11	15	19	13	11	10	8	5	4
Other Mobile	12	15	13	14	10	10	9	8	7	6
Gasoline Fuel	0	0	1	1	1	1	1	1	1	1
Diesel Fuel	11	13	11	12	9	8	7	5	4	2
Other Fuel	1	1	1	1	1	1	1	2	2	2

Table 4-33

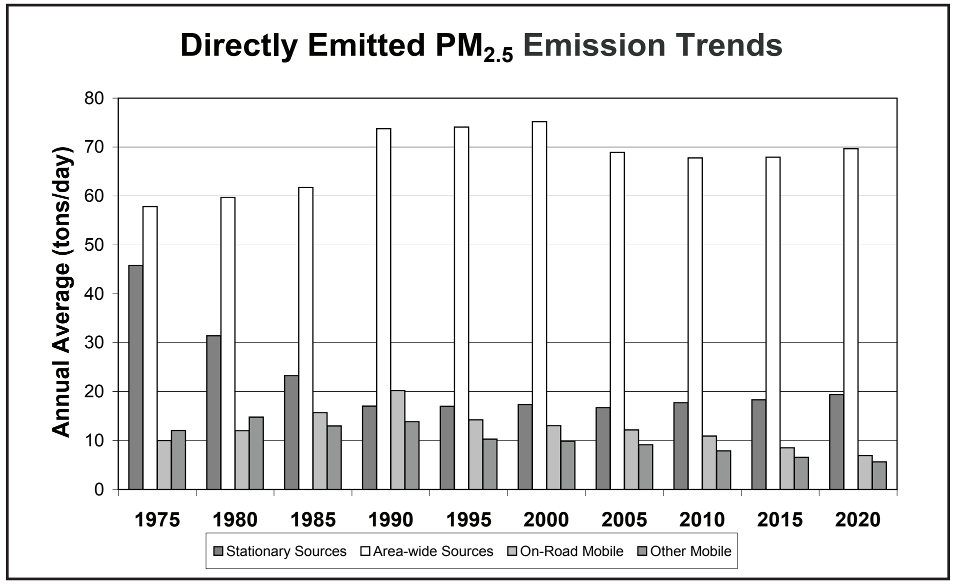


Figure 4-37

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. The low values for the annual average in 1988 and 1989 are due to the limited number of monitors with complete data for these years during the startup of the PM monitoring network. The period between 1990 and 2007 provides a better indication of trends. Over this period, the three-year average of the annual average (State) shows a decrease of 29 percent. The calculated number of days exceeding the State and national 24-hour standards also shows a decrease. There were 292 calculated State standard exceedance days and 31 calculated national standard exceedance days during 1990. During 2007, there were 145 calculated State standard exceedance days and no national standard exceedance days.

Although PM_{10} air quality has improved overall in the San Joaquin Valley Air Basin, values overall are highly variable. The variability appears to be a result of meteorology, while the overall downward trend is consistent with a change in emissions. While the San Joaquin Valley has now been redesignated as attainment for the national PM_{10} standards, it will still be a number of years before this area reaches attainment of the more stringent State standards.

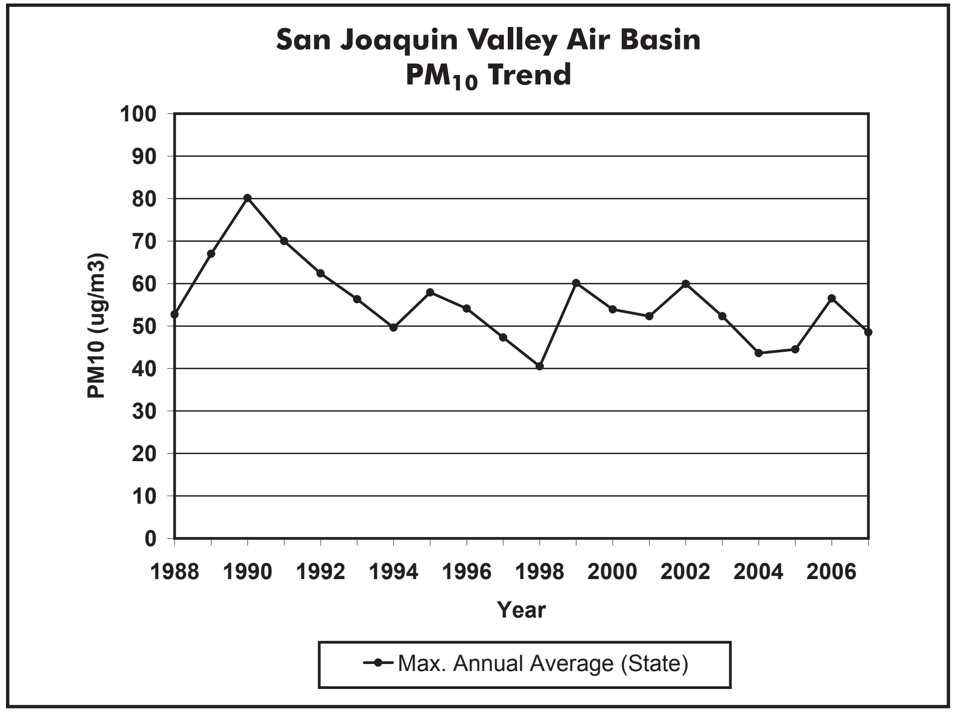


Figure 4-38

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	206	237	439	279	186	239	192	279	153	199	167	186	153	221	194	150	219	137	255	135
Max. 24-Hr. Concentration (Nat)	206	237	439	279	186	239	192	279	153	228	160	183	145	212	189	150	217	131	304	172
Max. Annual Average (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	52.3	43.6	44.5	56.5	48.5
Max. Annual Average (Nat)	74.3	79.3	79.3	76.3	62.9	56.9	50.1	58.2	52.0	48.2	52.5	59.5	53.1	57.4	59.2	52.4	47.9	44.3	55.4	54.8
Calc Days Above State 24-Hr Std	159	208	292	225	246	183	166	184	204	107	102	182	196	168	256	167	113	146	167	145
Calc Days Above Nat 24-Hr Std	0	29	31	18	18	20	6	12	0	6	6	8	0	14	6	0	7	0	13	0

NOTE: 13 National standard exceedance days due to exceptional events such as high wind days.

Table 4-34

San Joaquin Valley Air Basin

$PM_{2.5}$ Air Quality Trend

Annual average (national) $PM_{2.5}$ concentrations in the San Joaquin Valley Air Basin show a downward trend from 1999 through 2007. The 98th percentile of 24-hour $PM_{2.5}$ concentrations also declined during this period. The State annual average concentrations remained relatively constant from 1999 through 2007, with a slight drop in 2003 and a slight uptick in 2007. The differences in trends are due to differences in State and national monitoring methods. Similar to PM_{10}, year-to-year changes in meteorology can mask the impacts of emission control programs. The San Joaquin Valley Air Basin is currently designated as nonattainment for the State and national $PM_{2.5}$ standards. Measures adopted as part of the recently developed $PM_{2.5}$ SIP, as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$ in this region.

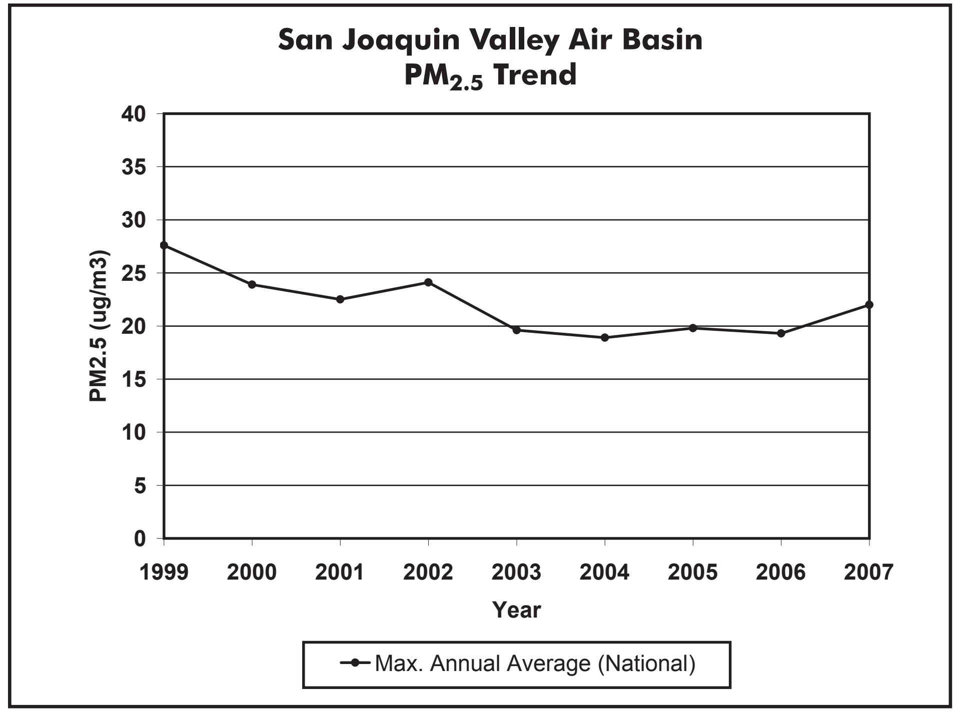


Figure 4-39

$PM_{2.5}$ (µg/m^3)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												136	160.0	154.7	104.3	84.5	77.0	102.1	88.1	154.0
Max. 24-Hr. Concentration (Nat)												136	160.0	154.7	90.7	67.8	71.0	92.5	87.0	104.0
98th Percentile of 24-Hr Conc.												120	103.0	96.0	80.4	56.0	61.5	74.9	64.7	73.0
Annual Average (State)												23.4	23.9	20.8	24.1	24.8	18.2	22.4	21.6	25.2
Avg. of Qtrly. Means (Nat)												27.6	23.9	22.5	24.1	19.6	18.9	19.8	19.3	22.0

Table 4-35

San Joaquin Valley Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO decreased between 1975 and 2005 and are projected to continue decreasing through 2020. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1975, despite increases in 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**	**2015**	**2020**
All Sources	***3557***	***3508***	***3237***	***3008***	***2392***	***1956***	***1528***	***1272***	***1086***	***988***
Stationary Sources	181	154	59	64	51	44	42	42	41	44
Area-wide Sources	261	266	271	275	270	269	269	268	268	268
On-Road Mobile	2767	2664	2516	2241	1676	1285	877	629	443	331
Gasoline Vehicles	2726	2613	2449	2156	1597	1209	801	556	387	286
Diesel Vehicles	41	51	67	85	79	76	75	72	56	45
Other Mobile	348	425	391	428	395	357	340	334	335	345
Gasoline Fuel	160	213	221	255	236	210	197	193	193	200
Diesel Fuel	80	101	91	103	93	77	63	56	53	53
Other Fuel	109	111	79	70	67	70	79	84	88	92

Table 4-36

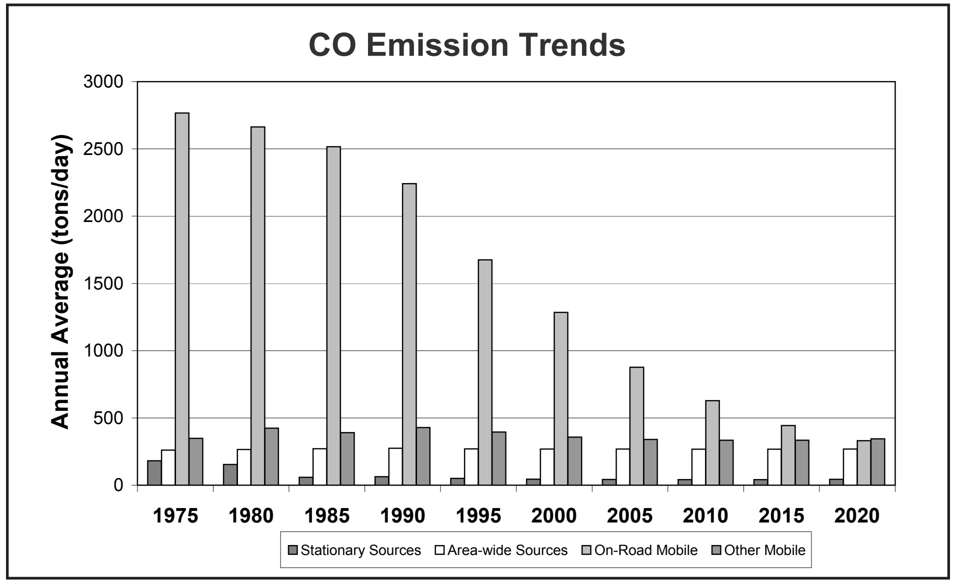


Figure 4-40

San Joaquin Valley Air Basin

Carbon Monoxide Air Quality Trend

CO concentrations show a fairly consistent downward trend from 1988 through 2007. The peak 8-hour indicator for 2007 is over 75 percent lower than that for 1988. 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 10 years. Much of the decline in ambient CO concentrations can be attributed to the introduction of clean fuels and newer, cleaner motor vehicles.

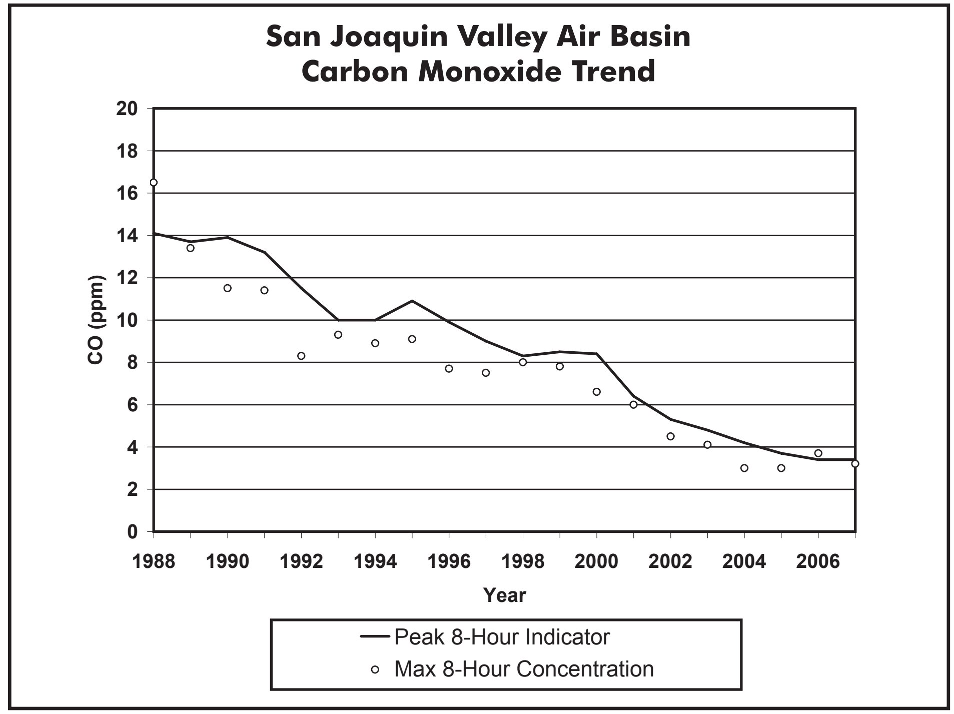


Figure 4-41

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator (State)	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	6.4	5.3	4.8	4.2	3.7	3.4	3.4
Max. 1-Hr. Concentration	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	8.4	6.1	5.8	4.6	4.3	6.9	4.4
Max. 8-Hr. Concentration (State)	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	4.1	3.0	3.0	3.7	3.2
Days Above State 8-Hr. Std.	5	24	10	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	6	18	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-37

San Joaquin Valley Air Basin

Nitrogen Dioxide

Oxides of Nitrogen Emission Trends and Forecasts

Emissions of NO_x and NO_2 increased between 1975 and 1990. Since 1990, however, emissions decreased and are projected to continue declining 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.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***689***	***829***	***822***	***827***	***732***	***652***	***595***	***524***	***398***	***316***
Stationary Sources	234	318	311	250	179	115	83	79	74	75
Area-wide Sources	20	20	20	20	19	19	18	18	17	17
On-Road Mobile	245	261	293	344	344	339	339	298	204	140
Gasoline Vehicles	158	158	152	160	150	117	77	55	39	29
Diesel Vehicles	87	103	141	184	194	221	262	243	165	111
Other Mobile	189	230	196	213	191	179	154	129	103	83
Gasoline Fuel	4	5	5	6	6	6	6	6	6	6
Diesel Fuel	180	220	187	203	181	169	143	118	92	72
Other Fuel	5	5	4	4	4	5	5	5	6	6

Table 4-38

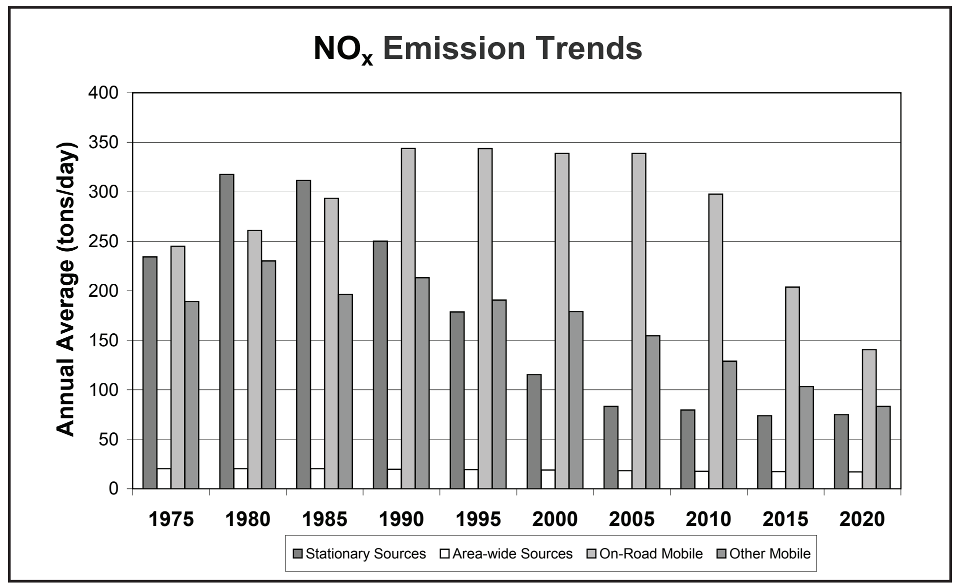


Figure 4-42

San Joaquin Valley Air Basin

Nitrogen Dioxide Air Quality Trend

The San Joaquin Valley has attained both the State and national NO_2 standards for more than 20 years. During this time-period, there have been no concentrations that exceeded the level of the State 1-hour or the national annual standard. Ambient concentrations continue to be well below the level of both standards. Ambient levels have decreased substantially since 1990. The peak 1-hour indicator has declined by more than 40 percent since 1990. This downward trend is expected to continue.

NO_2 is formed from NO_x emissions, 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 NO_x emissions.

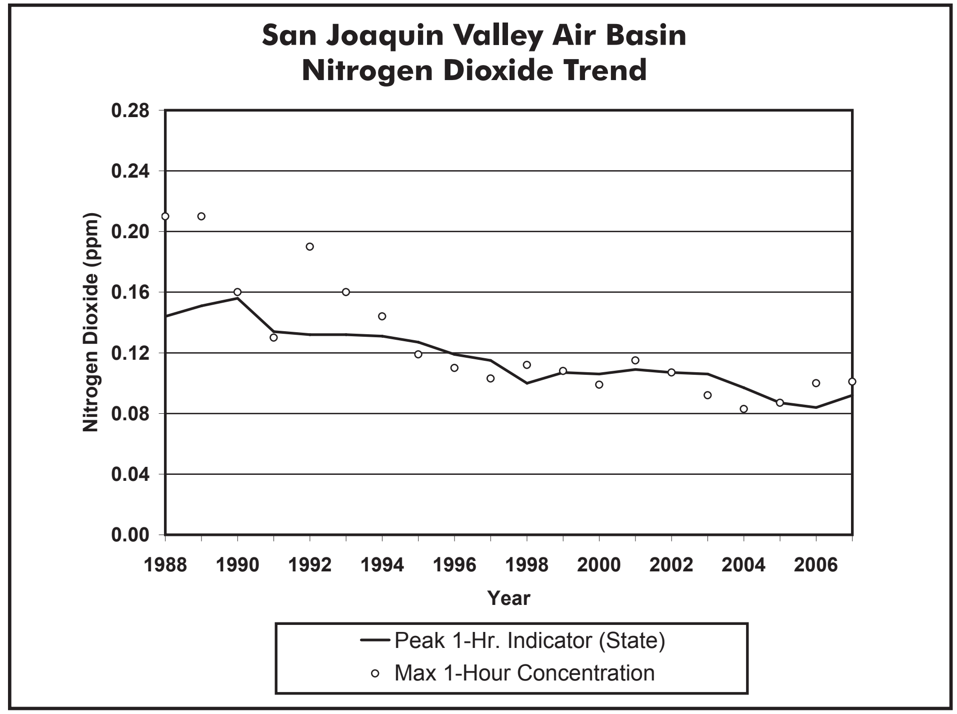


Figure 4-43

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator (State)	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	0.106	0.097	0.087	0.084	0.092
Max. 1-Hr. Concentration	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	0.107	0.092	0.083	0.087	0.100	0.101
Max. Annual Average (Nat)	0.032	0.033	0.031	0.030	0.027	0.027	0.024	0.029	0.029	0.024	0.024	0.027	0.024	0.022	0.024	0.023	0.019	0.021	0.021	0.020
Max. Annual Average (State)	0.033	0.033	0.032	0.030	0.027	0.024	0.024	0.029	0.029	0.024	0.023	0.027	0.024	0.022	0.024	0.020	0.018	0.021	0.021	0.020

Table 4-39

San Diego Air Basin

Introduction - Area Description

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 eight percent of the State's population, and produces about seven 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. Higher temperatures and seasonal variations are experienced further inland.

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 attributed 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.

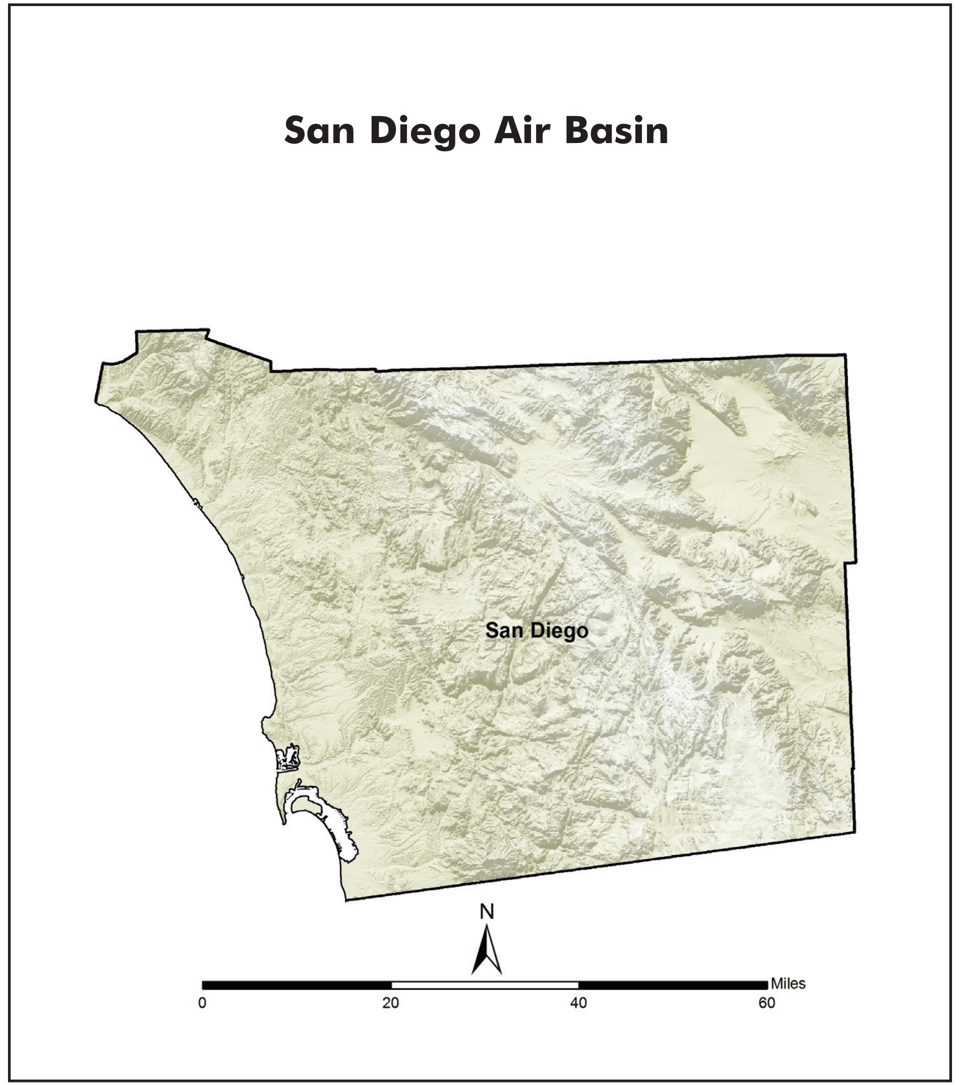


Figure 4-44

San Diego Air Basin

Emission Trends and Forecasts

Emissions of NO_x, ROG, and CO in the San Diego Air Basin have been following the declining 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. The emission levels for SO_x have also followed the statewide trends since 1975. The SO_x emissions are forecasted to increase in future years due to predicted growth in shipping activities.

San Diego Air Basin Emissions (tons/day, annual average)										
Pollutant	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
NO_X	277	261	261	297	261	226	186	153	120	97
ROG	445	434	399	332	259	212	172	149	139	137
PM_{10}	67	75	83	101	96	104	113	116	122	127
$PM_{2.5}$	26	27	24	29	28	30	30	31	32	33
SO_X	45	47	20	24	8	3	3	2	2	2
CO	3388	3065	2895	2515	1785	1331	953	747	624	558

Table 4-40

San Diego Air Basin

Population and VMT

Population in the San Diego Air Basin during the 1980-2020 period is projected to nearly double, from almost 1.9 million in 1980 to over 3.5 million in 2020. During this same time period, the number of vehicle miles traveled each day is projected to triple, from over 32 million miles per day in 1980 to nearly 97 million miles per day in 2020. 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.

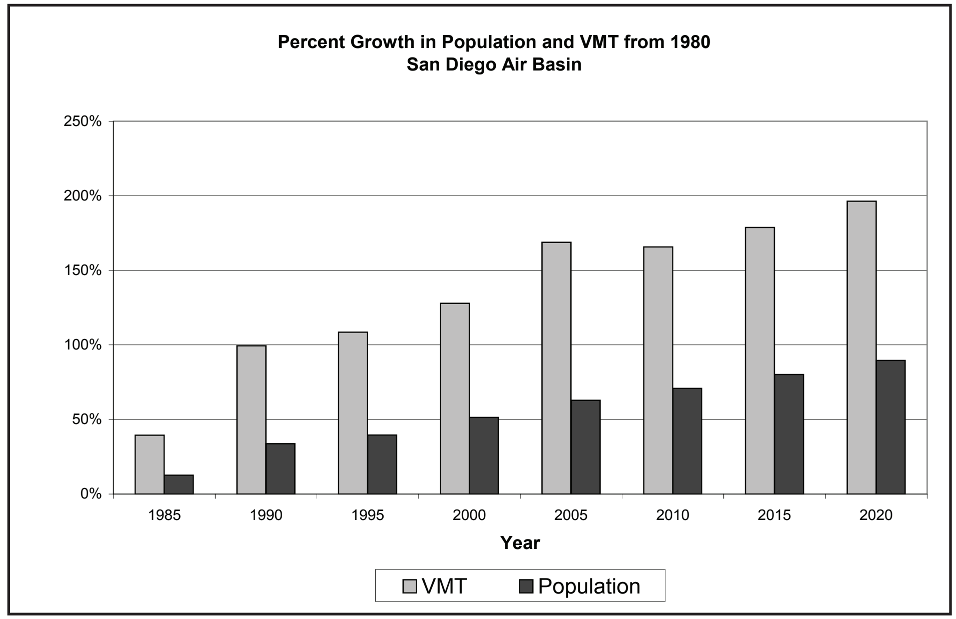


Figure 4-45

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1873300	2109300	2504897	2615201	2836477	3051175	3199706	3375210	3550714
Avg. Daily VMT/1000	32722	45636	65250	68235	74567	87944	86948	91223	96987

Table 4-41

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**	**2015**	**2020**
All Sources	***277***	***261***	***261***	***297***	***261***	***226***	***186***	***153***	***120***	***97***
Stationary Sources	48	32	17	19	17	14	10	9	9	10
Area-wide Sources	2	3	3	3	3	3	3	3	3	3
On-Road Mobile	186	176	187	203	178	146	113	88	64	48
Gasoline Vehicles	172	159	160	165	141	104	64	45	32	24
Diesel Vehicles	13	17	26	38	37	42	50	43	31	24
Other Mobile	41	52	55	72	64	63	61	53	44	37
Gasoline Fuel	3	4	5	6	6	6	6	6	6	6
Diesel Fuel	33	43	45	59	52	50	46	40	31	24
Other Fuel	5	5	6	7	7	8	8	7	7	7

Table 4-42

ROG Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***445***	***434***	***399***	***332***	***259***	***212***	***172***	***149***	***139***	***137***
Stationary Sources	25	43	41	37	30	31	32	33	36	38
Area-wide Sources	33	38	42	44	39	39	36	36	38	40
On-Road Mobile	351	310	268	200	142	96	63	45	34	29
Gasoline Vehicles	350	308	265	196	139	93	60	42	32	27
Diesel Vehicles	2	2	3	4	3	3	3	3	2	2
Other Mobile	36	43	49	51	48	46	41	35	31	30
Gasoline Fuel	28	33	39	39	36	35	31	26	24	23
Diesel Fuel	5	7	7	9	8	8	7	5	4	3
Other Fuel	3	3	3	3	3	3	3	3	3	3

Table 4-43

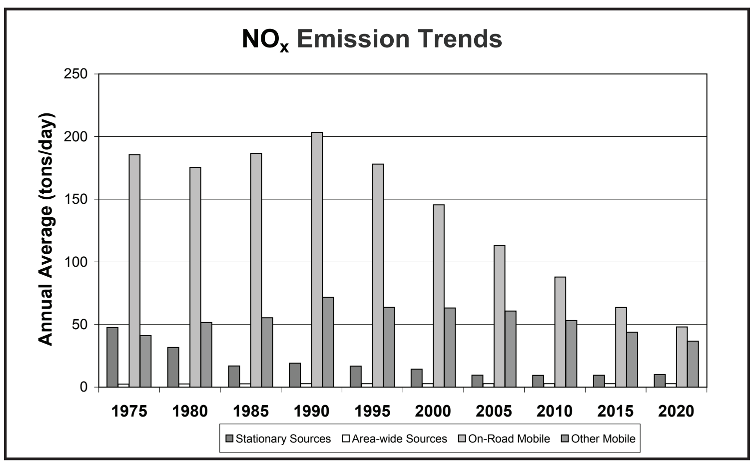


Figure 4-46

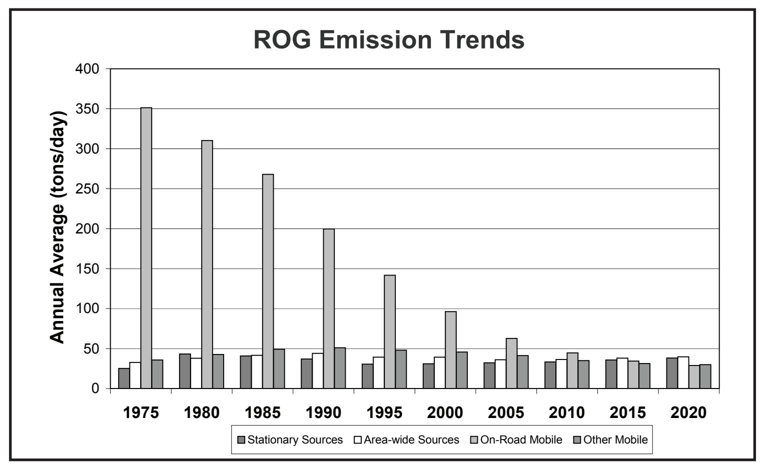


Figure 4-47

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 substantially over the last 20 years. The peak 8-hour ozone indicator shows an overall decline of 26 percent from 1988 to 2007. The number of State and national 8-hour standard exceedance days has dropped even more. There were 189 State 8-hour standard exceedance days during 1988 compared with 66 during 2008. This represents a decrease of 66 percent in the three-year average of the State standard exceedance days. During 1988, there were 170 national 8-hour standard exceedance days compared with 33 during 2008.

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.

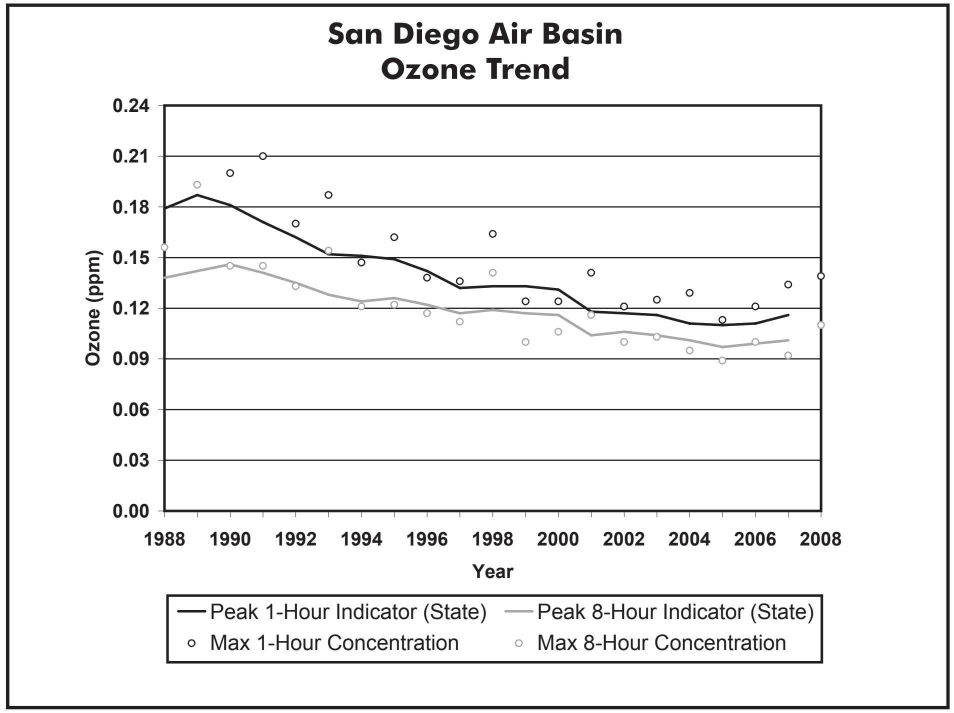


Figure 4-48

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[1]
Peak 8-Hour Indicator (State)	0.138	0.142	0.146	0.141	0.135	0.128	0.124	0.126	0.122	0.117	0.119	0.117	0.116	0.104	0.106	0.104	0.101	0.097	0.099	0.101	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.089	0.086	0.088	0.089	
Peak 1-Hour Indicator (State)	0.179	0.187	0.181	0.171	0.162	0.152	0.151	0.149	0.142	0.132	0.133	0.133	0.131	0.118	0.117	0.116	0.111	0.110	0.111	0.116	
4th High 1-Hr. in 3 Yrs[2]	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113	
Max. 8-Hr. Concentration	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	0.095	0.089	0.100	0.092	0.110
Maximum 1-Hr. Concentration	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	0.129	0.113	0.121	0.134	0.139
Days Above State 8-Hr. Std.	189	189	167	144	133	127	122	127	89	73	88	74	75	64	56	59	43	51	68	50	66
Days Above Nat. 8-Hr. Std.[3]	170	164	143	112	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27	33
Days Above State 1-Hr. Std.	160	159	139	106	97	90	79	96	51	43	54	27	24	29	15	24	12	16	23	21	16

[1] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.
[2] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.
[3] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.

Table 4-44

San Diego Air Basin
Directly Emitted PM_{10} Emission Trends and Forecasts

Direct emissions of PM_{10} are projected to almost double in the San Diego Air Basin between 1975 and 2020. 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 VMT.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***67***	***75***	***83***	***101***	***96***	***104***	***113***	***116***	***122***	***127***
Stationary Sources	17	12	6	7	9	8	10	9	10	10
Area-wide Sources	42	54	67	81	77	85	92	97	102	107
On-Road Mobile	3	4	5	6	5	5	6	5	5	5
Gasoline Vehicles	2	2	2	3	3	3	4	4	4	5
Diesel Vehicles	1	2	3	4	2	2	2	2	1	1
Other Mobile	5	5	6	7	6	6	6	5	5	4
Gasoline Fuel	0	0	1	1	1	1	1	1	1	2
Diesel Fuel	2	3	3	4	3	3	3	2	1	1
Other Fuel	2	2	2	2	2	2	2	2	2	2

Table 4-45

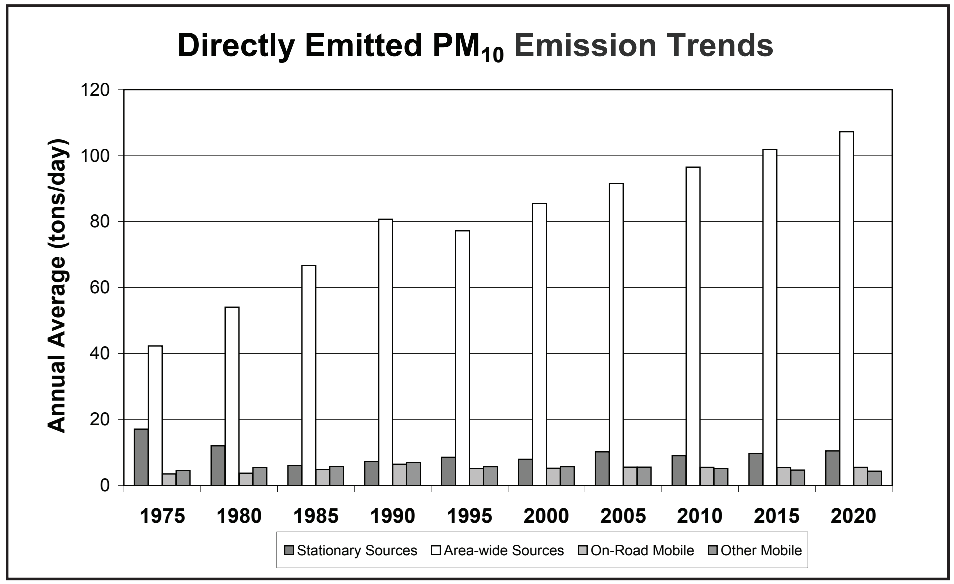


Figure 4-49

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

Direct emissions of $PM_{2.5}$ increased steadily in the San Diego Air Basin between 1975 and 2005 and are projected to continue increasing through 2020. 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 VMT.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***26***	***27***	***24***	***29***	***28***	***30***	***30***	***31***	***32***	***33***
Stationary Sources	11	9	3	4	5	6	6	6	7	8
Area-wide Sources	8	10	12	14	14	15	16	16	17	18
On-Road Mobile	3	3	4	5	4	4	4	4	4	4
Gasoline Vehicles	1	1	1	2	2	2	2	2	3	3
Diesel Vehicles	1	2	3	3	2	2	2	1	1	1
Other Mobile	4	5	5	6	5	5	5	5	4	4
Gasoline Fuel	0	0	0	1	1	1	1	1	1	1
Diesel Fuel	2	3	3	4	3	3	3	2	1	1
Other Fuel	2	2	2	2	2	2	2	2	2	2

Table 4-46

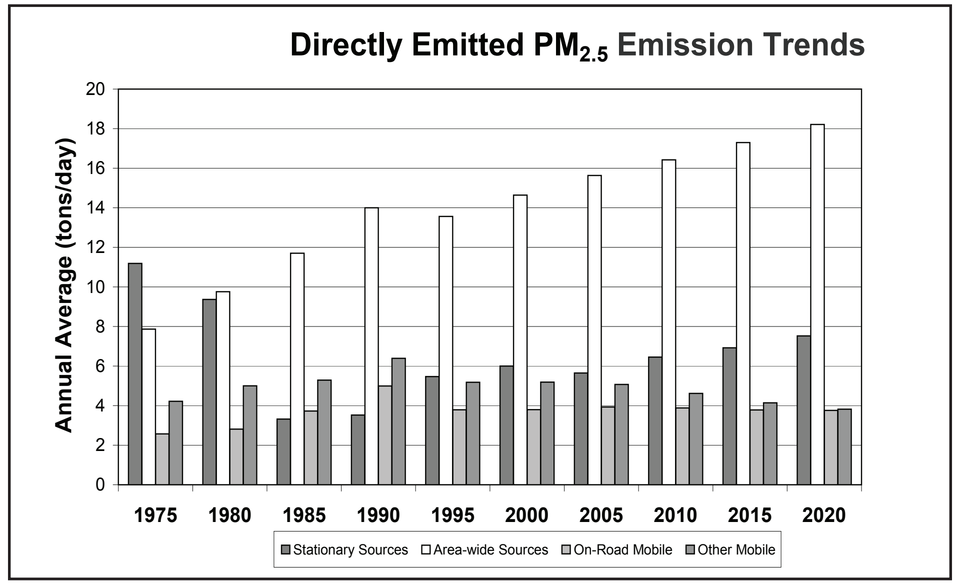


Figure 4-50

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. In 1993, monitoring began at a new site which measured higher concentrations. The annual average for 2007 exceeds the State annual standard. The maximum 24-hour concentrations also exceed the State standards. The high state maximum 24-hour concentrations of 289 $\mu g/m^3$ measured in 2003 and 392 $\mu g/m^3$ measured in 2007, were due to severe wildfires that occurred in Southern California.

During 1989, there were 114 calculated State standard exceedance days, compared with 159 during 2007. During 2007, there were six calculated days over the 24-hour national standard. There is a substantial amount of variability from year-to-year in the 24-hour statistics. This variability is a reflection of meteorology, the sporadic nature of events such as wildfires, 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 with the State standards.

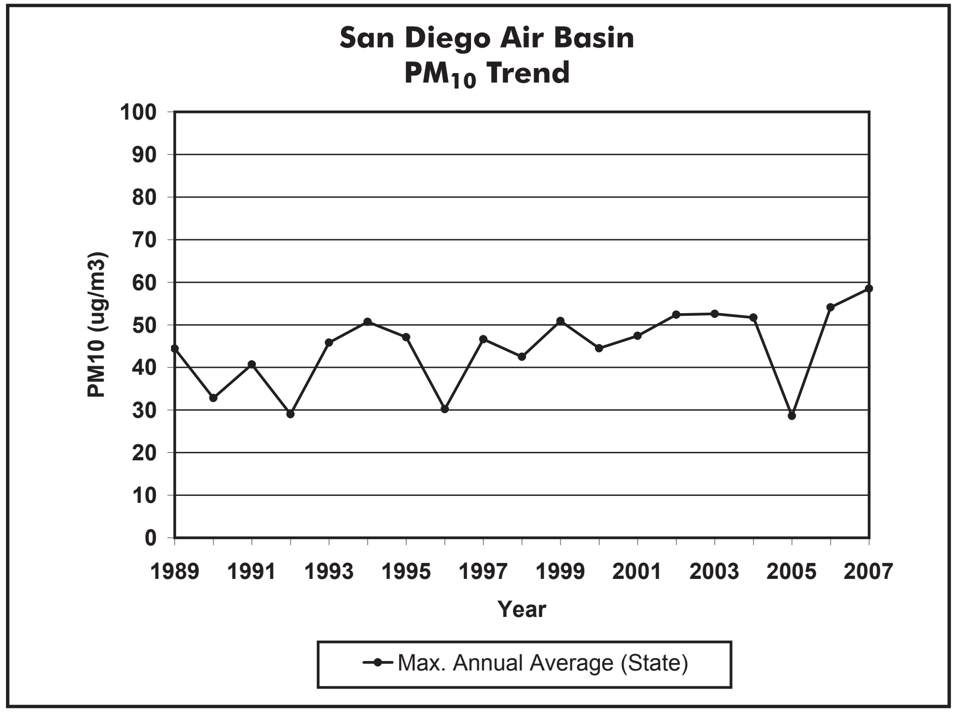


Figure 4-51

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	80	90	115	81	67	159	129	121	93	125	89	119	136	106	131	289	138	154	134	392
Max. 24-Hr. Concentration (Nat)	80	90	115	81	67	159	129	121	93	125	89	121	139	107	130	280	137	155	133	394
Max. Annual Average (State)		44.4	32.8	40.7	29.0	45.8	50.7	47.1	30.2	46.6	42.5	50.9	44.5	47.4	52.4	52.6	51.7	28.6	54.1	58.5
Max. Annual Average (Nat)	40	43.8	37.6	36.4	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1	54.9	52.1	51.2	49.8	53.7	58.8
Calc Days Above State 24-Hr Std		114	38	84	12	134	134	122	12	125	107	124	109	129	173	151	175	13	159	159
Calc Days Above Nat 24-Hr Std		0	0	0	0	6	0	0	0	0	0	0	0	0	0	6	0	0	0	6

Table 4-47

San Diego Air Basin

$PM_{2.5}$ Air Quality Trend

Annual average $PM_{2.5}$ concentrations (national) in the San Diego Air Basin have declined during the period of 1999 through 2007. The State annual average concentrations also decreased within this period. The high maximum 24-hour concentrations of 239 $\mu g/m^3$ measured in 2003 and 151 $\mu g/m^3$ measured in 2007, were due to severe wildfires that occurred in Southern California. The 98th percentile of 24-hour $PM_{2.5}$ concentrations showed substantial variability within this period, a reflection of changes in meteorology and the influence of the 2003 and 2007 wildfires. Measures adopted as part of SB 656, as well as programs to reduce ozone and diesel PM should help in reducing public exposure to $PM_{2.5}$ in this region.

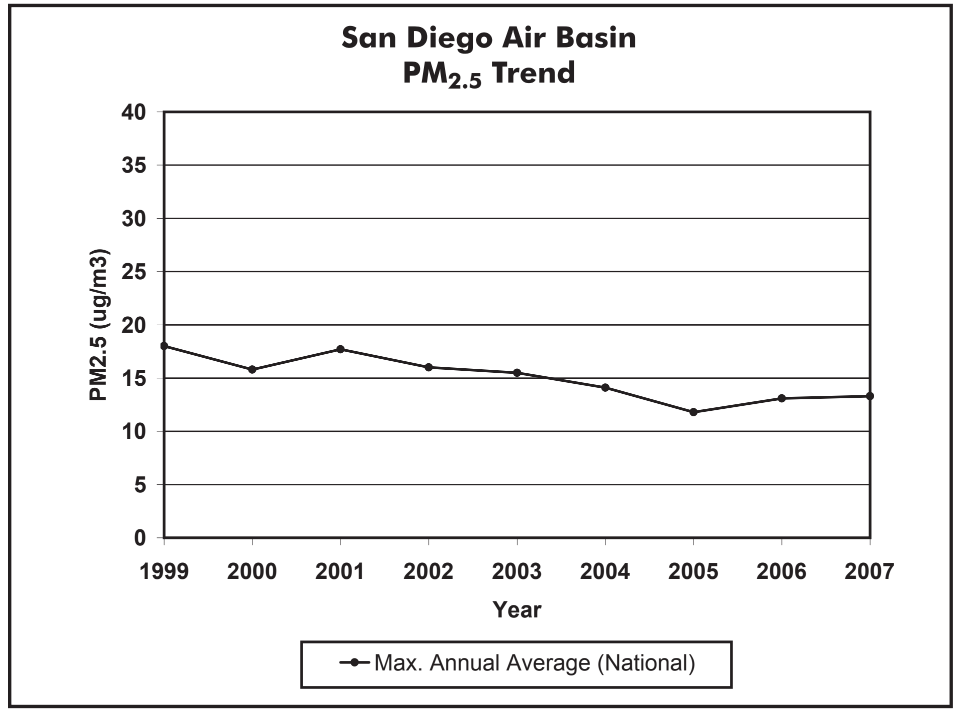


Figure 4-52

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	151.0
Max. 24-Hr. Concentration (Nat)												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	126.2
98th Percentile of 24-Hr Conc.												45.1	48.7	40.8	39.3	46.9	37.4	30.2	28.4	37.7
Annual Average (State)															15.5	14.4	14.1		13.1	13.3
Avg. of Qtrly. Means (Nat)												18	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3

Table 4-48

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 2020, even though the 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**	**2015**	**2020**
All Sources	***3388***	***3065***	***2895***	***2515***	***1785***	***1331***	***953***	***747***	***624***	***558***
Stationary Sources	30	29	28	28	26	40	27	22	22	22
Area-wide Sources	23	25	27	29	27	27	28	28	29	30
On-Road Mobile	3169	2799	2586	2145	1448	1007	657	456	327	251
Gasoline Vehicles	3164	2792	2574	2130	1434	994	643	444	317	242
Diesel Vehicles	6	8	11	16	14	14	14	13	10	9
Other Mobile	165	211	254	313	284	256	241	240	246	256
Gasoline Fuel	125	164	206	254	230	207	194	193	197	206
Diesel Fuel	17	22	24	33	28	25	22	21	22	23
Other Fuel	23	25	23	26	25	25	26	26	27	27

Table 4-49

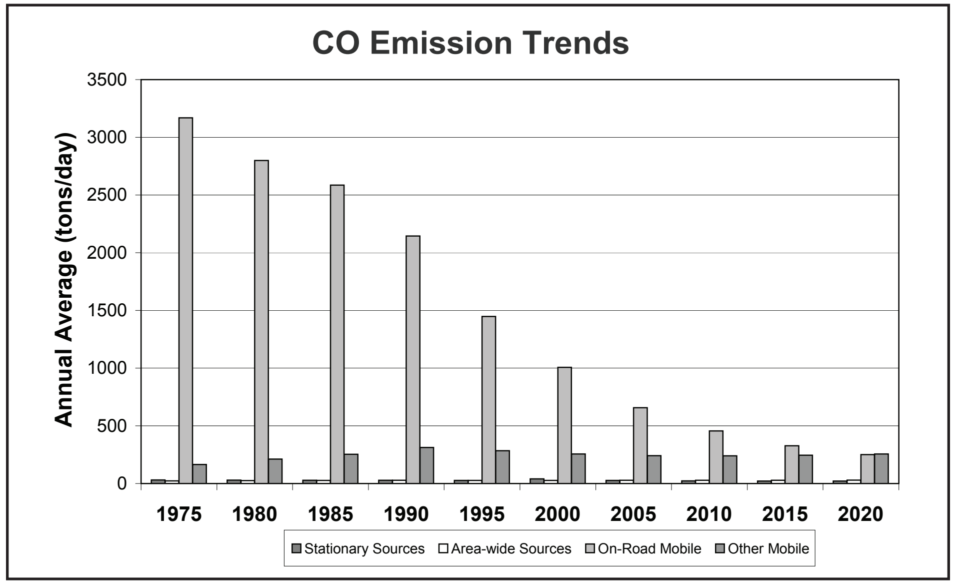


Figure 4-53

San Diego Air Basin

Carbon Monoxide Air Quality Trend

The peak 8-hour indicator for CO in the San Diego Air Basin decreased substantially over the trend period: an almost 58 percent decrease from 1988 to 2007. As a result of these decreases, the national CO standards had not been exceeded in the San Diego Air Basin since 1989. However, in 2003 the CO standards were exceeded due to extensive wildfires that impacted air quality throughout Southern California. This exceedance does not impact San Diego's attainment status, because it qualifies as an exceptional event.

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 CO in this area.

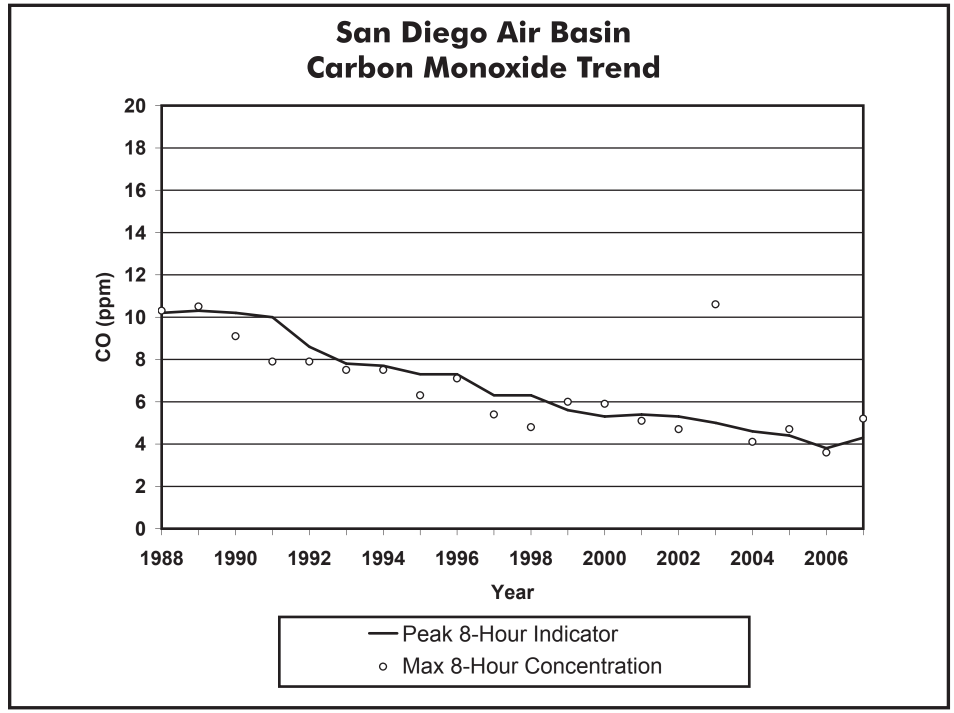


Figure 4-54

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator (State)	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	5.0	4.6	4.4	3.8	4.3
Max. 1-Hr. Concentration	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	12.7	6.9	7.9	10.8	8.7
Max. 8-Hr. Concentration (State)	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	10.6	4.1	4.7	3.6	5.2
Days Above State 8-Hr. Std.	5	6	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Days Above Nat. 8-Hr. Std.	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Table 4-50

San Diego Air Basin
Nitrogen Dioxide
Oxides of Nitrogen Emission Trends and Forecasts

NO_x and NO_2 emissions in the San Diego Air Basin follow the declining statewide trend from 1990 to 2020. The continued adoption of more stringent motor vehicle and stationary source emission standards should continue to reduce NO_2 emissions.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***277***	***261***	***261***	***297***	***261***	***226***	***186***	***153***	***120***	***97***
Stationary Sources	48	32	17	19	17	14	10	9	9	10
Area-wide Sources	2	3	3	3	3	3	3	3	3	3
On-Road Mobile	186	176	187	203	178	146	113	88	64	48
Gasoline Vehicles	172	159	160	165	141	104	64	45	32	24
Diesel Vehicles	13	17	26	38	37	42	50	43	31	24
Other Mobile	41	52	55	72	64	63	61	53	44	37
Gasoline Fuel	3	4	5	6	6	6	6	6	6	6
Diesel Fuel	33	43	45	59	52	50	46	40	31	24
Other Fuel	5	5	6	7	7	8	8	7	7	7

Table 4-51

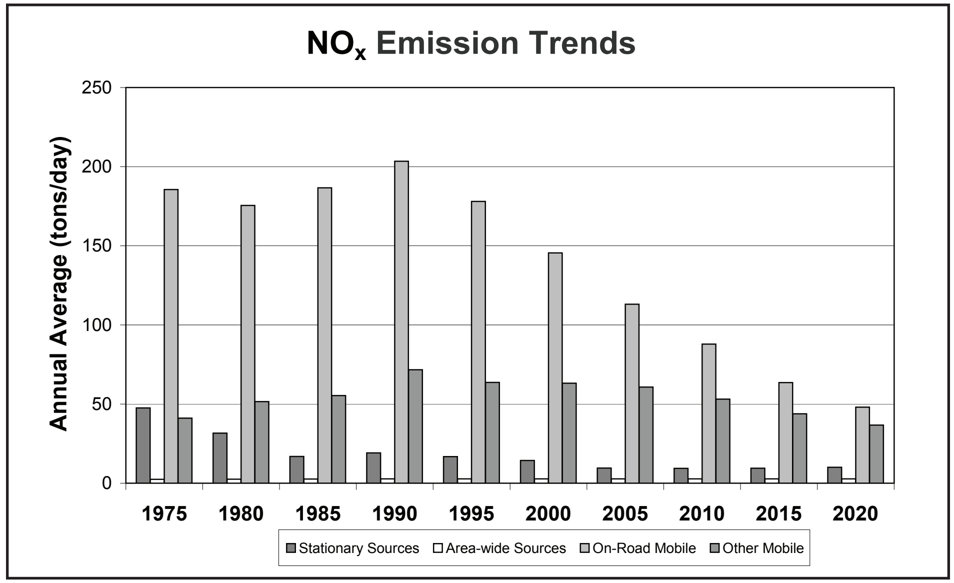


Figure 4-55

San Diego Air Basin

Nitrogen Dioxide Air Quality Trend

The San Diego Air Basin attains both the State and national NO_2 standards. Since 1990 ambient concentrations have been well below the levels of both the State and national standards. Data show that the peak 1-hour indicator decreased nearly 50 percent from 1988 to 2007.

Because NO_x emissions contribute to ozone, as well as to NO_2, 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. As a result, these controls should ensure continued attainment of the State and national NO_2 standards.

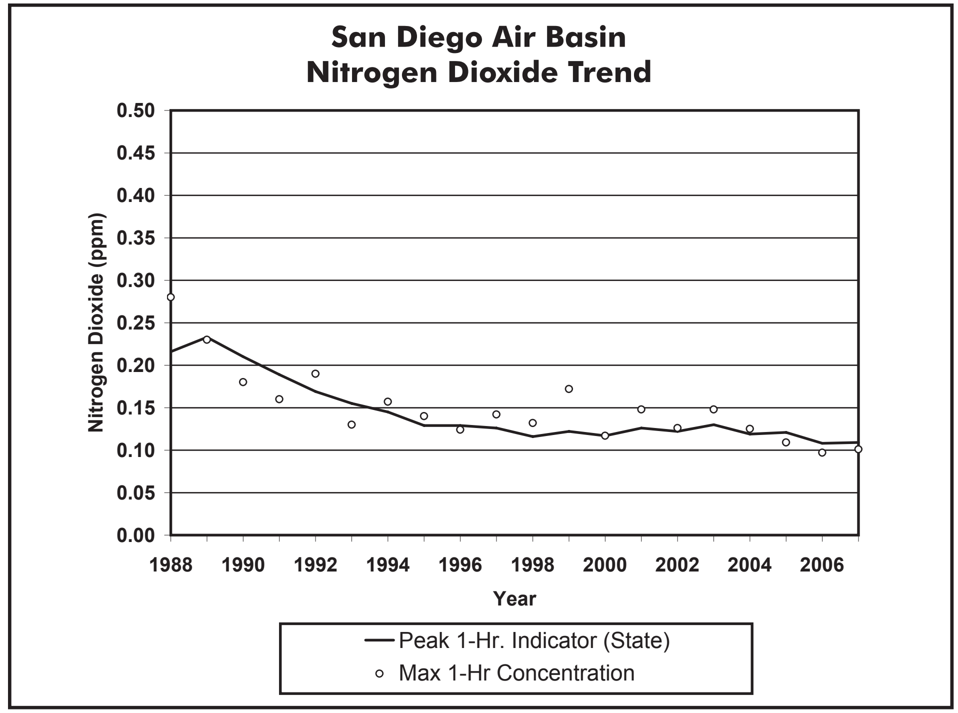


Figure 4-56

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator (State)	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	0.130	0.119	0.121	0.108	0.109
Max. 1-Hr. Concentration	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	0.148	0.125	0.109	0.097	0.101
Max. Annual Average (Nat)	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	0.021	0.023	0.024	0.024	0.022
Max. Annual Average (State)	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	0.021	0.023	0.018	0.024	0.022

Table 4-52

Sacramento Valley Air Basin

Introduction - Area Description

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 northeastern 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 that of the San Francisco Bay Area or South Coast air basins. 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 emission reductions will be needed to attain the State and national ambient air quality standards in this air basin.

Note: The Sacramento Metropolitan Nonattainment Area includes the southern part of the Air Basin, as well as the western portion of El Dorado County and the western portion of Placer County.

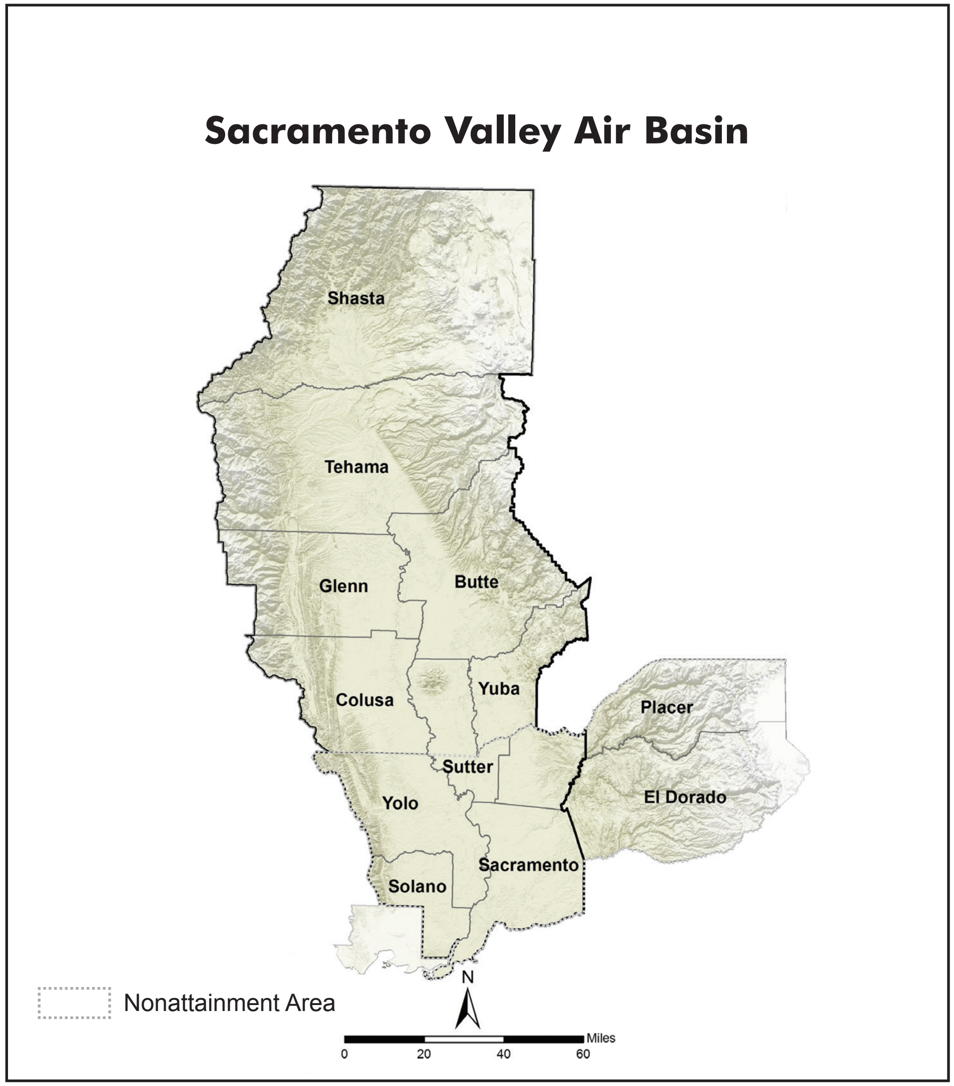


Figure 4-57

Sacramento Valley Air Basin
Emission Trends and Forecasts

The emission levels in the Sacramento Valley Air Basin are trending downward from 1990 to 2020 for NO_x, and downward from 1975 to 2020 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 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 2020. The emission levels for SO_x have declined after 1990. Most of the reduction in SO_x emissions is seen for on-road motor vehicles and other mobile sources.

Sacramento Valley Air Basin Emissions (tons/day, annual average)										
Pollutant	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
NO_X	334	351	342	381	353	318	292	249	198	161
ROG	452	443	412	361	300	243	207	184	172	166
PM_{10}	199	205	212	226	215	222	226	232	237	242
$PM_{2.5}$	73	71	73	81	73	74	74	75	75	76
SO_X	25	23	26	30	9	6	5	3	4	4
CO	3122	3120	2905	2581	1943	1528	1231	1041	917	845

Table 4-53

Sacramento Valley Air Basin
Population and VMT

Between 1980 and 2020, population in the Sacramento Valley Air Basin is projected to grow at a higher rate than the statewide average-a 120 percent increase compared with an 86 percent increase statewide. Population is projected to grow from 1.5 million in 1980 to almost 3.3 million in 2020. 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 200 percent increase in the Sacramento Valley Air Basin. VMT are projected to increase from about 30 million miles in 1980 to nearly 90 million miles in 2020.

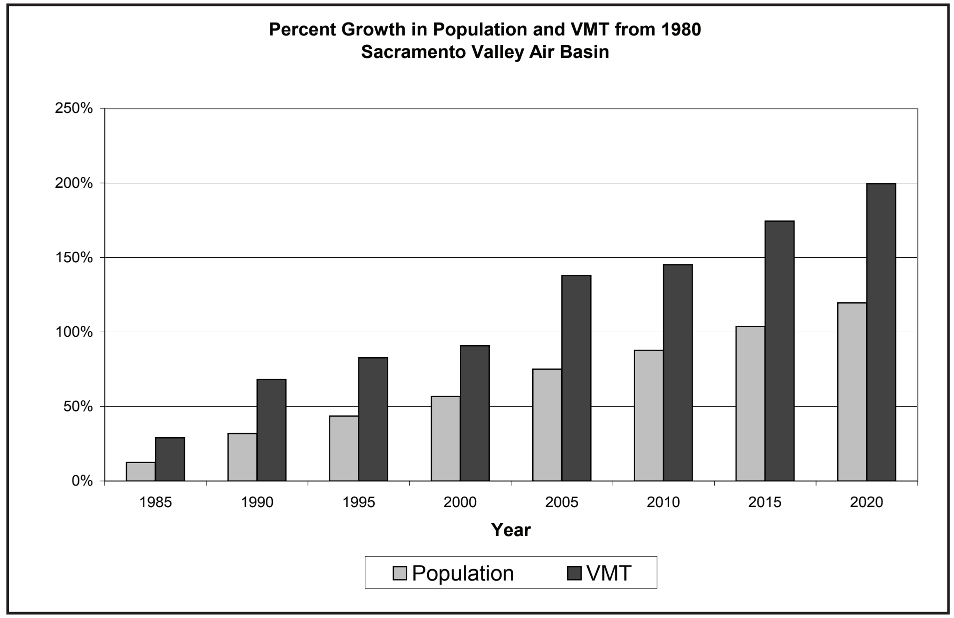


Figure 4-58

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1500924	1688217	1977544	2155490	2352967	2627717	2817815	3056169	3294522
Avg. Daily VMT/1000	30025	38728	50471	54826	57268	71433	73601	82374	89914

Table 4-54

Sacramento Valley Air Basin

Ozone Precursor Emission - Trends and Forecasts

Emissions of NO_x decreased from 1990 to 2005 and are projected to continue decreasing from 2005 to 2020. 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**	**2015**	**2020**
All Sources	***334***	***351***	***342***	***381***	***353***	***318***	***292***	***249***	***198***	***161***
Stationary Sources	37	32	31	44	45	42	39	38	37	36
Area-wide Sources	9	9	10	10	9	9	9	9	9	9
On-Road Mobile	186	194	202	215	196	167	154	127	88	62
Gasoline Vehicles	156	158	151	144	123	88	59	42	30	22
Diesel Vehicles	30	35	51	72	74	79	96	85	58	40
Other Mobile	102	116	100	112	102	100	89	75	64	54
Gasoline Fuel	3	4	5	6	5	5	7	7	7	6
Diesel Fuel	96	109	92	104	94	91	78	65	53	44
Other Fuel	2	3	3	3	3	4	3	3	4	4

Table 4-55

ROG Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***452***	***443***	***412***	***361***	***300***	***243***	***207***	***184***	***172***	***166***
Stationary Sources	62	46	50	48	41	30	31	33	35	38
Area-wide Sources	58	65	64	71	68	65	62	63	65	67
On-Road Mobile	289	279	244	185	137	94	67	49	36	29
Gasoline Vehicles	285	274	238	177	132	89	61	43	32	26
Diesel Vehicles	4	5	6	8	6	5	6	6	4	3
Other Mobile	42	53	55	58	55	53	47	40	35	33
Gasoline Fuel	29	35	41	42	40	39	35	30	27	26
Diesel Fuel	12	14	12	14	13	12	11	8	6	5
Other Fuel	1	3	2	2	2	2	2	2	2	2

Table 4-56

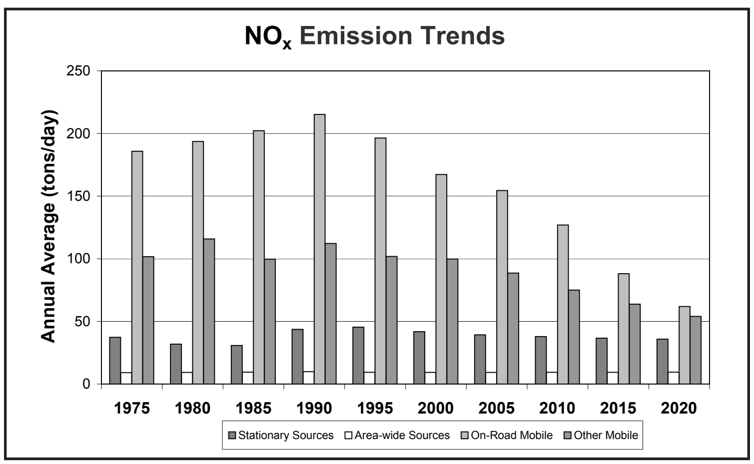


Figure 4-59

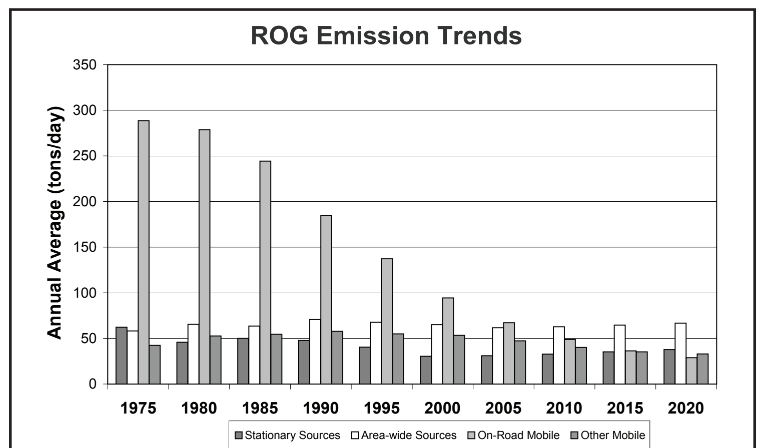


Figure 4-60

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. Since 1990, the peak 8-hour indicator has decreased slightly, and the overall decline for the 20-year period is almost 12 percent. Looking at the number of days above the State and national standards, the trend is much more variable. However, the number of 8-hour exceedance days has declined by nearly 37 percent since 1988.

Similar to the San Joaquin Valley, the Sacramento Metropolitan area, which includes the urbanized portion of the Southern Sacramento Valley Air Basin, along with the 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, Upper Sacramento Valley, San Joaquin Valley, and San Francisco Bay Area air basins and is a receptor area for the San Francisco Bay Area and San Joaquin Valley air basins.

The data for the Sacramento Metropolitan Area, on the following page, reflects the portion of the region that is nonattainment for the national ozone standards.

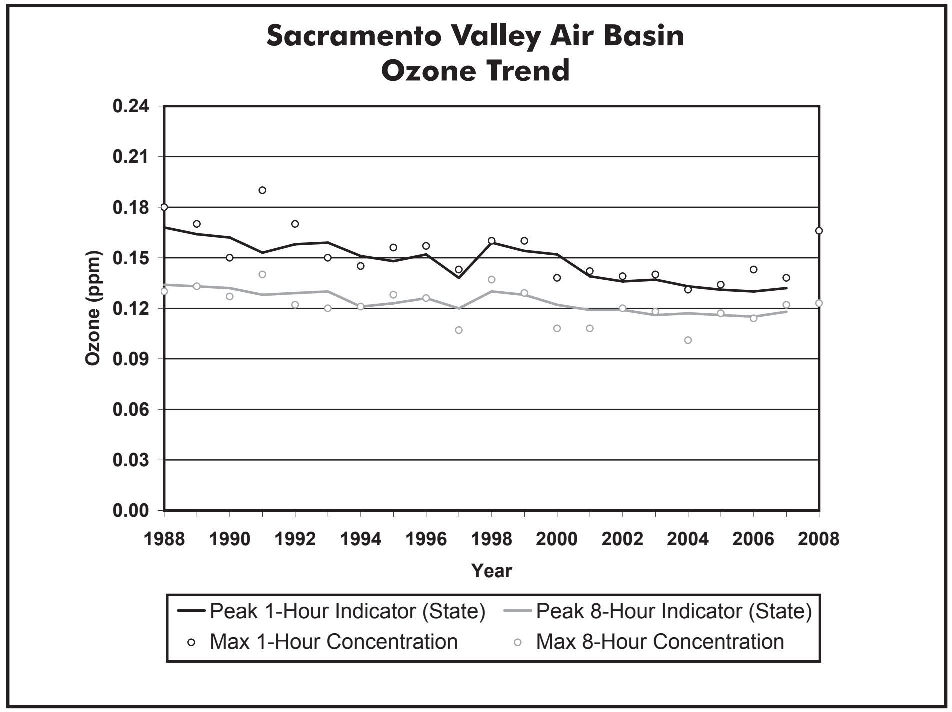


Figure 4-61

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[1]
Peak 8-Hour Indicator (State)	0.134	0.133	0.132	0.128	0.129	0.130	0.121	0.123	0.126	0.120	0.130	0.128	0.122	0.119	0.119	0.116	0.117	0.116	0.115	0.118	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.095	0.101	0.105	0.101	0.101	0.100	0.097	0.097	0.097	0.098	
Peak 1-Hour Indicator (State)	0.168	0.164	0.162	0.153	0.158	0.159	0.151	0.148	0.152	0.138	0.159	0.154	0.152	0.139	0.136	0.137	0.133	0.131	0.130	0.132	
4th High 1-Hr. in 3 Yrs[2]	0.160	0.160	0.160	0.150	0.160	0.150	0.142	0.145	0.145	0.143	0.149	0.149	0.149	0.138	0.134	0.138	0.138	0.131	0.134	0.134	
Max. 8-Hr. Concentration	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	0.101	0.117	0.114	0.122	0.123
Maximum 1-Hr. Concentration	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	0.131	0.134	0.143	0.138	0.166
Days Above State 8-Hr. Std.	125	99	104	111	107	61	113	86	103	60	97	111	81	84	95	92	87	62	88	61	79
Days Above Nat. 8-Hr. Std.[3]	99	77	75	89	82	49	87	64	82	44	89	88	62	69	71	69	57	45	68	34	55
Days Above State 1-Hr. Std.	98	68	50	68	74	34	60	50	58	25	62	59	41	44	46	51	29	33	44	15	45

[1] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.
[2] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.
[3] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.
Table 4-57

Sacramento Metropolitan Area[1]

Ozone Air Quality Table

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008[2]
Peak 8-Hour Indicator (State)	0.134	0.133	0.132	0.128	0.129	0.130	0.121	0.123	0.126	0.120	0.130	0.128	0.126	0.119	0.124	0.127	0.126	0.116	0.115	0.118	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.102	0.097	0.097	0.098	
Peak 1-Hour Indicator (State)	0.168	0.164	0.162	0.153	0.158	0.159	0.151	0.148	0.152	0.140	0.159	0.154	0.152	0.139	0.142	0.146	0.143	0.131	0.130	0.132	
4th High 1-Hr. in 3 Yrs[3]	0.160	0.160	0.160	0.150	0.160	0.150	0.142	0.145	0.145	0.145	0.149	0.149	0.149	0.144	0.148	0.148	0.145	0.139	0.134	0.134	
Max. 8-Hr. Concentration	0.138	0.134	0.128	0.140	0.123	0.120	0.122	0.129	0.126	0.108	0.138	0.129	0.114	0.109	0.138	0.123	0.102	0.117	0.116	0.123	0.123
Maximum 1-Hr. Concentration	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	0.118	0.134	0.143	0.138	0.166
Days Above State 8-Hr. Std.	126	114	99	102	113	61	103	80	96	62	72	108	83	95	109	96	85	69	92	64	80
Days Above Nat. 8-Hr. Std.[4]	104	93	73	82	90	48	73	64	76	45	60	80	61	73	86	79	61	53	74	38	57
Days Above State 1-Hr. Std.	99	74	47	65	76	36	54	52	58	25	49	56	45	52	59	53	36	43	50	16	42

[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.

[2] Preliminary data for 2008 are shown here, however they are subject to change. 2007 is the last year for which complete and approved data is available, thus calculated annual statistics are not included for 2008.

[3] The national 1-Hour standard has been revoked. Historical 1-Hour data are provided for reference.

[4] The national 8-Hour standard has recently been lowered to .075. As a result, exceedance day numbers are higher than in previous years.

Table 4-58

(This page intentionally left blank)

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

Direct emissions of PM_{10} increased in the Sacramento Valley Air Basin between 1975 and 2005 and are projected to continue increasing through 2020. Emissions are dominated by contributions from area-wide sources, primarily fugitive dust from paved and unpaved roads, dust from farming operations, fugitive dust from construction and demolition, and particulates from residential fuel combustion (including wood). Emissions of directly emitted PM_{10} from mobile sources and stationary sources in the Sacramento Valley Air Basin have remained relatively steady.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***199***	***205***	***212***	***226***	***215***	***222***	***226***	***232***	***237***	***242***
Stationary Sources	25	19	17	21	16	17	17	18	19	20
Area-wide Sources	163	174	181	188	186	193	198	203	208	213
On-Road Mobile	5	6	7	9	7	6	6	6	6	5
Gasoline Vehicles	2	1	2	2	2	2	3	3	4	4
Diesel Vehicles	3	4	6	7	5	4	4	3	2	1
Other Mobile	6	8	7	8	6	6	6	5	4	4
Gasoline Fuel	1	1	1	1	1	1	1	2	2	2
Diesel Fuel	6	7	6	7	5	5	4	3	2	2
Other Fuel	0	0	0	0	0	0	0	0	0	0

Table 4-59

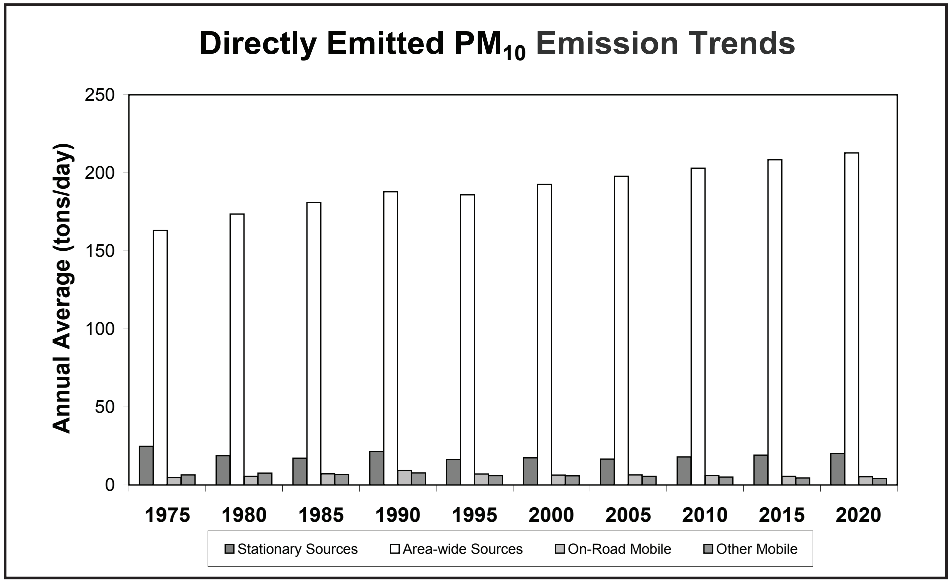


Figure 4-62

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

Direct emissions of $PM_{2.5}$ have remained relatively steady in the Sacramento Valley Air Basin between 1975 and 2005 and are projected to increase slightly through 2020. Emissions are dominated by contributions from area-wide sources, primarily fugitive dust from paved and unpaved roads, fugitive dust from construction and demolition, particulates from residential fuel combustion (including wood), and waste burning. Emissions of directly emitted $PM_{2.5}$ from mobile sources and stationary sources in the Sacramento Valley Air Basin have remained relatively steady.

PM can be directly emitted into the air (primary PM) or, similar to ozone, it can be formed in the atmosphere (secondary PM) from the reaction of gaseous precursors such as NO_x, SO_x, ROG, and ammonia. 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**	**2015**	**2020**
All Sources	***73***	***71***	***73***	***81***	***73***	***74***	***74***	***75***	***75***	***76***
Stationary Sources	18	12	11	13	10	10	9	10	11	12
Area-wide Sources	45	48	50	53	53	53	54	55	57	58
On-Road Mobile	4	5	6	8	6	5	5	5	4	4
Gasoline Vehicles	1	1	1	1	1	1	2	2	2	2
Diesel Vehicles	3	4	5	7	5	4	3	3	2	1
Other Mobile	6	7	6	7	5	5	5	4	4	3
Gasoline Fuel	0	1	1	1	1	1	1	1	2	2
Diesel Fuel	5	6	5	6	4	4	4	3	2	1
Other Fuel	0	0	0	0	0	0	0	0	0	0

Table 4-60

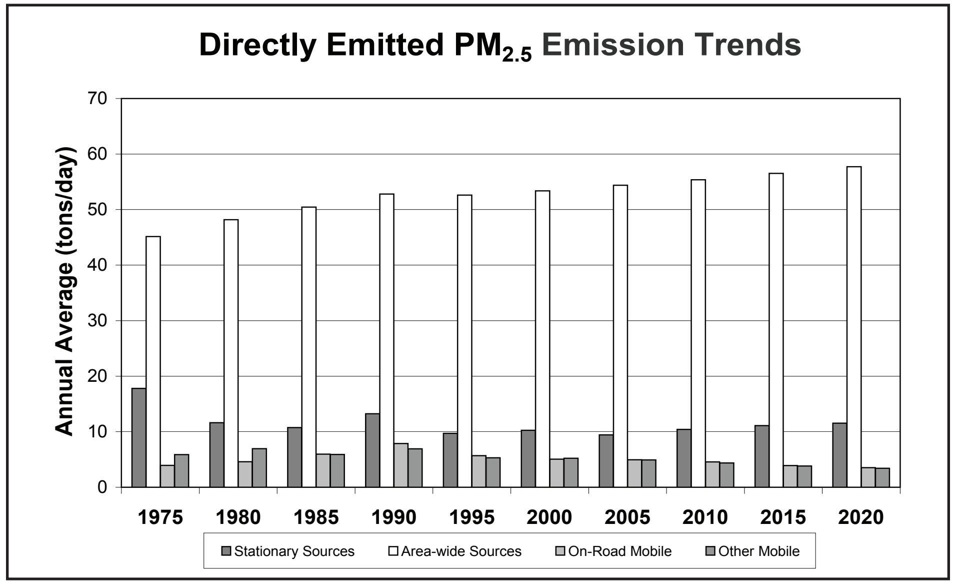


Figure 4-63

Sacramento Valley Air Basin

PM_{10} Air Quality Trend

The annual average (State) PM_{10} concentration in the Sacramento Valley Air Basin shows a fairly steady decline over the trend period, with some variability over the last several years. The three-year average of the annual average (State) shows a decrease of 29 percent from 1991 to 2007. The three-year average of calculated days over the State 24-hour standard decreased by 49 percent from 1991 to 2007. Because many of the sources that contribute to ozone also contribute to PM_{10}, future ozone emission controls should improve PM_{10} air quality.

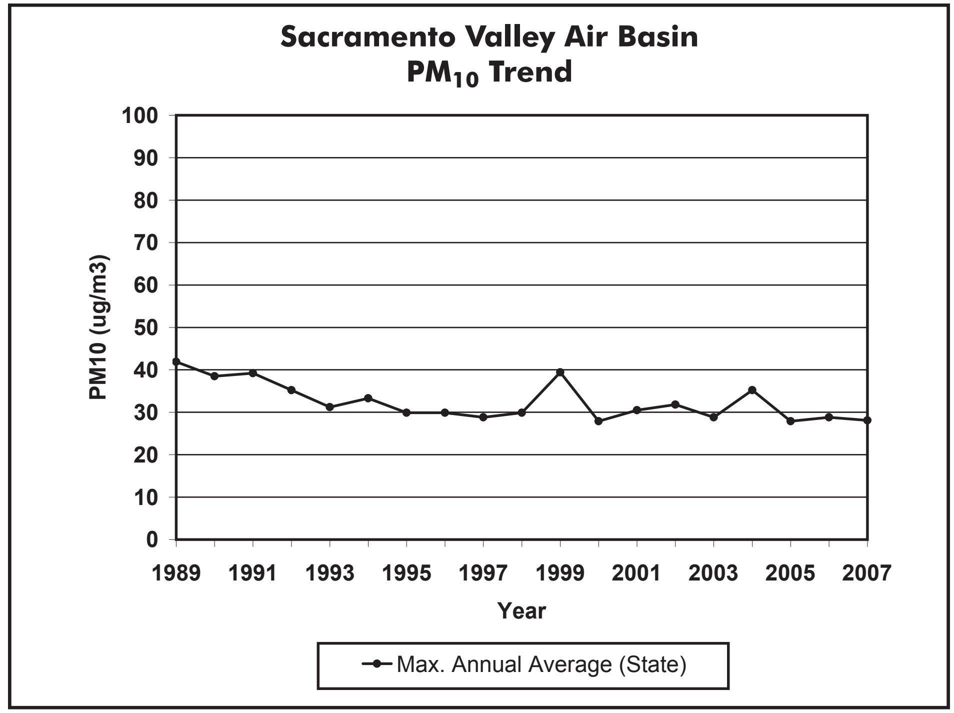


Figure 4-64

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	100	147	153	136	111	113	154	145	98	126	130	179	90	112	96	123	171	109	111	119
Max. 24-Hr. Concentration (Nat)	100	147	153	136	111	113	204	287	98	126	130	275	109	123	145	89	169	110	160	119
Max. Annual Average (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	28.8	35.2	27.9	28.8	28.1
Max. Annual Average (Nat)	51.2	46.0	51.9	46.4	42.3	36.9	34.5	40.7	32.6	28.6	29.0	38.4	27.9	30.2	30.9	28.4	34.5	27.2	37.8	27.5
Calc Days Above State 24-Hr Std		82	74	104	70	63	36	57	44	22	60	64	43	50	41	31	80	42	53	36
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	1	0	0	0	0	7	0	0	0	0	6	0	0	0

Table 4-61

Sacramento Valley Air Basin

$PM_{2.5}$ Air Quality Trend

Overall, annual average (national) $PM_{2.5}$ concentrations in the Sacramento Valley Air Basin decreased from 1999 through 2007. The State annual average concentrations also show a declining trend, although the trends looks less pronounced, due to differences in State and national monitoring methods. The 98th percentile of 24-hour $PM_{2.5}$ concentrations also declined during this 10-year period. Similar to PM_{10}, year-to-year changes in meteorology can mask the impacts of emission control programs. Measures adopted as part of SB 656, as well as programs to reduce ozone and diesel PM will help in reducing public exposure to $PM_{2.5}$ in this region.

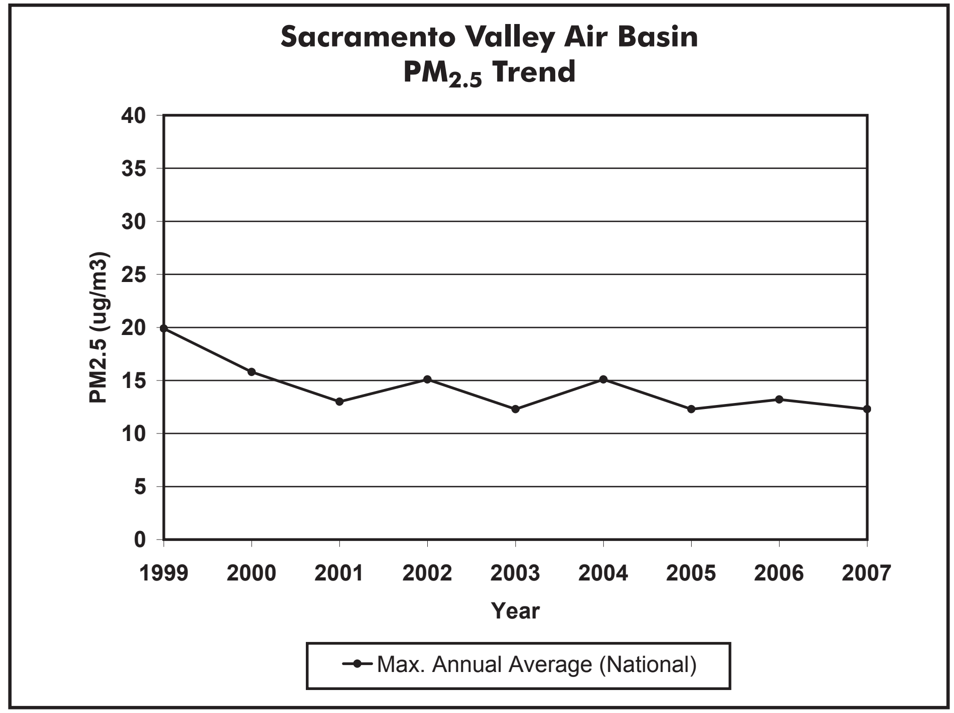


Figure 4-65

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											96	108.0	123.1	128.2	96.1	73.2	76.3	82.7	78.6	83.7
Max. 24-Hr. Concentration (Nat)											96	108.0	98.0	78.0	91.0	65.0	65.0	80.0	78.0	61.0
98th Percentile of 24-Hr Conc.											96	84.0	81.0	56.0	63.0	43.0	54.0	54.0	59.0	53.0
Annual Average (State)												17.5	15.8	11.9	15.1	15.9	16.5	13.8	15.2	14.4
Avg. of Qtrly. Means (Nat)												19.9	15.8	13.0	15.1	12.3	15.1	12.3	13.2	12.3

Table 4-62

Sacramento Valley Air Basin
Carbon Monoxide Emission Trends and Forecasts

Emissions of CO declined in the Sacramento Valley Air Basin between 1975 and 2005 and are projected to decrease through 2020. 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 VMT. Stationary and area-wide source CO emissions have remained relatively steady since 1990, with additional emission controls offsetting growth.

CO Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***3122***	***3120***	***2905***	***2581***	***1943***	***1528***	***1231***	***1041***	***917***	***845***
Stationary Sources	28	29	17	52	40	42	52	52	55	56
Area-wide Sources	256	270	280	291	289	288	291	293	297	302
On-Road Mobile	2638	2568	2342	1915	1318	927	635	445	312	229
Gasoline Vehicles	2624	2551	2319	1885	1290	902	608	420	292	213
Diesel Vehicles	13	17	23	31	28	26	26	25	20	16
Other Mobile	199	253	267	323	296	270	255	251	254	258
Gasoline Fuel	145	186	209	257	234	212	199	196	199	202
Diesel Fuel	37	45	39	47	43	38	33	31	30	31
Other Fuel	18	23	19	19	19	20	22	23	24	25

Table 4-63

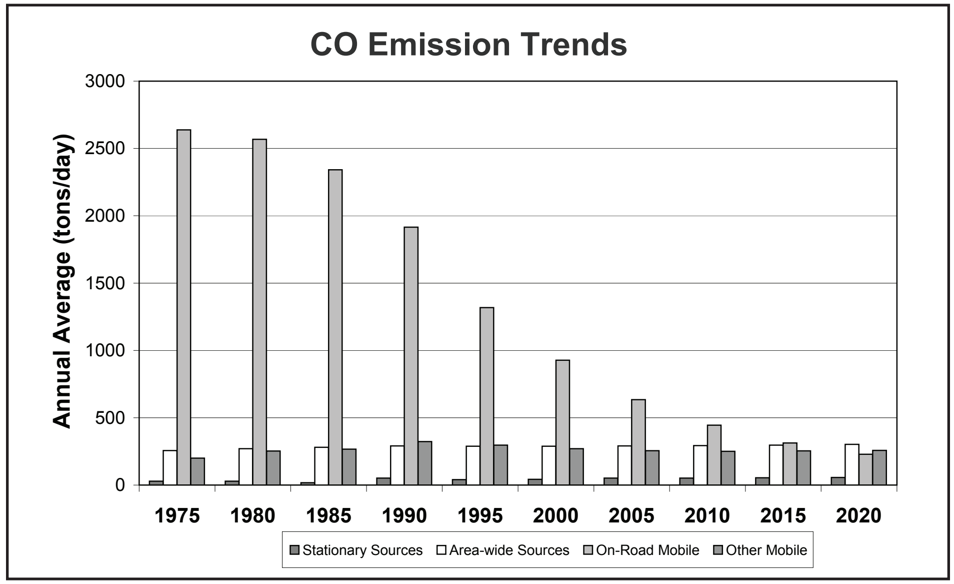


Figure 4-66

Sacramento Valley Air Basin

Carbon Monoxide Air Quality Trend

The trend of the peak 8-hour indicator for CO for the Sacramento Valley Air Basin was relatively flat from 1988 to 1991, with some year-to-year variability that was probably caused by meteorology. Since 1991, indicator values have decreased substantially. The 2007 value was 71 percent lower than the 1991 value. 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 CO 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.

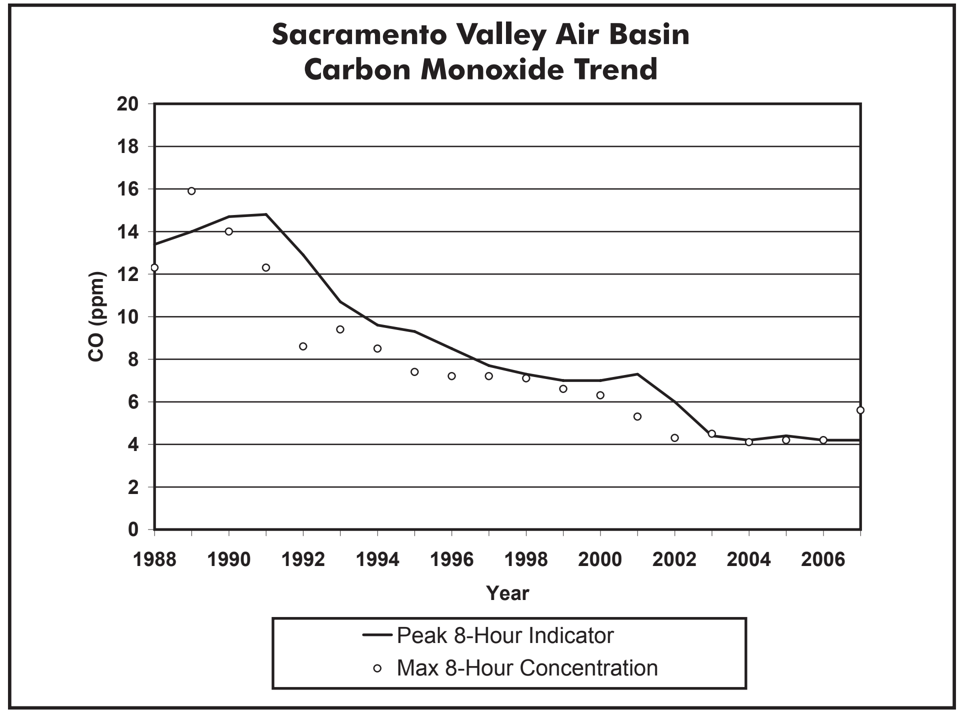


Figure 4-67

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator (State)	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	4.4	4.2	4.4	4.2	4.2
Max. 1-Hr. Concentration	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	17.2	7.8	8.5	7.3	8.0	7.5	6.3
Max. 8-Hr. Concentration (State)	12.3	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.1	4.2	4.2	5.6
Days Above State 8-Hr. Std.	12	22	14	9	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	9	22	12	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-64

Sacramento Valley Air Basin
Nitrogen Dioxide
Oxides of Nitrogen Emission Trends and Forecasts

Emissions of NO_x show a steady decrease from 1990 to 2020. 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.

NO_x Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	***334***	***351***	***342***	***381***	***353***	***318***	***292***	***249***	***198***	***161***
Stationary Sources	37	32	31	44	45	42	39	38	37	36
Area-wide Sources	9	9	10	10	9	9	9	9	9	9
On-Road Mobile	186	194	202	215	196	167	154	127	88	62
Gasoline Vehicles	156	158	151	144	123	88	59	42	30	22
Diesel Vehicles	30	35	51	72	74	79	96	85	58	40
Other Mobile	102	116	100	112	102	100	89	75	64	54
Gasoline Fuel	3	4	5	6	5	5	7	7	7	6
Diesel Fuel	96	109	92	104	94	91	78	65	53	44
Other Fuel	2	3	3	3	3	4	3	3	4	4

Table 4-65

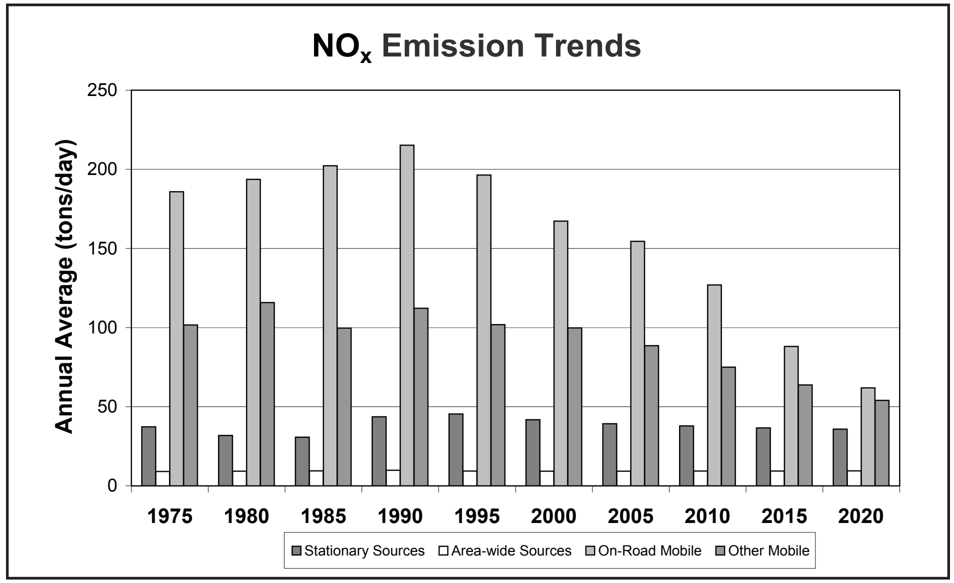


Figure 4-68

Sacramento Valley Air Basin

Nitrogen Dioxide Air Quality Trend

The Sacramento Valley Air Basin has attained both the State and national NO_2 standards for more than 20 years. The peak 1-hour indicator increased from 1988 through 1993, but has declined by 43 percent since 1993. There is more variability in maximum 1-hour concentrations as compared to other areas. This variability may be due to changes in emission sources and may also reflect year-to-year changes in meteorology. However, ambient concentrations are well below the level of the two standards, and a decline in NO_2 concentrations is expected in the coming years.

NO_2 is formed from NO_x emissions, 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 NO_x emissions.

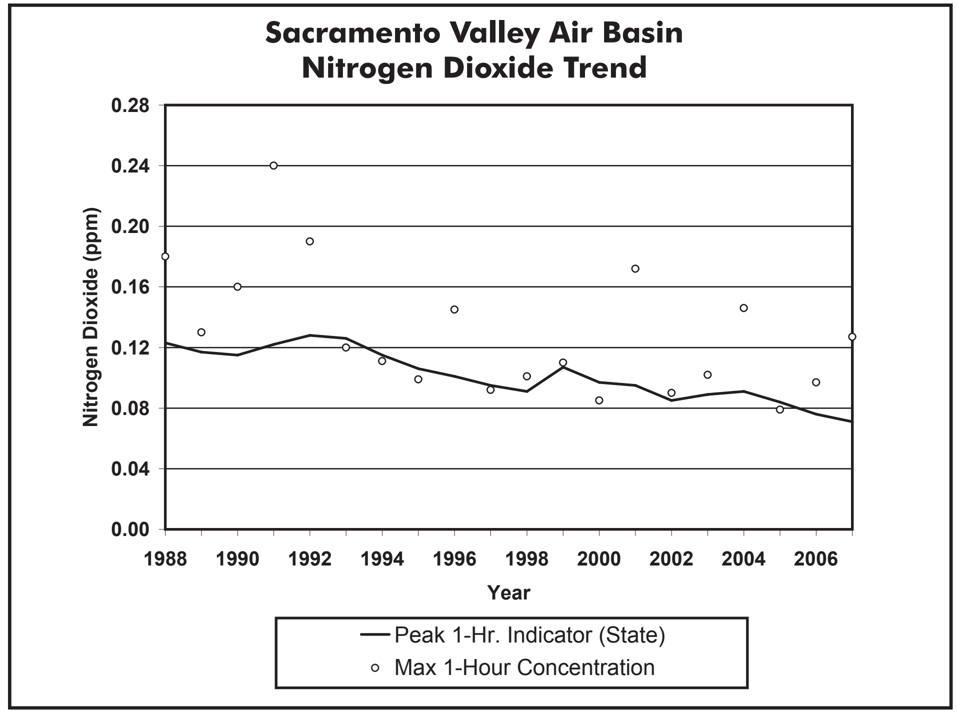


Figure 4-69

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator (State)	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	0.089	0.091	0.084	0.076	0.071
Max. 1-Hr. Concentration	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	0.102	0.146	0.079	0.097	0.127
Max. Annual Average (Nat)	0.025	0.021	0.023	0.024	0.021	0.022	0.022	0.022	0.022	0.019	0.021	0.021	0.019	0.019	0.020	0.018	0.017	0.016	0.016	0.015
Max. Annual Average (State)	0.024	0.020	0.023	0.024	0.021	0.017	0.022	0.022	0.022	0.019	0.020	0.021	0.019	0.019	0.020	0.015	0.017	0.016	0.016	0.015

Table 4-66

(This page intentionally left blank)

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 serious illness, or which may pose a present or potential hazard to human health. There are almost 200 compounds that have been designated as TACs in California. Some of these TACs are groups of compounds which contain many individual substances (e.g., copper compounds, polycyclic aromatic compounds). The summary information includes available data for the ten TACs posing the greatest known 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). Besides the ten selected TACs, dioxins are also considered to pose substantial health risk, and a brief discussion on dioxins is presented in this introduction.

Chapter 5 is organized in three major sections. The introduction provides an overview of emission and air quality information on TACs. The second section provides summaries of statewide emissions, annual average concentrations (calculated as an average of the monthly means), and estimated health risks for the ten selected TACs. The third section provides similar information for California's five most populous air basins: the South Coast, the San Francisco Bay Area, the San Joaquin Valley, the San Diego, and the Sacramento Valley air basins. Tables of concentration and health risk data for the ten TACs at the state, air basin, and site levels are presented in Appendix C.

It is important to note that the summarized data reflect a spatial average, and ambient concentrations and health risks for individual locations may be higher or lower. In addition, the information presented here reflect the ten TACs that pose the most substantial health risk, based on data collected only at sites operated by ARB. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern. Additional information on interpreting air quality data for TACs can be found in Chapter 1.

Sources of Toxic Air Contaminant Emissions in California. Similar to the criteria pollutants, TACs 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 AB 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 2008. 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 2008.

Air Quality Monitoring for Toxic Air Contaminants. The ARB maintains a statewide air quality monitoring network for TACs. 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 substances. As shown in Figure 5-1, the ARB currently maintains a network of 17 air quality monitoring stations, measuring ambient concentrations of 64 substances.

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. The annual average concentrations are then used to support statewide risk assessment.

The TAC air quality trends included in this chapter are based on ambient data collected during 1990 through 2007 except for diesel PM which currently has no widely accepted monitoring method. The ARB has made some estimates of ambient diesel PM concentrations in 1998 based on receptor modeling techniques. These estimates are currently being reviewed to reflect control measures that are outlined in the Diesel Reduction Plan.

To minimize the influences of extreme weather on the trends, three-year statewide average concentrations were used to assess changes in individual TACs over time. The trend is determined by comparing the resulting averages from the beginning and end of the monitoring periods. For about half of the ten TACs, the baseline average concentration is for 1990-1992, and the current average concentration is for 2005-2007. However, acetaldehyde and formaldehyde data collected prior to 1996 are underestimated, so their respective baseline average concentration is for 1996-1998. For hexavalent chromium and *para*-dichlorobenzene, monitoring data were available starting in 1992 and 1991, respectively, so their baseline averages are for 1992-1994 and 1991-1993. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection; therefore, the current average concentration is for 2004-2006. Carbon tetrachloride data from February 2004 though 2007 are not available because of a problem with the laboratory standard. Therefore, carbon tetrachloride's baseline average is for 1990-1991 (1992 average was invalid), and the current average concentration is for 2001-2003.

Statewide Health Risk and Community Health. In the Almanac, health risk is presented on a pollutant-by-pollutant basis as well as on a cumulative basis with a focus on cancer risk. The risk for an individual TAC is calculated by multiplying its unit risk factor with its annual average concentration. 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 one microgram per cubic meter for 70 years. It reflects only the inhalation pathway. The risk is 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 and limit of detection (LOD) for each of the ten TACs presented in this almanac. The LOD is the lowest concentration of a substance that can be reliably measured, and measurements below the LOD are assumed to be one-half of the LOD.

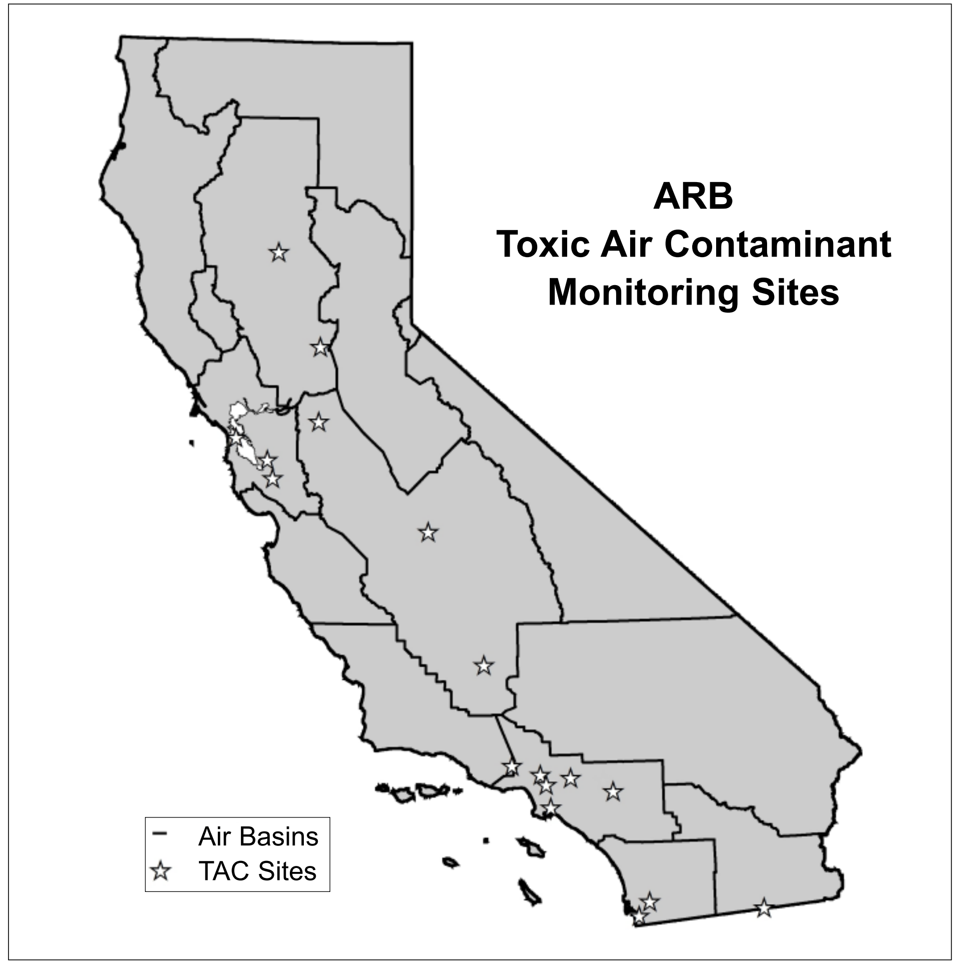


Figure 5-1

The TAC monitoring network is 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. Localized impacts may involve exposure to different TACs with higher or lower concentrations than those represented by the regional ambient air monitoring data.

The ARB participated in several studies to address localized impacts and community health issues. For example, during October 1999, ARB initiated a monitoring and evaluation study in the Barrio Logan and Logan Heights neighborhoods of San Diego. In addition, ARB has conducted monitoring in five other communities in support of the community health program as required by the Children's Environmental Health Protection Program (Senate Bill 25, 1999 or SB 25). Efforts such as these supplement our existing statewide TAC monitoring network, which was designed for regional rather than neighborhood assessments. Information on these and other studies is available at *www.arb.ca.gov/ch/programs/sb25/sb25.htm*.

Monitoring for Dioxins. Dioxins and furans, collectively referred to as dioxins, are a group of chemicals with similar structures and chemical properties. When found in the environment, dioxins are usually a mixture of these chemicals. Dioxins are byproducts of various industrial and combustion activities, and they can be emitted from vehicles, waste incineration, chemical manufacturing plants, and forest fires. Once released into the environment, dioxins are highly persistent and can accumulate in the tissues of animals and humans.

Dioxins enter the body through direct inhalation or can accumulate in the body from eating dioxins-contaminated vegetation or animals that have eaten such vegetation. Many studies have shown that dioxins can cause cancer and other health problems including birth defects and liver damage.

The ARB has identified dioxins as a TAC, and the U.S. EPA has listed them as hazardous air pollutants. In 1990, the ARB adopted a control measure to reduce emissions of dioxins from medical waste incinerators by 99 percent. At the time, medical waste incinerators were one of the largest known air sources of dioxins in California. As a result of the control measure, the number of medical incinerators in the State dropped sharply, from about 150 to less than 10. Since 1990, the ARB has adopted additional control measures to reduce dioxins including limits on residential waste burning and onboard incineration on cruise and oceangoing ships.

Toxic Air Contaminant Unit Risk Factors

Toxic Air Contaminant	Unit Risk/Million People[1]	Detection Limit (ppb)
Acetaldehyde	2.7	0.10
Benzene	29	0.05
1,3-Butadiene	170	0.04
Carbon Tetrachloride	42	0.02
Chromium, Hexavalent	150,000	0.06[2]
para-Dichlorobenzene	11	0.30
Formaldehyde	6	0.10
Methylene Chloride	1	0.10
Perchloroethylene	5.9	0.01
Diesel Particulate Matter	300[3]	N/A

1 The unit risk represents the number of excess cancer cases per million people per microgram per cubic meter TAC concentration over a 70-year, lifetime exposure.
2 The hexavalent chromium detection limit units are in nanograms per cubic meter.
3 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

In order to provide information on ambient levels of dioxins and dioxin-like compounds, the ARB has developed the California Ambient Dioxin Air Monitoring Program (CADAMP). This program is modeled, in part, after the U.S. EPA's National Dioxin Air Monitoring Network (NDAMN) to ensure the data from the two networks can be used interchangeably. The two networks use the same sampling and analytical techniques; however, CADAMP focuses on dioxins sampling in urban areas while NDAMN emphasizes rural areas nationwide. Ten sampling sites were deployed in CADAMP, five in the San Francisco Bay Area, four in the South Coast Air Basin, and one in Sacramento. Several of the CADAMP sites are also part of the ARB's Children's Environmental Health Protection Program (SB 25). The monitoring period was from December 2001 to August 2006. The dioxin monitoring data can be found at *www.arb.ca.gov/pub/dioxin/cadamp.php.* General information on ARB's dioxins program is available at *www.arb.ca.gov/toxics/dioxins/dioxins.htm*.

2008 Statewide TAC Emissions

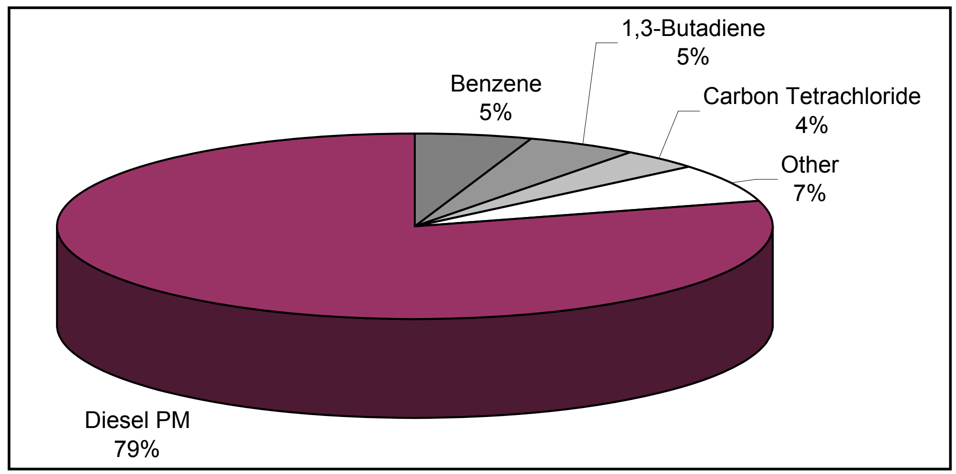
TAC	tons/year
Acetaldehyde	9,103
Benzene	10,794
1,3-Butadiene	3,754
Carbon Tetrachloride	4.04
Chromium, Hexavalent	0.61
para-Dichlorobenzene	1,508
Formaldehyde	20,951
Methylene Chloride	6,436
Perchloroethylene	4,982
Diesel PM	35,884

Table 5-2

Statewide TAC Emissions and Ambient Health Risks. Table 5-2 provides a summary of the 2008 Statewide emissions for the top 10 TACs. Figure 5-2 provides a graphical presentation of the Statewide ambient health risks for 2007. Data for Diesel PM reflect 2000 and for carbon tetrachloride reflect 2003.

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/ds.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: *"Update to the Toxic Air Contaminant List"* dated December 1999. This report can be obtained by accessing the newer ARB website at *www.arb.ca.gov/toxics/id/id.htm*.

2007 Statewide Health Risks[1]



[1] Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; "Other" only includes acetaldehyde, formaldehyde, para-dichlorobenzene, hexavalent chromium, perchloroethylene, and methylene chloride. This pie chart is based upon ambient monitoring for the top 10 TACs. The statewide number of excess cancer cases per million people over a 70-year, lifetime exposure is 680 for the year 2007.

Figure 5-2

Acetaldehyde

2008 Statewide Emission Inventory

Acetaldehyde is a federal hazardous air pollutant (HAP). The ARB identified acetaldehyde as a TAC in April 1993 under AB 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 30 percent of the statewide acetaldehyde emissions can be attributed to on-road motor vehicles, with an additional 50 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 18 percent of the statewide acetaldehyde emissions, include the burning of wood in residential fireplaces and wood stoves. Stationary sources contribute two percent of the statewide acetaldehyde emissions. The primary stationary sources are from fuel combustion from the petroleum industry.

Acetaldehyde		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	208	2%
Area-wide Sources	1624	18%
On-Road Mobile	2692	30%
Gasoline Vehicles	745	8%
Diesel Vehicles	1947	22%
Other Mobile	4489	50%
Gasoline Fuel	854	9%
Diesel Fuel	3197	35%
Other Fuel	529	6%
Natural Sources	0	0%
Total Statewide	***9103***	***100%***

Table 5-3

2008 Top Ten Counties - Acetaldehyde

The top ten counties account for approximately 47 percent of the statewide acetaldehyde emissions. The South Coast Air Basin has three of the top ten counties: South Coast portion of Los Angeles County (13 percent of the emissions of acetaldehyde statewide), Orange County (four percent), and South Coast portion of San Bernardino County (three percent). Collectively, approximately 20 percent of statewide acetaldehyde emissions occur in the South Coast Air Basin. San Diego County accounts for approximately six percent. The six other counties in the top ten for acetaldehyde emissions are: Kern (San Joaquin Valley portion), San Bernardino (Mojave Desert portion), Fresno, Santa Clara, Alameda, and San Joaquin. These six counties account for approximately 21 percent of statewide acetaldehyde emissions.

Acetaldehyde			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	1174	13%
San Diego	San Diego	524	6%
Orange	South Coast	376	4%
Kern	San Joaquin Valley	360	4%
San Bernardino	Mojave Desert	349	4%
Fresno	San Joaquin Valley	320	4%
Santa Clara	San Francisco Bay Area	268	3%
Alameda	San Francisco Bay Area	264	3%
San Joaquin	San Joaquin Valley	258	3%
San Bernardino	South Coast	258	3%

Table 5-4

Acetaldehyde

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of acetaldehyde in its statewide air toxics monitoring network. Figure 5-3 presents a trend graph of acetaldehyde for the years 1990 through 2007. The graph shows a general decrease in acetaldehyde levels from 1990-1998 with some year-to-year fluctuations. There was a sharp drop in acetaldehyde levels during 1995 and a corresponding increase the following year. Levels between 1998 and 2007 have shown little variation, except for a slight increase in 2005.

Although concentration and health risk data are available from 1990 to 2007, the data prior to 1996 are lower than expected because the ARB collected 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. The data prior to 1996 are included here because it is certain that at least the reported amount was present. However, the data prior to 1996 are not directly comparable to data collected during the later years.

To minimize the influences of weather on trends, three-year average statewide concentrations are used to assess the change over time. Although acetaldehyde data were collected beginning in 1990, as noted above, data prior to 1996 were unreliable. Therefore, the period 1996-1998 was used as the baseline average for comparison to 2005-2007. The result shows a seven percent decrease in acetaldehyde concentration and health risk.

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 2007, there were an estimated five excess cancer cases per million people due to exposure to acetaldehyde. On an individual basis, the health risks from acetaldehyde are much lower than they are for some of the other TACs. Among the ten compounds presented in this almanac, the health risk from acetaldehyde ranks eighth.

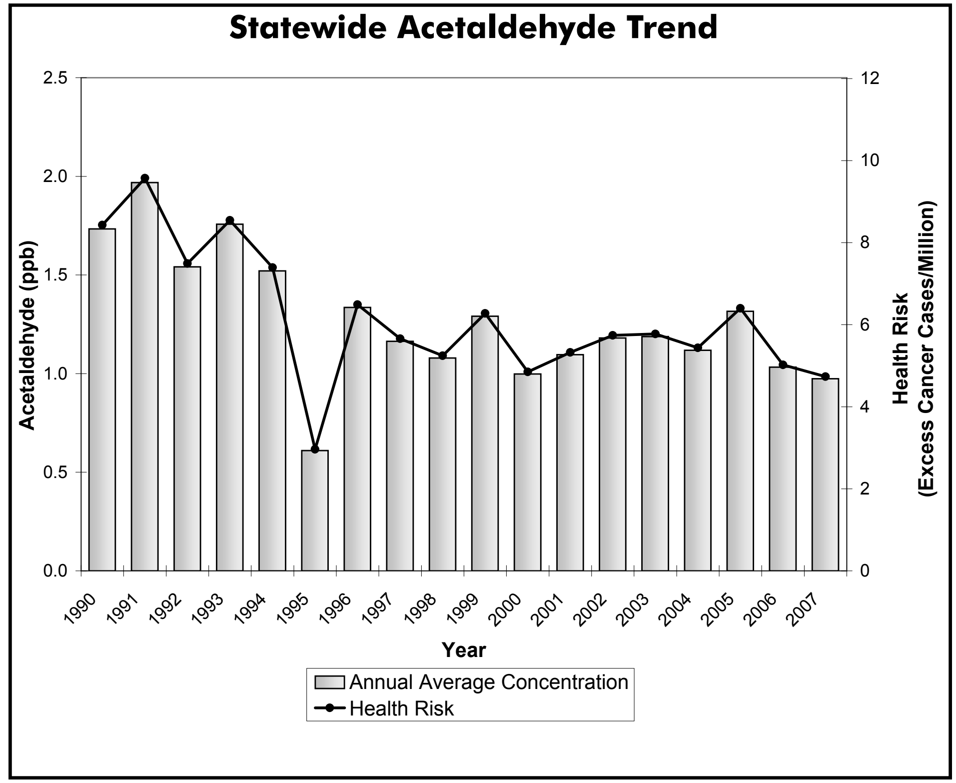


Figure 5-3

It is important to note that the health risk due 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 concentration. “Hot spot” exposure may increase the potential cancer risk to individuals living near large combustion sources. Information collected under AB 2588 (the Hot

Spots Program) will be used 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 from combustion sources and also occurs in the environment as a result of the photochemical oxidation of reactive organic gases (ROG). Over the years, stringent emission standards for newer vehicles have resulted in steady declines in directly emitted acetaldehyde due to vehicular emissions. However, its secondary formation can be hard to quantify, and can contribute to fluctuations in ambient levels of acetaldehyde.

Benzene

2008 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 (AB 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 87 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 47 percent of the statewide benzene emissions can be attributed to on-road motor vehicles, with an additional 40 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 one 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 twelve percent and area-wide sources contribute one percent of the statewide benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation. The primary area-wide sources include 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.

Benzene		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	1284	12%
Area-wide Sources	117	1%
On-Road Mobile	5024	47%
Gasoline Vehicles	4494	42%
Diesel Vehicles	530	5%
Other Mobile	4232	40%
Gasoline Fuel	3127	29%
Diesel Fuel	870	8%
Other Fuel	326	3%
Natural Sources	46	<1%
Total Statewide	***10794***	***100%***

Table 5-5

2008 Top Ten Counties - Benzene

The top ten counties account for approximately 54 percent of the statewide benzene emissions. The South Coast Air Basin has four of the top ten counties emitting benzene, representing 28 percent of statewide benzene emissions. San Diego contributes seven percent. Two counties in the San Francisco Air Basin contribute approximately six percent: Santa Clara County (three percent) and Alameda County (three percent). The three other counties in the top ten for benzene emissions are: Kern (San Joaquin portion), San Bernardino (Mojave Desert portion), and Sacramento. These counties account for approximately 13 percent of statewide benzene emissions.

Benzene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	1761	16%
San Diego	San Diego	770	7%
Kern	San Joaquin Valley	645	6%
Orange	South Coast	597	6%
San Bernardino	Mojave Desert	397	4%
Santa Clara	San Francisco Bay Area	357	3%
San Bernardino	South Coast	346	3%
Alameda	San Francisco Bay Area	328	3%
Riverside	South Coast	302	3%
Sacramento	Sacramento Valley	292	3%

Table 5-6

Benzene

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of benzene in its statewide air toxics monitoring network. Figure 5-4 shows the annual average statewide benzene concentrations and the associated health risk from benzene alone. Ambient levels have shown generally steady improvement since 1990. To examine the trend in benzene while minimizing the influences of weather, the statewide average benzene concentration for 1990-1992 was compared to that for 2005-2007. The result is an 80 percent decrease in both concentration and health risk.

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. Based on the statewide averages, benzene ranks second highest among the ten TACs presented in this almanac. During 2007, there was an estimated risk of 35 excess cancer cases per million people due to exposure to benzene. However, as with all air pollutants, the health risk is not spread evenly throughout the State. In general, ambient benzene concentrations and associated health risks tend to be higher in the more urbanized areas.

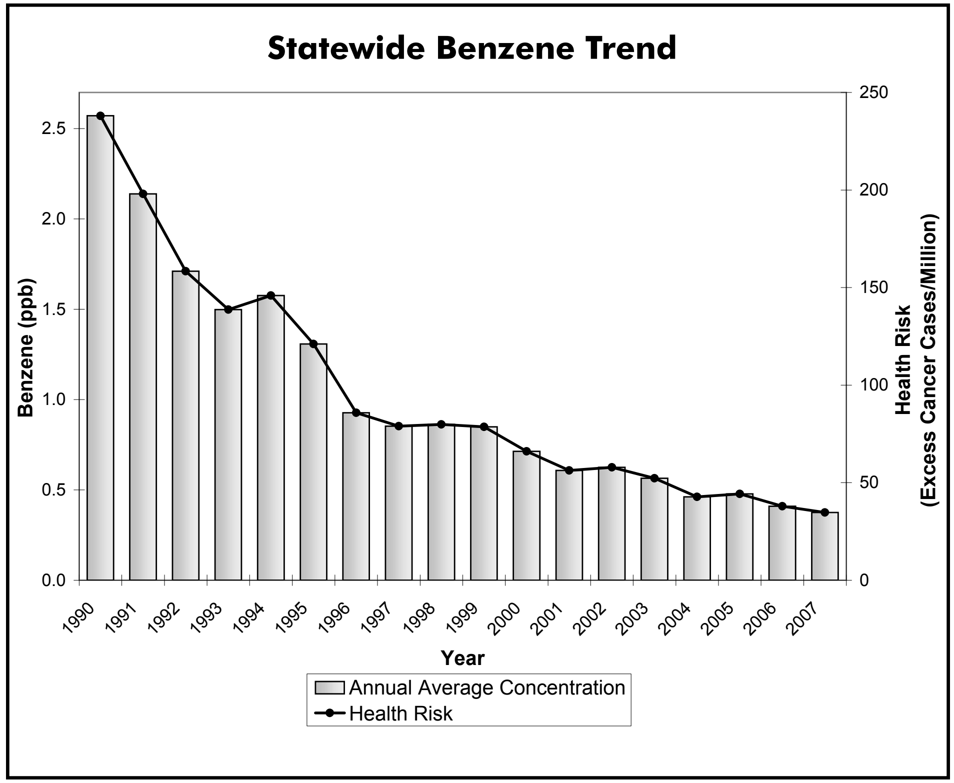


Figure 5-4

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 levels, 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 5-4 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 (GC/MS) 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 by using the GC/MS method, so 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 a substantial 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.

1,3-Butadiene

2008 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 53 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 26 percent of the statewide 1,3-butadiene emissions can be attributed to on-road motor vehicles, with an additional 27 percent attributed to other mobile sources such as recreational boats, off-road recreational vehicles, and aircraft. Area-wide sources such as agricultural waste burning, open burning associated with forest management, and woodstoves and fireplaces contribute approximately 21 percent. Stationary sources contribute less than one 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 of 1,3-butadiene emissions are wildfires.

1,3-Butadiene		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	19	1%
Area-wide Sources	794	21%
On-Road Mobile	993	26%
Gasoline Vehicles	943	25%
Diesel Vehicles	50	1%
Other Mobile	1009	27%
Gasoline Fuel	723	19%
Diesel Fuel	83	2%
Other Fuel	206	5%
Natural Sources	937	25%
Total Statewide	***3754***	***100%***

Table 5-7

2008 Top Ten Counties - 1,3-Butadiene Emissions

The top ten counties account for approximately 40 percent of the statewide 1,3-butadiene emissions. Emission sources in the South Coast Air Basin contribute approximately 16 percent of the state-wide total: Los Angeles County (10 percent), Orange County (three percent), and South Coast portion of San Bernardino County (three percent). San Diego County accounts for approximately six percent. Two counties in the San Joaquin Valley Air Basin contribute seven percent of the 1,3-butadiene: Tulare County (four percent) and Fresno County (three percent). The other counties in the top ten account for 11 percent: San Bernardino (Mojave Desert portion), Siskiyou, Tuolumne and Plumas.

1,3-Butadiene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	369	10%
San Diego	San Diego	233	6%
Tulare	San Joaquin Valley	158	4%
Orange	South Coast	119	3%
Fresno	San Joaquin Valley	113	3%
San Bernardino	Mojave Desert	111	3%
Siskiyou	Northeast Plateau	110	3%
San Bernardino	South Coast	108	3%
Tuolumne	Mountain Counties	106	3%
Plumas	Mountain Counties	91	2%

Table 5-8

1,3-Butadiene

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of 1,3-butadiene in its statewide air toxics monitoring network. Figure 5-5 shows the annual average statewide 1,3-butadiene concentrations and the associated health risk from this TAC alone since 1990. The data show a general downward trend, with some variability. To examine the trend in 1,3-butadiene while minimizing the influences of weather, the statewide average 1,3-butadiene concentration for 1990-1992 was compared to that for 2005-2007. The result is a 74 percent decrease in both concentration and health risk. Despite this substantial drop, the health risk from this compound remains relatively high. In 2007, there was an estimated risk of 34 excess cancer cases per million people due to exposure to 1,3-butadiene. Of the ten compounds presented in this almanac, the average statewide health risk from 1,3-butadiene ranks third. 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.

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 5-5 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*.

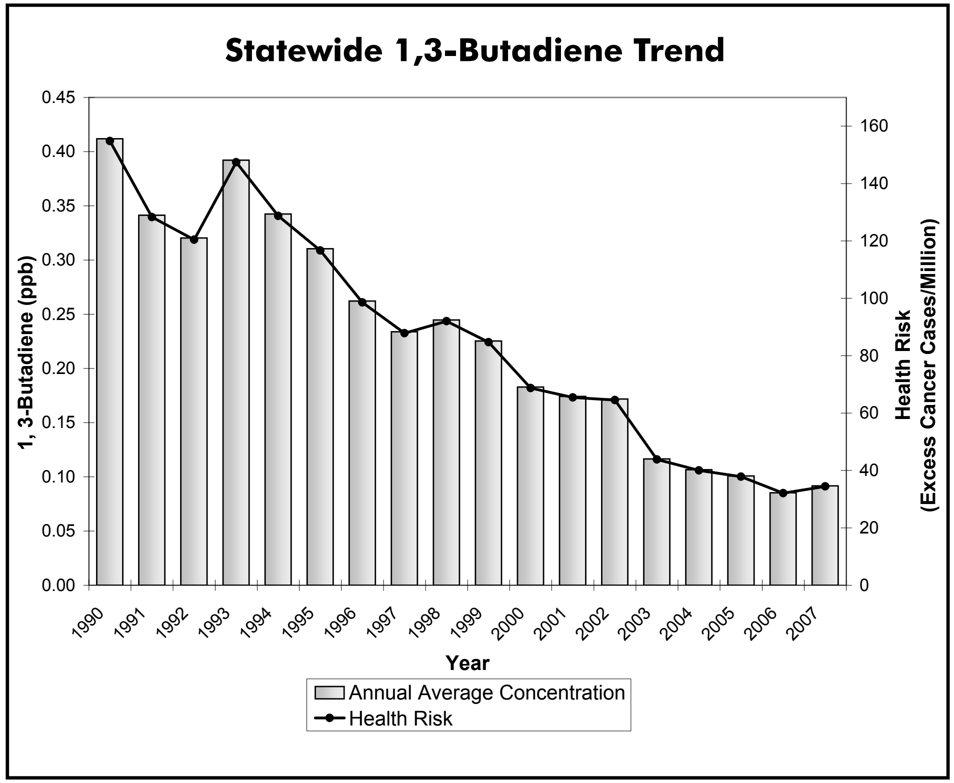


Figure 5-5

Similar to benzene, the ARB started to use a GC/MS based method to analyze 1,3-butadiene in 2001. This change in method fulfilled 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 by using the GC/MS method, so 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 LEV/Clean Fuels regulations in 1990 and the Phase II reformulated gasoline regulations were implemented in 1996. 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 LEVs are introduced into the fleet.

Carbon Tetrachloride

2008 Statewide Emission Inventory

The ARB identified carbon tetrachloride as a TAC 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 4.04 tons per year), and background concentrations account for most of the health risk.

Carbon Tetrachloride		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	4.04	100%
Area-wide Sources	0	0%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Gasoline Fuel	0	0%
Diesel Fuel	0	0%
Other Fuel	0	0%
Natural Sources	0	0%
Total Statewide	***4.04***	***100%***

Table 5-9

2008 Top Ten Counties - Carbon Tetrachloride

The top two counties account for 85 percent of the statewide carbon tetrachloride emissions. Contra Costa County (San Francisco Bay Area Air Basin) accounts for approximately 52 percent, and Orange County accounts for approximately 33 percent of the emissions of carbon tetrachloride statewide. Although the percentages for these counties are high, the emissions are very small (one ton or less per year in each county). The eight other counties in the top ten contribute approximately 13 percent of statewide carbon tetrachloride emissions.

Carbon Tetrachloride			
County	**Air Basin**	**tons/year**	**Percent**
Contra Costa	San Francisco Bay Area	2.12	52%
Orange	South Coast	1.33	33%
Los Angeles	South Coast	0.11	3%
Riverside	South Coast	0.09	2%
San Diego	San Diego	0.09	2%
San Bernardino	Mojave Desert	0.07	2%
San Bernardino	South Coast	0.06	2%
Ventura	South Central Coast	0.05	1%
Sacramento	Sacramento Valley	0.05	1%
Kern	Mojave Desert	0.01	<1%

Table 5-10

Carbon Tetrachloride

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of carbon tetrachloride in its statewide air toxics monitoring network. Figure 5-6 shows the annual average statewide concentrations and the associated health risk from carbon tetrachloride alone. There are several years of incomplete data for carbon tetrachloride. The annual average concentration is available only if there is a full year of data. Based on the available data, the ambient concentrations and health risk dropped between 1990 and 1996, and then there was a substantial increase in values for 1998, followed by levels which stayed fairly constant between 2000 and 2003. Carbon tetrachloride data from February 2004 through 2007 are not available because of a problem with the laboratory standard.

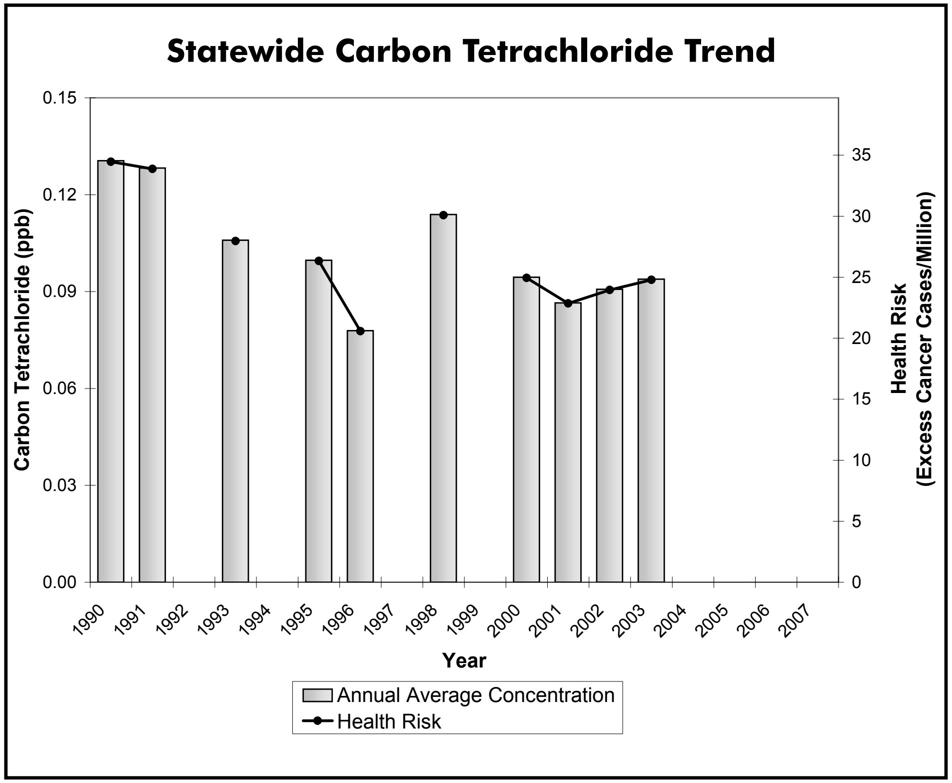


Figure 5-6

To examine the trend in carbon tetrachloride while minimizing the influences of weather, the statewide average carbon tetrachloride concentration for 1990-1991 (1992 average was invalid) was compared to that for 2001-2003. The result is a 30 percent decrease in both concentration and health risk. 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. In 2003, there was an estimated risk of 25 excess cancer cases per million people due to exposure to carbon tetrachloride. The health risk of this TAC ranks fourth among the ten compounds presented in this almanac.

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.

(This page intentionally left blank)

Chromium, Hexavalent

2008 Statewide Emission Inventory

Hexavalent chromium was identified as a TAC in 1986 under California's TAC program (AB 1807, Tanner, 1983). 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 no longer the 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 about 0.28 ton per year 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 emissions, including hexavalent chromium. Approximately 0.16 tons of hexavalent chromium are emitted by gasoline motor vehicles. Other mobile sources such as trains and ships contribute approximately 0.15 tons of hexavalent chromium annually.

Chromium, Hexavalent		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	0.28	46%
Area-wide Sources	0.01	2%
On-Road Mobile	0.17	27%
Gasoline Vehicles	0.16	26%
Diesel Vehicles	0.01	1%
Other Mobile	0.15	25%
Gasoline Fuel	0.14	24%
Diesel Fuel	< .01	1%
Other Fuel	< .01	<1%
Natural Sources	0	0%
Total Statewide	***0.61***	***100%***

Table 5-11

2008 Top Ten Counties - Chromium, Hexavalent

Five counties account for approximately 45 percent of the statewide hexavalent chromium emissions: South Coast portion of Los Angeles (17 percent), San Diego County (11 percent), Fresno (seven percent), Orange (five percent), and San Joaquin (five percent). The five other counties in the top ten for hexavalent chromium emissions are: Kern (San Joaquin Valley portion), Mono, Mojave Desert portion of San Bernardino, South Coast portion of San Bernardino, and Mendocino. These five counties account for approximately 18 percent of statewide hexavalent chromium emissions.

Chromium, Hexavalent			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	0.10	17%
San Diego	San Diego	0.06	11%
Fresno	San Joaquin Valley	0.04	7%
Orange	South Coast	0.03	5%
San Joaquin	San Joaquin Valley	0.03	5%
Kern	San Joaquin Valley	0.03	4%
Mono	Great Basin Valleys	0.02	4%
San Bernardino	Mojave Desert	0.02	4%
San Bernardino	South Coast	0.02	3%
Mendocino	North Coast	0.02	3%

Table 5-12

Chromium, Hexavalent

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of hexavalent chromium in its statewide air toxics monitoring network. Chromium exists primarily in hexavalent and trivalent forms. Hexavalent chromium has been identified as a TAC and has been found to be much more reactive and much more toxic than trivalent chromium.

Fuel combustion from mobile sources is the largest source of hexavalent chromium emissions. Combustion from stationary sources is also a large source of emissions. Examples of other sources of hexavalent chromium emissions include chrome plating, chromic acid anodizing, and thermal spraying. 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. Hexavalent chromium was also used in motor vehicle and mobile equipment coatings.

The statewide annual average concentrations and associated health risks are shown in Figure 5-7. Both show a general downward trend, with the exception of 1995, 2000-2001, and 2005. 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.

To examine the trend in hexavalent chromium while minimizing the influences of weather, the average hexavalent chromium concentration for 1992-1994 was compared to that for 2005-2007. The result is a 66 percent decrease in both concentration and 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. In 2007, there were an estimated 10 excess cancer cases per million people due to exposure to hexavalent chromium. Based on data for the ten TACs presented in this almanac, hexavalent chromium ranks sixth in terms of ambient health risk. It is important to note that since hexavalent chromium exposure and health impacts usually occur on a neighborhood scale, actual health risk can be higher in some areas than the statewide average, and lower in other areas.

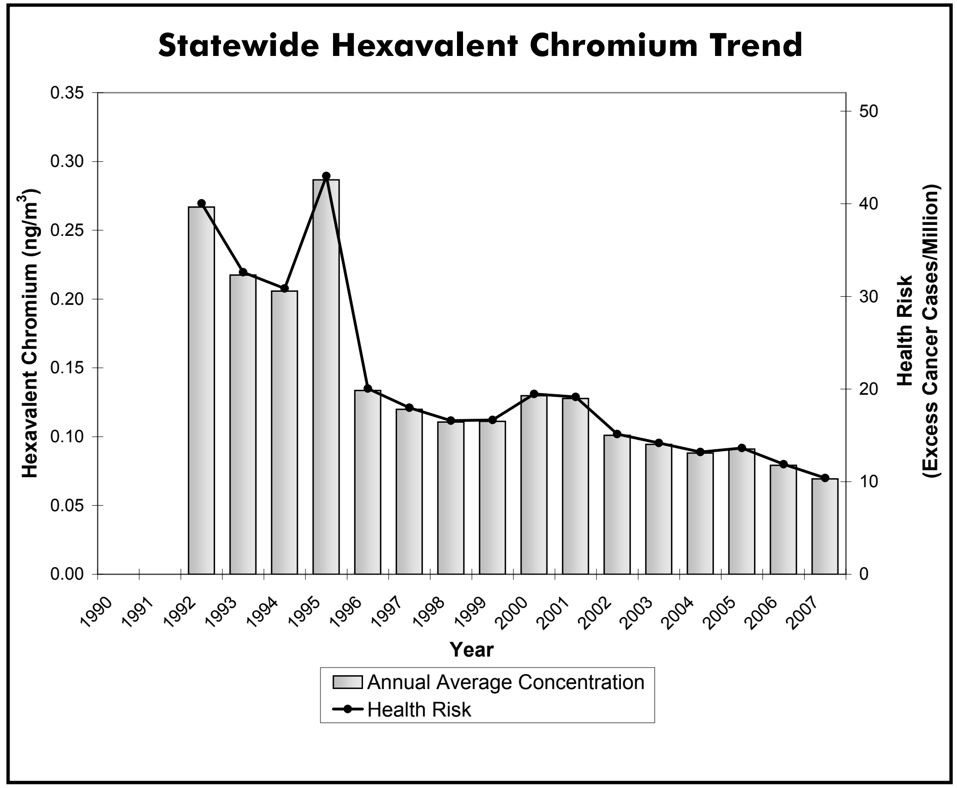


Figure 5-7

ARB has adopted several control measures to reduce emissions or prohibit use of this very potent TAC. In 1988, ARB adopted the chrome plating Airborne Toxics Control Measure (ATCM). This ATCM reduced hexavalent chromium emissions from chrome plating and chromic acid anodizing operations by well over 90 percent, with the largest facilities reducing emissions by over 99 percent. This ATCM was amended in 2006 to further reduce emissions from all chrome plating and anodizing operations. In 1989, ARB adopted a measure that prohibited the use of hexavalent chromium compounds in cooling towers. ARB has also adopted a measure to prohibit use of hexavalent chromium in motor vehicle and mobile equipment coatings, and a measure that substantially reduces hexavalent chromium emissions from thermal spraying operations.

Statewide annual averages and health risk estimates for hexavalent chromium are available for 1992 through 2007. 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 unreliable, and these data are not included in this almanac. Since 1992, the method to analyze hexavalent chromium has been improved to prevent the transformation from occurring.

The significant reduction in hexavalent chromium coincided with the complete implementation of the chrome plating and the chromate-treated cooling tower control measures. The measures were so effective that they resulted in a very high percentage of the measured values being below the LOD. From 1998 through 2001, the lowest level that could reliably be measured was 0.2 nanograms per cubic meter (ng/m^3). In calculating an annual average, values below 0.2 ng/m^3 are assumed equal to 0.1 ng/m^3, which is half the LOD. This approach applies to all other TACs when their measurements are below their respective LODs. 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 lowest concentration that can be reliably measured from 0.2 ng/m^3 to 0.06 ng/m^3. Using the new method, measurements will sometimes fall below the LOD, and the half detection limit approach is applied to those measurements.

para-Dichlorobenzene

2008 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 nearly all of the statewide *para*-dichlorobenzene emissions.

para-Dichlorobenzene		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	7	<1%
Area-wide Sources	1501	100%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Gasoline Fuel	0	0%
Diesel Fuel	0	0%
Other Fuel	0	0%
Natural Sources	0	0%
Total Statewide	***1508***	***100%***

Table 5-13

2008 Top Ten Counties - *para*-Dichlorobenzene

The top ten counties account for approximately 68 percent of the statewide *para*-dichlorobenzene emissions. The South Coast Air Basin has four of the top ten counties, representing 42 percent of statewide *para*-dichlorobenzene emissions. San Diego County contributes approximately eight percent. Three counties in the San Francisco Bay Area Air Basin contribute approximately 12 percent: Santa Clara County (five percent), Alameda County (four percent), and Contra Costa County (three percent). The other two counties in the top ten are: Sacramento (four percent) and Fresno (two percent).

para-Dichlorobenzene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	388	26%
Orange	South Coast	124	8%
San Diego	San Diego	122	8%
Santa Clara	San Francisco Bay Area	72	5%
Riverside	South Coast	63	4%
San Bernardino	South Coast	62	4%
Alameda	San Francisco Bay Area	62	4%
Sacramento	Sacramento Valley	56	4%
Contra Costa	San Francisco Bay Area	41	3%
Fresno	San Joaquin Valley	37	2%

Table 5-14

para-Dichlorobenzene

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of *para*-dichlorobenzene in its statewide air toxics monitoring network. Statewide annual average concentrations and health risk estimates are available for 1991 through 2006, 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 5-8, shows values fairly constant throughout 1991 to 1997, with slightly lower values in 1994 and 1996. Following a drop in 2000, there was an upturn in 2001 through 2002, and *para*-dichlorobenzene levels have shown a slight decrease between 2002 and 2006. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection.

The increase in *para*-dichlorobenzene in 2001 and subsequent years was likely due to a mechanism that ARB's Monitoring and Laboratory Division used for estimating very low concentrations. In 2001, the lowest level of *para*-dichlorobenzene that could be reliably measured was changed from 0.2 to 0.3 parts per billion (ppb). This change resulted in a higher percentage of *para*-dichlorobenzene samples not detectable because most samples were less than 0.3 ppb.

In calculating an annual average, values below 0.3 ppb are assumed equal to 0.15 ppb, which is one-half of the LOD. This 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 that were lower than the LOD.

To examine the trend in *para*-dichlorobenzene, the statewide average concentration for 1991-1993 was compared to that for 2004-2006. The result is a 10 percent increase in both the concentration and health risk. Health risk is based on the annual average concentration

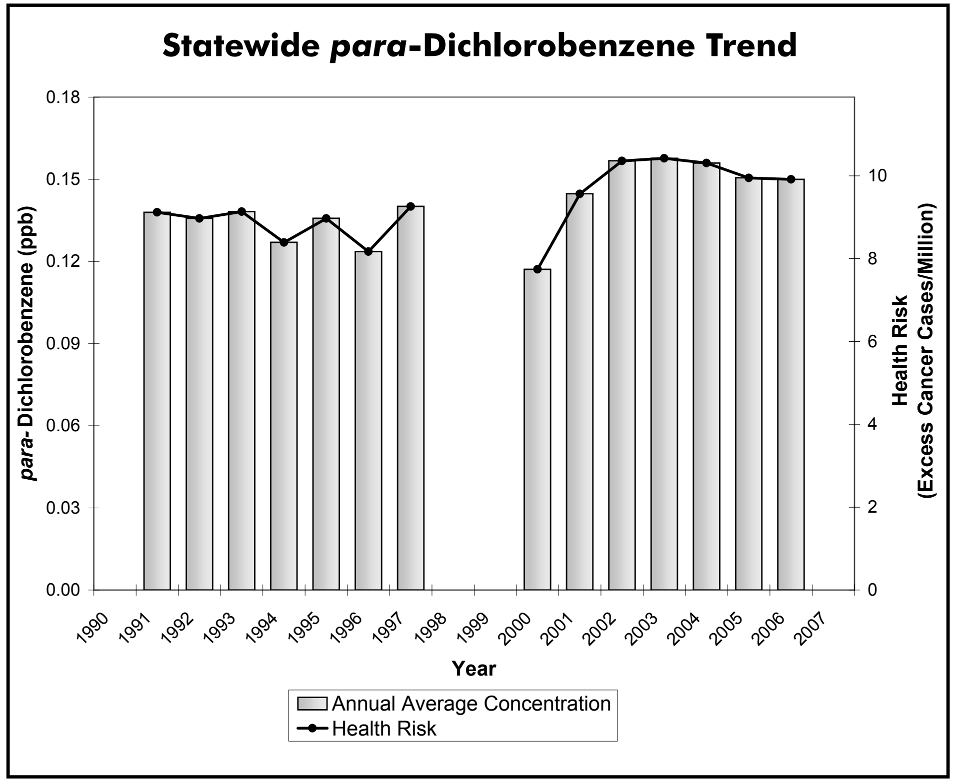


Figure 5-8

and represents the estimated number of excess cancer cases per million people exposed to the specified concentration for 70 years. During 2006, there was an estimated risk of 10 excess cancer cases per million people from exposure to this compound alone. Based on this, *para*-dichlorobenzene ranks seventh out of the ten compounds presented in this almanac. However, it is important to note that annual average concentration and health risk for *para*-dichlorobenzene are heavily influenced by its LOD.

The ARB adopted an ATCM in 2004 to prohibit the use of *para*-dichlorobenzene in solid air fresheners and toilet/urinal care products. The ATCM required the phase-out of *para*-dichlorobenzene from these products by December 31, 2005, with a complete ban on the sale of the products by December 31, 2006. An emission reduction of 2.72 tons per day of *para*-dichlorobenzene was expected. Besides reducing emissions and improving air quality inside buildings and the surrounding area, the ATCM is also expected to reduce *para*-dichlorobenzene emissions from water treatment facilities processing wastewater from toilets and urinals, and therefore reduce the ambient concentration of *para*-dichlorobenzene.

Formaldehyde

2008 Statewide Emission Inventory

The ARB identified formaldehyde as a TAC in 1992 under California's TAC program (AB 1807, Tanner, 1983). 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. Directly emitted 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 anti-microbial agent, and is also used in fumigants and soil disinfectants. About 82 percent of direct formaldehyde emissions are estimated to come from the combustion of fossil fuels from mobile sources. Approximately 31 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. Stationary sources contribute approximately nine percent and area-wide sources contribute approximately nine percent of the statewide formaldehyde emissions in California. The primary area-wide sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves.

Formaldehyde		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	1886	9%
Area-wide Sources	1964	9%
On-Road Mobile	6373	31%
Gasoline Vehicles	2478	12%
Diesel Vehicles	3896	19%
Other Mobile	10543	51%
Gasoline Fuel	2613	12%
Diesel Fuel	6398	31%
Other Fuel	1716	8%
Natural Sources	0	0%
Total Statewide	***20951***	***100%***

Table 5-15

2008 Top Ten Counties - Formaldehyde

The top ten counties account for approximately 50 percent of the statewide formaldehyde emissions. The South Coast Air Basin has three of the top ten counties emitting formaldehyde, representing 22 percent of statewide formaldehyde emissions. The seven other counties in the top ten for formaldehyde emissions are: Kern (San Joaquin Valley portion), San Diego, San Bernardino (Mojave Desert portion), Fresno, Santa Clara, Alameda, and San Joaquin. These seven counties account for approximately 28 percent of statewide formaldehyde emissions.

Formaldehyde			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	2870	14%
Kern	San Joaquin Valley	1301	6%
San Diego	San Diego	1282	6%
Orange	South Coast	947	5%
San Bernardino	Mojave Desert	799	4%
Fresno	San Joaquin Valley	688	3%
Santa Clara	San Francisco Bay Area	629	3%
San Bernardino	South Coast	604	3%
Alameda	San Francisco Bay Area	599	3%
San Joaquin	San Joaquin Valley	565	3%

Table 5-16

Formaldehyde

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of formaldehyde in its statewide air toxics monitoring network. Its statewide annual average concentrations and associated health risk are available for 1990 through 2007. 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 5-9, shows a great deal of variability through 2005, and a slight decrease since then.

To examine the trend in formaldehyde using available data while minimizing the influences of weather, the statewide average concentration for 1996-1998 was compared to that for 2005-2007 (since formaldehyde data prior to 1996 are not reliable). There is a nine percent decrease in both concentration and health risk. 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 2007, there was an estimated risk of 19 excess cancer cases per million people from exposure to formaldehyde alone. Based on data for all ten TACs presented in this almanac, formaldehyde ranks fifth in terms of health risk.

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. Formaldehyde, similar to acetaldehyde, can also be formed in the environment due to reactions of pollutants in the air. This secondary contribution is hard to quantify and can also contribute to fluctuations observed in the ambient levels of formaldehyde.

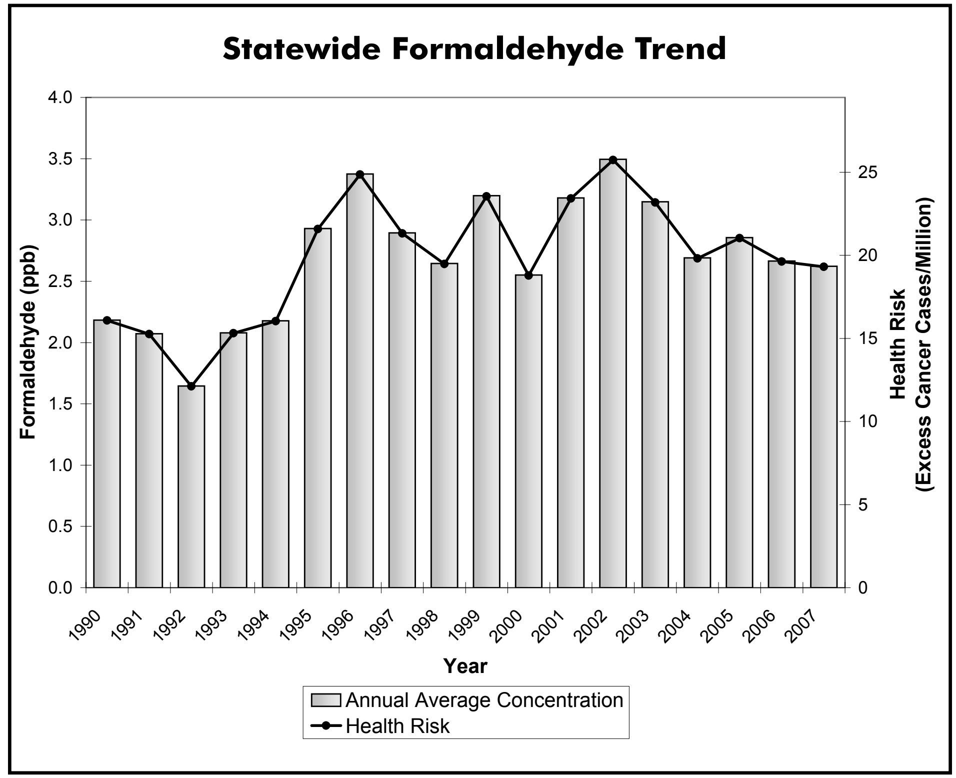


Figure 5-9

Formaldehyde also poses a problem for indoor air quality, and its concentrations indoors are generally higher than outdoor levels. 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.

On April 26, 2007, the ARB adopted an ATCM to reduce formaldehyde emissions from three composite wood products: hardwood plywood, particleboard, and medium density fiberboard. Composite wood is a general term for wood-based panels made from wood pieces, particles or fibers bonded together with a resin. Based on the average emissions of existing composite wood products, the adopted ATCM would reduce emissions of formaldehyde by about 20 percent in Phase 1 (2009) or about 180 tons per year. In Phase 2 (2011-2012), a 57 percent reduction in formaldehyde emissions or 500 tons per year would be achieved. Because the ATCM would reduce indoor formaldehyde exposures, substantial benefits would be realized by buyers of new homes as well as those with existing homes due to reduced emissions from remodeling projects and new furniture. The Phase 1 standards would reduce the number of formaldehyde-related childhood exposure cancer cases by 3 to 9, and the lifetime exposure cancer cases by 12 to 35 per million. In Phase 2, childhood exposure cancer cases would be reduced by 9 to 26, and lifetime exposure cancer cases by 35 to 97 per million.

Methylene Chloride

2008 Statewide Emission Inventory

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

Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. 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 48 percent of the statewide methylene chloride emissions. Area-wide sources contribute approximately 52 percent.

Methylene Chloride		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	3077	48%
Area-wide Sources	3359	52%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Gasoline Fuel	0	0%
Diesel Fuel	0	0%
Other Fuel	0	0%
Natural Sources	0	0%
Total Statewide	***6436***	***100%***

Table 5-17

2008 Top Ten Counties - Methylene Chloride

The top ten counties account for approximately 75 percent of the statewide methylene chloride emissions. The South Coast Air Basin has four of the top ten counties emitting methylene chloride, representing 55 percent of statewide methylene chloride emissions. Two counties in the San Francisco Bay Area Air Basin contribute approximately seven percent: Santa Clara County (four percent) and Alameda County (three percent). The four other counties in the top ten for methylene chloride emissions are: San Diego, Sacramento, Ventura, and Fresno. Together, these four counties account for approximately 13 percent of statewide methylene chloride emissions.

Methylene Chloride			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	2039	32%
Orange	South Coast	965	15%
San Diego	San Diego	359	6%
San Bernardino	South Coast	278	4%
Santa Clara	San Francisco Bay Area	251	4%
Riverside	South Coast	234	4%
Alameda	San Francisco Bay Area	201	3%
Sacramento	Sacramento Valley	175	3%
Ventura	South Central Coast	157	2%
Fresno	San Joaquin Valley	126	2%

Table 5-18

Methylene Chloride

Statewide Air Quality and Health Risk

The ARB routinely monitors for outdoor levels of methylene chloride in its statewide air toxics monitoring network. The trend graph in Figure 5-10 shows an overall downward trend with some variability, particularly during the early years. The drop in 2001 was substantial, and a flat trend between 2002 and 2007 with the exception of the lower 2006 measurements. To examine the trend in methylene chloride while minimizing the influences of weather, the statewide average methylene chloride concentration for 1990-1992 was compared to that for 2005-2007. The result is a 77 percent decrease in both concentration and health risk.

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 2007, there was an estimated risk from exposure to methylene chloride of one excess cancer case per million people. 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.

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. The use of methylene chloride in consumer and automotive products has been significantly reduced through aggressive regulations adopted by the ARB. These regulations have reduced ambient concentrations and health risks.

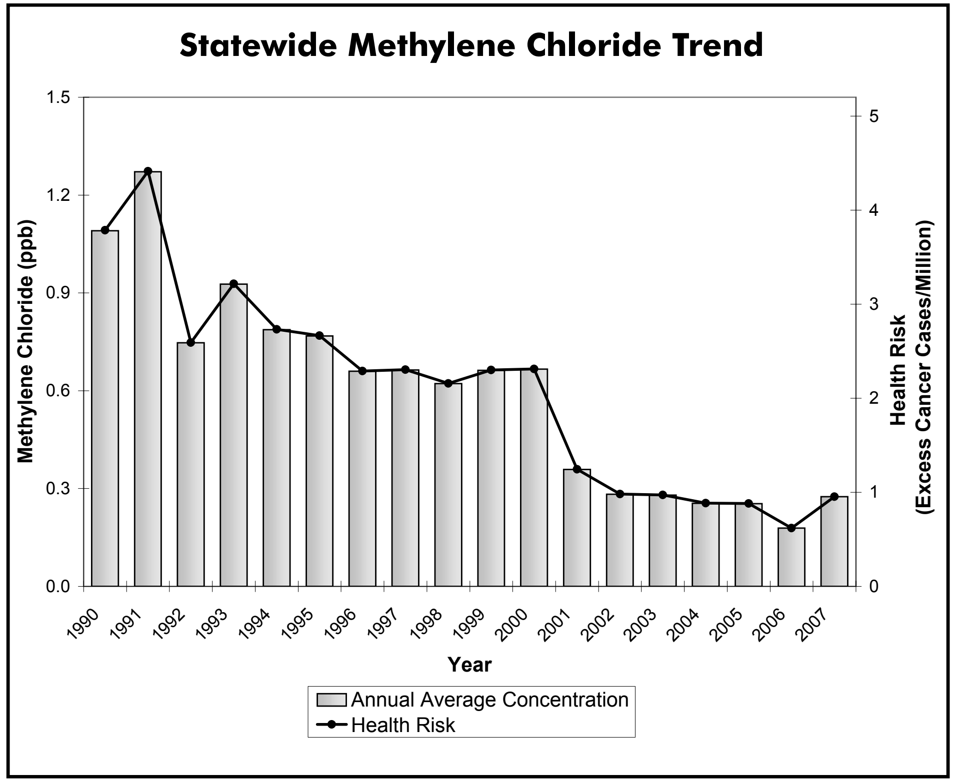


Figure 5-10

(This page intentionally left blank)

Perchloroethylene

2008 Statewide Emission Inventory

The ARB identified perchloroethylene as a TAC in 1991 under California's TAC program (AB 1807, Tanner, 1983). 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 57 percent of the statewide emissions of perchloroethylene. Area-wide sources contribute approximately 43 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	2826	57%
Area-wide Sources	2156	43%
On-Road Mobile	0	0%
Gasoline Vehicles	0	0%
Diesel Vehicles	0	0%
Other Mobile	0	0%
Gasoline Fuel	0	0%
Diesel Fuel	0	0%
Other Fuel	0	0%
Natural Sources	0	0%
Total Statewide	***4982***	***100%***

Table 5-19

2008 Top Ten Counties - Perchloroethylene

The top ten counties account for approximately 69 percent of the statewide perchloroethylene emissions. The South Coast Air Basin has four of the top ten counties emitting perchloroethylene, representing 44 percent of statewide perchloroethylene emissions. San Diego County contributes approximately eight percent. The five other counties in the top ten for perchloroethylene emissions are: Sacramento, Santa Clara, Alameda, Fresno, and San Joaquin. These five counties account for approximately 17 percent of statewide perchloroethylene emissions.

Perchloroethylene			
County	**Air Basin**	**tons/year**	**Percent**
Los Angeles	South Coast	1276	26%
Orange	South Coast	433	9%
San Diego	San Diego	422	8%
San Bernardino	South Coast	226	5%
Riverside	South Coast	216	4%
Sacramento	Sacramento Valley	192	4%
Santa Clara	San Francisco Bay Area	191	4%
Alameda	San Francisco Bay Area	184	4%
Fresno	San Joaquin Valley	170	3%
San Joaquin	San Joaquin Valley	117	2%

Table 5-20

Perchloroethylene

Statewide Air Quality and Health Risk

The ARB routinely monitors outdoor levels of perchloroethylene in its statewide air toxics monitoring network. Although the trend graph for perchloroethylene in Figure 5-11 shows some variability during the early 1990s, there is an overall downward trend. To examine the trend in perchloroethylene over the monitoring period of record and to minimize the influences of weather, the statewide perchloroethylene concentration for 1990-1992 was compared to that for 2005-2007. The result is an 84 percent decrease in both concentration and health risk. For 1999, complete and representative data are not available.

In Figure 5-11, health risk is based on the annual average concentration and represents the estimated risk of excess cancer cases per million people exposed over a 70-year lifetime at the specified concentration level. During 2006, there was an estimated risk of one excess cancer case per million people from exposure to perchloroethylene. Based on this, perchloroethylene ranks ninth out of the ten compounds presented in this almanac.

When the ARB identified perchloroethylene as a TAC in October 1991, it was 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 1993 (dry cleaning ATCM). In 2007, the ARB amended the Dry Cleaning ATCM which will virtually eliminate the potential health risk due to perchloroethylene emissions from dry cleaning machines. The amended dry cleaning ATCM will over time phase out the use of perchloroethylene in dry cleaning machines and related equipment by January 1, 2023. Additionally, while perchloroethylene dry cleaning machines remain in use, the ARB will continue to provide training for dry cleaners on improved practices and methods for reducing emissions.

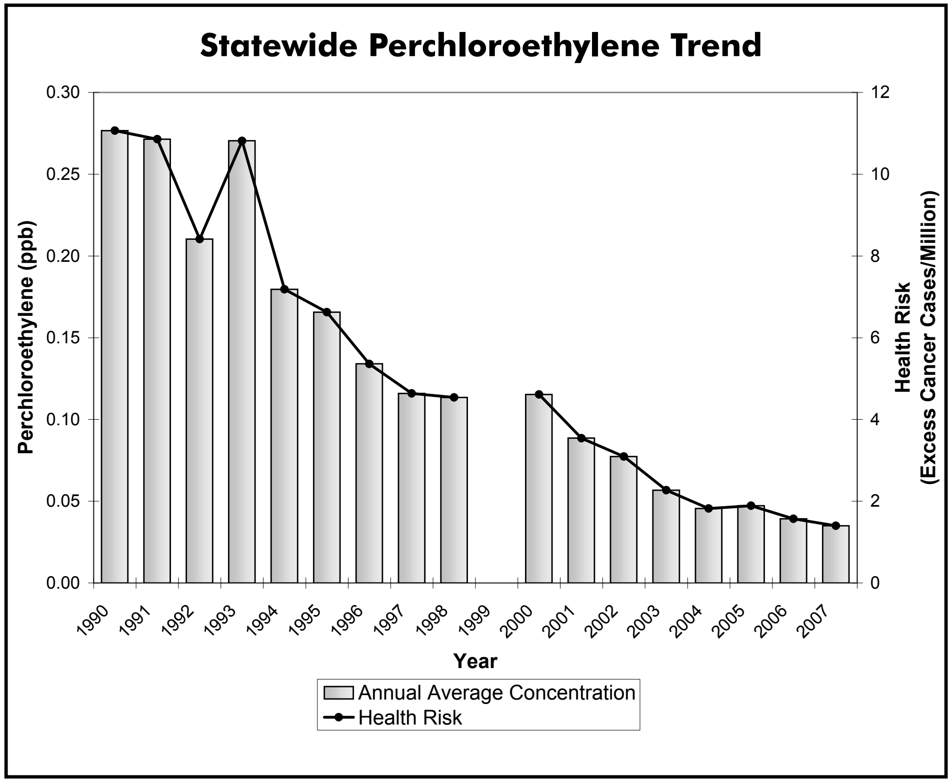


Figure 5-11

The ARB has also developed control measures that prohibit the use of perchloroethylene in automotive and many consumer products, including aerosol coatings and adhesives.

(This page intentionally left blank)

Diesel Particulate Matter

2008 Statewide Emission Inventory

The ARB identified the 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 because the particles in the exhaust carry many harmful organics and metals.

Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 38 percent of the statewide total, with an additional 60 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about one percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report diesel PM emissions also include heavy construction (except highway), manufacturers of asphalt paving materials and blocks, and electrical generation.

Readers may note that the 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 or 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 EMFAC2001 (EMFAC1.99(f) 6/26/00), whereas the current estimates are based on EMFAC2007. The other mobile inventory includes revised estimates for ship diesel PM emissions. In 2005, ARB staff improved the methodology for estimating ship emissions by developing a consistent statewide methodology that incorporates more recent data on ship activities and emission factors. This inventory continues to be refined; the current estimate is 4 percent less than the previous almanac and 115 percent greater than the inventory developed before the methodology was revised.

Diesel PM		
Emissions Source	**tons/year**	**Percent State**
Stationary Sources	531	1%
Area-wide Sources	0	0%
On-Road Mobile	13670	38%
Gasoline Vehicles	0	0%
Diesel Vehicles	13670	38%
Other Mobile	21683	60%
Gasoline Fuel	0	0%
Diesel Fuel	14877	41%
Other Fuel	6805	19%
Natural Sources	0	0%
Total Statewide	***35884***	***100%***

Table 5-21

2008 Top Ten Counties - Diesel Particulate Matter

The top ten counties account for approximately 60 percent of the statewide diesel PM emissions. The South Coast Air Basin has four of the top ten counties emitting diesel particulate matter which represents 29 percent of statewide diesel PM emissions. Three counties in the San Joaquin Air Basin contribute 13 percent: Kern (six percent), Fresno (four percent), and San Joaquin (three percent). San Diego contributes six percent, San Bernardino (Mojave Desert portion) contributes five percent, and Alameda contributes four percent.

Diesel PM			
County	Air Basin	tons/year	Percent
Los Angeles	South Coast	5163	18%
Kern	San Joaquin Valley	1640	6%
San Diego	San Diego	1607	6%
San Bernardino	Mojave Desert	1450	5%
Orange	South Coast	1394	5%
Fresno	San Joaquin Valley	1159	4%
Alameda	San Francisco Bay Area	1033	4%
San Joaquin	San Joaquin Valley	993	3%
San Bernardino	South Coast	887	3%
Riverside	South Coast	856	3%

Table 5-22

Diesel Particulate Matter

Statewide 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 government as TACs or hazardous air pollutants, respectively. Most researchers believe that diesel exhaust particles contribute the majority of the risk because the particles in the exhaust carry many harmful organics and metals.

Unlike the other TACs presented in this almanac, the ARB does not monitor outdoor 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 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 Diesel Risk Reduction Plan.

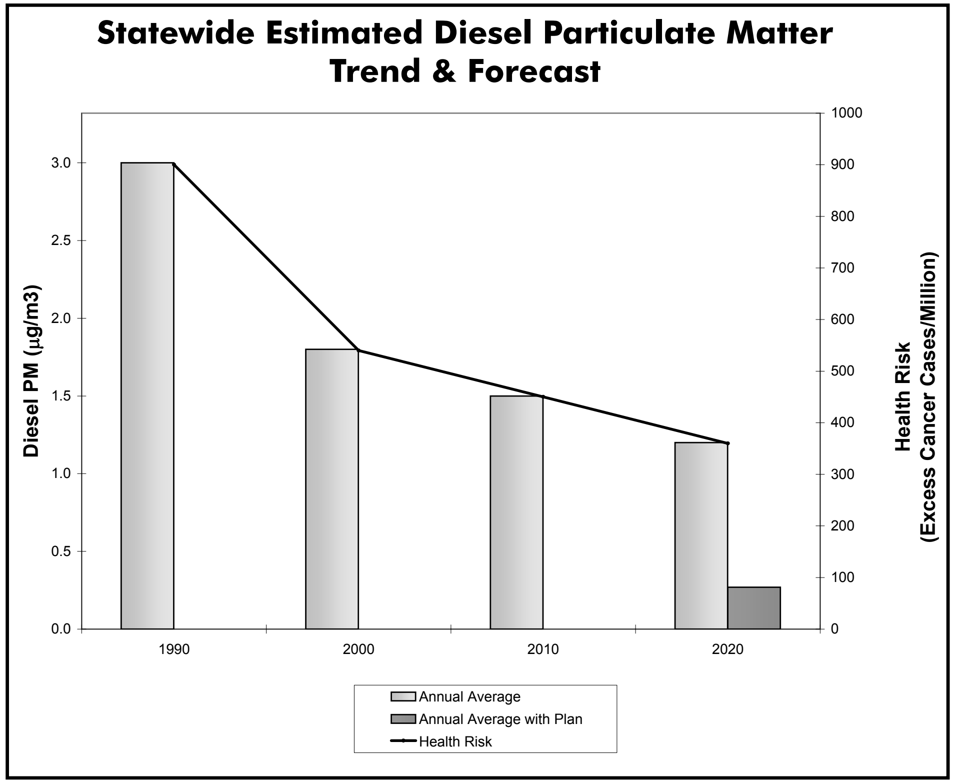


Figure 5-12

The updated statewide population-weighted average diesel PM concentrations and health risk for various years are shown in Figure 5-12. 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 of 1.5 $\mu g/m^3$ for 2010 and 1.2 $\mu g/m^3$ for 2020 without implementing the Diesel Risk Reduction Plan. Two estimates are given for 2020: one reflecting the estimated ambient concentrations (1.2 $\mu g/m^3$) without implementing the Diesel Risk Reduction Plan and one reflecting the estimated ambient concentrations (0.27 $\mu g/m^3$) with implementation of control measures in the Diesel 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 TACs combined, and this TAC poses the most significant risk to California's citizens. In fact, the ARB estimates that 79 percent of the known statewide cancer risk from the top 10 outdoor air toxics is attributable to diesel PM.

The Diesel Risk Reduction Plan provides a mechanism for combating the diesel PM problem. Without implementing the Plan, concentrations in 2010 and 2020 are estimated to drop by only about 17 percent and 33 percent, respectively, from the estimated year 2000 level. However, the goal of the Plan is to reduce concentrations by 85 percent by 2020. The key elements of the Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, 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 Diesel 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

2008 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	27	1%	<1%
Area-wide Sources	91	5%	1%
On-Road Mobile	706	35%	8%
Gasoline Vehicles	250	12%	3%
Diesel Vehicles	455	22%	5%
Other Mobile	1199	59%	13%
Gasoline Fuel	242	12%	3%
Diesel Fuel	957	47%	11%
Other Fuel	< 1	<1%	<1%
Natural Sources	0	0%	0%
Total	2023	100%	22%
Total Statewide	**9103**		

Table 5-23

Benzene

The primary sources of benzene emissions in the South Coast Air Basin are mobile sources (approximately 94 percent).

South Coast - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	134	4%	1%
Area-wide Sources	45	2%	<1%
On-Road Mobile	1662	55%	15%
Gasoline Vehicles	1539	51%	14%
Diesel Vehicles	124	4%	1%
Other Mobile	1164	39%	11%
Gasoline Fuel	902	30%	8%
Diesel Fuel	260	9%	2%
Other Fuel	2	<1%	<1%
Natural Sources	0	0%	0%
Total	3006	100%	28%
Total Statewide	**10794**		

Table 5-24

1,3-Butadiene

Approximately 83 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	5	1%	<1%
Area-wide Sources	43	6%	1%
On-Road Mobile	333	49%	9%
Gasoline Vehicles	321	48%	9%
Diesel Vehicles	12	2%	<1%
Other Mobile	230	34%	6%
Gasoline Fuel	205	30%	5%
Diesel Fuel	25	4%	1%
Other Fuel	< 1	<1%	<1%
Natural Sources	62	9%	2%
Total	673	100%	18%
Total Statewide	**3754**		

Table 5-25

Carbon Tetrachloride

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

South Coast - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1.59	100%	39%
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%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	1.59	100%	39%
Total Statewide	**4.04**		

Table 5-26

Chromium, Hexavalent

On-road mobile sources account for 40 percent of the hexavalent chromium emissions. Approximately 31 percent of the hexavalent chromium emissions are from stationary sources such as chrome platers, aircraft and parts manufacturing, and fabricated metal product manufacturing.

South Coast - Chromium, Hexavalent			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.05	31%	8%
Area-wide Sources	< .01	1%	<1%
On-Road Mobile	0.07	40%	11%
Gasoline Vehicles	0.06	39%	11%
Diesel Vehicles	< .01	1%	<1%
Other Mobile	0.05	28%	8%
Gasoline Fuel	0.04	27%	7%
Diesel Fuel	< .01	1%	<1%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	0.16	100%	27%
Total Statewide	**0.61**		

Table 5-27

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	< 1	<1%	<1%
Area-wide Sources	637	100%	42%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	638	100%	42%
Total Statewide	**1508**		

Table 5-28

Formaldehyde

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

South Coast - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	318	6%	2%
Area-wide Sources	188	4%	1%
On-Road Mobile	1753	36%	8%
Gasoline Vehicles	842	17%	4%
Diesel Vehicles	911	19%	4%
Other Mobile	2665	54%	13%
Gasoline Fuel	742	15%	4%
Diesel Fuel	1915	39%	9%
Other Fuel	8	<1%	<1%
Natural Sources	0	0%	0%
Total	4924	100%	24%
Total Statewide	**20951**		

Table 5-29

Methylene Chloride

Approximately 60 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	2122	60%	33%
Area-wide Sources	1394	40%	22%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	3516	100%	55%
Total Statewide	**6436**		

Table 5-30

Perchloroethylene

Approximately 58 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	1238	58%	25%
Area-wide Sources	912	42%	18%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	2150	100%	43%
Total Statewide	4982		

Table 5-31

Diesel Particulate Matter

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

South Coast - Diesel PM			
Emissions Source	tons/year	Percent Air Basin	Percent State
Stationary Sources	176	2%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	3345	40%	9%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	3345	40%	9%
Other Mobile	4778	58%	13%
Gasoline Fuel	0	0%	0%
Diesel Fuel	4446	54%	12%
Other Fuel	332	4%	1%
Natural Sources	0	0%	0%
Total	8300	100%	23%
Total Statewide	35884		

Table 5-32

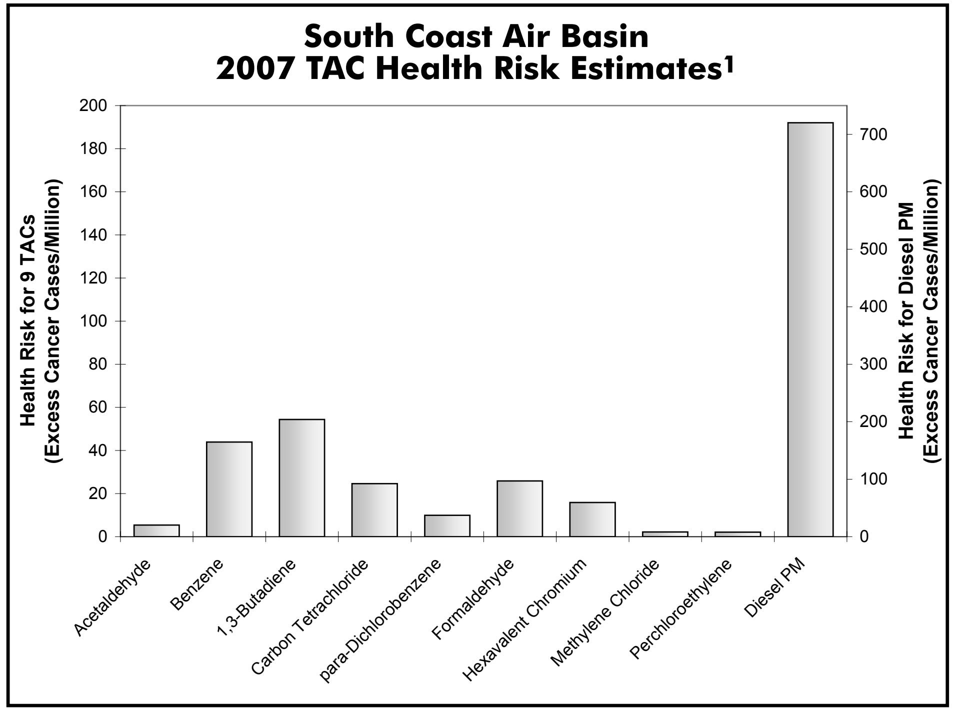
South Coast Air Basin

Air Quality and Health Risk

From 1990 through 2007, the ARB monitored outdoor concentrations for various TACs 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. Annual average concentration and associated health risk are not available for the year during which the site was moved because neither site had a full year of data. This almanac focuses on the top ten TACs based on available data. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern.

Annual average concentrations and associated health risks for the top ten TACs individually as well as cumulatively for the South Coast Air Basin, are provided in Table 5-33. Data for individual sites are provided in Appendix C. Figure 5-13 shows individual health risk from the ten TACs for the South Coast Air Basin. As indicated on the graph, the health risk data reflect the year of 2007 except those for diesel PM which reflects the year 2000 and for carbon tetrachloride which reflects the year 2003, the most recent years for which estimated and monitoring data are available. The health risks shown here are based on an annual average concentration for all sites in the air basin. The risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.

Unlike the other nine TACs, diesel PM does not have ambient monitoring data because an accepted ambient monitoring measurement method does not currently exist. 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



[1] *Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; all other TACs reflect 2006*

Figure 5-13

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. The existing diesel PM estimates are currently being reviewed to reflect control measures that were outlined in the ARB Diesel Risk Reduction Plan.

Diesel PM poses the greatest health risk among the ten TACs. In the South Coast Air Basin, the estimated health risk from diesel PM was 720 excess cancer cases per million people in 2000. Although the health risk is higher than the statewide average, it represents a 33 percent drop between 1990 and 2000.

Trends and health risks for the nine other TACs are based on monitoring data. To examine their trends while minimizing the annual variation due to meteorology and sampling schedule, the air basin average concentration for the 1990-1992 time period was compared to that for 2005-2007. The health risks of 1,3-butadiene and benzene have been reduced by 73 percent and 82 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions of 65 percent and 87 percent, respectively.

Carbon tetrachloride data show a 33 percent decrease comparing periods between 1990-1991 (1992 average was not valid) and 2001-2003. Carbon tetrachloride data from mid-February 2004 through 2007 were invalidated.

Although acetaldehyde and formaldehyde data were collected beginning in 1990, concentration and health risk values prior to 1996 were uncertain because the method used to collect these samples underestimated the actual concentrations. The bias was corrected by a method change in 1996; however, the ARB was unable to develop a correction factor for the earlier data. Therefore, the data for years prior to 1996 are not directly comparable to data collected during the later years. The 1996-1998 time period is used instead to compare with that for 2005-2007. Acetaldehyde and formaldehyde show a 24 percent and 15 percent reduction, respectively.

Para-dichlorobenzene data show a 13 percent decrease comparing periods between 1991-1993 and 2004-2006. Note that *para*-dichlorobenzene has a high number of samples that can not be reliably measured, so its trend is biased by these measurements. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection (LOD).

Hexavalent chromium data show a 60 percent decrease comparing periods between 1992-1994 and 2005-2007. The significant reduction in hexavalent chromium in years after 1995 was attributed to implementation of a series of successful control measures. Similar to *para*-dichlorobenzene, it also had a high number of samples below its LOD. To better assess the hexavalent chromium measurements below the LOD, the ARB's Monitoring and Laboratory division used a different approach to analyze hexavalent chromium samples in 2001. The method has been discussed in the Hexavalent Chromium Statewide Air Quality and Health Risk section in this chapter and will not be repeated here.

Overall, in the South Coast Air Basin, all TACs have shown improvement 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 health risk but are not monitored. Reductions in ambient TAC concentrations and health risks should continue, as new rules and regulations are implemented to control TACs.

In addition to the routine monitoring, a special study was conducted at two sites located in the Boyle Heights and Wilmington areas of Los Angeles between February 2001 and May 2002 (Boyle Heights) and between May 2001 and July 2002 (Wilmington). Monitoring included both TACs and criteria air pollutants. Limited monitoring of a few pollutants was conducted at two satellite 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*.

South Coast Air Basin

Annual Average Concentrations and Health Risks

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	2.46	3	2.46	2.67	2.3	0.97	2.08	1.77	1.54	1.63	1.26	1.47	1.41	1.47	1.46	1.79	1.17	1.11
	Health Risk	12	15	12	13	11	5	10	9	7	8	6	7	7	7	7	9	6	5
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.4	1.89	1.45	1.34	1.25	1.2	0.97	0.86	0.769	0.745	0.589	0.634	0.504	0.474
	Health Risk	317	269	242	201	222	175	134	124	116	111	90	80	71	69	55	59	47	44
1,3-Butadiene	Annual Avg	0.532	0.452	0.498	0.565	0.497	0.459	0.39	0.378	0.354	0.328	0.251	0.251	0.211	0.147	0.143	0.137	0.111	0.145
	Health Risk	200	170	187	212	187	173	146	142	133	123	94	94	79	55	54	51	42	54
Carbon Tetrachloride	Annual Avg	0.136	0.134		0.105		0.102	0.079		0.114		0.096	0.086	0.092	0.093				
	Health Risk	36	35		28		27	21		30		25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18		0.179	0.158	0.126	0.139	0.139	0.106
	Health Risk			59	43	43	69	27	25	22	22	27		27	24	19	21	21	16
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13	0.15	0.16	0.17	0.16	0.15	0.15	
	Health Risk		11	13	11	8	11	7	9			9	10	11	11	11	10	10	
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	4.13	4.16	3.83	3.76	4.21	3.58	3.51
	Health Risk	22	23	16	24	23	26	37	33	28	30	23	30	31	28	28	31	26	26
Methylene Chloride	Annual Avg	1.86	1.51	0.9	1.23	1.1	1.28	0.95	1.14	0.85	0.92	0.83	0.63	0.57	0.59	0.57	0.57	0.32	0.62
	Health Risk	6	5	3	4	4	4	3	4	3	3	3	2	2	2	2	2	1	2
Perchloroethylene	Annual Avg	0.576	0.547	0.412	0.448	0.393	0.364	0.32	0.274	0.259		0.207	0.176	0.146	0.105	0.082	0.08	0.062	0.053
	Health Risk	23	22	16	18	16	15	13	11	10		8	7	6	4	3	3	2	2
Diesel PM[3]	*Annual Avg*	*(3.6)*					*(2.7)*					*(2.4)*							
	Health Risk	*(1080)*					*(810)*					*(720)*							
Average Basin Risk	w/o Diesel PM	616	550	548	554	514	505	398	357	349	297	285	253	258	225	179	186	155	149
	w/ Diesel PM	*(1696)*					*(1315)*					*(1005)*							

1 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.

2 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.

3 Diesel PM estimates are based on receptor modeling techniques, and the estimates are available only for selected years. Currently, the estimates are being reviewed.

Table 5-33

San Francisco Bay Area Air Basin

2008 Emission Inventory by Compound

Acetaldehyde

Approximately 79 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion and agricultural burning contribute approximately 20 percent.

San Francisco Bay Area - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	9	1%	<1%
Area-wide Sources	276	20%	3%
On-Road Mobile	307	23%	3%
Gasoline Vehicles	138	10%	2%
Diesel Vehicles	169	13%	2%
Other Mobile	758	56%	8%
Gasoline Fuel	101	7%	1%
Diesel Fuel	535	40%	6%
Other Fuel	123	9%	1%
Natural Sources	0	0%	0%
Total	1350	100%	15%
Total Statewide	**9103**		

Table 5-34

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	137	8%	1%
Area-wide Sources	33	2%	<1%
On-Road Mobile	880	54%	8%
Gasoline Vehicles	834	51%	8%
Diesel Vehicles	46	3%	<1%
Other Mobile	583	36%	5%
Gasoline Fuel	375	23%	3%
Diesel Fuel	146	9%	1%
Other Fuel	63	4%	1%
Natural Sources	0	0%	0%
Total	1634	100%	15%
Total Statewide	**10794**		

Table 5-35

1,3-Butadiene

Most 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	1	<1%	<1%
Area-wide Sources	71	17%	2%
On-Road Mobile	177	43%	5%
Gasoline Vehicles	173	42%	5%
Diesel Vehicles	4	1%	<1%
Other Mobile	147	35%	4%
Gasoline Fuel	85	20%	2%
Diesel Fuel	14	3%	<1%
Other Fuel	48	12%	1%
Natural Sources	19	4%	<1%
Total	415	100%	11%
Total Statewide	**3754**		

Table 5-36

Carbon Tetrachloride

Stationary sources, such as chemical 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	2.13	100%	53%
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%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	2.13	100%	53%
Total Statewide	**4.04**		

Table 5-37

Chromium, Hexavalent

Approximately 38 percent of the hexavalent chromium emissions are from other mobile sources. On-road mobile sources account for approximately 51 percent of hexavalent chromium emissions. Stationary sources such as electrical generation and fabricated metal product manufacturing contribute approximately nine percent.

San Francisco Bay Area - Chromium, Hexavalent			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< .01	9%	1%
Area-wide Sources	< .01	1%	<1%
On-Road Mobile	0.03	51%	5%
Gasoline Vehicles	0.03	50%	4%
Diesel Vehicles	< .01	1%	<1%
Other Mobile	0.02	38%	3%
Gasoline Fuel	0.02	36%	3%
Diesel Fuel	< .01	2%	<1%
Other Fuel	< .01	<1%	<1%
Natural Sources	0	0%	0%
Total	0.05	100%	9%
Total Statewide	**0.61**		

Table 5-38

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	<1%	<1%
Area-wide Sources	282	100%	19%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	284	100%	19%
Total Statewide	**1508**		

Table 5-39

Formaldehyde

Approximately 82 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	217	7%	1%
Area-wide Sources	354	11%	2%
On-Road Mobile	792	25%	4%
Gasoline Vehicles	453	14%	2%
Diesel Vehicles	339	11%	2%
Other Mobile	1776	57%	8%
Gasoline Fuel	308	10%	1%
Diesel Fuel	1071	34%	5%
Other Fuel	397	13%	2%
Natural Sources	0	0%	0%
Total	3138	100%	15%
Total Statewide	**20951**		

Table 5-40

Methylene Chloride

Approximately 70 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	269	30%	4%
Area-wide Sources	637	70%	10%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	906	100%	14%
Total Statewide	**6436**		

Table 5-41

Perchloroethylene

Approximately 51 percent of the emissions of perchloroethylene are from such area-wide sources as automotive brake cleaners and other consumer products.

San Francisco Bay Area - Perchloroethylene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	383	49%	8%
Area-wide Sources	405	51%	8%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	788	100%	16%
Total Statewide	**4982**		

Table 5-42

Diesel Particulate Matter

Emissions of diesel PM are primarily from mobile sources.

San Francisco Bay Area - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	62	1%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	1222	29%	3%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	1222	29%	3%
Other Mobile	2867	69%	8%
Gasoline Fuel	0	0%	0%
Diesel Fuel	2529	61%	7%
Other Fuel	337	8%	1%
Natural Sources	0	0%	0%
Total	4151	100%	12%
Total Statewide	**35884**		

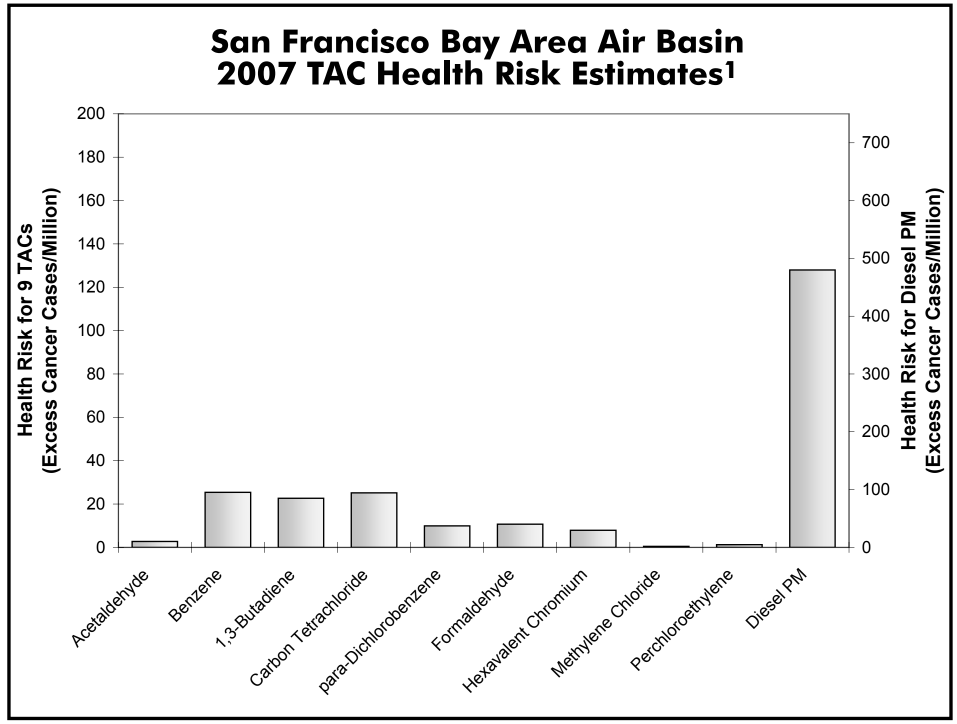
Table 5-43

San Francisco Bay Area Air Basin

Air Quality and Health Risk

From 1990 through 2007, the ARB monitored outdoor concentration for various TACs 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. The 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 a site move because neither site has a full year of data. This almanac focuses on the top ten TACs based on available data. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern.

Annual average concentrations and associated health risks for the top ten TACs individually as well as cumulatively for the San Francisco Bay Area Air Basin, are provided in Table 5-44. Data for individual sites are provided in Appendix C. Figure 5-14 shows individual health risk from the ten TACs for the San Francisco Bay Area Air Basin. As indicated on the graph, the health risk data reflect the year of 2007 except those for diesel PM which reflects the year 2000 and for carbon tetrachloride which reflects the year 2003, the most recent years for which estimated data are available. The health risks shown here are based on an annual average concentration for all sites in the air basin. The risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.



[1] Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; all other TACs reflect 2006.

Figure 5-14

Unlike the other nine TACs, diesel PM does not have ambient monitoring data because an accepted measurement method does not currently exist. 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. The existing diesel PM estimates are currently being reviewed to reflect control measures that were outlined in the ARB Diesel Risk Reduction Plan.

Diesel PM poses the greatest health risk among the ten TACs. In the San Francisco Bay Area Air Basin, the estimated health risk from diesel PM was 480 excess cancer cases per million people in 2000. Although the health risk is higher than the statewide average, it represents a 36 percent drop between 1990 and 2000.

Trends and health risks for the nine other TACs are based on monitoring data. To examine their trends while minimizing the annual variation due to meteorology and sampling schedule, the air basin average concentration for the 1990-1992 time period was compared to that for 2005-2007. The health risks of 1,3-butadiene and benzene have been reduced by 78 percent and 83 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions of 90 percent and 86 percent, respectively.

Carbon tetrachloride data show a 29 percent decrease when comparing periods between 1990-1991 (1992 average was not valid) and 2001-2003. Carbon tetrachloride data from mid-February 2004 through 2007 were invalidated.

Although acetaldehyde and formaldehyde data were collected beginning in 1990, concentration and health risk values prior to 1996 were uncertain because the method used to collect these samples underestimated the actual concentrations. The bias was corrected by a method change in 1996; however, the ARB was unable to develop a correction factor for the earlier data. Therefore, the data for years prior to 1996 are not directly comparable to data collected during the later years. The 1996-1998 time period is used instead to compare with that for 2005-2007. Acetaldehyde and formaldehyde show a 13 percent and a 30 percent reduction, respectively.

Para-dichlorobenzene data show a 31 percent increase when comparing periods between 1991-1993 and 2004-2006. Note that *para*-dichlorobenzene has a high number of samples that can not be reliably measured, so its trend is biased by these measurements. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection (LOD).

Hexavalent chromium data show a 68 percent decrease when comparing periods between 1992-1994 and 2005-2007. The significant reduction in hexavalent chromium in years after 1995 was attributed to implementation of a series of successful control measures. Similar to *para*-dichlorobenzene, it also had a high number of samples below its LOD. To better assess the hexavalent chromium measurements below its LOD, the ARB's Monitoring and Laboratory division used a different approach to analyze hexavalent chromium samples in 2001. The method has been discussed in the Hexavalent Chromium Statewide Air Quality and Health Risk section in this chapter and will not be repeated here.

In addition to the routine monitoring, a special study was conducted at two sites, located in the Crockett and Fruitvale/Oakland areas of the San Francisco Bay Area Air Basin between October 2001 and May 2003 (Crockett) and between November 2001 and April 2003 (Fruitvale). Monitoring included 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*.

San Francisco Bay Area Air Basin

Annual Average Concentrations and Health Risks

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.3	1.4	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68	0.73	0.63	0.74	0.74	0.71	0.66	0.56
	Health Risk	6	7	5	6	6	2	4	4	3	4	3	4	3	4	4	3	3	3
Benzene	Annual Avg	2.18	1.82	1.49	1.49	1.4	1.26	0.71	0.61	0.71	0.6	0.56	0.425	0.454	0.439	0.372	0.314	0.326	0.274
	Health Risk	202	169	138	138	129	116	66	56	66	55	52	39	42	41	34	29	30	25
1,3-Butadiene	Annual Avg	0.359	0.287	0.275	0.367	0.287	0.277	0.218	0.187	0.217	0.17	0.149	0.133	0.137	0.098	0.09	0.075	0.069	0.06
	Health Risk	135	108	103	138	108	104	82	70	82	64	56	50	51	37	34	28	26	23
Carbon Tetrachloride	Annual Avg	0.128	0.125		0.108		0.1	0.078				0.094	0.087	0.089	0.095				
	Health Risk	34	33		29		26	21				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.23	0.2	0.19	0.25	0.13	0.12	0.1	0.1	0.12		0.074	0.096	0.094	0.08	0.063	0.053
	Health Risk			34	29	29	37	19	17	15	15	18		11	14	14	12	9	8
para-Dichlorobenzene	Annual Avg		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11	0.14	0.15	0.15	0.17	0.15	0.15	
	Health Risk		8	8	8	7	8	9	8			7	9	10	10	11	10	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	2.22	1.71	1.32	1.59	1.45
	Health Risk	14	13	11	11	12	15	19	14	13	15	13	17	19	16	13	10	12	11
Methylene Chloride	Annual Avg	1.04	2.32	0.65	0.72	0.59	0.6	0.58	0.55			0.53	0.27	0.22	0.22	0.14	0.13	0.16	0.13
	Health Risk	4	8	2	2	2	2	2	2			2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.204	0.232	0.169	0.128	0.082	0.094	0.067	0.071			0.078	0.059	0.052	0.039	0.035	0.029	0.027	0.031
	Health Risk	8	9	7	5	3	4	3	3			3	2	2	2	1	1	1	1
Diesel PM[3]	*Annual Avg*	*(2.5)*					*(1.9)*					*(1.6)*							
	Health Risk	*(750)*					*(570)*					*(480)*							
Average Basin Risk	w/o Diesel PM	403	355	308	366	296	314	225	174	179	153	179	144	162	149	111	93	91	71
	w/ Diesel PM	*(1153)*					*(884)*					*(659)*							

1 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.

2 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.*

3 Diesel PM estimates are based on receptor modeling techniques, and the estimates are available only for selected years. Currently, the estimates are being reviewed.

Table 5-44

San Joaquin Valley Air Basin
2008 Emission Inventory by Compound

Acetaldehyde

Approximately 85 percent of the emissions of acetaldehyde are from mobile sources. Area-wide sources such as residential wood combustion account for approximately 10 percent.

San Joaquin Valley - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	72	5%	1%
Area-wide Sources	164	10%	2%
On-Road Mobile	639	40%	7%
Gasoline Vehicles	81	5%	1%
Diesel Vehicles	558	35%	6%
Other Mobile	727	45%	8%
Gasoline Fuel	76	5%	1%
Diesel Fuel	525	33%	6%
Other Fuel	127	8%	1%
Natural Sources	0	0%	0%
Total	1603	100%	18%
Total Statewide	**9103**		

Table 5-45

Benzene

The primary sources of benzene emissions in the San Joaquin Valley Air Basin are mobile sources (approximately 67 percent) and stationary sources (approximately 32 percent).

San Joaquin Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	543	32%	5%
Area-wide Sources	13	1%	<1%
On-Road Mobile	633	38%	6%
Gasoline Vehicles	481	29%	4%
Diesel Vehicles	152	9%	1%
Other Mobile	490	29%	5%
Gasoline Fuel	279	17%	3%
Diesel Fuel	143	9%	1%
Other Fuel	67	4%	1%
Natural Sources	< 1	<1%	<1%
Total	1680	100%	16%
Total Statewide	**10794**		

Table 5-46

1,3-Butadiene

Approximately 48 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%	<1%
Area-wide Sources	137	27%	4%
On-Road Mobile	116	23%	3%
Gasoline Vehicles	101	20%	3%
Diesel Vehicles	14	3%	<1%
Other Mobile	128	25%	3%
Gasoline Fuel	64	12%	2%
Diesel Fuel	14	3%	<1%
Other Fuel	50	10%	1%
Natural Sources	131	25%	3%
Total	515	100%	14%
Total Statewide	**3754**		

Table 5-47

Carbon Tetrachloride

There are no major sources of carbon tetrachloride in the San Joaquin Valley.

San Joaquin Valley - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	< .01	100%	<1%
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%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	< .01	100%	<1%
Total Statewide	**4.04**		

Table 5-48

Chromium, Hexavalent

Approximately 75 percent of the hexavalent chromium emissions are from stationary sources.

San Joaquin Valley - Chromium, Hexavalent			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.09	75%	15%
Area-wide Sources	< .01	<1%	<1%
On-Road Mobile	0.02	14%	3%
Gasoline Vehicles	0.02	13%	3%
Diesel Vehicles	< .01	2%	<1%
Other Mobile	0.01	11%	2%
Gasoline Fuel	0.01	10%	2%
Diesel Fuel	< .01	1%	<1%
Other Fuel	< .01	<1%	<1%
Natural Sources	0	0%	0%
Total	0.12	100%	20%
Total Statewide	**0.61**		

Table 5-49

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%	<1%
Area-wide Sources	151	97%	10%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	156	100%	10%
Total Statewide	**1508**		

Table 5-50

Formaldehyde

Approximately 76 percent of the formaldehyde emissions are from mobile sources.

Methylene Chloride

Approximately 80 percent of the emissions of methylene chloride are from paint removers/strippers, automotive brake cleaners, and other consumer products.

San Joaquin Valley - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	795	20%	4%
Area-wide Sources	196	5%	1%
On-Road Mobile	1385	34%	7%
Gasoline Vehicles	268	7%	1%
Diesel Vehicles	1117	27%	5%
Other Mobile	1689	42%	8%
Gasoline Fuel	232	6%	1%
Diesel Fuel	1051	26%	5%
Other Fuel	406	10%	2%
Natural Sources	0	0%	0%
Total	4065	100%	19%
Total Statewide	**20951**		

Table 5-51

San Joaquin Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	85	20%	1%
Area-wide Sources	337	80%	5%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	423	100%	7%
Total Statewide	**6436**		

Table 5-52

Perchloroethylene

Approximately 65 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	399	65%	8%
Area-wide Sources	218	35%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	617	100%	12%
Total Statewide	**4982**		

Table 5-53

Diesel Particulate Matter

Approximately 99 percent of the diesel PM emissions are from mobile sources.

San Joaquin Valley - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	32	1%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	3718	61%	10%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	3718	61%	10%
Other Mobile	2323	38%	6%
Gasoline Fuel	0	0%	0%
Diesel Fuel	2313	38%	6%
Other Fuel	11	<1%	<1%
Natural Sources	0	0%	0%
Total	6073	100%	17%
Total Statewide	**35884**		

Table 5-54

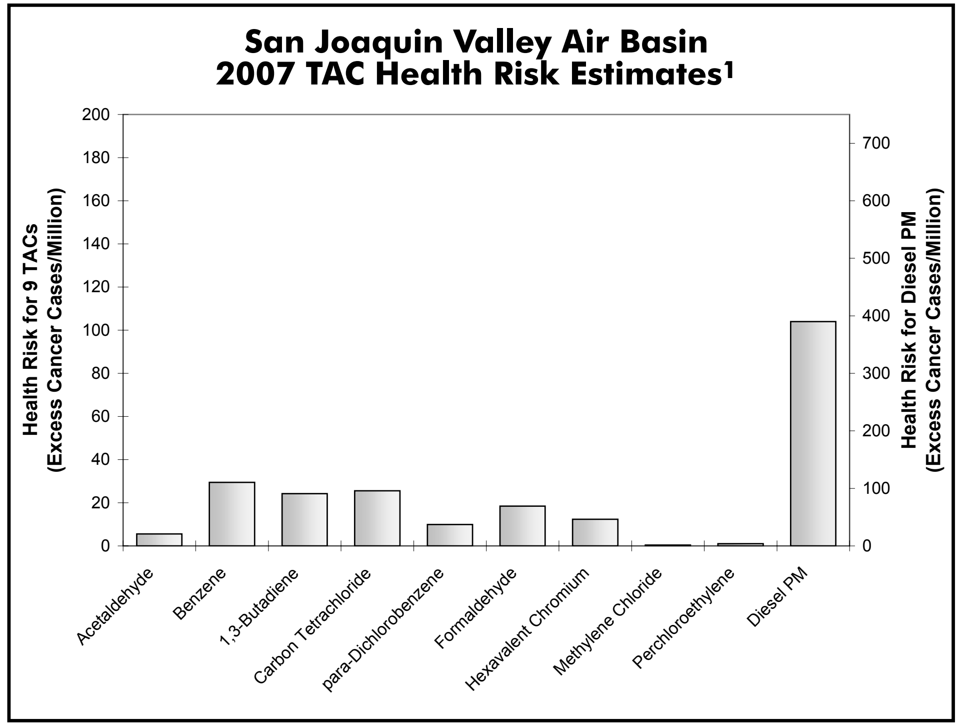
San Joaquin Valley Air Basin

Air Quality and Health Risk

From 1990 through 2007, the ARB monitored outdoor concentrations for various TACs 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 2007 at the Fresno-First Street site, for 1990 through 1993 at the Bakersfield-Chester Avenue site, and for 1995 through 2003 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 from 1991 to 1997. This almanac focuses on the top ten TACs based on available data. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern.

Annual average concentrations and associated health risks for the top ten TACs individually as well as cumulatively for the San Joaquin Valley Air Basin, are provided in Table 5-55. Data for individual sites are provided in Appendix C. Figure 5-15 shows individual health risk from the ten TACs for the San Joaquin Valley Air Basin. As indicated on the graph, the health risk data reflect the year of 2007 except those for diesel PM which reflects the year 2000 and for carbon tetrachloride which reflects the year 2003, the most recent years for which estimated data are available. The health risks shown here are based on an annual average concentration for all sites in the air basin. The risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.

Unlike the other nine TACs, diesel PM does not have ambient monitoring data because an accepted measurement method does not currently exist. 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. The existing diesel PM estimates are currently being reviewed to reflect control measures that were outlined in the ARB Diesel Risk Reduction Plan.



[1] *Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; all other TACs reflect 2006.*

Figure 5-15

Diesel PM poses the greatest health risk among the ten TACs. In the San Joaquin Valley Air Basin, the estimated health risk from diesel PM was 390 excess cancer cases per million people in 2000. Although the health risk is higher than the statewide average, it represents a 50 percent drop between 1990 and 2000.

Trends and health risks for the nine other TACs are based on monitoring data. To examine their trends while minimizing the annual variation due to meteorology and sampling schedule, the air basin average concentration for the 1990-1992 time period was compared to that for 2005-2007. The health risks of 1,3-butadiene and benzene have been reduced by 79 percent and 82 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions of 83 percent and 75 percent, respectively.

Carbon tetrachloride data show a 29 percent decrease when comparing periods between 1990-1991 (1992 average was not valid) and 2001-2003. Carbon tetrachloride data from mid-February 2004 through 2007 were invalidated.

Although acetaldehyde and formaldehyde data were collected beginning in 1990, concentration and health risk values prior to 1996 were uncertain because the method used to collect these samples underestimated the actual concentrations. The bias was corrected by a method change in 1996; however, the ARB was unable to develop a correction factor for the earlier data. Therefore, the data for years prior to 1996 are not directly comparable to data collected during the later years. The 1996-1998 time period is used instead to compare with that for 2005-2007. Acetaldehyde shows a three percent increase while formaldehyde had a nine percent decrease.

Para-dichlorobenzene data show a 29 percent increase when comparing periods between 1991-1993 and 2004-2006. Note that *para*-dichlorobenzene has a high number of samples that can not be reliably measured, so its trend is biased by these measurements. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection (LOD).

Hexavalent chromium data show a 67 percent decrease when comparing periods between 1992-1994 and 2005-2007. The significant reduction in hexavalent chromium in years after 1995 was attributed to implementation of a series of successful control measures. Similar to *para*-dichlorobenzene, it also had a high number of samples below its LOD. To better assess the hexavalent chromium measurements below the LOD, the ARB's Monitoring and Laboratory division used a different approach to analyze hexavalent chromium samples in 2001. The method has been discussed in the Hexavalent Chromium Statewide Air Quality and Health Risk section in this chapter and will not be repeated here.

In addition to the routine monitoring, a special study was conducted at a site located in the Fresno area of the San Joaquin Valley Air Basin between June 2002 and August 2003. Monitoring included both TACs and criteria air pollutants. This Fresno community is located in a residential neighborhood near sources of motor vehicle pollution. There are a large number of children living in the community. Although not included in the almanac, data from Fresno 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/communities/studies/fresno/fresno.htm*.

San Joaquin Valley Air Basin

Annual Average Concentrations and Health Risks

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.3	1.56	1.09	1.15	1.24	1.34	1.14	1.42	1.33	1.15
	Health Risk	9	9	7	8	6	3	6	6	6	8	5	6	6	7	6	7	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	0.538	0.552	0.463	0.372	0.374	0.362	0.318
	Health Risk	227	196	126	122	123	107	68	66	71	64	58	50	51	43	34	35	34	29
1,3-Butadiene	Annual Avg	0.409	0.36	0.236	0.339	0.323	0.264	0.222	0.195	0.233	0.177	0.158	0.15	0.146	0.095	0.08	0.082	0.069	0.065
	Health Risk	154	135	89	127	121	99	83	73	88	67	59	56	55	36	30	31	26	24
Carbon Tetrachloride	Annual Avg	0.128	0.129		0.109		0.098	0.077		0.114		0.096	0.086	0.091	0.097				
	Health Risk	34	34		29		26	20		30		25	23	24	26				
Chromium, Hexavalent	Annual Avg			0.23	0.21	0.19	0.28	0.13	0.11	0.1	0.1	0.12		0.086	0.078	0.083	0.076	0.05	0.083
	Health Risk			34	31	29	42	20	16	15	15	18		13	12	13	11	8	12
para-Dichlorobenzene	Annual Avg		0.11	0.11	0.13	0.11	0.11	0.1	0.13			0.11	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk		7	7	9	7	8	7	9			7	9	10	10	10	10	10	
Formaldehyde	Annual Avg	2.45	1.81	1.46	1.67	1.8	2.1	2.96	2.77	2.86	3.44	2.61	3.08	3.13	3.02	2.27	2.52	2.78	2.51
	Health Risk	18	13	11	12	13	15	22	20	21	25	19	23	23	22	17	19	20	18
Methylene Chloride	Annual Avg	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.5	0.53	0.27	0.16	0.14	0.11	0.12	0.11	0.1
	Health Risk	3	2	2	3	2	2	2	2	2	2	2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.126	0.133	0.104	0.473	0.067	0.068	0.068	0.056	0.039		0.076	0.052	0.039	0.033	0.027	0.032	0.032	0.026
	Health Risk	5	5	4	19	3	3	3	2	2		3	2	2	1	1	1	1	1
Diesel PM[3]	*Annual Avg*	*(2.6)*					*(1.7)*					*(1.3)*							
	Health Risk	*(780)*					*(510)*					*(390)*							
Average Basin Risk	w/o Diesel PM	450	401	280	360	304	305	231	194	235	181	196	169	184	157	111	114	105	90
	w/ Diesel PM	*(1230)*					*(815)*					*(586)*							

1 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.

2 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.*

3 Diesel PM estimates are based on receptor modeling techniques, and the estimates are available only for selected years. Currently, the estimates are being reviewed.

Table 5-55

San Diego Air Basin
2008 Emission Inventory by Compound

Acetaldehyde

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

San Diego - Acetaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	8	1%	<1%
Area-wide Sources	45	9%	<1%
On-Road Mobile	154	29%	2%
Gasoline Vehicles	66	13%	1%
Diesel Vehicles	88	17%	1%
Other Mobile	318	61%	3%
Gasoline Fuel	61	12%	1%
Diesel Fuel	192	37%	2%
Other Fuel	64	12%	1%
Natural Sources	0	0%	0%
Total	524	100%	6%
Total Statewide	**9103**		

Table 5-56

Benzene

The primary sources of benzene emissions in the San Diego Air Basin are mobile sources (approximately 94 percent).

San Diego - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	42	5%	<1%
Area-wide Sources	4	<1%	<1%
On-Road Mobile	415	54%	4%
Gasoline Vehicles	391	51%	4%
Diesel Vehicles	24	3%	<1%
Other Mobile	310	40%	3%
Gasoline Fuel	227	29%	2%
Diesel Fuel	52	7%	<1%
Other Fuel	31	4%	<1%
Natural Sources	0	0%	0%
Total	770	100%	7%
Total Statewide	**10794**		

Table 5-57

1,3-Butadiene

Approximately 71 percent of the emissions of 1,3-butadiene are from mobile sources, and 22 percent from natural sources.

San Diego - 1,3-Butadiene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	1	1%	<1%
Area-wide Sources	13	6%	<1%
On-Road Mobile	85	36%	2%
Gasoline Vehicles	83	35%	2%
Diesel Vehicles	2	1%	<1%
Other Mobile	82	35%	2%
Gasoline Fuel	52	22%	1%
Diesel Fuel	5	2%	<1%
Other Fuel	25	11%	1%
Natural Sources	52	22%	1%
Total	233	100%	6%
Total Statewide	**3754**		

Table 5-58

Carbon Tetrachloride

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

San Diego - Carbon Tetrachloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	0.09	100%	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%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	0.09	100%	2%
Total Statewide	**4.04**		

Table 5-59

Chromium, Hexavalent

Approximately 54 percent of the hexavalent chromium emissions are from stationary sources. Mobile sources account for approximately 44 percent.

San Diego - Chromium, Hexavalent			
Emissions Source	tons/year	Percent Air Basin	Percent State
Stationary Sources	0.03	54%	6%
Area-wide Sources	< .01	2%	<1%
On-Road Mobile	0.02	27%	3%
Gasoline Vehicles	0.02	26%	3%
Diesel Vehicles	< .01	1%	<1%
Other Mobile	0.01	17%	2%
Gasoline Fuel	0.01	17%	2%
Diesel Fuel	< .01	1%	<1%
Other Fuel	< .01	<1%	<1%
Natural Sources	0	0%	0%
Total	0.06	100%	10%
Total Statewide	0.61		

Table 5-60

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	122	100%	8%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	122	100%	8%
Total Statewide	1508		

Table 5-61

Formaldehyde

Approximately 92 percent of the formaldehyde emissions are from mobile sources.

San Diego - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	49	4%	<1%
Area-wide Sources	56	4%	<1%
On-Road Mobile	397	31%	2%
Gasoline Vehicles	221	17%	1%
Diesel Vehicles	176	14%	1%
Other Mobile	779	61%	4%
Gasoline Fuel	187	15%	1%
Diesel Fuel	385	30%	2%
Other Fuel	208	16%	1%
Natural Sources	0	0%	0%
Total	1282	100%	6%
Total Statewide	**20951**		

Table 5-62

Methylene Chloride

Area-wide sources such as paint removers/strippers, automotive brake cleaners, and other consumer products account for approximately 84 percent of the emissions of methylene chloride.

San Diego - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	57	16%	1%
Area-wide Sources	301	84%	5%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	359	100%	6%
Total Statewide	**6436**		

Table 5-63

Perchloroethylene

Approximately 58 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	245	58%	5%
Area-wide Sources	177	42%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	422	100%	8%
Total Statewide	**4982**		

Table 5-64

Diesel Particulate Matter

Approximately 96 percent of the emissions of diesel PM are from mobile sources.

San Diego - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	56	4%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	645	40%	2%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	645	40%	2%
Other Mobile	905	56%	3%
Gasoline Fuel	0	0%	0%
Diesel Fuel	896	56%	2%
Other Fuel	9	1%	<1%
Natural Sources	0	0%	0%
Total	1607	100%	4%
Total Statewide	**35884**		

Table 5-65

San Diego Air Basin

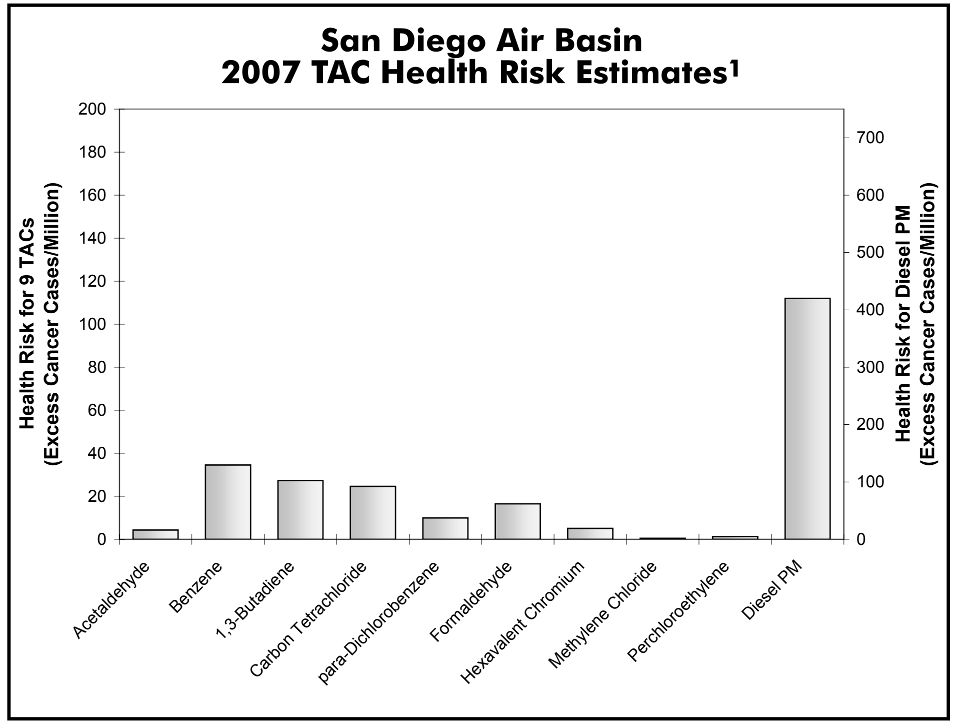
Air Quality and Health Risk

During 1990 through 2007, the ARB monitored outdoor concentrations for various TACs at two sites in the San Diego Air Basin. The sites are located in Chula Vista and El Cajon. This almanac focuses on the top ten TACs based on available data. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern.

Annual average concentrations and associated health risks for the top ten TACs individually as well as cumulatively for the San Diego Air Basin, are provided in Table 5-66. Data for individual sites are provided in Appendix C. Figure 5-16 shows individual health risk from the ten TACs for the San Diego Air Basin. As indicated on the graph, the health risk data reflect the year of 2007 except those for diesel PM which reflects the year 2000 and for carbon tetrachloride which reflects the year 2003, the most recent years for which estimated data are available. The health risks shown here are based on an annual average concentration for all sites in the air basin. The risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.

Unlike the other nine TACs, diesel PM does not have ambient monitoring data because an accepted measurement method does not currently exist. 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. The existing diesel PM estimates are currently being reviewed to reflect control measures that were outlined in the ARB Diesel Risk Reduction Plan.

Diesel PM poses the greatest health risk among the ten TACs. In the San Diego Air Basin, the estimated health risk from diesel PM was



[1] *Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; all other TACs reflect 2006.*

Figure 5-16

420 excess cancer cases per million people in 2000. Although the health risk is higher than the statewide average, it represents a 52 percent drop between 1990 and 2000.

Trends and health risks for the nine other TACs are based on monitoring data. To examine their trends while minimizing the annual variation due to meteorology and sampling schedule, the air basin average concentration for the 1990-1992 time period was compared to that for 2005-2007. The health risks of 1,3-butadiene and benzene have been reduced by 75 percent and 79 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions of 85 percent and 87 percent, respectively.

Carbon tetrachloride data show a 30 percent decrease when comparing periods between 1990-1991 (1992 average was not valid) and 2001-2003. Carbon tetrachloride data from mid-February 2004 through 2007 were invalidated.

Although acetaldehyde and formaldehyde data were collected beginning in 1990, concentration and health risk values prior to 1996 were uncertain because the method used to collect these samples underestimated the actual concentrations. The bias was corrected by a method change in 1996; however, the ARB was unable to develop a correction factor for the earlier data. Therefore, the data for years prior to 1996 are not directly comparable to data collected during the later years. The 1996-1998 time period is used instead to compare with that for 2005-2007. Acetaldehyde data show a 5 percent reduction and formaldehyde data show a 10 percent reduction.

Para-dichlorobenzene data show a 32 percent increase when comparing periods between 1991-1993 and 2004-2006. Note that *para*-dichlorobenzene has a high number of samples that can not be reliably measured, so its trend is biased by these measurements. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection (LOD).

Hexavalent chromium data show a 78 percent decrease when comparing periods between 1992-1994 and 2005-2007. The significant reduction in hexavalent chromium in years after 1995 was attributed to implementation of a series of successful control measures. Similar to *para*-dichlorobenzene, it also had a high number of samples below its LOD. To better assess hexavalent chromium measurements below its LOD, the ARB's Monitoring and Laboratory division used a different approach to analyze hexavalent chromium samples in 2001. The method has been discussed in the Hexavalent Chromium Statewide Air Quality and Health Risk section in this chapter.

In addition to routine monitoring, a special study was conducted at a site located in the Logan Heights/Barrio Logan area of San Diego during the period of October 1999 through February 2001. Monitoring included 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*.

San Diego Air Basin
Annual Average Concentrations and Health Risks

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.33	1.5	1.22	1.41	1.48	0.64	1.03	1	0.86	1.04	0.84	0.95	0.97	0.89	0.89	1.01	0.85	0.88
	Health Risk	6	7	6	7	7	3	5	5	4	5	4	5	5	4	4	5	4	4
Benzene	Annual Avg	2.25	1.7	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65	0.505	0.491	0.483	0.371	0.404	0.362	0.373
	Health Risk	208	158	137	107	129	90	71	70	70	79	60	47	45	45	34	37	34	35
1,3-Butadiene	Annual Avg	0.333	0.257	0.258	0.312	0.307	0.242	0.208	0.198	0.196	0.22	0.159	0.136	0.12	0.089	0.074	0.073	0.068	0.073
	Health Risk	125	97	97	117	115	91	78	75	74	83	60	51	45	33	28	27	26	27
Carbon Tetrachloride	Annual Avg	0.132	0.127		0.103		0.099	0.077				0.094	0.086	0.092	0.093				
	Health Risk	35	34		27		26	20				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.24	0.19	0.16	0.18	0.11	0.11	0.1	0.1	0.1		0.045	0.05	0.03	0.043	0.05	0.034
	Health Risk			36	28	23	27	16	16	15	15	15		7	8	5	6	8	5
para-Dichlorobenzene	Annual Avg		0.1	0.11	0.13	0.15	0.12	0.11	0.13				0.15	0.15	0.15	0.15	0.15	0.15	
	Health Risk		7	8	8	10	8	7	8				10	10	10	10	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	2.68	2.19	2.42	2.08	2.24
	Health Risk	12	11	9	13	17	16	19	19	17	20	16	19	22	20	16	18	15	16
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	0.16	0.13	0.14	0.14	0.14
	Health Risk	2	3	5	4	3	2	2	2		2	3	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.282	0.269	0.263	0.2	0.207	0.249	0.147	0.125			0.089	0.061	0.06	0.047	0.037	0.041	0.037	0.03
	Health Risk	11	11	11	8	8	10	6	5			4	2	2	2	1	2	1	1
Diesel PM[3]	*Annual Avg*	*(2.9)*					*(1.9)*					*(1.4)*							
	Health Risk	*(870)*					*(570)*					*(420)*							
Average Basin Risk	w/o Diesel PM	399	328	309	319	312	273	224	200	180	204	187	157	160	147	98	105	98	88
	w/ Diesel PM	*(1269)*					*(843)*					*(607)*							

1 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.

2 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.*

3 Diesel PM estimates are based on receptor modeling techniques, and the estimates are available only for selected years. Currently, the estimates are being reviewed.

Table 5-66

Sacramento Valley Air Basin
2008 Emission Inventory by Compound

Acetaldehyde

Approximately 66 percent of the emissions of acetaldehyde are from mobile sources. Another 31 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	27	3%	<1%
Area-wide Sources	304	31%	3%
On-Road Mobile	249	25%	3%
Gasoline Vehicles	63	6%	1%
Diesel Vehicles	185	19%	2%
Other Mobile	407	41%	4%
Gasoline Fuel	74	7%	1%
Diesel Fuel	289	29%	3%
Other Fuel	44	4%	<1%
Natural Sources	0	0%	0%
Total	986	100%	11%
Total Statewide	**9103**		

Table 5-67

Benzene

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

Sacramento Valley - Benzene			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	147	15%	1%
Area-wide Sources	8	1%	<1%
On-Road Mobile	432	45%	4%
Gasoline Vehicles	382	40%	4%
Diesel Vehicles	50	5%	<1%
Other Mobile	369	39%	3%
Gasoline Fuel	271	28%	3%
Diesel Fuel	79	8%	1%
Other Fuel	19	2%	<1%
Natural Sources	0	0%	0%
Total	957	100%	9%
Total Statewide	**10794**		

Table 5-68

1,3-Butadiene

Approximately 39 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	<1%	<1%
Area-wide Sources	122	28%	3%
On-Road Mobile	85	19%	2%
Gasoline Vehicles	80	18%	2%
Diesel Vehicles	5	1%	<1%
Other Mobile	87	20%	2%
Gasoline Fuel	62	14%	2%
Diesel Fuel	7	2%	<1%
Other Fuel	17	4%	<1%
Natural Sources	143	33%	4%
Total	437	100%	12%
Total Statewide	3754		

Table 5-69

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	0.05	100%	1%
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%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	0.05	100%	1%
Total Statewide	4.04		

Table 5-70

Chromium, Hexavalent

Approximately 73 percent of the hexavalent chromium emissions are from mobile sources.

Sacramento Valley - Chromium, Hexavalent			
Emissions Source	tons/year	Percent Air Basin	Percent State
Stationary Sources	< .01	24%	1%
Area-wide Sources	< .01	3%	<1%
On-Road Mobile	0.01	32%	2%
Gasoline Vehicles	0.01	30%	2%
Diesel Vehicles	< .01	2%	<1%
Other Mobile	0.02	41%	3%
Gasoline Fuel	0.01	39%	2%
Diesel Fuel	< .01	2%	<1%
Other Fuel	< .01	<1%	<1%
Natural Sources	0	0%	0%
Total	0.04	100%	6%
Total Statewide	0.61		

Table 5-71

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	<1%	<1%
Area-wide Sources	108	100%	7%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	108	100%	7%
Total Statewide	1508		

Table 5-72

Formaldehyde

Approximately 74 percent of the formaldehyde emissions are from mobile sources, and 17 percent are from area-wide sources.

Methylene Chloride

Approximately 68 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 - Formaldehyde			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	177	9%	1%
Area-wide Sources	343	17%	2%
On-Road Mobile	578	28%	3%
Gasoline Vehicles	208	10%	1%
Diesel Vehicles	371	18%	2%
Other Mobile	947	46%	5%
Gasoline Fuel	226	11%	1%
Diesel Fuel	578	28%	3%
Other Fuel	143	7%	1%
Natural Sources	0	0%	0%
Total	2045	100%	10%
Total Statewide	**20951**		

Table 5-73

Sacramento Valley - Methylene Chloride			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	112	32%	2%
Area-wide Sources	241	68%	4%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	352	100%	5%
Total Statewide	**6436**		

Table 5-74

Perchloroethylene

Approximately 56 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	200	56%	4%
Area-wide Sources	155	44%	3%
On-Road Mobile	0	0%	0%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	0	0%	0%
Other Mobile	0	0%	0%
Gasoline Fuel	0	0%	0%
Diesel Fuel	0	0%	0%
Other Fuel	0	0%	0%
Natural Sources	0	0%	0%
Total	355	100%	7%
Total Statewide	**4982**		

Table 5-75

Diesel Particulate Matter

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

Sacramento Valley - Diesel PM			
Emissions Source	**tons/year**	**Percent Air Basin**	**Percent State**
Stationary Sources	39	2%	<1%
Area-wide Sources	0	0%	0%
On-Road Mobile	1246	48%	3%
Gasoline Vehicles	0	0%	0%
Diesel Vehicles	1246	48%	3%
Other Mobile	1304	50%	4%
Gasoline Fuel	0	0%	0%
Diesel Fuel	1302	50%	4%
Other Fuel	2	<1%	<1%
Natural Sources	0	0%	0%
Total	2590	100%	7%
Total Statewide	**35884**		

Table 5-76

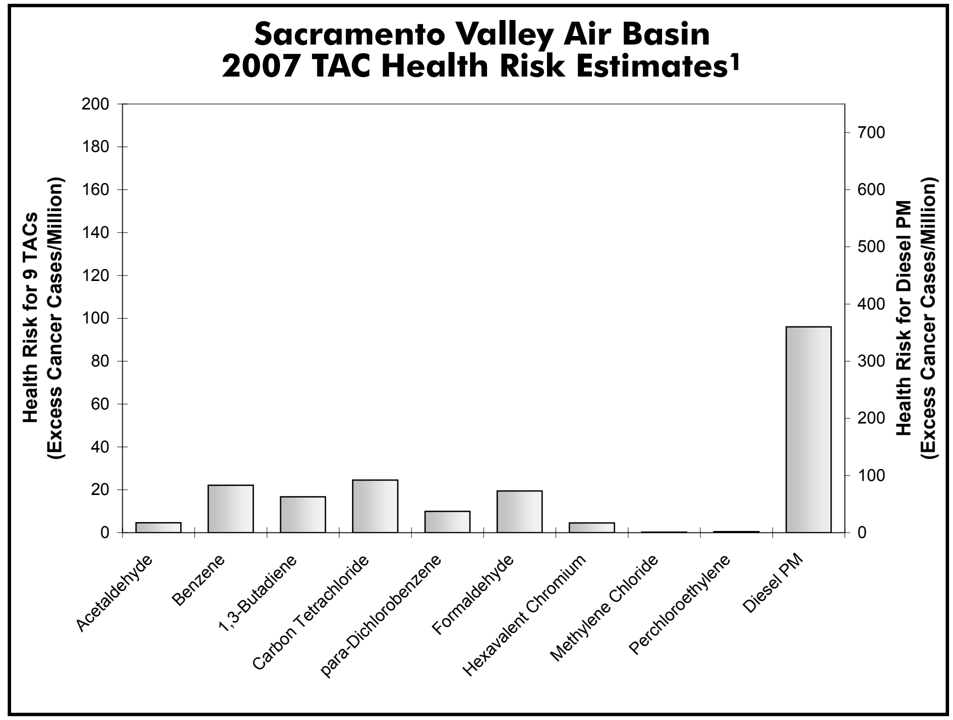
Sacramento Valley Air Basin

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 for 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, annual average concentration and associated health risk are not available for the year during which the site was moved because neither site has a full year of data. This almanac focuses on the top ten TACs based on available data. There may be other TACs that may pose a substantial risk, but for which sufficient data are not available, or which have not been identified as a concern.

Annual average concentrations and associated health risks for the top ten TACs individually as well as cumulatively for the Sacramento Valley Air Basin, are provided in Table 5-77. Data for individual sites are provided in Appendix C. Figure 5-17 shows individual health risk from the ten TACs for the Sacramento Valley Air Basin. As indicated on the graph, the health risk data reflect the year of 2007 except those for diesel PM which reflects the year 2000 and for carbon tetrachloride which reflects the year 2003, the most recent years for which estimated data are available. The health risks shown here are based on an annual average concentration for all sites in the air basin. The risk at individual locations may be higher or lower than the average for the air basin, depending on the impact of nearby sources.

Unlike the other nine TACs, diesel PM does not have ambient monitoring data because an accepted measurement method does not currently exist. 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. The existing diesel PM estimates are currently being reviewed to reflect control measures that were outlined in the ARB Diesel Risk Reduction Plan.



[1] Data for Diesel PM reflect 2000; carbon tetrachloride reflect 2003; all other TACs reflect 2006.

Figure 5-17

Diesel PM poses the greatest health risk among the ten TACs. In the Sacramento Valley Air Basin, the estimated health risk from diesel PM was 360 excess cancer cases per million people in 2000. Although the health risk is higher than the statewide average, it represents a 52 percent drop between 1990 and 2000.

Trends and health risks for the nine other TACs are based on monitoring data. To examine their trends while minimizing the annual variation due to meteorology and sampling schedule, the air basin average concentration for the 1990-1992 time period was compared to that for 2005-2007. The health risks of 1,3-butadiene and benzene have been reduced by 82 percent and 84 percent, respectively. Methylene chloride and perchloroethylene also show substantial reductions of 88 percent and 77 percent, respectively.

Carbon tetrachloride data show a 27 percent decrease when comparing periods between 1990-1991 (1992 average was not valid) and 2001-2003. Carbon tetrachloride data from mid-February 2004 through 2007 were invalidated.

Although acetaldehyde and formaldehyde data were collected beginning in 1990, concentration and health risk values prior to 1996 were uncertain because the method used to collect these samples underestimated the actual concentrations. The bias was corrected by a method change in 1996; however, the ARB was unable to develop a correction factor for the earlier data. Therefore, the data for years prior to 1996 are not directly comparable to data collected during the later years. The 1996-1998 time period is used instead to compare with that for 2005-2007. Acetaldehyde data show a one percent increase and formaldehyde data show a four percent decrease.

Para-dichlorobenzene data show a 10 percent increase when comparing periods between 1992-1994 and 2004-2006. Note that *para*-dichlorobenzene has a high number of samples that can not be reliably measured, so its trend is biased by these measurements. The analysis of *para*-dichlorobenzene was discontinued in March 2007 due to the high percentage of values below the limit of detection (LOD).

Hexavalent chromium data show a 71 percent decrease when comparing periods between 1992-1994 and 2005-2007. The significant reduction in hexavalent chromium in years after 1995 was attributed to implementation of a series of successful control measures. Similar to *para*-dichlorobenzene, it also had a high number of samples below its LOD. To better assess the hexavalent chromium measurements below its LOD, the ARB's Monitoring and Laboratory division used a different approach to analyze hexavalent chromium samples in 2001. The method is discussed in the Hexavalent Chromium Statewide Air Quality and Health Risk section in this chapter.

Sacramento Valley Air Basin

Annual Average Concentrations and Health Risks

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	1.04	1.09	1.15	0.92	0.95
	Health Risk	6			7	5	2	5	5	4	6	4	4	6	5	5	6	4	5
Benzene	Annual Avg	2.02	1.88	1.35	1	1.02	0.8	0.56	0.55	0.5	0.56	0.45	0.422	0.443	0.406	0.406	0.335	0.268	0.239
	Health Risk	187	174	125	92	95	74	51	51	47	52	42	39	41	38	38	31	25	22
1,3-Butadiene	Annual Avg	0.378	0.332	0.283	0.288	0.221	0.186	0.176	0.16	0.154	0.128	0.119	0.125	0.116	0.094	0.093	0.08	0.051	0.045
	Health Risk	142	125	106	108	83	70	66	60	58	48	45	47	44	35	35	30	19	17
Carbon Tetrachloride	Annual Avg	0.123	0.123		0.109		0.099	0.078				0.094	0.088	0.09	0.093				
	Health Risk	33	32		29		26	21				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.17	0.14	0.13	0.18	0.11	0.1	0.1	0.1	0.1	0.1	0.053	0.05	0.068	0.058	0.041	0.03
	Health Risk			26	21	19	26	16	15	15	15	15	15	8	8	10	9	6	5
para-Dichlorobenzene	Annual Avg			0.11	0.1	0.2	0.14	0.11	0.14			0.1	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk			7	7	14	9	7	10			7	9	10	10	10	10	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	3.53	2.76	2.68	2.54	2.64
	Health Risk	12			13	13	14	20	22	19	27	18	18	28	26	20	20	19	19
Methylene Chloride	Annual Avg	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.6	0.57	0.29	0.08	0.08	0.07	0.08	0.07	0.07
	Health Risk	2	2	2	3	2	2	2	2		2	2	1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.071	0.074	0.063	0.052	0.165	0.049	0.055	0.052			0.058	0.027	0.025	0.018	0.015	0.021	0.015	0.012
	Health Risk	3	3	3	2	7	2	2	2			2	1	1	<1	<1	<1	<1	<1
Diesel PM[3]	*Annual Avg*	*(2.5)*					*(1.6)*					*(1.2)*							
	Health Risk	*(750)*					*(480)*					*(360)*							
Average Basin Risk	w/o Diesel PM	385	336	269	282	238	225	190	167	143	150	160	157	162	147	118	106	83	68
	w/ Diesel PM	*(1135)*					*(705)*					*(520)*							

1 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.

2 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.*

3 Diesel PM estimates are based on receptor modeling techniques, and the estimates are available only for selected years. Currently, the estimates are being reviewed.

Table 5-77

(This page intentionally left blank)

APPENDIX A

County Level Emissions and Air Quality by Air Basin

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

List of Tables

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

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 by county or county portion within the air basin. Emissions data are included for the ozone precursors NO_x and ROG, directly emitted PM_{10} and $PM_{2.5}$, and CO. The values represent the total tons of pollutant emissions per average day, listed every five years, from 1975 to 2020. In addition to these data, tables listing the highest emitting facilities for NO_x, ROG, PM_{10}, and $PM_{2.5}$, 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 1988 through 2007 for ozone, PM_{10}, CO, NO_2, and SO_2, and 1999 through 2007 for $PM_{2.5}$. 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.

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 CO concentrations in Imperial County in the Salton Sea Air Basin were below the levels of the State and national standards from 1988 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards were violated. The CO concentrations in this air basin did not suddenly increase during 1994. Instead, monitoring began at a new site in Calexico, and the concentrations at the new site were higher than at the existing set of sites in the Salton Sea Air Basin. Information about the time periods for which air quality data are available for different pollutants at sites in California and Baja, Mexico is available online at *www.arb.ca.gov/aqd/netrpt/netrpt.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}, these data reflect the estimated number of exceedances at the one site with the highest total in the air basin.

There are different methods to calculate the estimated number of exceedance days, and the numbers in this appendix may differ from estimates found in other sources. Finally, no estimates are provided for the number of $PM_{2.5}$ exceedance days because California does not have a 24-hour standard for this pollutant.

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Alpine	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1
Inyo*	7	7	6	6	6	5	5	4	4	3	8	8	8	7	6	6	6	6	6	6
Mono*	4	4	4	4	4	3	3	3	2	1	4	5	5	4	4	3	3	3	3	2
Air Basin Total	11	12	10	10	10	9	9	8	6	4	13	14	13	12	10	9	10	9	9	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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Alpine	1	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3	3
Inyo*	827	827	828	827	826	825	149	42	43	44	68	65	54	48	35	28	25	23	21	21
Mono*	29	32	32	35	35	36	36	37	38	40	37	43	42	34	25	21	19	17	16	15
Air Basin Total	857	861	861	863	863	863	188	81	83	86	108	113	100	86	64	52	47	43	40	39

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Alpine	0	0	0	0	0	0	0	0	0	0
Inyo*	130	130	130	130	130	129	23	6	6	6
Mono*	4	4	4	5	5	5	5	5	5	5
Air Basin Total	134	134	134	135	135	134	28	11	11	12

* 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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lake	7	8	9	9	9	8	7	7	6	5	12	14	16	15	14	13	12	11	11	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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lake	8	9	11	11	11	12	12	12	12	13	102	113	126	120	105	88	80	75	71	69

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lake	2	3	3	3	4	4	4	4	4	4

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
El Dorado	5	4	4	5	5	4	4	3	3	2	11	8	7	7	6	5	4	4	4	4
Placer	2	1	2	2	2	2	2	2	1	1	6	3	3	3	3	2	2	2	2	2
Air Basin Total	7	6	6	7	6	6	6	5	4	3	17	11	10	9	9	8	7	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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
El Dorado	2	2	3	3	3	4	4	4	4	5	131	95	79	64	51	42	33	30	28	28
Placer	1	1	1	1	1	1	2	2	2	2	75	33	33	27	22	17	14	12	11	11
Air Basin Total	3	4	4	5	5	5	5	6	6	6	206	129	112	92	73	59	46	42	40	39

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
El Dorado	1	1	2	2	2	2	2	2	2	2
Placer	0	0	0	1	1	1	1	1	1	1
Air Basin Total	2	2	2	2	2	3	3	3	3	3

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Kern	62	41	50	67	58	61	59	55	54	50	65	46	31	29	19	17	15	14	13	12
Los Angeles	19	25	28	38	32	34	34	25	20	17	37	42	43	41	28	24	22	20	21	22
Riverside	11	12	14	25	21	23	21	19	14	11	6	6	7	6	5	4	4	4	4	4
San Bernardino	139	159	156	199	180	188	177	151	135	126	36	44	55	74	62	56	56	53	53	56
Air Basin Total	231	237	247	329	291	305	291	250	223	204	145	138	136	150	115	101	98	91	90	94

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Kern	49	39	35	50	30	32	32	31	32	32	728	479	244	189	128	113	101	88	79	74
Los Angeles	35	38	38	36	30	32	43	44	46	47	112	170	201	232	155	113	91	68	58	53
Riverside	7	8	8	9	8	8	7	7	8	8	18	15	19	27	22	19	15	13	12	11
San Bernardino	91	94	118	111	105	107	126	120	126	132	158	241	320	485	384	314	291	232	208	200
Air Basin Total	183	179	198	205	174	179	209	203	211	219	1016	905	783	934	690	559	499	402	357	337

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Kern	20	14	12	22	9	10	10	10	11	11
Los Angeles	6	6	6	7	5	6	8	8	8	9
Riverside	2	2	2	3	2	2	2	2	2	2
San Bernardino	27	27	41	38	36	34	40	35	37	38
Air Basin Total	54	49	61	69	53	52	60	54	57	59

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

(This page intentionally left blank)

Mojave Desert Air Basin
High Emitting Facilities

Oxides of Nitrogen (NOx)		
Facility Name	**City**	**Tons per Year**
Cemex Quarry	Apple Valley	4955
TXI Riverside Cement Company	Oro Grande	4446
California Portland Cement	Mojave	3126
Mitsubishi Cement	Lucerne Valley	2789
Searles Valley Minerals	Trona	1982
PG&E Topock Compressor Station	Needles	1261
National Cement	Lebec	998
Lehigh Southwest Cement	Monolith	776
Southern California Gas Co	Needles	764
AFG Industries	Victorville	600

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Cemex Quarry	Apple Valley	194

Table A-8

Mojave Desert Air Basin

High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Service Rock Products	Palmdale	3054
U.S. Borax	Boron	1156
Mitsubishi Cement	Lucerne Valley	754
TXI Riverside Cement Company	Oro Grande	728
Cemex Quarry	Apple Valley	721
National Cement	Lebec	462
Granite Construction - Littlerock Facility	Palmdale	432
Searles Valley Minerals	Trona	356
California Portland Cement	Mojave	352
Chevron Mining - Mountain Pass Mine	Mountain Pass	263

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Mitsubishi Cement	Lucerne Valley	596
Service Rock Products	Palmdale	477
TXI Riverside Cement Company	Oro Grande	362
Cemex Quarry	Apple Valley	338
National Cement	Lebec	298
U.S. Borax	Boron	229
Searles Valley Minerals	Trona	222
California Portland Cement	Mojave	162
Lehigh Southwest Cement	Monolith	134
Granite Construction - Littlerock Facility	Palmdale	126

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Amador	5	6	6	8	8	6	5	5	5	4	9	10	10	11	9	8	7	7	6	6
Calaveras	5	12	6	7	6	5	5	4	4	3	9	11	12	13	12	12	10	9	8	8
El Dorado	9	12	11	11	10	8	7	6	5	4	17	24	22	21	18	14	13	12	12	12
Mariposa	2	2	2	3	2	2	2	2	1	1	6	6	7	8	7	7	6	6	5	5
Nevada	13	16	17	18	16	14	13	11	9	7	15	19	21	19	16	14	13	12	11	11
Placer	6	7	7	8	8	9	9	9	6	5	5	9	5	6	5	5	5	5	5	5
Plumas	8	9	8	9	8	8	7	7	6	6	11	12	11	11	10	10	9	9	9	9
Sierra	1	1	1	1	1	1	1	1	1	1	3	3	3	4	3	4	4	4	4	5
Tuolumne	11	13	11	14	12	10	10	9	8	8	20	21	21	22	20	18	18	17	17	17
Air Basin Total	60	78	70	79	71	62	61	54	45	38	95	116	112	114	100	90	85	80	77	78

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Amador	7	7	7	8	9	10	9	9	10	11	50	54	55	63	47	39	30	26	23	20
Calaveras	29	10	10	11	11	11	11	12	12	13	70	88	81	86	75	62	54	48	43	40
El Dorado	10	12	13	15	16	16	17	18	19	20	123	160	160	152	126	98	85	76	71	70
Mariposa	6	7	8	8	8	8	8	8	9	9	28	33	34	37	32	26	23	20	19	18
Nevada	12	14	16	19	19	19	20	21	21	22	127	159	172	154	124	104	91	83	77	74
Placer	8	9	9	10	9	8	8	9	9	9	35	37	40	39	35	30	28	27	26	26
Plumas	17	19	20	19	19	19	19	19	20	20	128	136	134	138	128	121	119	116	114	113
Sierra	11	12	12	11	12	12	12	11	12	12	28	28	28	31	28	29	26	26	26	26
Tuolumne	16	18	17	20	19	19	19	19	19	20	192	202	204	217	194	172	164	159	155	155
Air Basin Total	115	108	112	120	122	122	124	127	131	136	779	896	910	917	790	681	618	580	553	543

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**	**2015**	**2020**
Amador	2	2	2	3	4	4	3	4	4	4
Calaveras	10	5	4	4	4	4	4	4	4	5
El Dorado	4	5	5	6	6	6	6	6	6	7
Mariposa	1	2	2	2	2	2	2	2	2	2
Nevada	5	6	7	8	8	8	8	8	8	8
Placer	3	3	3	3	3	2	2	2	2	2
Plumas	7	8	8	7	7	7	7	7	7	7
Sierra	2	2	2	2	2	2	2	2	2	2
Tuolumne	10	12	11	12	12	11	11	11	11	11
Air Basin Total	45	45	45	48	48	47	46	47	48	49

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	305
Pacific-Ultrapower	Jamestown	186
Collins Pine	Chester	159
Sierra Pacific Ind. Standard	Sonora	119

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
SierraPine Ltd Ampine Division	Martell	263
Sierra Pacific Industries	Quincy	107

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
SierraPine Ltd Ampine Division	Martell	518
Sierra Pacific Ind. Standard	Sonora	118

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
SierraPine Ltd Ampine Division	Martell	414
Sierra Pacific Ind. Standard	Sonora	109

Table A-10

(This page intentionally left blank)

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Monterey	113	124	80	80	64	57	48	43	36	31	94	78	72	64	54	46	40	36	34	33
San Benito	13	12	13	15	15	13	14	12	9	7	13	12	11	11	9	8	8	8	8	7
Santa Cruz	24	26	28	31	27	23	20	18	15	13	47	46	45	38	29	24	19	17	15	14
Air Basin Total	149	162	121	126	106	94	82	73	60	51	154	135	128	114	92	78	67	61	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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Monterey	35	39	36	37	36	41	45	50	52	54	691	577	579	504	349	320	281	272	245	230
San Benito	13	13	15	16	14	15	16	17	17	18	98	91	92	83	71	65	64	66	62	61
Santa Cruz	11	12	13	15	13	14	14	14	15	15	298	295	294	257	187	152	119	103	86	76
Air Basin Total	60	64	64	68	63	70	75	81	84	87	1086	964	964	845	607	537	464	440	393	367

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Monterey	16	18	14	14	12	15	17	20	20	21
San Benito	5	5	6	7	5	5	6	7	6	6
Santa Cruz	4	4	5	5	5	4	5	5	5	5
Air Basin Total	25	27	24	25	22	25	28	31	31	32

Table A-11

North Central Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Cemex - Cement Plant	Davenport	833
LSP Moss Landing	Moss Landing	153

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Cemex - Cement Plant	Davenport	749
Duke Energy Moss Landing	Moss Landing	171

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Cemex - Cement Plant	Davenport	209
Chemical Lime Company	Salinas	123
LSP Moss Landing	Moss Landing	112

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Cemex - Cement Plant	Davenport	133
LSP Moss Landing	Moss Landing	112

Table A-12

North Coast Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	5	5	4	4	3	3	2	2	2	1
Humboldt	38	37	30	32	26	25	21	21	18	16
Mendocino	24	23	23	23	18	16	15	12	9	7
Sonoma	3	8	8	9	8	7	7	6	4	3
Trinity	3	3	3	4	3	3	3	3	2	2
Air Basin Total	73	76	68	72	59	54	48	44	36	29

	ROG Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	10	10	7	7	6	6	5	5	5	5
Humboldt	64	40	33	30	24	21	18	17	16	16
Mendocino	31	27	20	19	17	15	13	11	11	10
Sonoma	9	14	13	15	13	11	9	8	8	8
Trinity	7	8	7	7	6	6	5	4	4	4
Air Basin Total	121	100	81	78	66	57	50	46	44	43

	Directly Emitted PM_{10} Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	8	9	9	10	10	10	10	11	11	11
Humboldt	29	29	27	25	23	22	22	22	23	23
Mendocino	19	17	18	20	20	20	21	21	22	22
Sonoma	3	4	4	7	5	5	5	5	5	6
Trinity	16	19	20	19	20	19	18	17	17	17
Air Basin Total	75	77	78	81	78	77	76	76	78	80

	CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	134	130	117	114	104	97	93	91	89	88
Humboldt	362	312	270	250	190	160	137	126	117	110
Mendocino	190	173	158	147	112	90	75	65	58	54
Sonoma	32	94	94	90	70	55	45	39	34	31
Trinity	75	79	76	76	65	60	56	53	51	49
Air Basin Total	794	788	715	676	540	463	405	375	350	332

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	5	6	5	6	6	6	6	6	6	6
Humboldt	16	16	14	12	10	9	9	9	9	9
Mendocino	9	6	6	6	6	6	6	5	6	6
Sonoma	1	2	2	4	2	2	2	2	2	2
Trinity	4	5	5	5	5	5	4	4	4	4
Air Basin Total	36	34	32	32	28	27	26	26	26	27

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

Table A-13

North Coast Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
PG&E - Humboldt Bay Plant	Eureka	1134
Evergreen Pulp	Samoa	386
Palco - Sawmill	Scotia	311
Fairhaven Power Company	Samoa	199
Humboldt Flakeboard Panels	Arcata	142

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Evergreen Pulp	Samoa	181
Hambro Forest Products	Crescent City	102

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-14

Northeast Plateau Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)										ROG Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lassen	10	10	9	9	9	8	7	6	5	5	10	11	11	11	9	8	7	7	7	6
Modoc	7	7	6	6	5	5	4	4	3	3	6	6	6	5	5	4	4	4	4	4
Siskiyou	21	22	21	24	22	20	20	16	13	10	28	28	26	26	23	21	20	19	18	17
Air Basin Total	38	39	36	38	36	33	31	26	21	17	44	45	42	42	37	33	31	30	28	27

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lassen	19	19	20	21	20	23	22	22	22	23	61	72	70	66	60	52	39	35	32	31
Modoc	18	18	19	19	18	18	18	17	17	17	31	32	29	27	22	18	16	14	13	12
Siskiyou	33	35	34	34	34	33	33	33	33	34	369	353	332	329	299	271	259	253	246	242
Air Basin Total	69	72	73	74	72	74	73	72	73	74	461	457	431	423	381	341	314	302	292	284

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Lassen	6	5	5	6	5	5	5	5	5	5
Modoc	4	4	4	4	3	3	3	3	3	3
Siskiyou	19	20	18	19	18	18	18	17	17	17
Air Basin Total	28	28	27	28	26	26	25	25	25	25

Table A-15

Northeast Plateau Air Basin

High Emitting Facilities

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

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

No High Emitting Facilities

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

No High Emitting Facilities

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

No High Emitting Facilities

Table A-16

Outer Continental Shelf

Sources other than Ocean Going Vessels or Commercial Harbor Craft

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	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Del Norte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Los Angeles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendocino	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Luis Obispo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Mateo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Barbara	0	0	3	2	1	1	1	1	1	1	0	0	3	4	2	1	2	2	2	2
Santa Cruz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0
Air Basin Total	0	0	4	3	2	1	1	2	2	2	0	0	4	5	3	1	2	2	2	2

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Del Norte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Los Angeles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendocino	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Luis Obispo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Mateo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Barbara	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0
Santa Cruz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Air Basin Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	2

Table A-17

Outer Continental Shelf

Sources other than Ocean Going Vessels or Commercial Harbor Craft

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	0	0	0
Los Angeles	0	0	0	0	0	0	0	0	0	0
Marin	0	0	0	0	0	0	0	0	0	0
Mendocino	0	0	0	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	0	0	0
San Luis Obispo	0	0	0	0	0	0	0	0	0	0
San Mateo	0	0	0	0	0	0	0	0	0	0
Santa Barbara	0	0	0	0	0	0	0	0	0	0
Santa Cruz	0	0	0	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	0	0	0	0	0	0	0
Air Basin Total	0	0	0	0	0	0	0	0	0	0

Table A-17

Outer Continental Shelf, 3 - 24 Miles
Ocean Going Vessels and Commercial Harbor Craft
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	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Del Norte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humboldt	3	3	3	3	4	5	6	6	8	9	0	0	0	0	0	0	0	0	0	0
Los Angeles	8	8	9	11	14	17	20	24	29	37	0	0	0	1	1	1	1	1	1	2
Marin	3	2	3	3	4	5	6	6	8	9	0	0	0	0	0	0	0	0	0	0
Mendocino	3	3	3	4	5	6	7	8	9	11	0	0	0	0	0	0	0	0	0	0
Monterey	5	5	6	7	9	12	15	18	22	27	0	0	0	0	0	0	1	1	1	1
Orange	3	3	3	3	4	5	7	8	10	12	0	0	0	0	0	0	0	0	0	0
San Diego	4	4	4	4	5	5	6	7	8	10	0	0	0	0	0	0	0	0	0	0
San Francisco	5	5	6	7	8	10	12	14	16	19	0	0	0	0	0	0	1	1	1	1
San Luis Obispo	1	1	1	2	2	2	3	3	4	5	0	0	0	0	0	0	0	0	0	0
San Mateo	3	3	4	5	6	8	10	12	14	17	0	0	0	0	0	0	0	0	1	1
Santa Barbara	6	6	7	10	13	17	22	26	32	40	0	0	0	0	1	1	1	1	1	2
Santa Cruz	2	2	2	3	3	4	5	6	7	8	0	0	0	0	0	0	0	0	0	0
Sonoma	2	2	2	2	3	3	4	5	5	6	0	0	0	0	0	0	0	0	0	0
Ventura	2	2	3	3	4	6	7	8	10	12	0	0	0	0	0	0	0	0	0	0
Air Basin Total	50	50	55	68	84	105	129	152	181	222	2	2	3	3	4	4	5	6	7	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	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Del Norte	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	1	1
Los Angeles	1	1	1	1	1	1	2	2	2	3	1	1	2	2	2	2	3	3	4	5
Marin	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1	1
Mendocino	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	1
Monterey	0	0	0	1	1	1	1	1	2	2	0	0	1	1	1	1	1	2	2	2
Orange	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	1
San Diego	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2
San Francisco	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
San Luis Obispo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Mateo	0	0	0	0	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1
Santa Barbara	0	1	1	1	1	1	2	2	3	3	1	1	1	1	1	1	2	2	3	3
Santa Cruz	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1
Sonoma	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Ventura	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	1
Air Basin Total	4	4	4	5	7	8	11	12	14	17	7	7	7	8	10	11	13	15	18	22

Table A-18

Outer Continental Shelf, 3 - 24 Miles

Ocean Going Vessels and Commercial Harbor Craft

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	0	1	1
Los Angeles	1	1	1	1	1	1	2	2	2	3
Marin	0	0	0	0	0	0	0	0	1	1
Mendocino	0	0	0	0	0	0	1	1	1	1
Monterey	0	0	0	1	1	1	1	1	2	2
Orange	0	0	0	0	0	0	1	1	1	1
San Diego	0	0	0	0	0	0	0	0	0	1
San Francisco	0	0	0	0	1	1	1	1	1	1
San Luis Obispo	0	0	0	0	0	0	0	0	0	0
San Mateo	0	0	0	0	0	1	1	1	1	1
Santa Barbara	0	1	1	1	1	1	2	2	3	3
Santa Cruz	0	0	0	0	0	0	0	0	1	1
Sonoma	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	0	0	0	1	1	1	1
Air Basin Total	3	4	4	5	6	8	10	11	14	17

Table A-18

Outer Continental Shelf, 24 - 100 Miles
Ocean Going Vessels and Commercial Harbor Craft
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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	2	2	2	2	3	3	4	4	5	6	0	0	0	0	0	0	0	0	0	0
Humboldt	2	2	3	3	3	4	5	5	6	7	0	0	0	0	0	0	0	0	0	0
Los Angeles	7	7	7	8	8	9	10	11	12	14	0	0	0	0	0	1	1	1	1	1
Marin	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendocino	1	1	2	2	2	2	3	3	3	4	0	0	0	0	0	0	0	0	0	0
Monterey	1	1	1	1	2	2	2	2	2	3	0	0	0	0	0	0	0	0	0	0
Orange	1	1	1	1	1	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0
San Diego	3	3	3	3	3	4	4	4	3	3	0	0	0	0	0	0	0	0	0	0
San Francisco	6	6	7	8	9	11	13	14	16	18	0	0	0	0	1	1	1	1	1	1
San Luis Obispo	4	4	4	6	7	9	11	13	16	20	0	0	0	0	0	0	0	1	1	1
San Mateo	2	2	2	2	3	3	3	4	4	4	0	0	0	0	0	0	0	0	0	0
Santa Barbara	7	7	8	11	14	18	23	29	38	51	0	0	0	0	1	1	1	1	2	2
Santa Cruz	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Sonoma	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura	3	3	4	5	6	8	10	13	17	23	0	0	0	0	0	0	0	1	1	1
Air Basin Total	42	42	45	54	65	77	93	106	126	156	2	2	2	3	3	4	4	5	6	7

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Humboldt	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1
Los Angeles	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3
Marin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendocino	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
San Francisco	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3
San Luis Obispo	0	0	0	0	1	1	1	1	1	2	0	0	0	1	1	1	1	1	1	2
San Mateo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Santa Barbara	1	1	1	1	1	2	2	3	3	4	1	1	1	1	1	2	2	3	3	4
Santa Cruz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	0	1	1	1	1	1	2	0	0	0	1	1	1	1	1	2	2
Air Basin Total	3	3	3	4	5	6	7	8	10	13	8	8	8	9	9	10	12	13	15	19

Table A-19

Outer Continental Shelf, 24 - 100 Miles

Ocean Going Vessels and Commercial Harbor Craft

County Emission Trends and Forecasts

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Del Norte	0	0	0	0	0	0	0	0	0	0
Humboldt	0	0	0	0	0	0	0	0	0	1
Los Angeles	0	0	0	0	0	1	1	1	1	1
Marin	0	0	0	0	0	0	0	0	0	0
Mendocino	0	0	0	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0
San Diego	0	0	0	0	0	0	0	0	0	0
San Francisco	0	0	0	0	1	1	1	1	1	1
San Luis Obispo	0	0	0	0	1	1	1	1	1	2
San Mateo	0	0	0	0	0	0	0	0	0	0
Santa Barbara	0	1	1	1	1	1	2	2	3	4
Santa Cruz	0	0	0	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0	0	0	0
Ventura	0	0	0	0	1	1	1	1	1	2
Air Basin Total	3	3	3	4	4	6	7	8	10	13

Table A-19

Outer Continental Shelf

High Emitting Facilities

Oxides of Nitrogen (NO_X)		
Facility Name	**City**	**Tons per Year**
Platform Harvest	Santa Barbara County	117

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-20

(This page intentionally left blank)

Sacramento 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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Butte	32	34	33	35	33	29	27	24	18	14	42	42	40	39	32	27	22	20	18	17
Colusa	12	12	12	17	17	14	14	13	11	10	12	10	12	11	9	8	7	7	7	7
Glenn	16	15	13	16	15	12	12	11	9	8	15	14	14	12	12	10	10	10	10	9
Placer	20	23	24	26	26	25	24	18	15	13	35	33	34	31	28	23	21	17	17	17
Sacramento	115	116	122	129	114	97	84	70	54	42	212	197	176	142	113	85	67	58	53	51
Shasta	37	40	38	44	39	39	37	34	28	24	37	41	38	37	31	28	25	23	21	20
Solano	17	23	22	27	26	24	21	19	15	11	15	22	21	21	17	14	11	10	9	8
Sutter	21	21	19	23	22	19	19	18	14	11	19	17	18	16	14	12	10	10	10	10
Tehama	19	21	18	20	18	18	18	16	12	9	16	17	16	15	12	10	9	9	8	7
Yolo	33	32	31	34	33	30	27	21	16	13	34	32	29	23	21	17	14	12	12	11
Yuba	11	14	11	11	11	10	8	7	6	5	14	17	15	13	12	10	9	9	8	8
Air Basin Total	334	351	342	381	353	318	292	249	198	161	452	443	412	361	300	243	207	184	172	166

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Butte	28	30	30	32	28	27	27	28	28	28	265	275	266	255	197	153	125	107	90	81
Colusa	15	16	16	16	16	17	17	17	17	18	55	50	47	43	35	29	25	23	22	21
Glenn	16	16	16	16	15	16	15	15	15	16	95	93	86	76	63	55	50	47	45	43
Placer	8	9	11	13	13	14	16	17	18	19	216	251	238	212	176	155	132	105	98	95
Sacramento	31	35	39	43	39	41	43	45	47	48	1487	1383	1271	1057	752	541	392	312	260	223
Shasta	30	28	29	32	31	31	33	34	35	36	320	325	321	328	268	234	218	204	193	189
Solano	9	10	10	10	10	9	9	9	9	9	129	203	187	176	119	91	69	54	44	39
Sutter	14	15	14	14	14	15	14	14	15	15	105	101	96	89	69	55	45	39	34	31
Tehama	14	15	16	15	15	15	15	15	16	16	105	107	96	98	72	57	48	41	36	32
Yolo	24	23	24	27	27	28	28	28	28	28	245	224	209	163	121	98	74	58	49	43
Yuba	10	9	9	8	8	9	9	9	9	10	100	107	89	85	71	59	53	50	47	47
Air Basin Total	199	205	212	226	215	222	226	232	237	242	3122	3120	2905	2581	1943	1528	1231	1041	917	845

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-21

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**	**2015**	**2020**
Butte	10	11	11	13	10	10	9	9	9	9
Colusa	4	4	4	4	4	4	4	4	4	4
Glenn	6	6	6	6	6	6	6	6	6	6
Placer	4	4	5	6	6	6	6	7	7	7
Sacramento	11	11	13	15	13	13	14	14	14	14
Shasta	16	13	13	15	13	13	14	14	14	15
Solano	3	3	3	3	3	3	3	3	3	3
Sutter	4	5	4	4	4	5	4	4	4	4
Tehama	4	5	5	5	5	5	5	5	4	4
Yolo	7	6	6	6	6	7	6	6	6	6
Yuba	4	3	3	3	3	3	3	3	3	4
Air Basin Total	73	71	73	81	73	74	74	75	75	76

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-21 (continued)

Sacramento Valley Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Wheelabrator Shasta	Anderson	587
Lehigh Southwest Cement	Redding	496
PG&E Delevan Compressor Station	Colusa	356
Burney Forest Products	Burney	199
Wadham Energy	Williams	154
Pacific Oroville Power	Oroville	153
Sierra Pacific Industries	Lincoln	153
Sierra Pacific Ind. - Burney	Burney	145
Johns-Manville (Insulation)	Willows	115
Sierrapine - Rocklin	Rocklin	115

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Jepson Prairie Organics Compost Facility	Vacaville	239
Johns-Manville (Insulation)	Willows	188
Insulfoam	Dixon	101

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Johns-Manville (Insulation)	Willows	199
Wheelabrator Shasta	Anderson	176
Lehigh Southwest Cement	Redding	148
Pabco Bld Prod. Dba Gladding McBean	Lincoln	113

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Wheelabrator Shasta	Anderson	163
Johns-Manville (Insulation)	Willows	116
Lehigh Southwest Cement	Redding	110

Table A-22

(This page intentionally left blank)

Salton Sea Air Basin

County Emission Trends and Forecasts

	NO_x Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Imperial	43	39	34	39	42	40	38	35	31	28
Riverside	40	43	48	60	55	51	54	41	30	23
Air Basin Total	84	82	82	99	97	90	91	76	60	51

	ROG Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Imperial	42	41	33	34	35	32	31	30	30	30
Riverside	40	42	45	41	35	24	20	17	16	16
Air Basin Total	83	83	78	76	70	56	51	47	46	46

	Directly Emitted PM_{10} Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Imperial	255	258	256	281	263	262	261	233	236	238
Riverside	12	14	15	20	19	19	17	20	22	24
Air Basin Total	267	272	271	300	282	281	278	253	258	262

	CO Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Imperial	225	215	185	185	151	117	98	86	78	74
Riverside	278	274	289	307	232	128	100	80	70	66
Air Basin Total	503	489	474	492	383	246	198	166	148	140

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Imperial	43	44	42	49	47	47	44	39	40	40
Riverside	5	5	5	6	5	5	5	4	4	4
Air Basin Total	49	48	47	55	52	51	48	44	44	44

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

Table A-23

Salton Sea Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Imperial Irrigation District	El Centro	296
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	156

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

No High Emitting Facilities

Table A-24

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
San Diego	277	261	261	297	261	226	186	153	120	97	445	434	399	332	259	212	172	149	139	137

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
San Diego	67	75	83	101	96	104	113	116	122	127	3388	3065	2895	2515	1785	1331	953	747	624	558

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
San Diego	26	27	24	29	28	30	30	31	32	33

Table A-25

San Diego Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Solar Turbines	San Diego	124

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
National Steel & Shipbuilding	San Diego	298

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-26

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Alameda	171	165	166	162	144	129	109	95	72	58	296	267	223	169	143	112	83	72	65	62
Contra Costa	254	235	187	172	154	127	89	76	65	58	244	249	191	130	118	103	68	59	55	54
Marin	28	27	26	25	23	20	16	13	10	8	54	49	42	33	29	24	18	15	14	13
Napa	17	16	17	16	16	14	12	10	7	6	32	29	26	22	20	20	14	12	11	10
San Francisco	97	102	85	85	77	69	57	49	40	34	144	123	98	71	63	49	36	31	28	27
San Mateo	91	88	82	79	74	60	48	41	36	32	157	144	117	86	76	55	40	33	30	30
Santa Clara	192	184	165	165	152	128	101	84	67	55	349	327	259	195	171	137	104	89	82	78
Solano	40	46	41	42	38	34	29	26	23	21	59	65	54	43	36	30	23	20	19	19
Sonoma	39	40	40	41	39	33	27	21	16	12	78	74	66	55	51	42	33	29	26	25
Air Basin Total	928	904	808	787	718	614	488	414	335	284	1413	1327	1075	804	707	572	420	359	331	318

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Alameda	34	33	39	39	37	43	41	43	45	47	1997	1795	1521	1136	796	600	406	324	265	234
Contra Costa	38	39	35	33	32	36	35	36	38	40	1318	1191	1055	816	618	471	330	266	227	207
Marin	7	7	8	9	9	10	10	11	11	12	387	354	294	234	170	133	94	74	63	57
Napa	8	7	8	8	9	9	9	9	9	10	194	180	161	136	117	98	71	59	50	45
San Francisco	11	12	12	12	13	16	14	15	15	16	893	813	669	476	337	252	169	132	113	103
San Mateo	13	13	16	16	16	20	19	20	21	22	1193	1097	875	640	475	320	212	157	134	124
Santa Clara	39	38	43	44	43	50	49	51	53	56	2272	2085	1697	1277	939	719	491	389	327	293
Solano	12	13	14	13	12	13	13	13	14	14	301	307	275	222	153	120	88	70	59	53
Sonoma	17	17	18	18	17	19	17	18	18	19	503	493	444	370	296	231	161	125	103	91
Air Basin Total	178	179	192	192	188	216	207	216	225	235	9056	8314	6991	5308	3901	2944	2021	1596	1340	1206

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-27

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**	**2015**	**2020**
Alameda	13	12	14	15	14	15	14	14	14	15
Contra Costa	23	23	18	18	17	17	17	17	18	18
Marin	3	4	4	5	5	5	5	5	5	5
Napa	3	3	3	4	4	4	4	4	4	4
San Francisco	5	5	5	5	6	6	6	6	6	6
San Mateo	5	5	5	6	6	7	6	6	7	7
Santa Clara	15	13	15	17	16	17	16	17	17	17
Solano	5	5	6	6	5	5	5	5	5	5
Sonoma	8	8	9	10	9	9	9	8	9	9
Air Basin Total	80	78	78	84	82	84	81	82	83	85

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-27 (continued)

San Francisco Bay Area Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Valero Refining Company - Cali	Benicia	2253
Tesoro Refining And Marketing	Martinez	1635
Hanson Permanente Cement	Cupertino	1364
Shell Martinez Refinery	Martinez	1279
Chevron Products Company	Richmond	960
ConocoPhillips Refining	Rodeo	514
ConocoPhillips - San Francisco	Rodeo	367
Owens-Brockway Glass Container	Oakland	336
PG&E Hunters Point Power	San Francisco	216
Delta Energy Center	Pittsburg	165

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Chevron Products Company	Richmond	1152
Shell Martinez Refinery	Martinez	991
Tesoro Refining And Marketing	Martinez	969
New United Motor Manufacturing	Fremont	661
ConocoPhillips - San Francisco	Rodeo	260
Valero Refining Company - Cali	Benicia	203
Ball Metal Beverage Container	Fairfield	194

Table A-28

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	355
Valero Refining Company - Cali	Benicia	232
Chevron Products Company	Richmond	225
Tesoro Refining And Marketing	Martinez	145

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Shell Martinez Refinery	Martinez	343
Chevron Products Company	Richmond	216
Valero Refining Company - Cali	Benicia	214
Tesoro Refining And Marketing	Martinez	130

Table A-28 (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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Fresno	135	152	164	170	157	132	117	102	77	62	165	155	137	127	111	97	87	81	78	78
Kern	231	338	330	278	215	178	158	140	108	83	588	716	606	198	115	104	89	82	76	73
Kings	30	24	26	30	28	30	29	28	21	17	26	24	24	20	21	19	19	18	18	19
Madera	31	38	34	36	35	34	33	32	27	23	43	26	24	24	22	20	19	18	17	17
Merced	48	53	50	61	57	56	55	48	35	26	49	46	39	43	37	34	30	29	28	29
San Joaquin	108	105	109	124	120	110	100	86	67	53	93	89	87	83	72	61	51	46	43	43
Stanislaus	50	57	52	67	62	57	52	44	32	25	66	63	60	65	57	52	45	42	40	40
Tulare	56	62	57	60	58	56	50	44	32	25	77	66	61	59	55	51	47	45	44	46
Air Basin Total	689	829	822	827	732	652	595	524	398	316	1107	1185	1037	620	490	437	387	361	346	345

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Fresno	82	77	78	94	93	92	82	81	80	82	899	849	798	740	598	492	388	330	288	266
Kern	56	56	55	59	55	55	50	50	50	51	683	764	647	562	425	345	272	224	192	173
Kings	23	22	23	28	28	29	23	24	24	24	138	126	108	98	90	75	66	58	50	48
Madera	18	20	18	22	21	21	18	18	19	19	173	183	174	156	124	111	94	86	75	70
Merced	29	29	30	40	38	37	31	31	31	31	311	292	243	250	185	148	112	88	70	59
San Joaquin	29	28	29	40	39	40	34	34	34	36	593	566	571	523	424	335	257	212	182	167
Stanislaus	25	26	26	36	35	35	29	29	29	30	365	343	323	349	269	216	158	124	102	89
Tulare	28	28	30	38	38	40	36	36	37	38	396	384	372	332	276	233	180	152	128	117
Air Basin Total	290	287	289	357	347	349	304	302	303	310	3557	3508	3237	3008	2392	1956	1528	1272	1086	988

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

Table A-29

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**	**2015**	**2020**
Fresno	38	31	31	33	31	30	29	28	27	27
Kern	31	30	27	24	21	21	19	19	18	18
Kings	8	7	7	8	7	8	7	7	7	7
Madera	8	9	7	8	8	8	7	7	7	7
Merced	9	9	9	12	10	10	9	9	8	8
San Joaquin	13	12	11	14	14	14	12	11	11	11
Stanislaus	9	9	9	12	11	11	10	10	10	10
Tulare	10	11	12	14	13	15	14	14	14	15
Air Basin Total	126	118	114	125	116	115	107	104	101	102

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

Table A-29 (continued)

San Joaquin Valley Air Basin

High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Aera Energy	Kern County	800
Guardian Industries (Glass)	Kingsburg	682
Saint-Gobain Containers	Madera	478
Sycamore Cogeneration	Kern County	462
PPG Industries	Fresno	414
Chevron USA 1128	Kern County	403
Owens-Brockway Glass Container	Tracy	393
Equilon Enterprises	Bakersfield	374
Covanta Stanislaus (Cogeneration)	Crows Landing	312
Occidental Of Elk Hills (Natural Gas)	Tupman	298

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Equilon Enterprises	Bakersfield	395
E&J Gallo Winery	Fresno	381
Crimson Resource Management	Taft	250
J G Boswell Company Oil Mill	Corcoran	227
Occidental Of Elk Hills (Natural Gas)	Kern County	175
E&J Gallo Winery	Livingston	171
Occidental Of Elk Hills (Natural Gas)	Tupman	164
Bronco Wine Company	Ceres	145
Aera Energy	Kern County	116
Chevron USA 1128	Kern County	113

Table A-30

San Joaquin Valley Air Basin
High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Chevron USA 1141	Kern County	228
Equilon Enterprises	Bakersfield	157
Chevron USA 1128	Kern County	127

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
Chevron USA 1141	Kern County	228
Equilon Enterprises	Bakersfield	152
Chevron USA 1128	Kern County	127

Table A-30 (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	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
San Luis Obispo	66	63	46	47	31	31	24	20	16	13	46	49	51	42	34	29	25	23	21	21
Santa Barbara	54	64	60	64	53	47	41	35	29	24	81	73	75	68	52	41	37	33	31	30
Ventura	95	104	91	87	71	63	53	41	32	26	108	116	104	91	73	62	51	46	44	43
Air Basin Total	215	232	197	198	156	140	118	96	77	63	235	239	230	201	159	132	113	102	96	94

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
San Luis Obispo	24	26	26	27	27	28	29	29	30	31	311	319	326	292	214	186	146	127	111	103
Santa Barbara	18	20	21	22	21	22	23	23	24	24	553	518	504	449	310	233	186	160	135	121
Ventura	21	19	19	23	22	24	24	26	27	28	576	642	633	581	430	328	240	192	166	151
Air Basin Total	63	65	67	72	70	74	76	78	80	83	1439	1479	1463	1322	954	747	572	479	412	375

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
San Luis Obispo	10	10	9	9	9	9	9	9	9	9
Santa Barbara	8	9	9	9	9	9	9	9	9	9
Ventura	11	9	7	9	8	8	8	8	8	8
Air Basin Total	29	28	25	27	25	26	25	26	26	26

Table A-31

South Central Coast Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Celite Corporation (Minerals)	Lompoc	397
Orcutt Hill (Oil Production)	Orcutt	311
ConocoPhillips - Santa Maria	Arroyo Grande	138

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
Aera Energy	Ventura	123

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
Celite Corporation (Minerals)	Lompoc	102

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

No High Emitting Facilities

Table A-32

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**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Los Angeles	1230	1063	1068	1013	851	727	597	452	349	281	1961	1555	1476	1159	862	670	436	328	292	275
Orange	252	247	267	267	230	203	166	128	99	77	467	431	431	342	262	212	141	116	106	101
Riverside	80	87	92	126	116	116	109	77	60	48	121	118	124	132	110	97	73	61	59	59
San Bernardino	129	133	135	152	135	130	113	85	72	63	169	176	180	160	130	111	85	71	69	70
Air Basin Total	1691	1530	1561	1558	1332	1177	985	742	580	468	2718	2279	2211	1793	1365	1090	735	576	526	505

	Directly Emitted PM_{10} Emissions (tons/day, annual average)										CO Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Los Angeles	146	143	155	193	180	172	146	143	143	144	12000	9230	8866	6967	4903	3475	2472	1689	1400	1229
Orange	30	37	42	60	58	60	53	54	55	56	2657	2397	2415	2014	1494	1074	780	607	516	461
Riverside	17	22	25	45	46	47	44	49	55	60	747	756	793	827	653	539	430	316	263	234
San Bernardino	30	30	31	39	40	41	38	41	44	47	1141	1222	1075	941	727	560	442	338	297	280
Air Basin Total	223	232	253	337	323	320	281	286	297	307	16544	13605	13148	10749	7777	5648	4124	2950	2476	2203

	Directly Emitted $PM_{2.5}$ Emissions (tons/day, annual average)									
County	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Los Angeles	85	74	73	77	64	62	58	56	54	54
Orange	15	16	17	20	17	18	18	18	18	17
Riverside	7	9	9	13	12	13	12	13	14	15
San Bernardino	19	16	14	15	14	15	15	16	17	17
Air Basin Total	125	114	113	125	108	108	103	102	102	103

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-33

South Coast Air Basin
High Emitting Facilities

Oxides of Nitrogen (NO_x)		
Facility Name	**City**	**Tons per Year**
Chevron Products	El Segundo	902
Tesoro Refining And Marketing	Wilmington	855
California Portland Cement	Colton	794
ExxonMobil Oil Corporation	Torrance	776
BP West Coast Products Carson Refinery	Carson	641
ConocoPhillips Company	Wilmington	617
ConocoPhillips Company	Carson	343
Ultramar (Refining)	Wilmington	342
SERRF Project	Long Beach	328
So Cal Gas Co	Northridge	223

Reactive Organic Gases (ROG)		
Facility Name	**City**	**Tons per Year**
ExxonMobil Oil Corporation	Torrance	626
Chevron Products	El Segundo	588
BP West Coast Products Carson Refinery	Carson	526
ConocoPhillips Company	Wilmington	297
Tesoro Refining And Marketing	Wilmington	221
Dart Container Corp Of California	Corona	220
Anheuser-Busch (Brewery)	Van Nuys	161
Equilon Enterprises, Shell Oil Prod. US	Carson	139
Paramount Petr Corp	Paramount	138
Ultramar (Refining)	Wilmington	129

Table A-34

South Coast Air Basin

High Emitting Facilities

Directly Emitted Particulate Matter (PM_{10})		
Facility Name	**City**	**Tons per Year**
ExxonMobil Oil Corporation	Torrance	352
Tesoro Refining And Marketing	Wilmington	318
BP West Coast Products Carson Refinery	Carson	300
Chevron Products	El Segundo	255
ConocoPhillips Company	Wilmington	190
Mountainview Generating Station	Redlands	114

Directly Emitted Particulate Matter ($PM_{2.5}$)		
Facility Name	**City**	**Tons per Year**
ExxonMobil Oil Corporation	Torrance	329
BP West Coast Products Carson Refinery	Carson	282
Tesoro Refining And Marketing	Wilmington	257
Chevron Products	El Segundo	213
ConocoPhillips Company	Wilmington	177
Mountainview Generating Station	Redlands	114

Table A-34 (continued)

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 1988 through 2007 for ozone, CO, PM_{10} ,NO_2, and $SO_{2;}$ and 1999 through 2007 for $PM_{2.5}$. 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.

Consistent with last year's almanac, is the reporting of both State and national statistics for PM_{10} and $PM_{2.5}$. State and national values 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 PM and national $PM_{2.5}$ standards use local conditions while the national PM_{10} standard uses standard conditions for data reporting.

Additional information about the data in the following 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

No Monitoring Data Available

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
Max. Annual Average (State)																				
Max. Annual Average (Nat)																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

Table A-35

Great Basin Valleys Air Basin

County: Inyo

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)					0.073	0.076	0.090	0.090	0.089	0.085	0.089	0.089	0.087	0.086	0.088	0.088	0.085	0.090	0.090	0.095
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)						0.060	0.068	0.064	0.076	0.074	0.079	0.079	0.080	0.079	0.081	0.081	0.080	0.081	0.082	0.084
Peak 1-Hour Indicator (State)					0.082	0.082	0.098	0.096	0.094	0.088	0.092	0.089	0.089	0.089	0.091	0.091	0.090	0.092	0.091	0.097
4th High 1-Hr. in 3 Yrs2					0.080	0.080	0.098	0.098	0.095	0.087	0.087	0.089	0.090	0.092	0.092	0.092	0.088	0.090	0.090	0.098
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	0.084	0.081	0.101	0.088	0.094
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	0.089	0.086	0.105	0.092	0.107
Days Above State 8-Hr. Std.				0	2	4	41	2	18	14	30	32	27	30	34	31	28	47	33	35
Days Above Nat. 8-Hr. Std.				0	1	2	17	0	8	6	14	10	8	10	13	12	9	24	9	18
Days Above State 1-Hr. Std.				0	0	0	2	0	1	0	0	0	0	1	2	0	0	1	0	3

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	119	227	866	150	64	254	388	692	309	402	1022	2708	9967	3457	7401	15641	4797	738	7709	633
Max. 24-Hr. Concentration (Nat)	394	1861	866	181	526	578	1381	3929	2383	2229	1116	2901	2638	3189	7915	16619	5225	879	8299	727
Max. 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	130.4	68.3	30.1	63.1	
Max. Annual Average (Nat)	36.1	91.0	48.3	27.0	37.3	42.5	43.6	69.9	47.3	36.8	53.8	55.2	98.8	60.4	134.1	147.3	101.0	32.3	67.5	23.0
Calc Days Above State 24-Hr Std		36	18	12	12	36	16	23	7	6	80	0	58	41	93	44	35	36	38	
Calc Days Above Nat 24-Hr Std	13	27	6	0	19	8	4	14	8	17	22	5	32	17	39	31	23	14	13	15

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												40.7	68.0	76.0	68.0	44.0	81.0	22.0	193.0	57.0
Max. 24-Hr. Concentration (Nat)												40.7	68.0	76.0	68.0	41.0	81.0	22.0	193.0	57.0
98th Percentile of 24-Hr Conc.													67.0	23.0	62.0					35.0
Annual Average (State)														5.5						5.8
Avg. of Qtrly. Means (Nat)														5.5	8.2					5.8

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-36

Great Basin Valleys Air Basin

County: Mono

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.096	0.094	0.096	0.091	0.100	0.097	0.096	0.089	0.090	0.085	0.081			0.095	0.095	0.089	0.088			
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.086	0.081	0.081	0.076	0.081	0.078	0.082	0.079	0.079	0.077	0.073					0.073	0.072			
Peak 1-Hour Indicator (State)	0.100	0.100	0.099	0.097	0.115	0.110	0.108	0.097	0.100	0.097	0.097			0.106	0.106	0.097	0.093			
4th High 1-Hr. in 3 Yrs2	0.100	0.100	0.100	0.090	0.140	0.140	0.130	0.100	0.100	0.092	0.091			0.100	0.100	0.100	0.090			
Max. 8-Hr. Concentration	0.098	0.077	0.091	0.073	0.103	0.077	0.092	0.101	0.090	0.078	0.073			0.095	0.063	0.083	0.083			
Maximum 1-Hr. Concentration	0.100	0.080	0.100	0.090	0.150	0.090	0.120	0.110	0.090	0.092	0.079			0.099	0.071	0.088	0.092			
Days Above State 8-Hr. Std.	36	6	20	3	33	15	24	7	17	13	2			17	0	12	23			
Days Above Nat. 8-Hr. Std.	26	3	9	0	19	3	14	5	6	5	0			11	0	1	12			
Days Above State 1-Hr. Std.	3	0	2	0	5	0	2	2	0	0	0			4	0	0	0			

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	166	163	161	134	493	981	92	122	158	112	88	109	8817	3643	5291	4774	803	1720	3643	8338
Max. 24-Hr. Concentration (Nat)	166	163	161	134	493	981	92	122	158	112	106	133	10466	4482	6505	5745	987	2108	4300	10020
Max. Annual Average (State)			11.6		37.0	34.2	29.8	26.0		26.4		10.0	116.8		62.3	10.5	19.6	19.5	16.8	14.6
Max. Annual Average (Nat)	28.6	34.6	39.6	28.6	36.3	59.4	29.9	26.0	22.1	26.5	20.8	12.6	121.2	34.6	81.7	97.9	62.4	83.5	93.2	114.9
Calc Days Above State 24-Hr Std			13		83	62	64	37		36		0	18		22	0	11	27	11	3
Calc Days Above Nat 24-Hr Std		7	12	0	9	6	0	0	0	0	0	0	15	0	14	26	0	0	0	19

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)													31.0	41.0		34.0	27.0	27.0		
Max. 24-Hr. Concentration (Nat)													31.0	41.0		34.0	27.0	27.0		
98th Percentile of 24-Hr Conc.														41.0						
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	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	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					
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0		0	0	0					

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-37

Lake County Air Basin

County: Lake

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.078	0.074	0.062	0.066	0.066	0.069	0.074	0.074	0.074	0.064	0.066	0.078	0.076	0.074	0.075	0.073	0.073	0.067	0.068	0.067
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.064	0.064	0.064	0.065	0.061	0.061	0.060
Peak 1-Hour Indicator (State)	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.073	0.075	0.087	0.083	0.080	0.081	0.080	0.081	0.076	0.076	0.074
4th High 1-Hr. in 3 Yrs2	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	0.070	0.070	0.070
Max. 8-Hr. Concentration	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	0.065	0.066	0.066	0.071	0.063
Maximum 1-Hr. Concentration	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	0.080	0.080	0.070	0.080	0.070
Days Above State 8-Hr. Std.	0	0	0	0	0	1	2	0	0	0	1	3	1	0	5	0	0	0	1	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Days Above State 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		29	30	31	22	30	21	30	26	18	34	40	21	23	85	32	22	20	33	19
Max. 24-Hr. Concentration (Nat)		29	30	31	22	30	21	30	26	18	35	43	22	21						
Max. Annual Average (State)		12.9			11.9	11.3	11.0	10.8	10.2	8.6			10.6	10.2	13.1	10.0	10.0	9.7	11.7	8.9
Max. Annual Average (Nat)		12.9	11.4	12.6	11.8	11.3	10.9	10.7	10.2	8.6	7.8	12.5	10.8	7.6						
Calc Days Above State 24-Hr Std		0			0	0	0	0	0	0			0	0	12	0	0	0	0	0
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0		0							

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												14.5	10.0	15.1	74.7	21.9	18.1	11.3	21.6	9.5
Max. 24-Hr. Concentration (Nat)												14.5	10.0	15.1	74.7	21.9	18.1	11.3	21.6	9.5
98th Percentile of 24-Hr Conc.													9.4	11.3	46.3	15.1	9.0	10.5	21.4	9.1
Annual Average (State)														4.1	6.3	4.4	4.4	4.8	5.1	3.3
Avg. of Qtrly. Means (Nat)													4.3	4.1	6.3	4.4	4.4	4.8	5.1	3.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-38

Lake Tahoe Air Basin

County: El Dorado

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.083	0.084	0.085	0.086	0.083	0.072	0.076	0.078	0.079	0.077	0.077	0.077	0.077	0.075	0.075	0.075	0.071	0.071	0.074	0.076
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.074	0.076	0.075	0.076	0.075		0.061	0.070	0.071	0.068	0.069	0.069	0.069	0.067	0.066	0.066	0.062			0.067
Peak 1-Hour Indicator (State)	0.089	0.092	0.092	0.093	0.088	0.079	0.079	0.083	0.084	0.083	0.082	0.081	0.081	0.081	0.082	0.081	0.077	0.072	0.079	0.080
4th High 1-Hr. in 3 Yrs2	0.090	0.090	0.090	0.090	0.090	0.080	0.083	0.086	0.083	0.083	0.081	0.081	0.081	0.083	0.083	0.083	0.078	0.073	0.086	0.086
Max. 8-Hr. Concentration	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.072	0.077	0.079	0.066	0.058	0.067	0.075	0.073
Maximum 1-Hr. Concentration	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.083	0.088	0.083	0.075	0.066	0.073	0.086	0.090
Days Above State 8-Hr. Std.	20	20	8	10	20	2	6	5	2	1	7	3	2	2	1	0	0	0	2	5
Days Above Nat. 8-Hr. Std.	8	11	1	2	5	0	2	2	0	0	1	1	0	1	1	0	0	0	0	0
Days Above State 1-Hr. Std.	0	2	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)					52	92	78	71	72	55	50	36	44	50	46	74	81	33	67	56
Max. 24-Hr. Concentration (Nat)					52	92	78	71	72	55	59	41	50	58	51	61	47	38		
Max. Annual Average (State)							27.1	22.5		21.6	19.8	16.9	17.3	16.9	17.1	17.9		14.8	17.2	
Max. Annual Average (Nat)					5.9	26.0	27.1	22.5	23.4	21.6	23.4	19.9	20.4	19.8	19.9	17.6	15.2	17.5		
Calc Days Above State 24-Hr Std							42	18		13	0	0	0	0	0	6		0	3	
Calc Days Above Nat 24-Hr Std							0	0	0	0	0	0	0	0	0	0		0		

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												21.0	23.0	31.0	27.0	24.0	23.2			
Max. 24-Hr. Concentration (Nat)												21.0	23.0	31.0	27.0	21.0	20.0			
98th Percentile of 24-Hr Conc.												21.0	21.0	26.0	22.0	19.0				
Annual Average (State)												8.3	7.8	8.2		7.2				
Avg. of Qtrly. Means (Nat)												8.3	7.7	8.2	7.6	7.2				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	1.9	2.0	1.9	1.9			
Max. 1-Hr. Concentration	19.0	17.0	18.0	14.0	15.0	13.0	11.3	9.3	10.4	7.7	7.5	3.2	5.4	2.9	3.8	2.4	2.2			
Max. 8-Hr. Concentration	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	1.9	1.9	3.0	1.5	1.2			
Days Above Nat. 8-Hr. Std.	9	5	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0			
Days Above Lake Tahoe 8-Hr. Std.	80	67	39	24	13	12	9	1	0	0	0	0	0	0	0	0	0			

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.057	0.056	0.055	0.054			
Max. 1-Hr. Concentration	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.052	0.054	0.055	0.052	0.055			
Max. Annual Average (Nat)	0.012	0.012	0.012	0.012	0.011	0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011	0.011	0.012	0.010				
Max. Annual Average (State)	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	0.010				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-39

A portion of El Dorado County lies within the Mountain Counties Air Basin.

Lake Tahoe Air Basin

County: Placer

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																0.075	0.075			
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																0.079	0.079			
4th High 1-Hr. in 3 Yrs2																0.079	0.079			
Max. 8-Hr. Concentration																0.070	0.061			
Maximum 1-Hr. Concentration																0.086	0.065			
Days Above State 8-Hr. Std.																2	0			
Days Above Nat. 8-Hr. Std.																0	0			
Days Above State 1-Hr. Std.																0	0			

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)								24	50							87	35			
Max. 24-Hr. Concentration (Nat)								24	50											
Max. Annual Average (State)																				
Max. Annual Average (Nat)								3.6	21.7											
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																27.4	8.0			
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator						3.9	3.9	3.9								1.0	1.0			
Max. 1-Hr. Concentration						9.0	11.6	9.5								1.4	0.9			
Max. 8-Hr. Concentration						4.3	4.7	2.9								0.8	0.5			
Days Above Nat. 8-Hr. Std.						0	0	0								0	0			
Days Above Lake Tahoe 8-Hr. Std.						0	0	0								0	0			

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																	0.026			
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-40

Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

Mojave Desert Air Basin

County: Kern

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)						0.124	0.113	0.118	0.111	0.108	0.114	0.110	0.110	0.105	0.104	0.107	0.106	0.108	0.098	0.098
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)								0.099	0.100	0.097	0.099	0.096	0.097	0.096	0.095	0.098	0.092	0.090	0.086	0.085
Peak 1-Hour Indicator (State)						0.140	0.129	0.137	0.125	0.122	0.125	0.121	0.121	0.116	0.115	0.117	0.114	0.117	0.107	0.107
4th High 1-Hr. in 3 Yrs2						0.130	0.130	0.142	0.123	0.123	0.126	0.119	0.119	0.118	0.116	0.118	0.113	0.111	0.109	0.108
Max. 8-Hr. Concentration						0.112	0.107	0.109	0.109	0.096	0.117	0.100	0.095	0.104	0.102	0.103	0.090	0.096	0.101	0.084
Maximum 1-Hr. Concentration						0.130	0.124	0.142	0.130	0.119	0.134	0.119	0.113	0.126	0.115	0.119	0.121	0.113	0.109	0.092
Days Above State 8-Hr. Std.						33	114	101	103	76	93	106	86	104	90	84	50	41	52	19
Days Above Nat. 8-Hr. Std.						21	82	79	78	51	71	76	58	69	61	54	21	26	27	6
Days Above State 1-Hr. Std.						15	43	54	46	22	43	39	25	33	18	31	8	8	10	0

PM_{10} (µg/m³)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		54	462	534	65	50	33	143	92	130	159	40	90	112	194	158	44	51	61	70
Max. 24-Hr. Concentration (Nat)		54	462	534	65	64	116	235	92	130	165	45	90	115	208	162	47	55	65	73
Max. Annual Average (State)									16.9	18.4	15.0	17.7	20.3	19.8	24.2	21.5	18.3		19.5	
Max. Annual Average (Nat)		25.7	34.0	36.3	21.9	21.2	15.7	18.5	16.9	18.6	16.2	19.3	21.6	21.2	26.1	22.9	20.8	19.8	21.4	22.9
Calc Days Above State 24-Hr Std									0	6	0	0	6	6	12	12	0		13	
Calc Days Above Nat 24-Hr Std			6			0		0	0	0	0	0	0	0	7	6	0	0	0	0

$PM_{2.5}$ (µg/m³)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												27.6	38.6	15.3	31.4	23.2	17.8	26.1	21.3	22.4
Max. 24-Hr. Concentration (Nat)												27.6	38.6	15.3	31.4	23.2	17.8	26.1	21.3	22.4
98th Percentile of 24-Hr Conc.														13.9	28.0			16.2	13.0	19.9
Annual Average (State)																			6.2	
Avg. of Qtrly. Means (Nat)														6.1	8.2			7.0	6.2	6.2

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator							0.063	0.067	0.072	0.072	0.072	0.067	0.070	0.066	0.067	0.064	0.062	0.063		
Max. 1-Hr. Concentration						0.070	0.060	0.120	0.075	0.075	0.082	0.083	0.071	0.071	0.071	0.073	0.064	0.044		
Max. Annual Average (Nat)							0.008	0.008	0.009	0.010	0.011	0.010	0.010	0.010	0.009	0.009	0.008			
Max. Annual Average (State)								0.008		0.010	0.011		0.010	0.010		0.009				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-41

A portion of Kern County lies within the San Joaquin Valley Air Basin.

Mojave Desert Air Basin

County: Los Angeles

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.145	0.144	0.142	0.117	0.125	0.127	0.129	0.151	0.114	0.114	0.112	0.109	0.112	0.109	0.116	0.119	0.115	0.112	0.109	0.107
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.128	0.123	0.095		0.110	0.113	0.113	0.108	0.103	0.098	0.097	0.089	0.092	0.091		0.082	0.100	0.098	0.096	0.095
Peak 1-Hour Indicator (State)	0.187	0.180	0.178	0.140	0.154	0.159	0.161	0.194	0.138	0.135	0.140	0.132	0.138	0.129	0.140	0.135	0.132	0.128	0.126	0.127
4th High 1-Hr. in 3 Yrs2	0.180	0.170	0.170	0.140	0.160	0.160	0.160	0.185	0.138	0.129	0.137	0.137	0.139	0.128	0.135	0.135	0.133	0.127	0.123	0.123
Max. 8-Hr. Concentration	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	0.120	0.101	0.103	0.105	0.101
Maximum 1-Hr. Concentration	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	0.156	0.121	0.127	0.132	0.118
Days Above State 8-Hr. Std.	123	119	76	90	101	75	78	121	58	32	53	8	79	84	87	92	85	73	66	63
Days Above Nat. 8-Hr. Std.	109	96	60	73	83	57	63	101	43	19	36	4	59	55	69	64	59	60	39	42
Days Above State 1-Hr. Std.	105	95	52	62	78	59	62	92	40	14	24	1	35	37	46	50	37	42	22	16

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)			342	780	68	70	97	61	67	54	80	85			73	54	33	47	58	181
Max. 24-Hr. Concentration (Nat)			342	780	68	70	97	61	67	54	80	85	163	123	73	57	56	53	63	188
Max. Annual Average (State)						35.1			29.0			28.6			29.7	23.2			25.2	28.3
Max. Annual Average (Nat)			49.5	58.0	32.6	34.9	29.3	25.5	29.0	29.4	23.6	28.7	27.5	29.6	29.7	24.6	22.6	25.0	26.9	30.2
Calc Days Above State 24-Hr Std						58			12			13			6	6			26	18
Calc Days Above Nat 24-Hr Std				13	0	0		0	0	0		0			0	0	0	0	0	7

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												47.6	36.0	35.0	24.0	25.0	18.0	28.0	18.0	25.0
Max. 24-Hr. Concentration (Nat)												47.6	36.0	35.0	24.0	25.0	18.0	28.0	18.0	25.0
98th Percentile of 24-Hr Conc.												23.5	21.0			17.0	15.0	16.0	13.0	20.0
Annual Average (State)												11.2				9.4		8.9	7.4	8.0
Avg. of Qtrly. Means (Nat)												11.2	10.5			9.4	8.5	8.9	7.4	8.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	2.0	2.0	1.9	1.8	1.6
Max. 1-Hr. Concentration	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	3.2	2.9	2.9	3.2	2.5
Max. 8-Hr. Concentration	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.1	4.7	4.0	3.6	5.4	4.3	3.3	2.2	1.9	1.7	1.5	1.6	1.3
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.090	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	0.071	0.072	0.071	0.070	0.067
Max. 1-Hr. Concentration	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	0.067	0.103	0.074	0.066	0.064
Max. Annual Average (Nat)	0.016	0.019	0.021	0.014	0.017	0.020	0.018	0.019	0.015	0.014	0.016	0.018	0.016		0.016	0.015	0.015	0.015	0.015	0.014
Max. Annual Average (State)	0.016	0.019		0.015	0.017	0.020	0.018	0.019	0.015				0.016		0.016	0.015	0.015	0.015	0.015	0.014

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-42

A portion of Los Angeles County lies within the South Coast Air Basin.

Mojave Desert Air Basin

County: Riverside

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.117	0.119	0.109	0.115	0.118	0.119										0.076	0.070	0.073	0.070	0.072
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.103	0.102	0.096	0.099	0.101	0.101												0.063	0.061	0.063
Peak 1-Hour Indicator (State)	0.149	0.147	0.135	0.140	0.143	0.144										0.079	0.077	0.079	0.076	0.080
4th High 1-Hr. in 3 Yrs2	0.148	0.147	0.134	0.130	0.130	0.131										0.077	0.077	0.077	0.077	0.084
Max. 8-Hr. Concentration	0.105	0.117	0.102	0.115	0.115	0.108										0.071	0.067	0.072	0.059	0.075
Maximum 1-Hr. Concentration	0.140	0.140	0.130	0.130	0.138	0.140										0.077	0.078	0.084	0.078	0.092
Days Above State 8-Hr. Std.	48	49	45	81	79	39										1	0	1	0	1
Days Above Nat. 8-Hr. Std.	40	39	31	63	59	30										0	0	0	0	0
Days Above State 1-Hr. Std.	32	31	23	33	44	18										0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
Max. Annual Average (State)																				
Max. Annual Average (Nat)																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

No Monitoring Data Available

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-43

Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

Mojave Desert Air Basin

County: San Bernardino

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.198	0.169	0.178	0.177	0.172	0.162	0.154	0.157	0.154	0.152	0.151	0.138	0.130	0.118	0.120	0.121	0.122	0.121	0.119	0.120
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.133	0.131	0.124	0.127	0.118	0.110	0.102	0.106	0.106	0.107	0.105	0.103	0.103
Peak 1-Hour Indicator (State)	0.233	0.204	0.215	0.223	0.219	0.193	0.191	0.192	0.186	0.172	0.176	0.162	0.154	0.136	0.139	0.137	0.139	0.138	0.132	0.135
4th High 1-Hr. in 3 Yrs2	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.210	0.182	0.175	0.167	0.166	0.164	0.135	0.143	0.138	0.138	0.138	0.134	0.133
Max. 8-Hr. Concentration	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	0.130	0.119	0.123	0.124	0.109
Maximum 1-Hr. Concentration	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	0.163	0.138	0.145	0.148	0.132
Days Above State 8-Hr. Std.	170	172	179	162	168	157	170	139	148	150	122	146	129	117	126	133	121	123	119	118
Days Above Nat. 8-Hr. Std.	156	163	164	147	150	142	158	122	124	117	100	115	98	82	101	97	93	88	91	93
Days Above State 1-Hr. Std.	148	150	135	132	148	129	137	109	98	95	74	74	79	52	68	78	63	59	56	46

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	63	191	381	389	80	79	140	85	138	85	70	109	80	84	98	169	83	70	77	339
Max. 24-Hr. Concentration (Nat)	63	191	381	389	80	79	140	85	138	85	70	109	95	84	98	181	88	78	83	358
Max. Annual Average (State)		42.5			39.7	34.4	27.9		28.9	27.4	15.6	32.2	33.6	29.7	34.0	27.9		26.1	30.5	36.0
Max. Annual Average (Nat)	34.7	42.5	40.9	36.9	39.4	35.2	42.1	14.7	28.9	27.3	27.8	32.1	33.6	29.8	34.3	33.2	28.4	28.9	33.0	38.4
Calc Days Above State 24-Hr Std		72			84	50	6		18	6	0	31	37	18	55	18		19	12	37
Calc Days Above Nat 24-Hr Std		6		7	0	0	0		0	0	0	0	0	0	0	8	0	0	0	7

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												25.4	31.0	32.0	38.0	28.0	34.0	27.0	22.0	28.0
Max. 24-Hr. Concentration (Nat)												25.4	31.0	31.0	38.0	28.0	34.0	27.0	22.0	28.0
98th Percentile of 24-Hr Conc.												20.4	23.0	21.0	33.0		20.0	19.0	19.0	19.0
Annual Average (State)														11.5	13.9		10.8		10.3	9.7
Avg. of Qtrly. Means (Nat)												11.9	12.0	11.5	13.9		10.8	9.7	10.4	9.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	4.2	4.1	4.1	4.2	4.3	3.8	3.8	2.9	7.4	2.3	2.4	2.1	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.6
Max. 1-Hr. Concentration	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	3.9	2.4	3.3	3.5	2.1
Max. 8-Hr. Concentration	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	2.1	1.7	1.6	1.6	1.6
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.092	0.092	0.090	0.088	0.084
Max. 1-Hr. Concentration	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	0.095	0.101	0.087	0.082	0.073
Max. Annual Average (Nat)	0.023	0.026	0.024	0.028	0.026	0.026	0.027	0.023	0.021	0.020	0.022	0.024	0.025	0.024	0.025	0.024	0.023	0.022	0.022	0.020
Max. Annual Average (State)	0.018	0.026	0.019		0.025		0.024	0.023	0.021	0.020	0.021	0.024	0.025	0.024	0.025	0.024	0.023	0.022	0.022	0.020

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.07	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max. 24-Hr. Concentration	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	0.01	0.01	0.00	0.01	0.01

Table A-44

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

Mountain Counties Air Basin

County: Amador

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)					0.101	0.099	0.100	0.104	0.107	0.108	0.115	0.114	0.113	0.102	0.101	0.095	0.093	0.096	0.095	0.093
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)							0.091	0.091	0.093	0.090	0.095	0.096	0.099	0.091	0.088	0.085	0.084	0.084	0.084	0.081
Peak 1-Hour Indicator (State)					0.117	0.115	0.118	0.119	0.123	0.124	0.134	0.130	0.127	0.115	0.113	0.110	0.110	0.110	0.109	0.107
4th High 1-Hr. in 3 Yrs2					0.120	0.120	0.120	0.119	0.123	0.127	0.128	0.128	0.126	0.118	0.111	0.108	0.110	0.107	0.111	0.111
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	0.085	0.088	0.097	0.099	0.077
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	0.111	0.110	0.116	0.127	0.089
Days Above State 8-Hr. Std.					57	40	63	52	63	26	51	64	47	28	38	30	20	22	32	11
Days Above Nat. 8-Hr. Std.					36	23	41	31	41	14	35	45	32	17	21	21	7	13	18	1
Days Above State 1-Hr. Std.					15	11	15	21	21	9	30	22	13	4	8	12	3	8	7	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)										30										
Max. 24-Hr. Concentration (Nat)										30										
Max. Annual Average (State)																				
Max. Annual Average (Nat)										20.4										
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	1.3	1.4	1.2		
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	2.2	5.7	2.4		
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	1.2	4.3	1.0		
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-45

Mountain Counties Air Basin

County: Calaveras

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)							0.109	0.106	0.109	0.110	0.116	0.113	0.114	0.104	0.104	0.103	0.104	0.103	0.104	0.103
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)									0.097	0.093	0.096	0.096	0.100	0.094	0.092	0.091	0.090	0.091	0.093	0.090
Peak 1-Hour Indicator (State)							0.123	0.120	0.123	0.124	0.129	0.123	0.124	0.117	0.116	0.117	0.117	0.117	0.115	0.114
4th High 1-Hr. in 3 Yrs2							0.121	0.121	0.130	0.130	0.130	0.124	0.124	0.120	0.117	0.117	0.113	0.113	0.124	0.124
Max. 8-Hr. Concentration							0.108	0.107	0.112	0.112	0.109	0.106	0.105	0.090	0.108	0.097	0.088	0.098	0.106	0.083
Maximum 1-Hr. Concentration							0.121	0.146	0.138	0.140	0.134	0.126	0.134	0.120	0.131	0.117	0.111	0.126	0.134	0.091
Days Above State 8-Hr. Std.							92	60	68	35	67	65	48	48	61	67	30	47	48	15
Days Above Nat. 8-Hr. Std.							72	41	47	13	49	53	32	21	41	42	12	25	35	6
Days Above State 1-Hr. Std.							35	23	24	6	27	21	16	8	14	20	7	9	13	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)							44	118	36	112	34	63	36	42	47	39	34	33	42	44
Max. 24-Hr. Concentration (Nat)							44	118	36	112	35	65	35	44	44	40	33	34	42	46
Max. Annual Average (State)								20.9	17.7		15.6		17.7	19.2	20.9	18.2	17.3	14.2	16.6	16.3
Max. Annual Average (Nat)							23.6	21.0	17.8	19.9	15.8	20.7	17.9	19.4	20.9	18.2	17.2	14.2	16.8	16.3
Calc Days Above State 24-Hr Std								12	0		0		0	0	0	0	0	0	0	0
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												33.0	48.0	31.0	40.0	20.0	24.0	21.0	23.0	24.4
Max. 24-Hr. Concentration (Nat)												33.0	48.0	31.0	40.0	20.0	24.0	21.0	23.0	24.4
98th Percentile of 24-Hr Conc.												28.0	30.0	18.0	30.0	19.0	21.0	18.0	23.0	24.0
Annual Average (State)												11.1	9.0	8.1	9.9	8.6	7.6	7.0	8.6	7.9
Avg. of Qtrly. Means (Nat)												11.1	9.0	8.1	9.9	8.6	7.6	7.0	8.6	7.9

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator							0.7	1.0	0.9	0.9	0.9	0.9	0.8	1.1	1.0	1.0	0.7	0.7		
Max. 1-Hr. Concentration							1.5	2.1	1.7	2.1	1.8	1.8	1.2	6.2	1.2	0.9	1.6	1.2		
Max. 8-Hr. Concentration							0.7	1.8	0.9	1.7	0.9	0.8	0.9	4.3	0.8	0.7	1.1	0.6		
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-46

Mountain Counties Air Basin

County: El Dorado

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)		0.125			0.114	0.111	0.113	0.117	0.122	0.119	0.125	0.124	0.126	0.119	0.124	0.127	0.126	0.116	0.111	0.114
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)							0.097	0.099	0.103	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.097	0.095	0.096
Peak 1-Hour Indicator (State)		0.131			0.128	0.122	0.127	0.128	0.137	0.140	0.147	0.143	0.143	0.136	0.142	0.146	0.143	0.130	0.122	0.126
4th High 1-Hr. in 3 Yrs2		0.130			0.120	0.120	0.124	0.124	0.136	0.145	0.145	0.145	0.144	0.144	0.148	0.148	0.145	0.139	0.126	0.126
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	0.122	0.102	0.104	0.115	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	0.145	0.113	0.116	0.130	0.115
Days Above State 8-Hr. Std.		44			83	51	77	60	83	57	64	92	76	88	102	85	66	60	80	51
Days Above Nat. 8-Hr. Std.		37			61	34	50	48	62	40	51	67	53	62	80	58	33	44	61	32
Days Above State 1-Hr. Std.		21			29	10	26	32	41	19	32	39	37	42	50	37	16	26	41	13

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)					103	62	34	53	58	62	39	46	38	51	36	50	28	25	33	36
Max. 24-Hr. Concentration (Nat)					103	62	34	53	58	62	41	49	38	52	37	51	28	27	34	37
Max. Annual Average (State)						18.4	18.0	18.1		17.4	14.3	17.7	7.3	16.0	16.4	14.4	14.8	12.9	14.1	13.6
Max. Annual Average (Nat)					21.3	18.4	18.0	18.1	17.0	17.4	14.9	18.5	16.5	16.8	17.3	15.1	15.4	13.5	14.8	14.2
Calc Days Above State 24-Hr Std						6	0	6		6	0	0	0	6	0	0	0	0	0	0
Calc Days Above Nat 24-Hr Std						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)													10.0	26.0	1.0	21.7	33.0			
Max. 24-Hr. Concentration (Nat)													10.0	26.0	1.0					
98th Percentile of 24-Hr Conc.													9.0							
Annual Average (State)													3.8							
Avg. of Qtrly. Means (Nat)													3.8							

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	0.9	0.8	1.3	1.5	0.9		
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	3.1	2.5	2.4	6.1	1.5		
Max. 8-Hr. Concentration		4.6	3.5		2.4	1.5	1.0	1.0	0.9	0.8	0.9	0.9	1.2	1.0	0.8	1.9	4.4	0.7		
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator														0.068	0.063	0.062	0.062			
Max. 1-Hr. Concentration													0.086	0.090	0.088	0.059	0.068			
Max. Annual Average (Nat)															0.001	0.002	0.002			
Max. Annual Average (State)																0.002				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-47

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mountain Counties Air Basin

County: Mariposa

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.104	0.103	0.106	0.107	0.107	0.114	0.111	0.109	0.107	0.109	0.110	0.110	0.108	0.106	0.102	0.102	0.104	0.101	0.099	0.097
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)		0.090	0.090	0.086	0.089	0.096	0.095	0.095	0.091	0.095	0.095	0.095	0.094	0.091	0.089	0.091	0.090	0.088	0.086	0.085
Peak 1-Hour Indicator (State)	0.120	0.117	0.117	0.117	0.117	0.114	0.115	0.114	0.109	0.111	0.114	0.120	0.117	0.113	0.108	0.111	0.111	0.110	0.104	0.102
4th High 1-Hr. in 3 Yrs2	0.133	0.128	0.113	0.110	0.110	0.110	0.111	0.111	0.111	0.111	0.114	0.120	0.117	0.117	0.116	0.116	0.113	0.113	0.107	0.102
Max. 8-Hr. Concentration	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	0.103	0.124	0.096	0.094	0.096
Maximum 1-Hr. Concentration	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	0.135	0.137	0.109	0.101	0.100
Days Above State 8-Hr. Std.	75	31	72	85	68	71	84	81	103	55	69	95	72	69	105	110	70	45	64	50
Days Above Nat. 8-Hr. Std.	50	13	48	62	39	57	49	52	78	25	35	67	45	42	74	71	39	20	37	25
Days Above State 1-Hr. Std.	26	2	20	19	10	17	10	20	28	7	13	16	10	4	19	15	7	6	5	4

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		84	209	350	104	126	115	71	106	62	36	75	89	277	72	58	124	73	97	116
Max. 24-Hr. Concentration (Nat)		84	209	350	104	126	115	71	106	62	40	82	98	312	76	66	133	78	104	127
Max. Annual Average (State)				48.4			33.9							29.6	25.9	21.0				
Max. Annual Average (Nat)		26.9	40.9	47.8	30.9	29.2	34.6	28.0	20.9	21.3	20.4	26.7	26.3	33.3	28.5	23.1	23.5	23.9	25.0	24.1
Calc Days Above State 24-Hr Std				95			87							37	18	6				
Calc Days Above Nat 24-Hr Std			10	14	0		0	0		0	0	0	0	6	0	0		0		0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)															29.0	54.0	148.4	73.2	36.1	134.0
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				14.2
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator																	4.8	2.8	0.5	0.5
Max. 1-Hr. Concentration					6.2											2.5	6.5	2.0	2.2	1.2
Max. 8-Hr. Concentration					4.5											1.5	5.7	1.1	0.6	0.7
Days Above State 8-Hr. Std.					0											0	0	0	0	0
Days Above Nat. 8-Hr. Std.					0											0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																			0.006	0.006
Max. 1-Hr. Concentration															0.043	0.019			0.006	0.010
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-48

Mountain Counties Air Basin

County: Nevada

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)		0.115	0.115	0.108	0.101	0.066	0.101	0.101	0.110	0.109	0.108	0.105	0.107	0.106	0.110	0.111	0.110	0.110	0.107	0.108
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)				0.092	0.088		0.049	0.076	0.087	0.089	0.095	0.095	0.096	0.097	0.098	0.098	0.097	0.098	0.096	0.095
Peak 1-Hour Indicator (State)		0.118	0.125	0.118	0.110	0.076	0.111	0.111	0.116	0.114	0.114	0.114	0.117	0.118	0.117	0.117	0.115	0.115	0.114	0.112
4th High 1-Hr. in 3 Yrs2		0.120	0.150	0.150	0.150	0.090	0.110	0.110	0.110	0.109	0.111	0.112	0.118	0.116	0.117	0.116	0.117	0.118	0.118	0.113
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	0.103	0.111	0.120	0.105	0.096
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	0.120	0.126	0.128	0.112	0.113
Days Above State 8-Hr. Std.		32	36	39	36	2	41	30	94	85	80	97	90	72	90	94	73	66	84	60
Days Above Nat. 8-Hr. Std.		25	24	26	19	2	26	23	69	53	52	69	56	48	70	60	43	42	63	37
Days Above State 1-Hr. Std.		12	8	7	2	0	8	3	22	10	16	20	21	21	24	23	11	15	19	5

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)					30	34			44	81	92	84	49							
Max. 24-Hr. Concentration (Nat)	38				30	34			90	179	114	105	62	71	53	38	107	127	167	
Max. Annual Average (State)										28.3										
Max. Annual Average (Nat)	3.5				21.7	14.4			32.2	38.3	32.5	27.9	22.5	18.5	17.8	15.5	32.3	29.9	29.0	
Calc Days Above State 24-Hr Std										41										
Calc Days Above Nat 24-Hr Std										2	0	0		0				0	1	

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												50.0	27.0	120.0	23.0	21.0	34.0	35.0	32.0	41.7
Max. 24-Hr. Concentration (Nat)												50.0	27.0	120.0	23.0	20.0	34.0	35.0	32.0	22.0
98th Percentile of 24-Hr Conc.												50.0	22.0	26.0	18.0	20.0	18.0	16.0	24.0	15.4
Annual Average (State)																7.2	7.7		6.3	6.3
Avg. of Qtrly. Means (Nat)													8.8	9.4	7.6	7.3	7.1	6.8	6.2	6.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-49

Mountain Counties Air Basin

County: Placer

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.128	0.119	0.119	0.112	0.104	0.102	0.103	0.107	0.107	0.101	0.098	0.099	0.100	0.098	0.119	0.110	0.107	0.104	0.109	0.108
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)			0.089	0.063			0.092	0.092	0.091	0.086	0.086	0.086	0.079	0.073	0.077	0.088	0.092	0.091	0.097	0.094
Peak 1-Hour Indicator (State)	0.155	0.134	0.134	0.109	0.119	0.118	0.120	0.121	0.118	0.111	0.106	0.111	0.114	0.113	0.130	0.123	0.117	0.116	0.117	0.117
4th High 1-Hr. in 3 Yrs2	0.160	0.160	0.160	0.110	0.130	0.120	0.120	0.119	0.117	0.109	0.103	0.105	0.111	0.111	0.130	0.121	0.118	0.118	0.116	0.116
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	0.097	0.102	0.108	0.111	0.090
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	0.121	0.106	0.125	0.133	0.107
Days Above State 8-Hr. Std.	79	59	2	0	59	33	56	29	22	13	39	54	0	9	54	46	42	45	64	24
Days Above Nat. 8-Hr. Std.	57	49	1	0	36	17	32	23	15	5	23	31	0	3	37	32	26	31	39	10
Days Above State 1-Hr. Std.	39	24	0	0	17	9	15	16	4	2	11	9	0	2	17	13	12	18	16	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)								86	60	74										
Max. 24-Hr. Concentration (Nat)								86	60	74										
Max. Annual Average (State)																				
Max. Annual Average (Nat)								22.9	21.8	21.9										
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std									0	0										

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-50

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Mountain Counties Air Basin

County: Plumas

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)						0.077	0.085	0.090	0.091	0.093	0.078	0.079	0.079	0.080	0.084	0.083	0.086	0.069	0.072	
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)							0.062	0.077	0.078	0.065	0.060	0.060	0.070	0.069	0.071	0.069	0.067	0.062	0.063	
Peak 1-Hour Indicator (State)						0.086	0.086	0.092	0.093	0.096	0.083	0.084	0.083	0.083	0.087	0.088	0.088	0.072	0.077	
4th High 1-Hr. in 3 Yrs2						0.090	0.090	0.092	0.092	0.092	0.090	0.084	0.083	0.084	0.089	0.089	0.089	0.074	0.087	
Max. 8-Hr. Concentration					0.040	0.076	0.083	0.096	0.080	0.042	0.074	0.077	0.076	0.072	0.084	0.064	0.066	0.068	0.074	
Maximum 1-Hr. Concentration					0.050	0.090	0.090	0.105	0.091	0.046	0.087	0.086	0.081	0.086	0.091	0.075	0.073	0.076	0.087	
Days Above State 8-Hr. Std.					0	3	25	23	6	0	2	8	2	2	50	0	0	0	1	
Days Above Nat. 8-Hr. Std.					0	1	11	15	2	0	0	1	1	0	12	0	0	0	0	
Days Above State 1-Hr. Std.					0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	113	144	138	162	120	130	98	52	55	66	69	115	67	60	48	33	37	53	50	59
Max. 24-Hr. Concentration (Nat)	113	144	138	162	120	130	98	52	55	66	74	125	75	60	49	50	58	65	54	60
Max. Annual Average (State)							33.4	24.2	21.5		25.3	25.3	19.9			17.6		18.0	17.6	
Max. Annual Average (Nat)	28.1	77.9	38.2	40.3	37.5	35.4	33.0	24.0	25.9	23.0	25.3	27.6	21.3	22.5	19.1	20.0	23.0	20.1	18.8	17.0
Calc Days Above State 24-Hr Std							42	6	6		19	24	25			0		6	0	
Calc Days Above Nat 24-Hr Std			0		0		0	0	0	0	0	0	0	0		0		0	0	

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												92.0	46.0	58.0	41.0	47.8	53.8	179.7	62.7	72.0
Max. 24-Hr. Concentration (Nat)												92.0	46.0	58.0	41.0	43.0	44.0	60.0	51.0	72.0
98th Percentile of 24-Hr Conc.												84.0	44.0	43.0	38.0	40.0	33.0	27.0	31.0	41.0
Annual Average (State)																	11.7	10.6		10.6
Avg. of Qtrly. Means (Nat)														15.6		13.3	11.7	10.6	10.9	13.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-51

Mountain Counties Air Basin

County: Sierra

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

No Monitoring Data Available

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)									114	138	60	68	34							
Max. 24-Hr. Concentration (Nat)									114	138	60	68	39							
Max. Annual Average (State)												25.0								
Max. Annual Average (Nat)									29.6	32.0	22.6	25.0	15.2							
Calc Days Above State 24-Hr Std												12								
Calc Days Above Nat 24-Hr Std										0	0	0								

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-52

Mountain Counties Air Basin

County: Tuolumne

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)		0.083	0.084	0.084	0.097	0.095	0.095	0.098	0.103	0.103	0.107	0.108	0.106	0.104	0.106	0.095	0.096	0.092	0.086	0.092
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)			0.077	0.075	0.074	0.076	0.085	0.087	0.088	0.088	0.092	0.092	0.096	0.092	0.091	0.085	0.084	0.081	0.078	0.081
Peak 1-Hour Indicator (State)		0.085	0.089	0.089	0.102	0.101	0.103	0.105	0.111	0.111	0.117	0.115	0.114	0.108	0.109	0.105	0.105	0.102	0.094	0.099
4th High 1-Hr. in 3 Yrs2	0.096	0.095	0.095	0.090	0.100	0.100	0.102	0.103	0.116	0.117	0.117	0.116	0.114	0.109	0.110	0.104	0.102	0.104	0.099	0.099
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	0.088	0.082	0.089	0.083	0.093
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	0.116	0.089	0.112	0.101	0.096
Days Above State 8-Hr. Std.	31	7	9	12	31	47	72	55	83	56	82	104	81	54	98	60	17	25	20	44
Days Above Nat. 8-Hr. Std.	13	2	3	4	17	27	31	34	52	29	58	75	57	27	62	35	3	8	6	19
Days Above State 1-Hr. Std.	2	0	0	0	2	5	8	9	25	8	21	17	13	4	16	8	0	3	3	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
Max. Annual Average (State)																				
Max. Annual Average (Nat)																				
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

No Monitoring Data Available

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	1.6	1.4	1.3		
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	2.5	1.8	2.2		
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	1.4	1.3	1.2		
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-53

North Central Coast Air Basin

County: Monterey

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.080	0.087	0.088	0.083	0.082	0.082	0.084	0.083	0.083	0.082	0.082	0.071	0.073	0.071	0.073	0.073	0.076	0.070	0.069	0.065
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.068	0.072	0.070	0.070	0.071	0.069	0.070	0.069	0.067	0.066	0.066	0.062	0.064	0.063	0.064	0.066	0.068	0.065	0.062	0.058
Peak 1-Hour Indicator (State)	0.092	0.098	0.096	0.094	0.093	0.091	0.095	0.096	0.092	0.090	0.093	0.084	0.088	0.082	0.081	0.082	0.083	0.078	0.076	0.077
4th High 1-Hr. in 3 Yrs2	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	0.082	0.080	0.080	0.080	0.080
Max. 8-Hr. Concentration	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	0.081	0.079	0.065	0.078	0.070
Maximum 1-Hr. Concentration	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	0.092	0.093	0.073	0.093	0.075
Days Above State 8-Hr. Std.	2	9	7	5	3	8	4	1	11	2	1	1	3	2	1	5	3	0	1	1
Days Above Nat. 8-Hr. Std.	1	7	1	4	3	4	3	1	2	1	1	0	1	1	0	1	1	0	1	0
Days Above State 1-Hr. Std.	0	3	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		54	56	46	41	86	50	50	50	91	54	94	77	72	60	90	58	60	51	39
Max. 24-Hr. Concentration (Nat)		54	57	58	45	86	50	50	50	91	52	91	74	68	62	87	56	58	49	37
Max. Annual Average (State)			22.5			11.6	19.5	20.6	20.0	21.4		30.3	31.2		28.9	31.6	25.9	15.8	18.0	18.2
Max. Annual Average (Nat)		25.4	29.1	23.4	19.7	19.5	19.5	20.6	20.0	29.9	27.0	29.0	29.9	29.4	27.7	30.1	24.9	18.4	17.3	17.5
Calc Days Above State 24-Hr Std			6			0	0	0	0	6		12	24		25	41	13	0	6	0
Calc Days Above Nat 24-Hr Std		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												30.8	26.4	25.6	23.5	15.9	22.3	16.2	13.0	19.2
Max. 24-Hr. Concentration (Nat)												30.8	26.4	25.6	23.5	15.9	22.3	16.2	13.0	19.2
98th Percentile of 24-Hr Conc.													21.5	21.7	22.8	14.0	15.5	14.2		15.6
Annual Average (State)														8.7	9.1	7.3		6.8		7.0
Avg. of Qtrly. Means (Nat)													7.9	8.7	9.1	7.3	7.0	6.8		7.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.0	2.0	2.0	1.6	1.6	1.5	1.4	1.2	1.2	1.1	1.0
Max. 1-Hr. Concentration	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	2.8	1.9	2.1	2.5	2.0
Max. 8-Hr. Concentration	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	1.1	1.2	0.9	1.0	1.2
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.046	0.050	0.051	0.052	0.048
Max. 1-Hr. Concentration	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	0.053	0.139	0.052	0.067	0.050
Max. Annual Average (Nat)	0.014	0.014	0.012	0.011	0.012	0.012	0.012	0.011	0.011	0.010	0.010	0.010	0.007	0.007	0.007	0.006	0.007	0.008	0.007	0.007
Max. Annual Average (State)	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	0.006	0.007	0.008	0.007	0.007

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.01	0.01	0.01																	
Max. Annual Average	0.00	0.00	0.00																	
Max. 24-Hr. Concentration	0.00	0.00	0.00																	

Table A-54

North Central Coast Air Basin

County: San Benito

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.114	0.110	0.095	0.095	0.097	0.095	0.091	0.091	0.097	0.097	0.099	0.093	0.094	0.089	0.092	0.092	0.091	0.084	0.085	0.086
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.079	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	0.081	0.081	0.076	0.075	0.074
Peak 1-Hour Indicator (State)	0.137	0.132	0.115	0.113	0.113	0.112	0.107	0.106	0.112	0.111	0.112	0.102	0.106	0.101	0.103	0.103	0.102	0.097	0.095	0.097
4th High 1-Hr. in 3 Yrs2	0.140	0.140	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	0.106	0.104	0.095	0.095	0.097
Max. 8-Hr. Concentration	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	0.088	0.083	0.085	0.088	0.083
Maximum 1-Hr. Concentration	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	0.111	0.093	0.107	0.105	0.100
Days Above State 8-Hr. Std.	48	23	28	32	28	29	23	32	49	16	33	24	22	20	36	26	12	7	20	17
Days Above Nat. 8-Hr. Std.	24	15	14	18	12	18	10	16	34	5	17	13	9	8	23	9	5	2	6	3
Days Above State 1-Hr. Std.	14	8	10	9	9	8	6	7	16	1	9	2	2	3	8	2	0	2	2	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		58	48	55	17	61	37	50	38	34	39	68	41	42	59	36	41	37	46	40
Max. 24-Hr. Concentration (Nat)		58	48	55	17	61	37	50	38	34	37	67	40	42	59	36	40	36	45	40
Max. Annual Average (State)		24.3				18.9		17.2	16.8	18.0		22.6	16.4		18.5	16.7	15.6	15.9	16.1	17.3
Max. Annual Average (Nat)		24.4	19.8	22.6	2.7	18.8	16.9	17.2	16.8	18.0	15.7	21.8	15.7	17.6	17.9	16.4	15.1	15.3	15.8	16.8
Calc Days Above State 24-Hr Std		6				12		0	0	0		13	0		7	0	0	0	0	0
Calc Days Above Nat 24-Hr Std		0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				20.9
Max. 24-Hr. Concentration (Nat)																				20.9
98th Percentile of 24-Hr Conc.																				19.4
Annual Average (State)																				6.3
Avg. of Qtrly. Means (Nat)																				6.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-55

North Central Coast Air Basin

County: Santa Cruz

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.075	0.074	0.070	0.068	0.079	0.090	0.087	0.088	0.082	0.080	0.081	0.075	0.078	0.075	0.077	0.076	0.078	0.074	0.071	0.068
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.062	0.061	0.060	0.058	0.058	0.059	0.072	0.062	0.066	0.067	0.068	0.066	0.066	0.065	0.064	0.065	0.066	0.063	0.062	0.059
Peak 1-Hour Indicator (State)	0.095	0.093	0.084	0.083	0.089	0.099	0.103	0.104	0.098	0.095	0.097	0.088	0.090	0.087	0.087	0.085	0.087	0.082	0.080	0.076
4th High 1-Hr. in 3 Yrs2	0.090	0.090	0.080	0.090	0.090	0.100	0.100	0.100	0.097	0.091	0.092	0.084	0.089	0.084	0.085	0.085	0.085	0.081	0.082	0.074
Max. 8-Hr. Concentration	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	0.074	0.083	0.066	0.071	0.069
Maximum 1-Hr. Concentration	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	0.098	0.091	0.078	0.094	0.074
Days Above State 8-Hr. Std.	0	3	1	2	1	13	4	0	7	1	1	3	2	2	1	2	3	0	1	0
Days Above Nat. 8-Hr. Std.	0	1	1	2	0	9	1	0	3	0	1	0	1	0	1	0	1	0	0	0
Days Above State 1-Hr. Std.	0	1	1	2	0	7	0	1	2	0	1	1	1	0	0	1	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	65	51	49	49	36	102	106	152	115	113	78	106	52	74	81	72	83	69	65	51
Max. 24-Hr. Concentration (Nat)	65	51	49	49	36	102	106	152	115	113	76	103	50	72	77	70	80	66	63	49
Max. Annual Average (State)			23.8	24.3		21.7	31.1	36.3	32.8	36.9		32.3	27.1		28.0	28.6	28.2	24.3	25.0	25.4
Max. Annual Average (Nat)	26.3	25.5	23.9	24.3	17.4	35.6	31.1	36.4	32.8	37.0	28.5	30.9	26.2	28.7	26.8	27.3	27.3	23.6	23.9	24.4
Calc Days Above State 24-Hr Std			0	0		12	31	71	71	72		50	18		24	31	43	12	18	6
Calc Days Above Nat 24-Hr Std			0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												31.4	23.3	23.1	22.8	15.0	22.6	21.7	12.6	18.3
Max. 24-Hr. Concentration (Nat)												31.4	23.3	23.1	22.8	15.0	22.6	21.7	12.6	18.3
98th Percentile of 24-Hr Conc.													17.9	23.1	22.0	13.6				15.7
Annual Average (State)													7.9	9.1	8.6					6.3
Avg. of Qtrly. Means (Nat)													7.9	9.1	8.6	7.4				6.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	0.9	0.8	0.8	0.9	0.9
Max. 1-Hr. Concentration	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	1.6	2.1	1.6	1.3	1.7
Max. 8-Hr. Concentration	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	0.7	1.0	0.9	0.8	1.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.036	0.035	0.031	0.032	0.032
Max. 1-Hr. Concentration	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	0.034	0.032	0.030	0.030	0.029
Max. Annual Average (Nat)	0.007	0.008	0.007		0.006		0.005	0.005	0.005	0.004	0.004	0.005	0.005	0.005	0.005		0.004	0.004	0.004	0.004
Max. Annual Average (State)		0.008			0.006		0.005		0.005		0.004	0.005	0.005	0.005	0.005			0.004	0.004	0.004

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.03	0.03	0.02	0.02	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	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00

Table A-56

North Coast Air Basin

County: Del Norte

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.055	0.051	0.064	0.064	0.061	0.059	0.058	0.055												
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)		0.042	0.046	0.044	0.051	0.050	0.051	0.049												
Peak 1-Hour Indicator (State)	0.059	0.057	0.066	0.066	0.064	0.062	0.059	0.061												
4th High 1-Hr. in 3 Yrs2	0.060	0.059	0.070	0.060	0.070	0.060	0.060	0.060												
Max. 8-Hr. Concentration	0.060	0.042	0.060	0.051	0.061	0.053	0.061	0.052												
Maximum 1-Hr. Concentration	0.068	0.050	0.070	0.060	0.070	0.060	0.064	0.056												
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0												
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0												
Days Above State 1-Hr. Std.	0	0	0	0	0	0	0	0												

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)								41	42	58	50	42	46	48	39	37	44	31	43	46
Max. 24-Hr. Concentration (Nat)								41	42	58	48	39	44	46	39	39	42	30	41	44
Max. Annual Average (State)										20.8		18.4	17.6	17.3			18.6			
Max. Annual Average (Nat)								20.5	15.8	20.9	24.7	17.3	17.4	16.9	18.7	14.1	17.9	18.0	11.3	11.8
Calc Days Above State 24-Hr Std										6		0	0	0			0			
Calc Days Above Nat 24-Hr Std								0		0		0	0	0	0		0			

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-57

North Coast Air Basin

County: Humboldt

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)			0.036	0.042	0.042															0.052
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)					0.034															
Peak 1-Hour Indicator (State)			0.041	0.048	0.048															0.052
4th High 1-Hr. in 3 Yrs2			0.040	0.040	0.040															0.052
Max. 8-Hr. Concentration			0.031	0.042	0.040														0.037	0.052
Maximum 1-Hr. Concentration			0.040	0.050	0.040														0.039	0.055
Days Above State 8-Hr. Std.			0	0	0														0	0
Days Above Nat. 8-Hr. Std.			0	0	0														0	0
Days Above State 1-Hr. Std.			0	0	0														0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		92	83				77	68	87	56	45	60	53	67	38	71	64	71	72	54
Max. 24-Hr. Concentration (Nat)	79	92	83				77	68	87	56	43	57	51	64	36	68	61	67	68	50
Max. Annual Average (State)		31.4	28.0				24.3		19.0	21.0	15.9	19.9	21.8	21.3					21.1	20.2
Max. Annual Average (Nat)	15.5	31.4	28.0				24.3	19.9	18.4	21.2	14.8	19.2	20.9	20.8	18.5	17.8	20.7	13.6	20.4	19.1
Calc Days Above State 24-Hr Std		35	29				12		12	6	0	13	6	13					12	3
Calc Days Above Nat 24-Hr Std		0	0				0	0	0	0	0	0	0	0	0		0		0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												36.9	24.0	32.6	23.7	36.1	25.6	31.8	35.0	33.8
Max. 24-Hr. Concentration (Nat)												36.9	24.0	32.6	23.7	36.1	25.6	31.8	35.0	33.8
98th Percentile of 24-Hr Conc.												27.7		29.0	22.6	36.1	23.1			27.2
Annual Average (State)												9.1		9.4						7.6
Avg. of Qtrly. Means (Nat)												9.1		9.4	7.9		8.2			7.6

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator		4.6	4.6																	1.4
Max. 1-Hr. Concentration		10.0	9.0																1.3	1.9
Max. 8-Hr. Concentration		4.5	3.5																1.2	1.3
Days Above State 8-Hr. Std.		0	0																0	0
Days Above Nat. 8-Hr. Std.		0	0																0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				0.032
Max. 1-Hr. Concentration																			0.024	0.043
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				0.01
Max. Annual Average																			0.00	0.00
Max. 24-Hr. Concentration																			0.00	0.00

Table A-58

North Coast Air Basin

County: Mendocino

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)						0.061	0.063	0.064	0.064	0.062	0.065	0.068	0.067	0.065	0.065	0.067	0.068	0.064	0.067	0.067
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)							0.050	0.056	0.052	0.050	0.052	0.058	0.058	0.055	0.055	0.057	0.058	0.057	0.057	0.056
Peak 1-Hour Indicator (State)						0.073	0.076	0.076	0.077	0.075	0.080	0.079	0.079	0.077	0.076	0.080	0.080	0.075	0.075	0.076
4th High 1-Hr. in 3 Yrs2						0.080	0.080	0.080	0.074	0.069	0.069	0.073	0.073	0.073	0.083	0.083	0.083	0.071	0.078	0.080
Max. 8-Hr. Concentration	0.076				0.043	0.065	0.061	0.065	0.049	0.061	0.071	0.069	0.059	0.055	0.072	0.066	0.056	0.060	0.069	0.067
Maximum 1-Hr. Concentration	0.090				0.060	0.080	0.087	0.084	0.058	0.071	0.090	0.079	0.071	0.070	0.092	0.090	0.070	0.088	0.081	0.080
Days Above State 8-Hr. Std.	3				0	0	0	0	0	0	1	0	0	0	2	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
Days Above State 1-Hr. Std.	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	101	82	60	74	51	54	62	54	56	66	52	69	51	64	72	67	45	49	60	47
Max. 24-Hr. Concentration (Nat)	101	82	60	74	51	54	62	54	56	66	50	66	49	61	74	65	44	46	57	46
Max. 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	22.2	20.6	18.6	21.9	20.6
Max. Annual Average (Nat)	27.1	29.9	23.7	25.3	21.8	22.6	23.9	26.1	24.6	23.4	21.1	24.3	22.4	24.1	22.2	21.4	19.8	17.9	20.9	19.6
Calc Days Above State 24-Hr Std		40	24	17	6	13	6	13	7	6	6		6	24	12	25	0	0	6	0
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												35.6	22.3	38.3	59.7	15.6	18.5	20.8	21.0	16.4
Max. 24-Hr. Concentration (Nat)												35.6	20.0	38.3	59.7	15.6	18.5	20.8	21.0	16.4
98th Percentile of 24-Hr Conc.												26.2		27.0	39.7	15.2	14.4	15.2	17.4	13.3
Annual Average (State)												8.8			9.1	7.4	7.0	6.2	6.8	4.7
Avg. of Qtrly. Means (Nat)												8.8		8.0	9.1	7.4	7.0	6.2	6.8	4.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator						2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.3	2.6	2.3	2.0	1.8	1.7	1.6
Max. 1-Hr. Concentration	1.0				1.0	6.0		5.4	4.8	7.4	4.8	5.2	4.4	4.0	3.1	5.3	2.3	2.6	2.2	2.1
Max. 8-Hr. Concentration	1.0				0.6	2.4		3.2	2.7	3.2	3.5	3.7	2.6	2.3	2.5	2.2	1.8	1.5	1.6	1.7
Days Above State 8-Hr. Std.	0				0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator						0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053	0.052	0.042	0.045	0.044	0.039	0.039	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	0.053	0.037	0.037	0.040	0.037
Max. Annual Average (Nat)							0.009	0.009		0.010	0.010	0.010	0.011	0.010	0.010	0.009	0.009	0.008	0.009	0.008
Max. Annual Average (State)							0.008	0.009		0.010	0.010	0.010	0.011	0.010	0.009	0.009	0.009	0.008	0.009	0.008

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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-59

North Coast Air Basin

County: Sonoma

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)					0.070	0.074	0.072	0.075	0.074	0.082	0.091	0.097	0.093	0.081	0.071	0.071	0.070	0.065	0.064	0.065
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)							0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069	0.063	0.062	0.061	0.056	0.055	0.055
Peak 1-Hour Indicator (State)					0.085	0.088	0.088	0.088	0.086	0.091	0.104	0.110	0.106	0.093	0.083	0.082	0.082	0.077	0.075	0.073
4th High 1-Hr. in 3 Yrs2					0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100	0.080	0.080	0.080	0.080	0.080	0.070
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	0.080	0.077	0.060	0.060	0.067
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	0.090	0.090	0.080	0.070	0.070
Days Above State 8-Hr. Std.					2	3	3	4	2	9	11	9	1	1	0	1	1	0	0	0
Days Above Nat. 8-Hr. Std.					0	0	2	2	0	4	7	6	1	0	0	1	1	0	0	0
Days Above State 1-Hr. Std.					0	0	1	1	0	2	7	4	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	62	85	266	78	58	53	57	43	40	54	33	74	45	63	37	45	33	39	30	43
Max. 24-Hr. Concentration (Nat)	62	85	266	78	58	53	57	43	40	54	32	71	44	59	36	45	33	37	30	41
Max. Annual Average (State)			23.8	24.8		20.7	18.4		16.4	16.5	16.6	19.4	12.6		15.6	15.1	15.7	14.1	16.2	13.9
Max. Annual Average (Nat)	21.3	24.7	23.8	25.1	21.4	20.3	18.4	13.7	16.5	16.5	16.0	18.3	14.7	15.0	15.0	14.8	15.2	13.9	15.6	13.4
Calc Days Above State 24-Hr Std			22	23		12	13		0	5	0	18	0		0	0	0	0	0	0
Calc Days Above Nat 24-Hr Std		0	6	0		0	0		0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-60

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

North Coast Air Basin

County: Trinity

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

No Monitoring Data Available

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)									63	54	47	95	51	72	53	54	43	32	154	52
Max. 24-Hr. Concentration (Nat)								41	72	54	46	100	51	73	52	57	42	32	161	51
Max. Annual Average (State)										17.8	18.1	24.3	18.8							16.5
Max. Annual Average (Nat)								17.4	17.7	18.0	18.7	25.3	18.7	20.5	16.7	17.3	13.2	7.6	25.8	17.3
Calc Days Above State 24-Hr Std										6	0	36	7							4
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0						0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-61

Northeast Plateau Air Basin

County: Lassen

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

No Monitoring Data Available

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)									42	84	48	93	74	91						
Max. 24-Hr. Concentration (Nat)									42	84	52	100	80	105						
Max. Annual Average (State)																				
Max. Annual Average (Nat)									15.6	20.2	14.7	32.9	27.9	25.1						
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std																				

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-62

Northeast Plateau Air Basin

County: Modoc

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

No Monitoring Data Available

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)							101	78	74	97	41	89	74							
Max. 24-Hr. Concentration (Nat)							101	78	74	97	62	94	79	67						
Max. Annual Average (State)																				
Max. Annual Average (Nat)							29.6	30.3	16.2	17.3	14.2	26.3	22.4	19.8						
Calc Days Above State 24-Hr Std																				
Calc Days Above Nat 24-Hr Std								0				0	0	0						

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												40.0	38.0	35.0	5.0	10.0				
Max. 24-Hr. Concentration (Nat)												40.0	38.0	35.0	5.0	10.0				
98th Percentile of 24-Hr Conc.												27.0	37.0							
Annual Average (State)													8.5							
Avg. of Qtrly. Means (Nat)												7.9	8.5							

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-63

Northeast Plateau Air Basin

County: Siskiyou

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.076	0.076	0.076	0.077	0.073	0.069	0.069	0.066	0.066	0.068	0.071	0.071	0.072	0.070	0.074	0.075	0.075	0.074	0.073	0.073
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.057	0.065	0.064	0.064	0.063
Peak 1-Hour Indicator (State)	0.081	0.083	0.082	0.084	0.080	0.073	0.075	0.074	0.075	0.073	0.075	0.077	0.079	0.081	0.085	0.082	0.082	0.078	0.078	0.077
4th High 1-Hr. in 3 Yrs2	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.078	0.077	0.081	0.082	0.082	0.087	0.081	0.077	0.076	0.074
Max. 8-Hr. Concentration	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	0.074	0.071	0.064	0.072	0.064
Maximum 1-Hr. Concentration	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	0.089	0.077	0.070	0.080	0.072
Days Above State 8-Hr. Std.	1	2	3	0	1	0	0	0	0	1	1	0	1	0	1	3	1	0	2	0
Days Above Nat. 8-Hr. Std.	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above State 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		59	63	60	74	60	61	46	188	40	63	51	33	33	73	31	29	28	44	189
Max. 24-Hr. Concentration (Nat)		59	63	60	74	60	61	46	188	40	66	56	53	41	86	33	32	29	50	205
Max. Annual Average (State)		24.8			23.6		22.1	16.0				16.8			17.5	12.8	12.8	13.3	13.4	4.6
Max. Annual Average (Nat)		24.8	23.5	21.4	23.6	21.4	22.1	16.6	16.1	12.9	14.2	17.7	14.7	14.1	18.6	13.3	13.6	13.9	14.1	18.0
Calc Days Above State 24-Hr Std		29			24		0	0				0			6	0	0	0	0	0
Calc Days Above Nat 24-Hr Std		0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	8

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																		26.0	22.0	
Max. 24-Hr. Concentration (Nat)																		26.0	22.0	
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-64

Sacramento Valley Air Basin

County: Butte

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.092	0.094	0.092	0.087	0.086	0.085	0.088	0.089	0.089	0.082	0.082	0.090	0.100	0.099	0.099	0.099	0.100	0.092	0.094	0.093
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.081	0.082	0.080	0.077	0.076	0.075	0.078	0.078	0.077	0.072	0.072	0.077	0.081	0.081	0.089	0.089	0.088	0.083	0.084	0.084
Peak 1-Hour Indicator (State)	0.104	0.105	0.103	0.099	0.094	0.091	0.095	0.097	0.095	0.091	0.091	0.101	0.102	0.102	0.103	0.102	0.103	0.099	0.099	0.098
4th High 1-Hr. in 3 Yrs2	0.100	0.100	0.100	0.100	0.090	0.090	0.095	0.097	0.097	0.091	0.096	0.103	0.105	0.101	0.107	0.102	0.103	0.101	0.102	0.100
Max. 8-Hr. Concentration	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	0.091	0.094	0.085	0.094	0.095
Maximum 1-Hr. Concentration	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	0.101	0.103	0.092	0.104	0.102
Days Above State 8-Hr. Std.	25	18	16	9	20	15	46	11	17	1	10	30	43	39	66	45	37	31	59	30
Days Above Nat. 8-Hr. Std.	12	9	4	2	5	6	20	4	3	0	5	14	24	24	43	22	14	15	33	12
Days Above State 1-Hr. Std.	8	4	2	1	0	1	3	1	2	0	2	7	5	4	10	5	2	0	8	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	100	82			83	78	93	64	66	108	71	94	85	112	96	54	115	76	81	108
Max. 24-Hr. Concentration (Nat)	100	82			83	78	93	64	66	108	68	95	81	105	92	54	110	71	76	116
Max. Annual Average (State)						28.0	33.3	27.0	25.2	25.2	22.8	31.1	27.9	29.9	28.8	21.7	28.8	23.9	26.9	21.8
Max. Annual Average (Nat)	30.5	25.3			24.6	27.6	33.3	26.2	25.5	24.9	22.3	30.5	27.6	29.3	28.2	21.3	28.1	23.4	26.3	21.3
Calc Days Above State 24-Hr Std						46	36	37	16	21	18	49	39	31	37	6	30	29	41	12
Calc Days Above Nat 24-Hr Std						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											69.0	73.0	98.0	65.0	96.1	67.0	76.3	82.7	76.1	83.7
Max. 24-Hr. Concentration (Nat)											69.0	73.0	98.0	65.0	84.0	33.0	65.0	67.0	67.0	53.9
98th Percentile of 24-Hr Conc.											69.0	60.0	70.0	56.0	53.0	32.0	54.0	54.0	59.0	53.0
Annual Average (State)												17.5	15.8		15.1	15.9	16.5	13.8	14.6	14.4
Avg. of Qtrly. Means (Nat)												17.5	15.8	13.0	15.1	10.5	15.1	12.3	13.2	10.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	3.5	3.1	3.0	3.0	2.8
Max. 1-Hr. Concentration	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	3.9	3.6	3.3	4.3	3.3
Max. 8-Hr. Concentration	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	2.5	2.9	2.7	2.7	2.2
Days Above State 8-Hr. Std.	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.058	0.058	0.056	0.053	0.050
Max. 1-Hr. Concentration	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	0.057	0.056	0.048	0.048	0.046
Max. Annual Average (Nat)	0.016	0.016	0.015	0.015	0.016	0.016	0.015	0.014	0.013	0.013	0.013	0.015	0.012	0.012	0.012	0.011	0.011	0.009	0.009	0.010
Max. Annual Average (State)	0.016	0.016	0.015		0.016	0.016	0.015	0.014	0.013	0.013	0.013	0.015	0.013	0.012	0.012	0.011	0.011	0.009	0.009	

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-65

Sacramento Valley Air Basin

County: Colusa

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)					0.095	0.097	0.094	0.097	0.098	0.091	0.089	0.087	0.084	0.090	0.088	0.087	0.078	0.075	0.078	0.079
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)						0.079	0.082	0.082	0.081		0.077	0.076	0.075	0.077	0.076	0.075	0.069	0.067	0.067	0.067
Peak 1-Hour Indicator (State)					0.109	0.108	0.108	0.105	0.109	0.101	0.100	0.094	0.094	0.099	0.098	0.096	0.089	0.084	0.084	0.083
4th High 1-Hr. in 3 Yrs2					0.100	0.100	0.100	0.101	0.111	0.101	0.099	0.094	0.094	0.095	0.095	0.095	0.089	0.083	0.084	0.083
Max. 8-Hr. Concentration				0.084	0.092	0.085	0.090	0.090	0.091	0.081	0.088	0.085	0.072	0.088	0.081	0.071	0.073	0.074	0.076	0.067
Maximum 1-Hr. Concentration				0.100	0.110	0.100	0.107	0.106	0.111	0.093	0.099	0.095	0.092	0.101	0.094	0.089	0.084	0.085	0.084	0.080
Days Above State 8-Hr. Std.				5	34	14	36	21	30	13	13	15	5	23	10	1	1	2	2	0
Days Above Nat. 8-Hr. Std.				3	20	10	22	13	17	3	4	5	0	12	4	0	0	0	1	0
Days Above State 1-Hr. Std.				1	8	3	4	6	6	0	2	1	0	5	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	98	72	93	102	84	70	57	93	57	57	59	172	55	76	64	69	81	92	69	43
Max. 24-Hr. Concentration (Nat)	98	72	93	102	84	83	204	198	60	57	58	171	55	74	62	68	81	91	68	43
Max. Annual Average (State)		29.8	31.3		29.9	25.0	28.9			25.1	20.0			25.2				25.5		22.0
Max. Annual Average (Nat)	29.4	29.8	30.9	38.4	28.7	28.6	30.1	40.7	27.1	24.6	19.5	33.5	23.2	24.5	28.4	23.8	18.5	23.8	19.3	21.5
Calc Days Above State 24-Hr Std		35	35		42	20	26			12	6			7				26		0
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	1	0	0	0	0	6	0	0	0	0		0		0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											37.0	55.0	28.0	36.0	57.0	30.0	44.6	47.2	61.0	58.0
Max. 24-Hr. Concentration (Nat)											37.0	55.0	28.0	36.0	57.0	30.0	38.0	34.0	50.0	30.0
98th Percentile of 24-Hr Conc.											37.0	47.0	26.0	31.0	54.0	27.0	34.0	16.0	30.0	28.0
Annual Average (State)														9.6			7.3	11.2	7.9	9.0
Avg. of Qtrly. Means (Nat)													8.0	9.6			7.3	7.0	7.9	6.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-66

Sacramento Valley Air Basin

County: Glenn

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)			0.091	0.094	0.093	0.093	0.092	0.089	0.088	0.088	0.084	0.090	0.088	0.089	0.083	0.083	0.078	0.077	0.074	0.076
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)					0.081	0.080	0.076		0.079	0.077	0.076	0.078	0.077	0.077	0.074	0.073	0.070	0.067	0.064	
Peak 1-Hour Indicator (State)			0.102	0.104	0.101	0.103	0.101	0.099	0.098	0.097	0.093	0.097	0.097	0.097	0.092	0.091	0.088	0.085	0.079	0.083
4th High 1-Hr. in 3 Yrs2			0.100	0.100	0.100	0.100	0.100	0.099	0.098	0.092	0.095	0.097	0.097	0.096	0.088	0.088	0.087	0.086	0.086	0.086
Max. 8-Hr. Concentration			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	0.079	0.070	0.070	0.070	0.078
Maximum 1-Hr. Concentration			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	0.090	0.084	0.077	0.086	0.091
Days Above State 8-Hr. Std.			21	9	42	17	32	27	19	11	10	26	7	18	9	8	1	1	0	3
Days Above Nat. 8-Hr. Std.			12	5	22	6	16	11	9	5	4	14	2	4	1	1	0	0	0	2
Days Above State 1-Hr. Std.			3	1	6	1	3	1	1	1	2	4	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	93	73	63	81	111	75	80	88	75	72	55	88	65	68	80	61	138	69	77	43
Max. 24-Hr. Concentration (Nat)	93	73	63	81	111	75	80	88	75	72	53	88	65	68	77	61	135	67	78	43
Max. 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	20.4	25.6	21.5		20.1
Max. Annual Average (Nat)	32.8	27.1	28.0	32.3	28.4	23.1	24.5	27.6	24.7	22.4	19.6	26.1	22.2	25.5	28.6	20.1	25.2	21.1	20.0	19.4
Calc Days Above State 24-Hr Std		18	23	83	46	16		57	29	10	12		6		41	18	24	18		0
Calc Days Above Nat 24-Hr Std		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0		0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																	54.2	45.1	59.1	50.6
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				10.2
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-67

Sacramento Valley Air Basin

County: Placer

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.125	0.127	0.128	0.125	0.126	0.121	0.120	0.122	0.120	0.115	0.115	0.116	0.120	0.119	0.119	0.116	0.110	0.103	0.106	0.106
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.108	0.105	0.107	0.105	0.105	0.101	0.103	0.105	0.103	0.095	0.095	0.097	0.102	0.101	0.101	0.099	0.095	0.092	0.093	0.089
Peak 1-Hour Indicator (State)	0.153	0.148	0.150	0.138	0.146	0.139	0.142	0.135	0.139	0.134	0.137	0.129	0.134	0.125	0.131	0.128	0.123	0.114	0.118	0.117
4th High 1-Hr. in 3 Yrs2	0.160	0.150	0.150	0.150	0.160	0.150	0.140	0.134	0.131	0.131	0.131	0.133	0.142	0.127	0.129	0.126	0.126	0.117	0.120	0.120
Max. 8-Hr. Concentration	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	0.111	0.101	0.107	0.114	0.100
Maximum 1-Hr. Concentration	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	0.133	0.118	0.120	0.129	0.109
Days Above State 8-Hr. Std.	106	60	95	73	82	52	82	60	74	31	60	74	60	57	60	49	56	44	69	28
Days Above Nat. 8-Hr. Std.	74	36	70	56	61	35	53	38	57	18	44	47	41	44	44	31	33	32	56	13
Days Above State 1-Hr. Std.	55	23	42	36	46	23	35	35	33	10	23	28	25	32	25	17	15	17	28	4

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)				55	48	52	65	84	98	66	75	89	62	62	61	59	43	58	55	45
Max. 24-Hr. Concentration (Nat)				55	48	52	65	84	98	66	70	89	58	59	58	58	43	55	54	43
Max. Annual Average (State)						21.4	25.3	24.1	20.9	22.1	23.0	26.7	24.5	24.7	25.2	21.3	22.1	19.6	22.4	17.8
Max. Annual Average (Nat)				7.1	17.4	24.3	25.0	27.3	23.6	21.8	22.3	26.1	23.9	24.2	24.6	21.0	21.6	19.1	22.0	17.0
Calc Days Above State 24-Hr Std						0	16	7	0	0	18	31	11	24	6	6	0	6	6	0
Calc Days Above Nat 24-Hr Std						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											63.0	79.0	51.0	49.0	53.0	30.0	47.8	59.2	54.7	48.7
Max. 24-Hr. Concentration (Nat)											63.0	79.0	51.0	49.0	53.0	30.0	32.0	51.0	45.0	30.0
98th Percentile of 24-Hr Conc.											63.0	40.0	43.0	49.0	40.0	26.0	30.0	28.0	36.0	27.0
Annual Average (State)												13.4	12.2	11.9	13.2	9.9	9.4	10.0	10.5	12.2
Avg. of Qtrly. Means (Nat)												13.4	12.2	11.9	13.2	9.9	9.4	10.0	10.5	8.4

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	2.0	1.8	1.5		
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	2.4	2.6	2.0		
Max. 8-Hr. Concentration				3.3	2.3	2.8	3.0	2.2	2.8	2.2	2.4	2.2	2.4	1.9	2.8	1.6	1.9	1.3		
Days Above State 8-Hr. Std.				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Days Above Nat. 8-Hr. Std.				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	0.087	0.086	0.082	0.073	0.071
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	0.083	0.067	0.079	0.063	0.058
Max. Annual Average (Nat)					0.015	0.016	0.018	0.017	0.016	0.015	0.016	0.012	0.016	0.015	0.016	0.014	0.013	0.013	0.013	0.012
Max. Annual Average (State)					0.015	0.016	0.018	0.017	0.016	0.015	0.016	0.012	0.016	0.015	0.016	0.014	0.013	0.013	0.013	0.012

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-68

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento Valley Air Basin

County: Sacramento

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.134	0.133	0.132	0.128	0.129	0.130	0.121	0.123	0.126	0.120	0.130	0.128	0.122	0.116	0.115	0.115	0.117	0.116	0.115	0.118
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.114	0.114	0.101	0.100	0.101	0.110	0.104	0.106	0.106	0.097	0.095	0.101	0.105	0.099	0.100	0.100	0.097	0.097	0.097	0.098
Peak 1-Hour Indicator (State)	0.168	0.164	0.162	0.153	0.158	0.159	0.151	0.148	0.152	0.138	0.159	0.154	0.152	0.139	0.136	0.137	0.133	0.131	0.130	0.132
4th High 1-Hr. in 3 Yrs2	0.160	0.160	0.160	0.150	0.150	0.150	0.142	0.145	0.145	0.143	0.149	0.149	0.149	0.138	0.134	0.138	0.138	0.131	0.134	0.134
Max. 8-Hr. Concentration	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	0.118	0.094	0.117	0.112	0.122
Maximum 1-Hr. Concentration	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	0.140	0.114	0.134	0.143	0.138
Days Above State 8-Hr. Std.	103	86	48	83	75	41	53	54	70	41	51	60	50	62	66	70	51	45	68	39
Days Above Nat. 8-Hr. Std.	82	65	33	65	54	36	46	42	56	33	45	51	41	50	48	51	33	33	46	23
Days Above State 1-Hr. Std.	86	61	29	55	52	26	36	39	49	21	42	40	31	31	39	40	20	29	39	14

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	99	147	153	134	89	113	99	90	86	108	114	141	90	96	91	123	87	109	111	98
Max. 24-Hr. Concentration (Nat)	99	147	153	134	89	113	99	90	86	108	104	141	86	89	86	75	58	110	109	94
Max. Annual Average (State)		41.9			31.2	29.4	29.1	28.0	25.6	23.5	23.3	29.7	25.9		27.6	28.8	25.4	27.9	26.6	28.1
Max. Annual Average (Nat)	30.1	41.9	51.9	42.3	31.1	31.5	30.2	28.8	24.9	23.2	27.0	33.1	26.7	26.5	29.0	28.4	24.6	27.2	37.8	27.5
Calc Days Above State 24-Hr Std		82			34	43	23	42	24	12	18	49	36		30	25	6	42	40	36
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											96.0	108.0	123.1	128.2	91.0	73.2	58.2	81.4	78.0	61.0
Max. 24-Hr. Concentration (Nat)											96.0	108.0	81.0	78.0	91.0	65.0	51.0	80.0	78.0	61.0
98th Percentile of 24-Hr Conc.											96.0	84.0	81.0	53.0	63.0	43.0	42.0	49.0	55.0	53.0
Annual Average (State)													12.3			12.2	11.5	12.5	15.2	12.3
Avg. of Qtrly. Means (Nat)												19.9	12.3		14.3	12.3	11.5	11.5	13.1	12.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	4.4	4.2	4.4	4.2	4.2
Max. 1-Hr. Concentration	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	8.5	7.3	8.0	7.5	6.3
Max. 8-Hr. Concentration	11.6	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.1	4.2	4.2	5.6
Days Above State 8-Hr. Std.	11	22	14	8	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	8	22	12	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.089	0.091	0.084	0.076	0.070
Max. 1-Hr. Concentration	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	0.102	0.146	0.074	0.097	0.127
Max. Annual Average (Nat)	0.025	0.021	0.023	0.024	0.021	0.022	0.022	0.022	0.022	0.019	0.021	0.021	0.019	0.019	0.020	0.018	0.017	0.016	0.016	0.015
Max. Annual Average (State)	0.024	0.02	0.023	0.024	0.021	0.014	0.022	0.022	0.022	0.019	0.02	0.021	0.019	0.019	0.02	0.015	0.017	0.016	0.016	0.015

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.02	0.01	0.01	0.01	0.01
Max. Annual Average	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	0.00
Max. 24-Hr. Concentration	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	0.01	0.00	0.00	0.00	0.00

Table A-69

Sacramento Valley Air Basin

County: Shasta

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.111	0.108	0.113	0.108	0.106	0.103	0.105	0.100	0.106	0.105	0.116	0.114	0.114	0.100	0.092	0.103	0.098	0.095	0.091	0.087
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.088	0.085	0.073	0.072	0.090	0.083	0.084	0.080	0.087	0.086	0.095	0.095	0.093	0.082	0.078	0.073	0.075	0.084	0.080	0.078
Peak 1-Hour Indicator (State)	0.122	0.119	0.130	0.120	0.117	0.112	0.114	0.107	0.117	0.118	0.131	0.130	0.129	0.112	0.103	0.122	0.114	0.110	0.102	0.099
4th High 1-Hr. in 3 Yrs2	0.130	0.130	0.130	0.130	0.120	0.110	0.111	0.111	0.111	0.110	0.140	0.140	0.140	0.111	0.098	0.108	0.114	0.108	0.103	0.097
Max. 8-Hr. Concentration	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	0.079	0.084	0.096	0.096	0.089	0.086	0.080
Maximum 1-Hr. Concentration	0.120	0.090	0.130	0.110	0.110	0.110	0.113	0.099	0.110	0.118	0.140	0.116	0.102	0.087	0.097	0.113	0.131	0.105	0.107	0.089
Days Above State 8-Hr. Std.	25	18	30	40	31	10	44	24	41	37	82	62	26	19	21	24	38	19	25	23
Days Above Nat. 8-Hr. Std.	15	7	18	29	20	6	28	14	30	19	70	41	12	2	13	13	11	8	10	6
Days Above State 1-Hr. Std.	5	0	13	12	10	1	7	3	16	8	40	23	3	0	4	9	3	3	2	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		91	80	83	86	91	64	55	51	63	61	81	53	71	58	52	74	50	53	57
Max. 24-Hr. Concentration (Nat)		91	80	83	86	91	64	55	51	63	61	81	49	66	60	53	76	47	54	55
Max. Annual Average (State)				28.7		20.1	24.4	25.1	24.3		23.4		24.3	24.1	20.8	21.7	23.6	22.3	23.2	20.3
Max. Annual Average (Nat)		33.2	27.7	31.5	23.1	36.9	26.7	25.2	24.3	22.2	23.5	23.7	23.7	23.7	25.9	21.5	23.5	22.3	23.3	20.1
Calc Days Above State 24-Hr Std				50		7	12	13	6		18		6	6	6	12	6	0	6	0
Calc Days Above Nat 24-Hr Std			0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											50.0	57.0	45.0	49.0	40.0	34.0	26.0	20.0	31.0	18.6
Max. 24-Hr. Concentration (Nat)											50.0	57.0	45.0	49.0	40.0	34.0	26.0	20.0	31.0	18.6
98th Percentile of 24-Hr Conc.											50.0	55.0	35.0	29.0	40.0	16.0	18.0	19.0	29.0	16.8
Annual Average (State)												12.9		9.2		7.5		7.3	8.7	5.6
Avg. of Qtrly. Means (Nat)												12.9		9.2		7.5	7.2	7.3	8.7	5.6

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator		2.4	2.3	2.3	2.7	2.0	2.0													
Max. 1-Hr. Concentration	4.0	4.0	4.0	3.0	3.0	4.0	4.5													
Max. 8-Hr. Concentration	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													
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0													

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.093	0.090	0.081	0.069	0.069															
Max. 1-Hr. Concentration	0.100	0.080	0.070	0.070	0.050															
Max. Annual Average (Nat)	0.013			0.012	0.012															
Max. Annual Average (State)				0.012																

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-70

Sacramento Valley Air Basin

County: Solano

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.099	0.098	0.094					0.093	0.096	0.094	0.102	0.106	0.106	0.096	0.086	0.088	0.087	0.087	0.089	0.087
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.079	0.082	0.075							0.076	0.082	0.085	0.085	0.077	0.072	0.068		0.071	0.073	0.074
Peak 1-Hour Indicator (State)	0.109	0.111	0.103					0.120	0.115	0.116	0.118	0.124	0.123	0.113	0.101	0.103	0.099	0.099	0.101	0.102
4th High 1-Hr. in 3 Yrs2	0.110	0.120	0.110					0.115	0.117	0.115	0.123	0.123	0.123	0.110	0.100	0.096	0.095	0.095	0.102	0.104
Max. 8-Hr. Concentration	0.088	0.101	0.088					0.090	0.101	0.083	0.101	0.106	0.081	0.081	0.077	0.081	0.087	0.080	0.087	0.078
Maximum 1-Hr. Concentration	0.100	0.120	0.110					0.115	0.126	0.105	0.137	0.139	0.100	0.104	0.100	0.094	0.101	0.101	0.108	0.103
Days Above State 8-Hr. Std.	18	6	3					7	24	5	28	22	5	5	6	7	3	5	10	4
Days Above Nat. 8-Hr. Std.	8	3	2					4	12	3	14	14	3	1	2	2	1	2	6	2
Days Above State 1-Hr. Std.	2	4	1					6	8	3	10	8	2	2	1	0	1	1	4	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	81	109	96	98	70	53	76	62	45	74	62	68	50	82	66	42	44	35	60	42
Max. 24-Hr. Concentration (Nat)	81	109	96	98	70	53	76	62	45	74	56	66	47	77	63	40	44	33	56	39
Max. Annual Average (State)					24.4		21.2	18.9	17.3	16.1	17.7	20.5	19.0	20.8	19.9	16.0	18.7	16.4	18.2	14.7
Max. Annual Average (Nat)	24.3	46.0	21.0	40.6	24.4	22.4	21.2	19.0	17.3	16.1	17.2	19.8	18.3	20.2	19.4	15.7	18.2	16.1	18.2	14.3
Calc Days Above State 24-Hr Std					24		18	13	0	6	6	18	0	12	6	0	0	0	6	0
Calc Days Above Nat 24-Hr Std					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-71

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

Sacramento Valley Air Basin

County: Sutter

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.108	0.107	0.100	0.095	0.102	0.114	0.109	0.110	0.107	0.106	0.106	0.104	0.104	0.100	0.103	0.109	0.108	0.097	0.095	0.095
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.095	0.091	0.082	0.076	0.082	0.082	0.085	0.096	0.096	0.091	0.091	0.089	0.089	0.083	0.084	0.088	0.090	0.083	0.082	0.081
Peak 1-Hour Indicator (State)	0.128	0.123	0.121	0.105	0.111	0.126	0.123	0.120	0.115	0.114	0.120	0.116	0.115	0.108	0.113	0.121	0.120	0.106	0.100	0.102
4th High 1-Hr. in 3 Yrs2	0.140	0.140	0.120	0.100	0.110	0.120	0.120	0.115	0.115	0.109	0.124	0.124	0.124	0.106	0.117	0.117	0.117	0.113	0.102	0.102
Max. 8-Hr. Concentration	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	0.099	0.089	0.083	0.097	0.085
Maximum 1-Hr. Concentration	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	0.117	0.100	0.096	0.110	0.098
Days Above State 8-Hr. Std.	77	22	13	28	69	37	88	54	81	25	53	62	33	28	38	38	24	20	44	19
Days Above Nat. 8-Hr. Std.	58	12	5	17	45	26	57	36	58	12	39	41	20	14	23	24	12	5	25	8
Days Above State 1-Hr. Std.	41	4	2	10	29	13	25	21	28	5	16	21	9	6	15	10	2	1	6	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		103	96	108	79	78	154	128	82	98	63	151	70	82	75	83	53	60	66	54
Max. 24-Hr. Concentration (Nat)		103	96	108	79	78	154	128	82	98	60	150	70	80	74	81	53	59	63	51
Max. Annual Average (State)			38.5	39.2	35.2	31.2			29.9	28.8	24.5	39.4		30.5	31.8	26.4		25.0		
Max. Annual Average (Nat)		37.9	38.5	38.5	34.3	30.7	34.5	30.4	29.8	28.6	23.8	38.4	27.9	30.2	30.9	26.0	20.0	24.7	23.0	19.7
Calc Days Above State 24-Hr Std			74	104	61	43			27	22	30	62		50	25	31		31		
Calc Days Above Nat 24-Hr Std			0	0	0	0	0		0	0	0	0	0	0	0	0		0		0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)											69.0	58.0	44.0	56.0	62.0	32.0	41.0	47.2	51.6	55.8
Max. 24-Hr. Concentration (Nat)											66.0	56.0	44.0	56.0	62.0	32.0	39.0	45.0	42.0	45.0
98th Percentile of 24-Hr Conc.											66.0	56.0	38.0	54.0	34.0	29.0	38.0	42.0	41.0	34.0
Annual Average (State)												15.9	11.2	11.9	13.1	9.4	10.1	10.2	11.2	
Avg. of Qtrly. Means (Nat)												16.3	10.6	11.9	13.6	9.5	10.0	9.5	11.3	8.2

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	3.6	3.1	2.8	2.9	
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	4.3	5.8	4.4	3.1	
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	2.4	2.5	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	
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	0.078	0.075	0.071	0.065	0.062
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	0.080	0.066	0.062	0.070	0.054
Max. Annual Average (Nat)					0.017	0.017	0.016	0.013	0.012	0.014	0.013	0.014	0.013	0.014	0.015	0.014	0.012	0.012	0.012	0.012
Max. Annual Average (State)					0.017	0.017	0.016	0.013	0.012	0.014	0.013	0.014			0.015	0.014	0.012	0.012	0.011	0.012

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-72

Sacramento Valley Air Basin

County: Tehama

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)			0.111	0.103	0.100	0.097	0.097	0.100	0.093	0.092	0.099	0.108	0.109	0.105	0.094	0.095	0.095	0.091	0.096	0.096
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)					0.089	0.086	0.086	0.086		0.083	0.086	0.091	0.091	0.086	0.083	0.084	0.085	0.082	0.083	0.083
Peak 1-Hour Indicator (State)			0.120	0.115	0.113	0.106	0.104	0.108	0.102	0.099	0.107	0.114	0.115	0.111	0.101	0.106	0.103	0.098	0.099	0.097
4th High 1-Hr. in 3 Yrs2			0.120	0.110	0.110	0.100	0.100	0.100	0.108	0.101	0.120	0.120	0.120	0.114	0.101	0.101	0.101	0.099	0.099	0.099
Max. 8-Hr. Concentration			0.100	0.085	0.091	0.093	0.087	0.103	0.084	0.093	0.112	0.108	0.088	0.085	0.095	0.088	0.089	0.086	0.092	0.087
Maximum 1-Hr. Concentration			0.120	0.110	0.100	0.100	0.100	0.110	0.108	0.101	0.120	0.128	0.095	0.094	0.109	0.102	0.097	0.098	0.099	0.091
Days Above State 8-Hr. Std.			37	38	39	18	25	40	43	27	62	73	33	31	44	40	51	36	48	32
Days Above Nat. 8-Hr. Std.			29	23	30	8	12	26	30	18	40	49	16	13	23	24	21	12	34	14
Days Above State 1-Hr. Std.			15	6	9	5	2	10	4	2	12	18	2	0	7	6	2	2	4	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		68	67	85	75	67	74	63	56	58	118	99	49	73	71	58	57	43	70	57
Max. 24-Hr. Concentration (Nat)		68	67	85	75	67	74	63	56	58	119	98	49	71	69	58	57	41	70	56
Max. Annual Average (State)		31.4	29.7	32.4	29.3	24.9											25.0		26.1	22.6
Max. Annual Average (Nat)		31.4	29.7	32.5	29.3	25.0	30.0	25.2	20.6	22.5	23.6	28.8	23.6	26.2	30.5	22.6	24.5	21.9	25.6	22.1
Calc Days Above State 24-Hr Std		42	24	67	30	18											12		24	6
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0			0			0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-73

Sacramento Valley Air Basin

County: Yolo

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.105	0.105	0.103	0.098	0.100	0.097	0.095	0.092	0.096	0.096	0.098	0.100	0.100	0.097	0.096	0.096	0.094	0.087	0.091	0.094
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.087	0.085	0.080	0.077	0.080	0.078	0.079	0.078	0.082	0.079	0.080	0.081	0.085	0.082	0.083	0.083	0.079	0.077	0.079	0.080
Peak 1-Hour Indicator (State)	0.125	0.120	0.116	0.113	0.112	0.110	0.109	0.107	0.108	0.110	0.117	0.115	0.115	0.112	0.108	0.109	0.108	0.102	0.104	0.104
4th High 1-Hr. in 3 Yrs2	0.140	0.140	0.120	0.110	0.110	0.110	0.110	0.108	0.111	0.108	0.114	0.111	0.110	0.105	0.101	0.101	0.100	0.097	0.102	0.106
Max. 8-Hr. Concentration	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	0.084	0.075	0.086	0.094	0.091
Maximum 1-Hr. Concentration	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	0.102	0.121	0.098	0.096	0.099	0.106	0.106
Days Above State 8-Hr. Std.	39	11	22	12	30	12	13	15	38	4	27	28	20	11	22	21	6	14	24	5
Days Above Nat. 8-Hr. Std.	31	3	14	6	18	4	6	10	19	2	19	19	9	5	14	10	0	6	15	3
Days Above State 1-Hr. Std.	32	3	9	4	14	1	4	9	13	2	10	10	7	6	10	4	1	2	7	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)			147	136	106	96	98	145	77	126	130	179	85	101	87	70	171	66	78	119
Max. 24-Hr. Concentration (Nat)			147	136	106	96	98	145	77	126	130	179	79	95	82	69	169	63	77	119
Max. Annual Average (State)					34.7	30.5		29.9	27.5	27.7	29.9	33.3	26.6	28.2	28.0		35.2	24.2	28.8	25.4
Max. Annual Average (Nat)			36.7	46.4	42.3	31.8	29.8	36.8	27.5	27.6	29.0	32.5	25.7	27.4	27.2	23.4	34.5	23.7	27.9	25.2
Calc Days Above State 24-Hr Std					70	63		43	44	12	60	64	43	30	37		80	30	53	32
Calc Days Above Nat 24-Hr Std					0	0	0	0	0	0	0	7	0	0	0	0	6	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												70.0	46.0	57.0	69.0	41.7	49.5	59.5	78.6	62.1
Max. 24-Hr. Concentration (Nat)												70.0	46.0	57.0	69.0	31.0	36.0	35.0	44.0	42.0
98th Percentile of 24-Hr Conc.												56.0	38.0	35.0	31.0	28.0	31.0	24.0	36.0	39.5
Annual Average (State)													10.3			8.4	10.4		9.3	8.8
Avg. of Qtrly. Means (Nat)												16.3	10.3		10.7	8.4	10.4	8.4	9.3	8.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	1.1	1.1	0.9	0.8	
Max. 1-Hr. Concentration	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	15.1	1.9	3.3	1.6	0.9	0.9	
Max. 8-Hr. Concentration	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	2.5	1.4	0.8	1.0	0.7	0.6	
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator									0.064	0.061	0.064	0.069	0.069	0.082	0.075	0.076	0.060	0.052	0.050	0.049
Max. 1-Hr. Concentration									0.061	0.057	0.060	0.073	0.053	0.172	0.059	0.060	0.057	0.043	0.045	0.046
Max. Annual Average (Nat)										0.010	0.011	0.012	0.011	0.010	0.012	0.011	0.009	0.009	0.009	0.008
Max. Annual Average (State)										0.01	0.011	0.012	0.011	0.01	0.012	0.011	0.009	0.009	0.009	0.008

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-74

Sacramento Valley Air Basin

County: Yuba

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)																				
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)																				
Peak 1-Hour Indicator (State)																				
4th High 1-Hr. in 3 Yrs2																				
Max. 8-Hr. Concentration																				
Maximum 1-Hr. Concentration																				
Days Above State 8-Hr. Std.																				
Days Above Nat. 8-Hr. Std.																				
Days Above State 1-Hr. Std.																				

No Monitoring Data Available

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	96	113	80	102																
Max. 24-Hr. Concentration (Nat)	96	113	80	102																
Max. Annual Average (State)			31.1																	
Max. Annual Average (Nat)	51.2	30.9	31.3	38.2																
Calc Days Above State 24-Hr Std			43																	
Calc Days Above Nat 24-Hr Std			0																	

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. 1-Hr. Concentration																				
Max. Annual Average (Nat)																				
Max. Annual Average (State)																				

No Monitoring Data Available

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-75

Salton Sea Air Basin

County: Imperial

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.090	0.092	0.094	0.088	0.116	0.119	0.119	0.121	0.120	0.119	0.115	0.114	0.103	0.107	0.103	0.101	0.097	0.098	0.099	0.100
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.073	0.075	0.076	0.075	0.079	0.095	0.104	0.105	0.103	0.103	0.093	0.091	0.089	0.092	0.087	0.087	0.085	0.084	0.085	0.087
Peak 1-Hour Indicator (State)	0.107	0.107	0.113	0.109	0.150	0.157	0.154	0.164	0.157	0.155	0.145	0.149	0.149	0.153	0.142	0.129	0.120	0.115	0.114	0.119
4th High 1-Hr. in 3 Yrs2	0.110	0.110	0.110	0.110	0.170	0.170	0.150	0.205	0.192	0.180	0.150	0.160	0.157	0.166	0.147	0.142	0.121	0.121	0.118	0.118
Max. 8-Hr. Concentration	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	0.097	0.090	0.100	0.101	0.101
Maximum 1-Hr. Concentration	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	0.144	0.124	0.122	0.129	0.118
Days Above State 8-Hr. Std.	26	7	4	19	79	91	131	103	87	140	85	94	23	55	55	45	39	64	54	51
Days Above Nat. 8-Hr. Std.	14	5	2	8	56	62	102	85	72	107	51	63	13	34	32	23	15	37	33	27
Days Above State 1-Hr. Std.	17	4	6	9	46	50	75	83	69	69	44	65	20	41	29	23	10	20	24	20

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	368	676	258	243	103	175	258	229	359	532	181	238	279	634	361	848	195	220	261	296
Max. 24-Hr. Concentration (Nat)	368	676	258	243	103	175	258	229	359	532	185	227	268	647	373	840	201	211	248	291
Max. 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	80.9	79.7	60.3	52.7	71.6	65.5
Max. Annual Average (Nat)	61.8	77.9	57.3	58.9	47.5	53.3	75.1	71.9	73.6	77.7	74.1	77.8	95.2	86.2	79.9	80.0	60.8	53.2	70.9	65.6
Calc Days Above State 24-Hr Std		221	197	182	143	144		218	244	294	227	289	313	312	305	284	220	160	241	219
Calc Days Above Nat 24-Hr Std		27	12	7	0	13	0	13	30	12	12	32	38	18	18	25	6	6	16	14

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

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												52.5	84.2	60.2	142.7	153.6	76.0	85.2	80.8	95.0
Max. 24-Hr. Concentration (Nat)												52.5	84.2	60.2	46.5	65.1	74.2	67.6	68.8	52.7
98th Percentile of 24-Hr Conc.												43.2	56.0	50.4	44.1	44.3	31.9	41.1	46.0	29.5
Annual Average (State)															15.1		16.1	15.5	17.3	23.2
Avg. of Qtrly. Means (Nat)												15.2	16.9	14.9	15.1	9.2	11.8	9.4	12.5	8.5

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator							17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3	12.8	11.5	10.5	8.4	8.0	7.3
Max. 1-Hr. Concentration							30.6	32.0	27.0	24.0	23.5	22.9	19.9	17.4	15.6	11.8	12.6	12.4	14.3	10.4
Max. 8-Hr. Concentration							13.1	22.9	22.1	17.8	14.4	17.9	15.5	12.3	11.6	8.8	10.3	9.0	9.8	7.5
Days Above State 8-Hr. Std.							10	17	11	15	12	13	8	6	4	0	1	0	1	0
Days Above Nat. 8-Hr. Std.							9	15	9	10	8	11	6	6	3	0	1	0	1	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator							0.153	0.182	0.178	0.178	0.150	0.145	0.170	0.161	0.153	0.147	0.128	0.113	0.102	0.099
Max. 1-Hr. Concentration							0.227	0.217	0.164	0.128	0.257	0.286	0.192	0.139	0.138	0.189	0.108	0.131	0.101	0.112
Max. Annual Average (Nat)								0.016	0.014	0.015	0.012	0.018	0.019	0.014	0.013	0.013	0.015	0.015	0.014	0.014
Max. Annual Average (State)								0.016	0.014			0.018			0.013	0.012	0.015	0.015	0.014	0.014

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator									0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.00	0.00	0.00	0.03	0.03
Max. Annual Average							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							0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00

Table A-76

Salton Sea Air Basin

County: Riverside

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.146	0.148	0.146	0.146	0.140	0.136	0.132	0.130	0.128	0.126	0.128	0.118	0.116	0.114	0.123	0.125	0.121	0.120	0.119	0.117
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.108	0.104	0.104	0.102	0.101
Peak 1-Hour Indicator (State)	0.182	0.180	0.181	0.175	0.168	0.159	0.162	0.160	0.154	0.152	0.153	0.143	0.138	0.130	0.136	0.136	0.132	0.131	0.131	0.130
4th High 1-Hr. in 3 Yrs2	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	0.133	0.131	0.130	0.127	0.127
Max. 8-Hr. Concentration	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	0.110	0.106	0.116	0.109	0.102
Maximum 1-Hr. Concentration	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	0.141	0.125	0.139	0.126	0.126
Days Above State 8-Hr. Std.	122	143	107	110	105	113	102	86	99	79	68	80	92	103	104	94	101	87	85	89
Days Above Nat. 8-Hr. Std.	106	125	89	91	84	96	74	64	78	54	52	46	64	79	86	75	70	67	67	63
Days Above State 1-Hr. Std.	99	117	82	80	82	82	78	56	61	45	42	33	43	56	54	60	46	43	37	30

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	115	712	520	340	175	125	97	199	215	182	158	119	201	604	276	302	161	106	222	211
Max. 24-Hr. Concentration (Nat)	115	712	520	340	175	125	97	199	215	182	158	119	201	604	276	309	161	106	226	210
Max. 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	53.9	56.1	40.6	45.4	27.8	56.2
Max. 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	56.7	40.2	44.9	39.8	55.6
Calc Days Above State 24-Hr Std		104	254	230	115	151	136	162	189		146	19	183	171	174	158	74	122	20	213
Calc Days Above Nat 24-Hr Std		26	26	19	6	0	0	7	13	13	3	0	9	18	9	9	3	0	7	6

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												29.6	28.6	44.7	42.3	26.8	28.5	44.3	26.4	32.5
Max. 24-Hr. Concentration (Nat)												29.6	28.6	44.7	42.3	26.8	28.5	44.3	24.7	32.5
98th Percentile of 24-Hr Conc.													26.2	33.0	23.3	24.9	26.8		19.0	20.5
Annual Average (State)													11.2		10.0	11.4	9.7			
Avg. of Qtrly. Means (Nat)													11.2	12.2	11.9	11.4	10.7		9.5	8.6

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	1.4	1.1	0.9	0.8	0.8
Max. 1-Hr. Concentration	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	3.3	2.1	2.1	2.3	1.5
Max. 8-Hr. Concentration	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	1.3	0.8	0.8	0.9	0.8
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.070	0.069	0.068	0.067	0.064
Max. 1-Hr. Concentration	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	0.067	0.066	0.059	0.093	0.063
Max. Annual Average (Nat)	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020	0.015	0.016	0.018	0.016	0.017	0.016	0.016	0.013	0.012	0.010	0.010
Max. Annual Average (State)	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.02		0.016	0.018	0.016	0.017	0.016	0.016	0.013	0.012	0.01	0.01

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-77

Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin

County: San Diego

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.138	0.142	0.146	0.141	0.135	0.128	0.124	0.126	0.122	0.117	0.119	0.117	0.116	0.104	0.106	0.104	0.101	0.097	0.099	0.101
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.089	0.086	0.088	0.089
Peak 1-Hour Indicator (State)	0.179	0.187	0.181	0.171	0.162	0.152	0.151	0.149	0.142	0.132	0.133	0.133	0.131	0.118	0.117	0.116	0.111	0.110	0.111	0.116
4th High 1-Hr. in 3 Yrs2	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113
Max. 8-Hr. Concentration	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	0.095	0.089	0.100	0.092
Maximum 1-Hr. Concentration	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	0.129	0.113	0.121	0.134
Days Above State 8-Hr. Std.	189	189	167	144	133	127	122	127	89	73	88	74	75	64	56	59	43	51	68	50
Days Above Nat. 8-Hr. Std.	170	164	143	112	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27
Days Above State 1-Hr. Std.	160	159	139	106	97	90	79	96	51	43	54	27	24	29	15	24	12	16	23	21

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	80	90	115	81	67	159	129	121	93	125	89	119	136	106	131	289	138	154	134	392
Max. 24-Hr. Concentration (Nat)	80	90	115	81	67	159	129	121	93	125	89	121	139	107	130	280	137	155	133	394
Max. Annual Average (State)		44.4	32.8	40.7	29.0	45.8	50.7	47.1	30.2	46.6	42.5	50.9	44.5	47.4	52.4	52.6	51.7	28.6	54.1	58.5
Max. Annual Average (Nat)	40.0	43.8	37.6	40.6	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1	54.9	52.1	51.2	49.8	53.7	58.8
Calc Days Above State 24-Hr Std		114	38	84	12	134	134	122	12	125	107	124	109	129	173	151	175	13	159	159
Calc Days Above Nat 24-Hr Std		0	0	0	0	6	0	0	0	0	0	0	0	0	0	6	0	0	0	6

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	151.0
Max. 24-Hr. Concentration (Nat)												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	126.2
98th Percentile of 24-Hr Conc.												45.1	48.7	40.8	39.3	46.9	37.4	30.2	28.4	37.7
Annual Average (State)															15.5	14.4	14.1		13.1	13.3
Avg. of Qtrly. Means (Nat)												18.0	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	5.0	4.6	4.4	3.8	4.3
Max. 1-Hr. Concentration	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	12.7	6.9	7.9	10.8	8.7
Max. 8-Hr. Concentration	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	10.6	4.1	4.7	3.6	5.2
Days Above State 8-Hr. Std.	5	6	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Days Above Nat. 8-Hr. Std.	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.130	0.119	0.121	0.108	0.109
Max. 1-Hr. Concentration	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	0.148	0.125	0.109	0.097	0.101
Max. Annual Average (Nat)	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	0.021	0.023	0.024	0.024	0.022
Max. Annual Average (State)	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	0.021	0.023	0.018	0.024	0.022

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.07	0.07	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	0.04	0.03	0.04	0.04	0.03
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	0.01	0.00	0.00	0.00
Max. 24-Hr. Concentration	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	0.01	0.02	0.01	0.01	0.01

Table A-78

San Francisco Bay Area Air Basin

County: Alameda

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.109	0.111	0.107	0.102	0.100	0.098	0.095	0.107	0.116	0.114	0.114	0.111	0.114	0.095	0.099	0.101	0.098	0.094	0.097	0.095
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.066	0.081	0.084	0.083	0.078	0.080	0.077
Peak 1-Hour Indicator (State)	0.142	0.138	0.137	0.130	0.130	0.126	0.121	0.136	0.151	0.149	0.151	0.143	0.144	0.122	0.125	0.129	0.127	0.122	0.123	0.122
4th High 1-Hr. in 3 Yrs2	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	0.123	0.123	0.113	0.118	0.120
Max. 8-Hr. Concentration	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	0.094	0.080	0.090	0.101	0.091
Maximum 1-Hr. Concentration	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	0.128	0.113	0.120	0.127	0.120
Days Above State 8-Hr. Std.	27	20	9	15	16	11	8	22	24	7	22	22	7	14	14	13	7	7	16	3
Days Above Nat. 8-Hr. Std.	22	14	8	12	7	7	4	19	19	4	16	15	4	7	10	6	4	2	10	2
Days Above State 1-Hr. Std.	27	14	9	19	16	8	7	21	23	6	22	15	9	9	11	11	6	6	14	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	69	108	137	155	99	84	97	52	71	63	66	90	74	114	66	37	49	54	69	75
Max. 24-Hr. Concentration (Nat)	69	108	137	155	99	84	97	52	71	65	63	88	71	109	64	37	47	52	68	71
Max. 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	25.1	25.0	18.9	20.0	18.8	21.8	19.8
Max. Annual Average (Nat)	29.6	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	18.6	19.7	18.5	21.5	19.5
Calc Days Above State 24-Hr Std		76	59	85	30	18	18	6	6	12	12	18	12	24	12	0	0	6	17	12
Calc Days Above Nat 24-Hr Std		0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												63.1	56.4	107.5	84.5	42.0	49.6	55.6	51.5	54.9
Max. 24-Hr. Concentration (Nat)												63.1	56.4	107.5	61.6	42.0	40.8	33.4	50.8	54.9
98th Percentile of 24-Hr Conc.												63.1	38.3	57.1	50.5	24.2	35.3	28.7	36.6	39.2
Annual Average (State)													10.5	12.4	13.8	9.0	11.4	10.2	11.1	9.0
Avg. of Qtrly. Means (Nat)													11.2	12.4	13.8	9.0	10.2	9.0		9.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	6.6	6.6	6.8	7.0	6.4	5.8	4.8	4.8	4.9	4.4	4.5	4.7	4.6	4.4	5.5	5.5	3.0	2.7	2.0	1.9
Max. 1-Hr. Concentration	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	6.0	3.5	3.4	3.3	3.3
Max. 8-Hr. Concentration	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	4.4	2.6	2.4	1.8	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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.139	0.138	0.138	0.133	0.120	0.112	0.092	0.091	0.090	0.089	0.087	0.094	0.090	0.090	0.077	0.075	0.067	0.065	0.062	0.061
Max. 1-Hr. Concentration	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	0.076	0.063	0.072	0.064	0.059
Max. Annual Average (Nat)	0.026	0.025	0.023	0.024	0.022	0.022	0.022	0.021	0.022	0.020	0.020	0.022	0.020	0.019	0.019	0.017	0.015	0.015	0.015	0.014
Max. Annual Average (State)	0.026	0.026	0.023	0.024	0.022	0.022	0.022	0.021	0.022	0.020	0.020	0.022	0.020	0.019	0.019	0.017	0.015	0.015	0.015	0.014

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator															0.02	0.02				
Max. Annual Average														0.00	0.00	0.00				0.00
Max. 24-Hr. Concentration														0.00	0.01	0.01				0.00

Table A-79

San Francisco Bay Area Air Basin

County: Contra Costa

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.103	0.106	0.099	0.096	0.094	0.094	0.094	0.098	0.103	0.101	0.103	0.104	0.103	0.097	0.094	0.095	0.094	0.088	0.090	0.088
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.081	0.079	0.073	0.074	0.073
Peak 1-Hour Indicator (State)	0.129	0.129	0.115	0.113	0.112	0.112	0.113	0.124	0.126	0.123	0.127	0.128	0.127	0.120	0.112	0.114	0.109	0.103	0.107	0.106
4th High 1-Hr. in 3 Yrs2	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	0.106	0.100	0.098	0.107	0.107
Max. 8-Hr. Concentration	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	0.085	0.083	0.080	0.093	0.081
Maximum 1-Hr. Concentration	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	0.101	0.105	0.098	0.117	0.105
Days Above State 8-Hr. Std.	20	19	11	13	10	16	10	19	22	5	20	17	11	14	13	12	8	2	15	4
Days Above Nat. 8-Hr. Std.	14	13	7	5	7	13	7	13	13	2	15	8	6	9	9	8	4	2	14	1
Days Above State 1-Hr. Std.	12	12	7	5	7	10	6	12	15	4	16	8	2	7	10	5	3	1	12	2

PM_{10} (µg/m^3)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		115	147	123	73	81	87	73	76	78	71	104	65	112	77	59	64	64	84	59
Max. 24-Hr. Concentration (Nat)		115	147	123	73	81	87	73	76	78	67	101	62	106	73	58	62	62	84	56
Max. 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	23.6	24.5	19.4	21.7	20.1	19.9	19.4
Max. Annual Average (Nat)		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	20.2	21.1	19.5	19.4	18.8
Calc Days Above State 24-Hr Std		53	41	79	47	37	24	18	6	12	17	37	12	25	18	6	6	6	18	24
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ (µg/m^3)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												56.6	52.6	103.6	76.7	49.7	73.7	48.9	62.1	46.8
Max. 24-Hr. Concentration (Nat)												56.6	52.6	85.4	76.7	49.7	73.7	48.9	62.1	46.2
98th Percentile of 24-Hr Conc.												44.1	44.8	43.3	57.3	33.8	38.1	40.9	33.6	34.9
Annual Average (State)													10.9	12.9	13.7	9.7	11.5	9.3	10.0	8.7
Avg. of Qtrly. Means (Nat)													11.1	10.9	13.0	9.7		9.1	9.3	8.4

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	2.6	2.4	2.0	2.0	1.8
Max. 1-Hr. Concentration	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	3.4	4.1	3.3	3.3	2.8
Max. 8-Hr. Concentration	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	2.0	2.0	1.7	1.9	1.5
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.062	0.059	0.056	0.052	0.054
Max. 1-Hr. Concentration	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	0.070	0.065	0.058	0.055	0.052
Max. Annual Average (Nat)	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	0.013	0.013	0.012	0.013	0.012
Max. Annual Average (State)	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	0.013	0.013	0.012	0.013	0.012

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.07	0.06	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.05	0.04	0.05	0.03	0.03	0.04
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	0.02	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	0.01	0.01	0.01	0.01	0.01

Table A-80

San Francisco Bay Area Air Basin

County: Marin

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.070	0.070	0.066	0.064	0.060	0.057	0.060	0.066	0.067	0.064	0.060	0.061	0.061	0.061	0.055	0.057	0.057	0.057	0.056	0.055
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.048	0.049	0.051	0.050	0.048
Peak 1-Hour Indicator (State)	0.094	0.095	0.085	0.075	0.066	0.075	0.081	0.089	0.089	0.087	0.081	0.085	0.083	0.081	0.070	0.072	0.076	0.076	0.077	0.072
4th High 1-Hr. in 3 Yrs2	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	0.077	0.077	0.081	0.081	0.075
Max. 8-Hr. Concentration	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	0.067	0.063	0.059	0.058	0.057
Maximum 1-Hr. Concentration	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	0.087	0.091	0.081	0.089	0.072
Days Above State 8-Hr. Std.	1	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Days Above State 1-Hr. Std.	1	0	0	0	0	0	0	0	2	1	0	2	0	0	0	0	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	91	73	115	115	63	69	72	74	50	72	55	78	42	83	73	41	52	39	68	56
Max. 24-Hr. Concentration (Nat)	91	73	115	115	63	69	72	74	50	72	52	76	40	79	70	39	51	37	65	53
Max. Annual Average (State)		29.7	25.8	30.6	24.4	23.4	24.2	20.9	21.7	21.9	20.9	22.8		21.1	22.2	17.6	17.9	16.5	18.1	17.5
Max. Annual Average (Nat)	23.3	29.5	25.7	30.2	24.4	23.4	24.2	20.8	21.7	21.9	20.1	22.0	19.5	20.4	21.4	17.0	17.4	16.0	17.6	17.0
Calc Days Above State 24-Hr Std		41	23	63	29	6	24	6	0	12	6	12		18	18	0	6	0	6	6
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)													41.7	53.1	69.9	31.9	52.2	43.0	20.5	25.7
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	5.4	4.7	4.9	5.3	5.4	5.1	3.9	3.5	3.3	3.2	3.3	3.1	2.9	2.6	2.3	2.2	2.0	1.7	1.7	1.6
Max. 1-Hr. Concentration	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	3.8	3.2	3.0	2.6	2.8
Max. 8-Hr. Concentration	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	2.0	2.0	1.7	1.5	1.3
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.060	0.058	0.056	0.055	0.056
Max. 1-Hr. Concentration	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	0.066	0.057	0.054	0.054	0.057
Max. Annual Average (Nat)	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	0.016	0.015	0.013	0.014	0.014
Max. Annual Average (State)	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	0.016	0.015	0.014	0.014	0.014

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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: Napa

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.085	0.088	0.080	0.076	0.073	0.078	0.079	0.088	0.086	0.083	0.079	0.083	0.083	0.078	0.073	0.077	0.078	0.073	0.070	0.066
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.065	0.066	0.061	0.060	0.057
Peak 1-Hour Indicator (State)	0.107	0.109	0.099	0.098	0.093	0.098	0.098	0.107	0.107	0.104	0.101	0.106	0.106	0.099	0.090	0.095	0.095	0.090	0.089	0.083
4th High 1-Hr. in 3 Yrs2	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	0.099	0.092	0.092	0.091	0.085
Max. 8-Hr. Concentration	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	0.083	0.072	0.067	0.072	0.064
Maximum 1-Hr. Concentration	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	0.105	0.092	0.091	0.096	0.074
Days Above State 8-Hr. Std.	6	3	1	3	0	4	3	8	3	1	3	6	0	1	2	3	3	0	2	0
Days Above Nat. 8-Hr. Std.	2	2	0	0	0	2	0	5	0	0	2	5	0	1	1	3	0	0	0	0
Days Above State 1-Hr. Std.	1	2	0	3	0	2	0	4	0	0	3	4	0	1	1	2	0	0	1	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		97	117	100	74	70	86	69						96	70	31		14		
Max. 24-Hr. Concentration (Nat)		97	117	100	74	70	86	69	57	78	60	66	45	91	67	29		13		
Max. Annual Average (State)		31.7	33.7	33.0	27.1	25.8		20.2						24.8	26.4					
Max. 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	17.7		2.4		
Calc Days Above State 24-Hr Std		53	47	67	30	18		6						18	24					
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0					

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				43.1
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				13.3
Avg. of Qtrly. Means (Nat)																				

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	2.6	2.3	2.3	2.4	2.3
Max. 1-Hr. Concentration	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	4.7	3.7	3.2	3.5	3.2
Max. 8-Hr. Concentration	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	2.5	2.0	2.0	2.8	2.0
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.058	0.056	0.055	0.052	0.053
Max. 1-Hr. Concentration	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	0.066	0.056	0.060	0.055	0.053
Max. Annual Average (Nat)	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	0.012	0.011	0.010	0.011	0.010
Max. Annual Average (State)	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	0.012	0.011	0.010	0.011	0.010

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-82

San Francisco Bay Area Air Basin

County: San Francisco

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.059	0.059	0.057	0.054	0.052	0.049	0.050	0.052	0.052	0.052	0.049	0.050	0.049	0.051	0.050	0.053	0.054	0.054	0.051	0.051
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.047	0.047	0.048	0.045	0.045
Peak 1-Hour Indicator (State)	0.075	0.076	0.070	0.063	0.058	0.060	0.063	0.066	0.064	0.067	0.059	0.059	0.057	0.060	0.057	0.062	0.067	0.067	0.057	0.055
4th High 1-Hr. in 3 Yrs2	0.080	0.080	0.070	0.060	0.060	0.060	0.060	0.080	0.071	0.071	0.061	0.067	0.061	0.063	0.059	0.061	0.096	0.096	0.058	0.058
Max. 8-Hr. Concentration	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	0.059	0.059	0.055	0.046	0.053
Maximum 1-Hr. Concentration	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	0.085	0.096	0.058	0.053	0.060
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
Days Above State 1-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	117	101	165	109	81	69	93	50	71	81	56	82	67	70	79	52	54	46	61	70
Max. 24-Hr. Concentration (Nat)	117	101	165	109	81	69	93	50	71	81	52	78	63	67	74	51	52	45	58	66
Max. 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	27.8	26.0	22.7	22.5	20.1	22.9	21.9
Max. Annual Average (Nat)	25.3	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	21.8	21.6	19.2	22.0	20.9
Calc Days Above State 24-Hr Std		75	70	91		30	36	0	12	18	6	37	12	48	24	6	6	0	17	12
Calc Days Above Nat 24-Hr Std		0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												71.2	47.9	76.6	70.2	41.6	54.9	44.2	54.3	45.2
Max. 24-Hr. Concentration (Nat)												71.2	47.9	76.6	70.2	41.6	45.8	43.6	54.3	45.2
98th Percentile of 24-Hr Conc.												48.3		51.3	57.5	33.0	32.2	32.6		27.4
Annual Average (State)															13.1	10.2	11.2	9.5	8.7	8.9
Avg. of Qtrly. Means (Nat)														11.5	13.1	10.2	9.9	9.5		8.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	8.3	7.7	7.8	7.2	6.7	6.4	5.8	5.6	4.7	4.5	4.2	4.2	3.8	3.7	2.9	2.8	2.6	2.6	2.2	2.0
Max. 1-Hr. Concentration	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	8.6	3.7	4.1	2.7	2.5
Max. 8-Hr. Concentration	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	3.6	2.7	3.1	2.1	1.6
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.074	0.071	0.067	0.069	0.070
Max. 1-Hr. Concentration	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	0.072	0.063	0.066	0.107	0.069
Max. Annual Average (Nat)	0.026	0.026	0.021	0.024	0.022	0.024	0.022	0.021	0.021	0.020	0.020	0.021	0.020	0.019	0.019	0.018	0.017	0.016	0.016	0.016
Max. Annual Average (State)	0.026			0.024	0.022	0.023	0.022	0.021	0.021	0.020	0.020	0.021	0.020	0.019	0.019	0.018	0.017	0.016	0.016	0.016

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.03	0.04	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	0.02	0.02	0.04	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	0.02	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	0.01	0.01	0.01	0.01	0.01

Table A-83

San Francisco Bay Area Air Basin

County: San Mateo

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.071	0.073	0.069	0.063	0.056	0.057	0.056	0.067	0.069	0.069	0.060	0.056	0.054	0.057	0.060	0.067	0.068	0.066	0.059	0.058
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.058	0.060	0.057	0.053	0.051
Peak 1-Hour Indicator (State)	0.097	0.099	0.089	0.078	0.071	0.076	0.078	0.093	0.098	0.099	0.078	0.072	0.071	0.074	0.079	0.085	0.087	0.079	0.074	0.068
4th High 1-Hr. in 3 Yrs2	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	0.090	0.090	0.090	0.084	0.077
Max. 8-Hr. Concentration	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	0.078	0.071	0.061	0.063	0.069
Maximum 1-Hr. Concentration	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	0.113	0.097	0.084	0.085	0.077
Days Above State 8-Hr. Std.	2	1	0	0	0	1	0	5	0	1	0	0	0	0	0	3	1	0	0	0
Days Above Nat. 8-Hr. Std.	1	0	0	0	0	1	0	3	0	0	0	0	0	0	0	2	0	0	0	0
Days Above State 1-Hr. Std.	2	1	0	0	0	1	0	5	1	0	0	0	0	1	0	1	1	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		90	137	90	80	76	76	48	48	70	56	95	61	68	56	38	65	81	70	56
Max. 24-Hr. Concentration (Nat)		90	137	90	80	76	76	48	48	70	49	85	53	65	53	37	62	78	66	52
Max. 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	24.8	24.6	19.8	20.5	20.9	19.8	19.6
Max. 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	19.3	19.7	19.5	19.2	19.1
Calc Days Above State 24-Hr Std		59	47	73	41	31	36	0	0	12	12	31	18	18	6	0	6	10	10	6
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												59.7	47.0	70.9	43.0	31.9	43.2	48.4	75.3	45.6
Max. 24-Hr. Concentration (Nat)												59.7	47.0	67.9	43.0	31.9	35.8	30.9	75.3	45.4
98th Percentile of 24-Hr Conc.												53.4	43.0	46.1	36.3	26.1	27.9	29.4		32.8
Annual Average (State)															11.5	8.9	9.3	8.8	9.5	8.3
Avg. of Qtrly. Means (Nat)														11.3	11.5	8.9	9.3	8.8		8.3

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	6.1	5.8	5.9	5.9	5.8	5.8	5.4	4.9	4.4	3.9	4.2	4.3	4.4	4.2	3.7	3.3	2.9	2.6	2.5	2.6
Max. 1-Hr. Concentration	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	5.4	4.8	4.5	5.5	5.5
Max. 8-Hr. Concentration	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	2.6	2.1	2.3	2.4	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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.140	0.132	0.128	0.122	0.116	0.110	0.101	0.096	0.092	0.081	0.077	0.079	0.076	0.077	0.066	0.068	0.064	0.064	0.063	0.063
Max. 1-Hr. Concentration	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	0.081	0.061	0.062	0.069	0.057
Max. Annual Average (Nat)	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	0.015	0.015	0.015	0.014	0.013
Max. Annual Average (State)	0.024	0.024	0.022	0.023	0.021	0.022	0.021	0.019	0.020	0.019	0.018	0.019	0.018	0.017	0.017	0.015	0.015	0.014	0.014	0.013

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-84

San Francisco Bay Area Air Basin

County: Santa Clara

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.116	0.116	0.108	0.098	0.094	0.096	0.095	0.105	0.103	0.102	0.102	0.101	0.105	0.093	0.100	0.101	0.100	0.089	0.092	0.090
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.092	0.097	0.088	0.082	0.078	0.080	0.080	0.083	0.088	0.085	0.085	0.080	0.081	0.076	0.082	0.086	0.084	0.075	0.076	0.075
Peak 1-Hour Indicator (State)	0.147	0.149	0.130	0.117	0.116	0.119	0.116	0.126	0.126	0.126	0.128	0.126	0.130	0.121	0.122	0.118	0.116	0.107	0.109	0.109
4th High 1-Hr. in 3 Yrs2	0.140	0.140	0.120	0.120	0.130	0.120	0.118	0.130	0.129	0.129	0.118	0.125	0.125	0.117	0.119	0.116	0.112	0.105	0.110	0.110
Max. 8-Hr. Concentration	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	0.101	0.084	0.087	0.105	0.073
Maximum 1-Hr. Concentration	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	0.124	0.102	0.113	0.123	0.096
Days Above State 8-Hr. Std.	37	24	13	14	24	18	12	23	30	7	19	15	9	12	15	13	9	5	16	4
Days Above Nat. 8-Hr. Std.	29	14	8	6	12	12	7	17	20	2	17	10	2	5	9	9	4	3	12	0
Days Above State 1-Hr. Std.	34	17	10	12	15	14	8	22	24	3	22	12	4	9	10	11	1	4	10	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	146	147	127	120	112	93	93	60	76	78	100	117	80	82	73	60	65	71	106	78
Max. 24-Hr. Concentration (Nat)	146	150	165	153	112	101	93	60	76	95	92	114	76	77	70	57	63	69	104	73
Max. 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	29.7		24.8	26.0	24.2	35.0	25.6
Max. Annual Average (Nat)	33.3	40.8	35.1	38.3	33.7	28.4	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9	30.6	24.2	25.3	23.5	34.1	24.8
Calc Days Above State 24-Hr Std		76	65	85	53	31	36	24	12	18	18	31	42	30		18	25	23	77	19
Calc Days Above Nat 24-Hr Std		0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												77.0	67.2	85.6	57.6	56.1	51.5	54.6	64.4	57.5
Max. 24-Hr. Concentration (Nat)												77.0	67.2	85.6	57.6	56.1	51.5	54.6	64.4	57.5
98th Percentile of 24-Hr Conc.												63.2	55.3	56.2	52.0	37.4	39.8	39.8	36.0	39.1
Annual Average (State)														12.4	12.0	11.7	11.6	11.8		11.0
Avg. of Qtrly. Means (Nat)												16.8	13.6	12.8	12.0	11.7	11.6	11.8		10.7

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	10.7	11.8	12.6	12.5	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9	6.0	3.9	3.8	3.7	3.5	3.2
Max. 1-Hr. Concentration	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	5.5	4.4	4.3	4.1	3.5
Max. 8-Hr. Concentration	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	4.0	3.0	3.1	2.9	2.7
Days Above State 8-Hr. Std.	3	8	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	3	7	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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		0.079	0.080	0.079	0.073
Max. 1-Hr. Concentration	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		0.073	0.074	0.074	0.065
Max. Annual Average (Nat)	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	0.018	0.017
Max. Annual Average (State)	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		0.017

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-85

San Francisco Bay Area Air Basin

County: Solano

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.100	0.101	0.090	0.087	0.085	0.086	0.085	0.092	0.097	0.096	0.097	0.102	0.103	0.096	0.091	0.090	0.089	0.084	0.087	0.081
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.062	0.065	0.071	0.068	0.069	0.066
Peak 1-Hour Indicator (State)	0.112	0.118	0.107	0.103	0.100	0.102	0.103	0.112	0.115	0.114	0.116	0.122	0.125	0.117	0.110	0.105	0.105	0.098	0.104	0.101
4th High 1-Hr. in 3 Yrs2	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	0.103	0.101	0.101	0.091	0.097	0.105
Max. 8-Hr. Concentration	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	0.077	0.077	0.073	0.087	0.071
Maximum 1-Hr. Concentration	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	0.101	0.104	0.090	0.106	0.089
Days Above State 8-Hr. Std.	9	7	4	5	4	7	5	13	11	2	12	11	2	3	8	6	3	2	8	1
Days Above Nat. 8-Hr. Std.	6	5	1	5	3	4	3	9	7	1	10	10	1	3	3	1	3	0	3	0
Days Above State 1-Hr. Std.	6	4	2	5	4	4	3	13	8	1	9	9	1	3	4	2	1	0	3	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)															84	39	51	52	50	52
Max. 24-Hr. Concentration (Nat)							63	59	49	85	71	84	53	86	80	38	51	49	47	49
Max. Annual Average (State)															22.2	17.3	19.6		19.8	19.0
Max. Annual Average (Nat)							16.1	18.7	17.2	18.3	17.2	19.3	15.0	19.5	21.4	16.8	18.9	16.8	19.1	18.2
Calc Days Above State 24-Hr Std															12	0	6		0	13
Calc Days Above Nat 24-Hr Std								0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												90.5	60.1	90.1	72.3	30.8	49.3	47.2	44.0	41.5
Max. 24-Hr. Concentration (Nat)												90.5	60.1	90.1	72.3	30.8	39.7	43.8	42.2	40.8
98th Percentile of 24-Hr Conc.												52.3	44.0	56.0	55.4	25.1	36.9	35.6	34.3	38.6
Annual Average (State)													11.6	12.5	14.0	9.4	12.7		12.4	12.0
Avg. of Qtrly. Means (Nat)													11.6	12.5	14.0	9.4	11.1	9.7		9.8

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	4.1	4.0	3.7	3.5	3.4
Max. 1-Hr. Concentration	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	4.0	4.0	3.9	3.7	3.3
Max. 8-Hr. Concentration	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	2.9	3.4	3.1	2.9	2.7
Days Above State 8-Hr. Std.	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.055	0.054	0.056	0.055	0.054
Max. 1-Hr. Concentration	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	0.067	0.049	0.070	0.055	0.058
Max. Annual Average (Nat)	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	0.012	0.012	0.011	0.012	0.011
Max. Annual Average (State)	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	0.012	0.012	0.011	0.012	0.011

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.04
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	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table A-86

A portion of Solano County lies within the Sacramento Valley Air Basin.

San Francisco Bay Area Air Basin

County: Sonoma

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.090	0.096	0.089	0.087	0.079	0.076	0.072	0.066	0.073	0.066	0.061	0.064	0.064	0.064	0.058	0.060	0.058	0.056	0.053	0.053
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.054	0.051	0.049	0.047	0.047
Peak 1-Hour Indicator (State)	0.101	0.105	0.103	0.103	0.096	0.091	0.084	0.089	0.086	0.085	0.079	0.086	0.083	0.084	0.070	0.074	0.071	0.070	0.069	0.067
4th High 1-Hr. in 3 Yrs2	0.100	0.100	0.100	0.100	0.100	0.100	0.086	0.084	0.084	0.085	0.077	0.090	0.086	0.086	0.077	0.086	0.076	0.072	0.069	0.066
Max. 8-Hr. Concentration	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	0.079	0.060	0.051	0.058	0.059
Maximum 1-Hr. Concentration	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	0.096	0.076	0.072	0.077	0.071
Days Above State 8-Hr. Std.	7	9	1	4	1	0	1	2	1	1	0	2	0	0	0	1	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	4	0	2	1	0	0	1	1	1	0	1	0	0	0	1	0	0	0	0
Days Above State 1-Hr. Std.	2	3	0	3	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)									38	85	56	57	48	78	64	36	48	39	90	37
Max. 24-Hr. Concentration (Nat)							61	46	38	85	53	54	46	74	60	34	47	37	87	37
Max. Annual Average (State)										18.7			18.2	21.9	20.4	16.9	18.0	15.9	18.8	17.1
Max. Annual Average (Nat)							19.6	15.4	16.9	18.6	18.2	20.4	17.6	21.0	19.7	16.4	17.3	15.4	18.3	16.7
Calc Days Above State 24-Hr Std										12			0	18	12	0	0	0	12	0
Calc Days Above Nat 24-Hr Std								0	0	0	0		0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												54.9	40.1	75.9	50.7	38.8	26.6	33.6	59.0	32.0
Max. 24-Hr. Concentration (Nat)												54.9	40.1	75.9	50.7	38.8	26.6	33.6	59.0	32.0
98th Percentile of 24-Hr Conc.												44.5	36.8	41.4	42.4	29.8	25.2	29.7		30.2
Annual Average (State)													10.5	10.8		8.7	8.3	7.6		7.6
Avg. of Qtrly. Means (Nat)													10.5	10.8	10.5	8.7	8.3	7.6		7.6

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	5.2	5.5	5.6	5.2	4.4	4.3	3.8	3.6	3.1	3.0	3.1	3.3	3.2	3.1	2.7	2.4	2.1	1.9	1.8	1.7
Max. 1-Hr. Concentration	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	3.1	2.7	2.5	2.4	2.6
Max. 8-Hr. Concentration	5.1	6.1	5.1	4.0	4.0	3.8	3.4	2.8	3.0	3.3	3.2	3.4	3.1	2.4	2.1	1.8	1.6	2.0	1.7	1.7
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.056	0.054	0.051	0.047	0.047
Max. 1-Hr. Concentration	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	0.055	0.048	0.047	0.044	0.046
Max. Annual Average (Nat)	0.016	0.015	0.014	0.015	0.015	0.016	0.015	0.015	0.014	0.013	0.015	0.014	0.013	0.013	0.013	0.012	0.011	0.011	0.011	0.011
Max. Annual Average (State)	0.016		0.014	0.015	0.015		0.016	0.015	0.014	0.013	0.014	0.014	0.013	0.013	0.013	0.012	0.011	0.011	0.011	0.011

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-87

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin

County: Fresno

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.135	0.136	0.124	0.134	0.129	0.131	0.120	0.126	0.125	0.125	0.131	0.131	0.132	0.123	0.124	0.126	0.127	0.118	0.111	0.112
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.121	0.115	0.110	0.108	0.108	0.111	0.107	0.108	0.107	0.111	0.115	0.113	0.111	0.108	0.115	0.111	0.104	0.099	0.098	0.098
Peak 1-Hour Indicator (State)	0.171	0.171	0.158	0.165	0.162	0.163	0.158	0.153	0.154	0.152	0.162	0.160	0.159	0.146	0.151	0.152	0.151	0.138	0.140	0.138
4th High 1-Hr. in 3 Yrs2	0.170	0.170	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	0.151	0.151	0.135	0.130	0.130
Max. 8-Hr. Concentration	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	0.116	0.103	0.111	0.113	0.101
Maximum 1-Hr. Concentration	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	0.152	0.126	0.134	0.138	0.121
Days Above State 8-Hr. Std.	171	151	122	129	123	120	108	121	138	141	111	150	140	178	172	154	97	76	93	74
Days Above Nat. 8-Hr. Std.	147	132	92	105	114	97	90	92	115	119	90	121	118	145	146	138	61	62	74	40
Days Above State 1-Hr. Std.	130	109	79	94	86	81	65	81	96	95	79	95	92	108	106	108	29	51	63	24

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	162	204	297	152	125	190	127	126	144	124	149	164	139	204	111	109	79	109	139	111
Max. 24-Hr. Concentration (Nat)	162	204	297	152	125	190	127	126	144	124	141	162	138	193	106	92	79	106	132	116
Max. 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	44.0	40.5	39.1	38.2	38.2
Max. Annual Average (Nat)	45.8	73.9	67.6	60.0	52.2	53.1	49.7	48.8	39.3	46.7	39.3	47.5	41.4	50.2	52.5	43.4	40.0	38.7	43.3	38.0
Calc Days Above State 24-Hr Std		176	196	185	178	152	72	137	89	107	91	119	72	98	123	128	94	113	80	63
Calc Days Above Nat 24-Hr Std		0	26	0	0	6	0	0	0	0	0	0	0	6	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												136.0	160.0	110.0	99.7	79.9	77.0	86.0	88.1	104.0
Max. 24-Hr. Concentration (Nat)												136.0	160.0	110.0	84.0	63.0	71.0	86.0	87.0	104.0
98th Percentile of 24-Hr Conc.												120.0	90.0	75.0	75.0	56.0	52.4	71.2	55.0	67.0
Annual Average (State)												23.4			21.3	17.8	17.0	19.7	21.2	22.3
Avg. of Qtrly. Means (Nat)												27.6	18.4	19.8	21.5	18.5	17.0	16.9	17.6	18.8

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	13.8	13.7	13.9	10.2	10.2	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	5.8	5.3	4.8	4.1	3.6	3.4	3.2
Max. 1-Hr. Concentration	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	5.0	3.9	4.1	4.0	4.4
Max. 8-Hr. Concentration	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	4.1	2.9	3.0	3.3	2.6
Days Above State 8-Hr. Std.	3	17	3	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	4	13	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.095	0.090	0.087	0.080	0.077
Max. 1-Hr. Concentration	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	0.092	0.077	0.084	0.076	0.086
Max. Annual Average (Nat)	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	0.020	0.018	0.017	0.017	0.017
Max. Annual Average (State)	0.033	0.031	0.026	0.025	0.023	0.023	0.023	0.023	0.021	0.021	0.020	0.024	0.021	0.021	0.020	0.020	0.018	0.017	0.017	0.017

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02										0.11
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				0.01
Max. 24-Hr. Concentration	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00						0.00				0.07

Table A-88

San Joaquin Valley Air Basin

County: Kern

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.144	0.137	0.132	0.132	0.127	0.126	0.127	0.134	0.136	0.139	0.134	0.132	0.139	0.121	0.122	0.128	0.127	0.124	0.119	0.124
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.118	0.116	0.112	0.118	0.115	0.112	0.111	0.119	0.119	0.115	0.115	0.111	0.111	0.109	0.112	0.115	0.116	0.113	0.110	0.107
Peak 1-Hour Indicator (State)	0.167	0.167	0.164	0.166	0.160	0.153	0.159	0.164	0.163	0.166	0.160	0.152	0.151	0.142	0.143	0.147	0.145	0.144	0.139	0.142
4th High 1-Hr. in 3 Yrs2	0.170	0.180	0.170	0.160	0.160	0.160	0.160	0.164	0.165	0.164	0.158	0.154	0.154	0.138	0.142	0.150	0.151	0.149	0.135	0.135
Max. 8-Hr. Concentration	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	0.127	0.126	0.113	0.121	0.110
Maximum 1-Hr. Concentration	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	0.156	0.155	0.133	0.141	0.138
Days Above State 8-Hr. Std.	174	163	165	158	154	162	151	153	146	131	115	142	141	153	146	161	162	116	136	123
Days Above Nat. 8-Hr. Std.	151	140	142	139	134	135	129	133	127	95	104	122	115	123	126	144	133	92	110	91
Days Above State 1-Hr. Std.	134	132	120	119	106	110	114	115	114	66	81	105	95	95	95	122	102	69	80	53

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	206	237	287	189	186	131	192	195	153	137	166	186	153	216	194	134	93	109	162	135
Max. 24-Hr. Concentration (Nat)	206	237	287	189	186	131	192	195	153	137	159	183	145	205	189	136	95	107	162	131
Max. 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	52.3	43.0	43.4	56.5	48.5
Max. Annual Average (Nat)	74.3	79.3	79.3	76.3	55.2	56.9	46.4	58.2	54.1	46.1	38.7	59.5	53.1	54.4	59.2	52.4	43.1	43.2	55.4	54.8
Calc Days Above State 24-Hr Std			292	225	246	178	106	184	204	80	95	173	158	133	256	167	113	119	167	130
Calc Days Above Nat 24-Hr Std		23	31	18	0	0	0	3	0	0	0	8	0	12	6	0	0	0	7	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												134.8	112.7	154.7	104.3	84.5	72.8	102.1	81.0	154.0
Max. 24-Hr. Concentration (Nat)												134.8	112.7	154.7	89.6	67.8	70.0	85.7	78.6	90.7
98th Percentile of 24-Hr Conc.												98.0	93.9	95.9	80.4	51.9	61.5	74.9	64.7	73.0
Annual Average (State)													22.6	20.8	24.1	24.8	18.2	22.4	21.6	25.2
Avg. of Qtrly. Means (Nat)												27.4	22.6	21.8	24.1	19.6	18.9	19.8	19.3	22.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	7.4	8.8	9.5	9.5	8.5	6.8	5.4	5.3	5.1	4.7	4.1	4.2	5.3	4.8	4.6	3.0	2.7	2.5	2.2	2.1
Max. 1-Hr. Concentration	12.0	14.0	13.0	13.0	11.0	8.0	8.8	7.8	8.7	6.1	5.7	5.8	10.1	8.1	4.5	4.5	4.1	3.2	3.3	2.8
Max. 8-Hr. Concentration	8.9	11.0	8.6	8.1	5.8	6.1	6.4	6.2	7.7	4.0	3.9	4.5	5.4	3.5	2.5	3.7	2.6	2.2	2.2	2.0
Days Above State 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.106	0.094	0.087	0.084	0.092
Max. 1-Hr. Concentration	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	0.107	0.085	0.083	0.078	0.100	0.101
Max. Annual Average (Nat)	0.032	0.033	0.031	0.030	0.027	0.027	0.017	0.029	0.029	0.024	0.024	0.027	0.024	0.022	0.024	0.023	0.019	0.021	0.021	0.020
Max. Annual Average (State)	0.032	0.033	0.032	0.030	0.027	0.017	0.017	0.029	0.029	0.024	0.022	0.027	0.024	0.022	0.024	0.020	0.017	0.021	0.021	0.020

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00						
Max. 24-Hr. Concentration	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-89

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

San Joaquin Valley Air Basin

County: Kings

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.106	0.105	0.103	0.100	0.094	0.095	0.102	0.098	0.126	0.125	0.123	0.109	0.115	0.113	0.114	0.107	0.106	0.100	0.096	0.094
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.088	0.096	0.091	0.088	0.080	0.080			0.096	0.097	0.105	0.099	0.102	0.098	0.099	0.095	0.093	0.088	0.086	0.083
Peak 1-Hour Indicator (State)	0.127	0.123	0.119	0.112	0.106	0.108	0.110	0.104	0.136	0.136	0.137	0.123	0.127	0.124	0.126	0.120	0.119	0.112	0.109	0.105
4th High 1-Hr. in 3 Yrs2	0.140	0.130	0.130	0.110	0.100	0.110	0.113	0.110	0.138	0.138	0.138	0.128	0.128	0.124	0.124	0.121	0.121	0.113	0.112	0.110
Max. 8-Hr. Concentration	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	0.100	0.094	0.098	0.101	0.091
Maximum 1-Hr. Concentration	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	0.120	0.121	0.120	0.127	0.102
Days Above State 8-Hr. Std.	101	57	29	40	8	18	71	26	142	88	66	95	112	64	86	71	55	38	57	20
Days Above Nat. 8-Hr. Std.	70	40	16	22	1	7	41	11	125	59	57	68	91	43	62	45	25	24	37	8
Days Above State 1-Hr. Std.	34	13	4	15	1	2	9	2	78	23	27	28	48	21	29	19	7	6	7	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	170	213	439	279	178	239	129	279	143	199	149	185	137	221	174	150	219	137	255	125
Max. 24-Hr. Concentration (Nat)	170	213	439	279	178	239	129	279	143	199	146	174	129	212	171	150	217	131	254	123
Max. 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	47.5	43.6	42.6	46.8	45.7
Max. Annual Average (Nat)	58.0	67.0	63.9	67.0	56.7	56.3	50.1	52.9	52.0	48.2	34.8	52.2	50.2	57.4	53.5	46.7	47.9	40.3	51.4	46.6
Calc Days Above State 24-Hr Std		208	157	189	172	170	166	174	115	102		135	132		172	149	100	126	125	145
Calc Days Above Nat 24-Hr Std		29	14	14	18	20	0	12	0	6		6	0	14	6	0	7	0	13	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												53.0	76.0	123.2	90.7	55.1	61.0	92.5	74.2	143.2
Max. 24-Hr. Concentration (Nat)												53.0	76.0	123.2	90.7	55.1	61.0	92.5	74.2	75.0
98th Percentile of 24-Hr Conc.												53.0	55.1	89.5	65.1	42.2	49.4	74.5	50.1	57.9
Annual Average (State)																16.2		17.5		21.2
Avg. of Qtrly. Means (Nat)													16.4	19.2	21.5	16.2	17.4	17.5	16.9	18.4

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator							0.087	0.094	0.091	0.091	0.081	0.084	0.073	0.068	0.073	0.073	0.072	0.071	0.073	0.074
Max. 1-Hr. Concentration							0.082	0.094	0.066	0.080	0.086	0.086	0.072	0.096	0.067	0.076	0.069	0.072	0.073	0.058
Max. Annual Average (Nat)							0.015	0.015	0.014	0.014	0.014	0.016	0.014		0.014	0.013	0.012	0.012	0.012	0.011
Max. Annual Average (State)							0.015	0.015		0.014	0.014		0.014		0.014	0.013	0.012	0.012	0.012	

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-90

San Joaquin Valley Air Basin

County: Madera

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)		0.108	0.107	0.107	0.103	0.111	0.111	0.114	0.111		0.110	0.106	0.105	0.101	0.102	0.101	0.102	0.096	0.090	0.090
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)				0.093	0.091	0.096	0.091	0.093	0.093			0.083	0.089	0.088	0.091	0.093	0.089	0.082	0.078	0.078
Peak 1-Hour Indicator (State)		0.119	0.113	0.117	0.113	0.125	0.124	0.127	0.122		0.122	0.115	0.110	0.105	0.111	0.114	0.115	0.106	0.097	0.098
4th High 1-Hr. in 3 Yrs2	0.130	0.120	0.120	0.120	0.120	0.130	0.130	0.130	0.121	0.085	0.123	0.118	0.117	0.104	0.115	0.119	0.119	0.103	0.097	0.095
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	0.102	0.084	0.081	0.095	0.083
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	0.120	0.097	0.095	0.113	0.091
Days Above State 8-Hr. Std.	33	62	33	69	61	72	26	52	76	4	45	46	50	53	66	67	25	19	35	12
Days Above Nat. 8-Hr. Std.	26	38	23	50	42	55	8	33	54	1	27	29	30	37	40	42	7	5	15	5
Days Above State 1-Hr. Std.	11	15	6	24	15	28	4	16	28	0	15	12	8	15	21	15	3	1	4	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. 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											
Max. Annual Average (State)	52.7	53.7		51.7	43.6	47.1	40.4	41.9												
Max. Annual Average (Nat)	52.7	53.7	53.5	52.0	43.6	47.1	40.1	41.9	36.8											
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												

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)																				
Max. 24-Hr. Concentration (Nat)																				
98th Percentile of 24-Hr Conc.																				
Annual Average (State)																				
Avg. of Qtrly. Means (Nat)																				

No Monitoring Data Available

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator										0.088	0.053	0.068	0.066	0.066	0.060	0.056	0.055	0.053	0.052	0.051
Max. 1-Hr. Concentration										0.077	0.060	0.084	0.060	0.060	0.058	0.054	0.053	0.057	0.051	0.047
Max. Annual Average (Nat)											0.011	0.014	0.013	0.011	0.012	0.010	0.010	0.010	0.011	0.010
Max. Annual Average (State)											0.011	0.014	0.013	0.011	0.012	0.010		0.010	0.011	0.010

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-91

San Joaquin Valley Air Basin

County: Merced

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)					0.112	0.111	0.111	0.113	0.114	0.114	0.118	0.123	0.120	0.113	0.114	0.118	0.119	0.115	0.100	0.094
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)						0.098	0.098	0.100	0.102	0.094	0.096	0.097	0.106	0.101	0.101	0.102	0.102	0.095	0.088	0.085
Peak 1-Hour Indicator (State)					0.126	0.124	0.122	0.124	0.127	0.129	0.132	0.134	0.132	0.122	0.125	0.124	0.124	0.119	0.106	0.106
4th High 1-Hr. in 3 Yrs2					0.130	0.130	0.120	0.125	0.125	0.125	0.131	0.132	0.132	0.120	0.121	0.122	0.122	0.118	0.106	0.102
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	0.110	0.109	0.093	0.091	0.096
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	0.122	0.114	0.100	0.102	0.105
Days Above State 8-Hr. Std.				17	93	73	91	94	101	10	77	110	95	88	118	113	74	37	33	25
Days Above Nat. 8-Hr. Std.				13	73	49	66	73	78	3	60	77	66	61	89	92	47	20	23	18
Days Above State 1-Hr. Std.				13	39	22	31	38	44	1	37	42	32	26	55	54	14	6	4	5

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	93	148	211	145	98	121	131	100	61			143	112	117	88	75	57	75	98	69
Max. 24-Hr. Concentration (Nat)	93	148	211	145	98	121	131	100	61			134	104	113	85	74	56	70	94	65
Max. Annual Average (State)		52.0	53.4	52.4	45.8	42.5	39.4	38.7					36.1		39.6	32.7	28.7	28.6	32.5	29.7
Max. Annual Average (Nat)	33.8	52.0	53.2	52.4	45.9	42.5	39.2	38.7	30.8			47.7	34.9	39.1	38.8	32.1	27.9	28.2	32.0	29.1
Calc Days Above State 24-Hr Std		107	148	152	139	109	61	96					70		85	44	12	29	47	37
Calc Days Above Nat 24-Hr Std		0	6	0	0	0	0	0					0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												108.7	86.1	80.3	66.0	46.7	53.1	53.9	55.8	81.6
Max. 24-Hr. Concentration (Nat)												108.7	86.1	80.3	66.0	46.7	53.1	53.9	55.8	81.6
98th Percentile of 24-Hr Conc.												91.9	60.0	49.3	55.1	44.2	43.0	48.3	43.8	52.7
Annual Average (State)															18.7	15.7	15.2	14.1	14.8	15.2
Avg. of Qtrly. Means (Nat)													16.7	14.5	18.7	15.7	15.2	14.1	14.8	15.2

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator					0.075	0.080	0.080	0.078	0.076	0.076	0.075	0.074		0.079	0.072	0.070	0.066	0.063	0.059	0.055
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	0.063	0.059	0.062	0.062	0.050
Max. Annual Average (Nat)					0.015	0.014	0.013	0.012	0.012	0.013	0.012	0.011			0.012	0.012	0.011	0.011	0.010	0.009
Max. Annual Average (State)						0.014	0.013	0.012	0.012	0.013	0.011				0.012	0.012	0.011	0.011	0.010	0.009

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator																				
Max. Annual Average																				
Max. 24-Hr. Concentration																				

No Monitoring Data Available

Table A-92

San Joaquin Valley Air Basin

County: San Joaquin

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.111	0.109	0.103	0.104	0.102	0.102	0.101	0.113	0.107	0.107	0.102	0.108	0.108	0.104	0.100	0.100	0.099	0.087	0.110	0.103
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.098	0.093	0.090	0.087	0.088	0.088	0.087	0.086	0.085	0.087	0.087	0.087	0.088	0.084	0.081	0.081	0.081	0.073	0.076	0.077
Peak 1-Hour Indicator (State)	0.134	0.133	0.134	0.121	0.119	0.118	0.119	0.122	0.120	0.122	0.124	0.123	0.121	0.118	0.113	0.114	0.115	0.100	0.122	0.113
4th High 1-Hr. in 3 Yrs2	0.140	0.130	0.130	0.120	0.120	0.110	0.119	0.124	0.124	0.119	0.115	0.118	0.118	0.118	0.111	0.104	0.104	0.099	0.120	0.118
Max. 8-Hr. Concentration	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	0.089	0.097	0.086	0.103	0.083
Maximum 1-Hr. Concentration	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	0.104	0.109	0.099	0.121	0.097
Days Above State 8-Hr. Std.	48	19	22	45	41	26	33	30	56	14	31	33	19	19	26	23	10	10	30	11
Days Above Nat. 8-Hr. Std.	39	12	17	30	23	15	19	18	33	7	22	21	10	13	14	15	7	1	23	6
Days Above State 1-Hr. Std.	37	10	17	26	21	12	16	16	26	6	19	16	9	9	12	6	5	3	15	1

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	115	146	251	140	145	104	109	109	127	130	115	155	110	147	91	90	61	84	85	75
Max. 24-Hr. Concentration (Nat)	115	146	251	140	145	104	109	109	127	130	106	150	104	140	87	88	60	79	94	75
Max. Annual Average (State)			51.4				37.0		27.4	29.7	30.1	37.7	33.7	36.6	36.1	28.4	29.4	29.8	33.4	27.7
Max. Annual Average (Nat)	37.2	50.4	51.2	52.4	44.8	39.1	36.9	23.2	29.2	29.7	29.1	36.3	32.2	35.9	35.5	28.1	28.6	28.9	32.6	26.6
Calc Days Above State 24-Hr Std			128				63		19	30	50	67	60	64	58	20	18	47	63	25
Calc Days Above Nat 24-Hr Std		0	6	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												101.0	78.0	76.0	64.0	45.0	41.0	70.0	53.3	66.8
Max. 24-Hr. Concentration (Nat)												101.0	78.0	76.0	64.0	45.0	41.0	63.0	47.0	52.0
98th Percentile of 24-Hr Conc.												79.0	55.0	58.0	50.0	41.0	36.0	44.0	42.0	48.0
Annual Average (State)												19.7			16.7	13.6	13.2	12.5	13.5	13.5
Avg. of Qtrly. Means (Nat)												19.7	15.5	13.9	16.7	13.6	13.2	12.5	13.1	12.9

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	14.1	12.2	13.7	13.2	11.5	9.2	7.6	7.5	7.3	6.2	6.1	6.2	6.9	4.8	4.1	3.7	3.3	2.9	2.7	2.7
Max. 1-Hr. Concentration	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	5.8	3.7	4.3	4.4	3.6
Max. 8-Hr. Concentration	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	3.1	2.5	2.9	2.3	2.3
Days Above State 8-Hr. Std.	1	6	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	4	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.086	0.082	0.082	0.077	0.076
Max. 1-Hr. Concentration	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	0.088	0.079	0.087	0.072	0.070
Max. Annual Average (Nat)	0.026	0.025	0.026	0.025	0.023	0.024	0.024	0.022	0.023	0.022	0.023	0.024	0.021	0.019	0.021	0.018	0.017	0.017	0.018	0.016
Max. Annual Average (State)	0.026	0.026	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	0.018	0.017	0.017	0.018	0.016

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.04	0.03																		
Max. Annual Average	0.00	0.00																		
Max. 24-Hr. Concentration	0.01	0.01																		

Table A-93

San Joaquin Valley Air Basin

County: Stanislaus

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.120	0.121	0.117	0.114	0.109	0.107	0.106	0.114	0.112	0.114	0.116	0.116	0.117	0.108	0.114	0.109	0.106	0.103	0.102	0.102
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.097	0.102	0.099	0.095	0.092	0.086	0.093	0.095	0.096	0.096	0.098	0.095	0.096	0.091	0.095	0.096	0.094	0.086	0.086	0.085
Peak 1-Hour Indicator (State)	0.143	0.142	0.131	0.128	0.121	0.119	0.120	0.128	0.129	0.132	0.132	0.131	0.127	0.116	0.124	0.125	0.122	0.111	0.112	0.113
4th High 1-Hr. in 3 Yrs2	0.150	0.150	0.130	0.130	0.120	0.130	0.120	0.125	0.125	0.125	0.131	0.131	0.131	0.111	0.123	0.119	0.119	0.111	0.109	0.109
Max. 8-Hr. Concentration	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	0.100	0.089	0.094	0.097	0.088
Maximum 1-Hr. Concentration	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	0.119	0.106	0.115	0.120	0.101
Days Above State 8-Hr. Std.	94	67	61	51	55	37	49	50	68	37	59	33	41	38	61	63	28	33	39	13
Days Above Nat. 8-Hr. Std.	73	45	43	40	42	28	31	36	50	20	48	24	29	23	40	40	13	17	25	5
Days Above State 1-Hr. Std.	64	41	32	33	27	19	28	28	39	15	35	19	16	16	31	21	6	15	18	2

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		148	171	157	150	154	160	120	133	119	135	162	119	160	97	88	79	97	102	87
Max. 24-Hr. Concentration (Nat)		148	171	157	150	154	160	240	133	119	125	157	112	158	93	87	80	93	97	83
Max. Annual Average (State)			49.6	53.0	43.6	42.0	41.1	41.2	32.0	37.1	31.9	42.8	35.0	40.5	37.2	31.4	30.7	29.8	31.9	31.5
Max. Annual Average (Nat)		49.4	49.1	53.7	43.6	52.4	41.1	41.3	32.0	37.1	35.4	41.1	34.9	39.7	36.9	30.6	30.0	29.3	34.7	30.8
Calc Days Above State 24-Hr Std			135	148	106	98	89	100	47	56	47	90	60	61	76	48	36	51	46	55
Calc Days Above Nat 24-Hr Std			6	6	0	0	6	0	0	0	0	0	0	3	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												108.0	77.0	95.0	87.1	66.9	67.3	89.2	72.8	107.1
Max. 24-Hr. Concentration (Nat)												108.0	77.0	95.0	83.0	64.0	53.0	80.0	71.0	64.0
98th Percentile of 24-Hr Conc.												100.0	71.0	69.0	69.0	47.0	45.0	55.0	52.0	57.4
Annual Average (State)													18.7	15.6	18.7	14.5	13.6	14.5	15.9	17.6
Avg. of Qtrly. Means (Nat)												24.9	18.7	15.6	18.7	14.5	13.6	13.9	14.8	15.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	10.6	11.9	12.4	12.4	10.1	9.0	7.7	7.4	7.0	6.0	5.5	6.1	7.0	6.4	5.3	4.5	4.2	3.7	3.4	3.4
Max. 1-Hr. Concentration	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	5.3	4.6	3.7	6.9	3.7
Max. 8-Hr. Concentration	13.1	13.4	10.9	10.8	6.5	8.6	6.4	5.7	6.5	5.0	7.3	6.4	6.0	6.0	4.5	3.8	3.0	2.9	3.7	3.2
Days Above State 8-Hr. Std.	2	11	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	8	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.087	0.080	0.080	0.066	0.062
Max. 1-Hr. Concentration	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	0.091	0.065	0.072	0.058	0.053
Max. Annual Average (Nat)	0.027	0.027	0.026	0.024	0.022	0.023	0.023	0.022	0.022	0.021	0.018	0.022	0.019	0.018	0.017	0.017	0.015	0.014	0.013	0.012
Max. Annual Average (State)	0.027		0.026	0.024	0.022	0.023	0.022	0.022	0.022	0.021	0.018	0.021	0.019	0.019	0.017	0.017	0.015	0.014	0.013	0.012

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.03	0.03	0.02	0.02																
Max. Annual Average	0.00	0.00	0.00	0.00																
Max. 24-Hr. Concentration	0.01	0.01	0.00	0.01																

Table A-94

San Joaquin Valley Air Basin

County: Tulare

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.125	0.124	0.120	0.120	0.112	0.122	0.126	0.123	0.120	0.115	0.119	0.118	0.117	0.114	0.115	0.120	0.119	0.119	0.114	0.114
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.111	0.111	0.106	0.104	0.101	0.103	0.106	0.107	0.105	0.100	0.102	0.102	0.102	0.104	0.105	0.107	0.105	0.105	0.103	0.103
Peak 1-Hour Indicator (State)	0.145	0.142	0.135	0.132	0.124	0.136	0.145	0.144	0.140	0.130	0.135	0.134	0.130	0.123	0.125	0.126	0.125	0.125	0.122	0.119
4th High 1-Hr. in 3 Yrs2	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	0.126	0.126	0.126	0.117	0.119
Max. 8-Hr. Concentration	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	0.115	0.103	0.112	0.109	0.102
Maximum 1-Hr. Concentration	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	0.129	0.133	0.127	0.118	0.116
Days Above State 8-Hr. Std.	153	135	135	129	133	137	138	131	131	118	104	155	136	154	147	155	132	106	111	120
Days Above Nat. 8-Hr. Std.	130	111	101	108	113	112	110	100	110	89	82	123	120	130	127	132	119	84	104	94
Days Above State 1-Hr. Std.	100	76	63	65	63	76	78	66	81	50	63	84	78	73	86	91	60	54	64	41

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	145	206	285	177	122	108	105	128	115	96	167	160	136	151	111	99	82	124	151	99
Max. 24-Hr. Concentration (Nat)	145	206	285	177	122	108	105	128	115	96	160	152	130	143	110	100	82	122	145	98
Max. Annual Average (State)						52.8		52.7	44.5	41.6	40.4	55.8	53.7	52.3	52.4	43.0	41.4	44.5	47.4	42.4
Max. Annual Average (Nat)	63.2	69.2	79.2	64.7	50.5	52.8	47.5	53.0	44.5	41.5	39.9	54.9	52.7	51.9	51.6	42.6	41.2	44.3	47.2	42.6
Calc Days Above State 24-Hr Std						183		163	148	65	102	182	196	168	179	108	91	146	156	91
Calc Days Above Nat 24-Hr Std		17	29			0	0	0	0	0	6	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												123.0	105.0	97.0	82.0	58.9	68.6	95.5	78.0	73.3
Max. 24-Hr. Concentration (Nat)												123.0	105.0	97.0	76.0	49.0	60.0	84.0	65.0	71.0
98th Percentile of 24-Hr Conc.												114.0	103.0	96.0	70.0	47.0	54.0	65.0	50.0	59.7
Annual Average (State)													23.9		23.2	19.7		19.9	19.7	22.5
Avg. of Qtrly. Means (Nat)												27.6	23.9	22.5	23.2	18.2	17.0	18.8	18.8	20.4

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	6.1	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	3.0	2.7	2.5		
Max. 1-Hr. Concentration	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	4.7	3.7	3.8		
Max. 8-Hr. Concentration	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	3.0	2.2	2.6		
Days Above State 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Days Above Nat. 8-Hr. Std.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.096	0.097	0.084	0.074	0.070
Max. 1-Hr. Concentration	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	0.087	0.078	0.069	0.063	0.071
Max. Annual Average (Nat)	0.022	0.020	0.021	0.022	0.020	0.023	0.023	0.023	0.018	0.019	0.017	0.021	0.018	0.018	0.019	0.018	0.016	0.016	0.014	0.015
Max. Annual Average (State)	0.022	0.020	0.021	0.023	0.020	0.023		0.023	0.018	0.019	0.017	0.020	0.018	0.018	0.019	0.018	0.016	0.016	0.014	0.015

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.02	0.02																		
Max. Annual Average	0.00	0.00																		
Max. 24-Hr. Concentration	0.01	0.01																		

Table A-95

South Central Coast Air Basin

County: San Luis Obispo

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.088	0.098	0.095	0.094	0.089	0.084	0.084	0.086	0.100	0.100	0.106	0.103	0.104	0.080	0.084	0.082	0.082	0.082	0.096	0.096
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.074	0.073	0.071	0.071	0.070
Peak 1-Hour Indicator (State)	0.099	0.108	0.105	0.105	0.101	0.101	0.100	0.098	0.108	0.108	0.115	0.114	0.114	0.093	0.094	0.094	0.092	0.093	0.104	0.101
4th High 1-Hr. in 3 Yrs2	0.100	0.120	0.110	0.110	0.100	0.100	0.098	0.097	0.107	0.107	0.114	0.113	0.113	0.092	0.092	0.092	0.092	0.092	0.103	0.101
Max. 8-Hr. Concentration	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	0.089	0.076	0.085	0.095	0.088
Maximum 1-Hr. Concentration	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	0.097	0.086	0.099	0.127	0.092
Days Above State 8-Hr. Std.	18	38	22	20	8	13	14	25	41	8	76	15	5	13	15	12	7	5	52	45
Days Above Nat. 8-Hr. Std.	9	16	9	7	4	5	9	8	29	3	49	5	1	4	6	5	1	2	35	18
Days Above State 1-Hr. Std.	6	8	2	4	3	4	2	7	14	0	25	2	0	0	0	2	0	1	5	0

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	63	63	79	75	135	141	78	73	48	75	55	58	80	70	55	70	146	66	135	149
Max. 24-Hr. Concentration (Nat)	63	63	79	75	135	141	78	73	98	99	70	90	111	115	178	78	146	63	131	146
Max. Annual Average (State)			21.0	24.4	30.4	28.8	22.3	21.4	18.7	20.9	17.7	19.0	21.3	24.8	21.1	20.2	31.4	19.2	26.6	25.9
Max. Annual Average (Nat)	23.8	29.2	26.3	26.5	43.1	42.8	22.4	39.9	31.7	23.9	25.2	27.2	33.8	29.1	43.2	24.5	31.4	18.6	25.5	39.4
Calc Days Above State 24-Hr Std			0	6	51	53	6	18	0	7	6	0	13	18	7	6	61	0	30	51
Calc Days Above Nat 24-Hr Std		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												27.5	52.7	57.7	28.0	29.2	30.7	29.2	27.2	27.6
Max. 24-Hr. Concentration (Nat)												27.2	50.9	57.6	28.0	29.2	30.7	29.2	25.4	23.9
98th Percentile of 24-Hr Conc.												26.9	41.0	50.7	25.7	21.4	19.6	25.2	22.2	22.7
Annual Average (State)												9.6		10.1	9.2	8.2	8.3	7.1		8.0
Avg. of Qtrly. Means (Nat)												9.6	10.3	10.1	9.2	8.2	8.3	7.4	8.4	7.8

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	4.7	4.9	5.1	4.8	4.2	3.6	3.2	2.9	2.9	2.6	2.6	2.7	2.7	2.7	2.2	2.0	1.8	1.7		
Max. 1-Hr. Concentration	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	3.1	2.6	2.6	1.1	
Max. 8-Hr. Concentration	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	1.5	1.5	1.3	0.8	
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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.062	0.061	0.057	0.057	0.057
Max. 1-Hr. Concentration	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	0.064	0.051	0.052	0.056	0.046
Max. Annual Average (Nat)	0.016	0.016	0.014	0.017	0.015	0.014	0.014	0.013	0.013	0.013	0.012	0.014	0.012	0.012	0.011	0.009	0.009	0.007	0.009	0.009
Max. Annual Average (State)	0.016	0.016	0.01	0.011	0.015	0.014	0.014	0.013	0.012	0.012	0.012	0.014	0.012	0.012	0.011	0.009	0.009	0.007	0.008	0.009

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.25	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	0.14	0.13	0.14	0.14	0.13
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	0.04	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	0.02	0.03	0.01	0.03	0.01

Table A-96

South Central Coast Air Basin

County: Santa Barbara

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.107	0.109	0.111	0.112	0.108	0.104	0.104	0.107	0.113	0.110	0.101	0.092	0.091	0.090	0.092	0.095	0.093	0.090	0.084	0.084
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.084	0.082	0.078	0.075	0.075
Peak 1-Hour Indicator (State)	0.131	0.139	0.139	0.136	0.129	0.121	0.121	0.122	0.131	0.124	0.116	0.103	0.102	0.100	0.103	0.105	0.102	0.097	0.091	0.094
4th High 1-Hr. in 3 Yrs2	0.130	0.179	0.171	0.165	0.137	0.123	0.129	0.126	0.130	0.130	0.125	0.108	0.107	0.101	0.101	0.103	0.101	0.100	0.092	0.092
Max. 8-Hr. Concentration	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	0.102	0.102	0.082	0.082	0.086
Maximum 1-Hr. Concentration	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	0.107	0.109	0.091	0.102	0.101
Days Above State 8-Hr. Std.	104	105	94	101	72	63	54	60	61	48	50	34	40	34	37	42	20	13	16	19
Days Above Nat. 8-Hr. Std.	67	59	53	70	44	42	29	39	40	17	29	12	21	20	17	24	11	3	5	9
Days Above State 1-Hr. Std.	43	42	40	38	27	23	23	24	23	10	15	3	6	5	3	7	2	0	1	3

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	132	119	96	96	89	90	139	129	78	168	75	52	54	68	50	98	52	87	108	400
Max. 24-Hr. Concentration (Nat)	132	119	96	96	89	90	139	129	78	168	73	99	53	66	50	96	52	83	55	320
Max. 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	25.2	24.7	27.8	29.6	33.9
Max. Annual Average (Nat)	28.7	35.9	36.6	36.8	32.6	32.9	32.5	31.1	28.6	29.8	25.0	28.5	25.8	26.5	23.5	24.4	24.1	21.4	21.8	23.9
Calc Days Above State 24-Hr Std	19	26	25	6	57	41	7	13	18	12	18	12	18	18	0	6	6	6	13	27
Calc Days Above Nat 24-Hr Std	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	7

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												24.3	28.7	43.2	21.3	24.0	27.5	29.8	27.9	41.0
Max. 24-Hr. Concentration (Nat)												24.3	28.7	43.2	21.3	24.0	27.5	29.8	27.9	23.5
98th Percentile of 24-Hr Conc.														23.4	19.4	16.1	12.9		23.9	20.7
Annual Average (State)														10.4	9.5	8.6	7.5		7.5	9.5
Avg. of Qtrly. Means (Nat)														10.4	9.5	8.6	7.5		10.1	9.5

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	1.7	2.4	2.1	1.9	1.9	1.7
Max. 1-Hr. Concentration	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	5.9	4.7	4.0	4.1	4.6
Max. 8-Hr. Concentration	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	3.1	1.9	1.8	2.3	1.9	1.7	1.8	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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.063	0.058	0.057	0.057	0.058
Max. 1-Hr. Concentration	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	0.059	0.063	0.062	0.063	0.065
Max. Annual Average (Nat)	0.016	0.027	0.022	0.024	0.022	0.022	0.022	0.021	0.019	0.019	0.021	0.022	0.018	0.010	0.011	0.011	0.013	0.012	0.008	0.008
Max. Annual Average (State)	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	0.011	0.013	0.012	0.008	0.008

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.01	0.01	0.01	0.01	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	0.02	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	0.01	0.00	0.00	0.00	0.00

Table A-97

South Central Coast Air Basin

County: Ventura

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.152	0.150	0.152	0.148	0.138	0.137	0.126	0.138	0.140	0.138	0.129	0.119	0.116	0.111	0.110	0.107	0.104	0.102	0.101	0.101
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.095	0.094	0.091	0.090	0.088
Peak 1-Hour Indicator (State)	0.178	0.173	0.174	0.165	0.159	0.159	0.150	0.162	0.161	0.154	0.144	0.136	0.131	0.125	0.125	0.124	0.118	0.116	0.113	0.113
4th High 1-Hr. in 3 Yrs2	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	0.124	0.118	0.118	0.121	0.113
Max. 8-Hr. Concentration	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	0.114	0.098	0.100	0.104	0.101
Maximum 1-Hr. Concentration	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	0.130	0.122	0.121	0.130	0.113
Days Above State 8-Hr. Std.	173	154	139	161	122	92	129	128	128	117	78	83	82	81	63	97	78	62	54	42
Days Above Nat. 8-Hr. Std.	151	128	117	131	88	69	103	103	100	78	57	57	57	57	39	68	49	39	39	21
Days Above State 1-Hr. Std.	135	116	99	107	68	58	88	90	80	59	41	33	38	34	22	41	22	17	18	8

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	118	92	133	90	84	118	86	94	93	321	111	86	102	77	100	169	69	74	119	248
Max. 24-Hr. Concentration (Nat)	118	92	133	90	84	118	86	94	93	321	110	84	100	78	97	168	69	76	119	246
Max. 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	31.2	28.8	28.6	30.0	28.8	25.6	27.9	29.8
Max. Annual Average (Nat)	40.1	41.5	35.2	39.9	33.2	29.1	31.6	28.4	29.9	37.0	24.4	31.3	31.0	31.5	28.9	30.7	28.1	24.9	27.3	28.9
Calc Days Above State 24-Hr Std	102	139	66	99	43	30	24	57	29	47	12	13	39	18	19	31	7	12	24	24
Calc Days Above Nat 24-Hr Std	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	6

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												64.6	55.3	50.0	46.4	116.0	91.9	51.1	119.5	108.0
Max. 24-Hr. Concentration (Nat)												64.6	55.3	50.0	46.4	116.0	41.2	42.4	31.7	48.8
98th Percentile of 24-Hr Conc.												35.4	42.4	41.7	35.2	33.4	36.7	26.3	27.6	31.8
Annual Average (State)														14.9		12.4	12.5	11.7	10.3	13.4
Avg. of Qtrly. Means (Nat)												13.7	13.5	14.9	14.6	14.2	12.5	11.2	10.3	11.6

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	2.7	2.4			
Max. 1-Hr. Concentration	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	7.2	4.2			
Max. 8-Hr. Concentration	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	3.7	2.6			
Days Above State 8-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			

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.073	0.069	0.066	0.062	0.060
Max. 1-Hr. Concentration	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	0.103	0.071	0.070	0.055	0.064
Max. Annual Average (Nat)	0.024	0.027	0.025	0.024	0.022	0.023	0.024	0.024	0.022	0.020	0.019	0.022	0.020	0.019	0.017	0.015	0.014	0.015	0.013	0.013
Max. Annual Average (State)	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	0.015	0.014	0.015	0.013	0.013

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	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			
Max. 24-Hr. Concentration	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	0.00	0.00			

Table A-98

South Coast Air Basin

County: Los Angeles

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.241	0.224	0.225	0.222	0.211	0.212	0.202	0.183	0.173	0.171	0.165	0.146	0.147	0.134	0.146	0.153	0.149	0.146	0.130	0.130
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.105	0.111	0.126	0.125	0.120	0.112	0.110
Peak 1-Hour Indicator (State)	0.317	0.317	0.310	0.304	0.286	0.284	0.279	0.249	0.230	0.229	0.217	0.194	0.193	0.166	0.171	0.182	0.180	0.174	0.158	0.156
4th High 1-Hr. in 3 Yrs2	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	0.184	0.169	0.184	0.171	0.173	0.164	0.164
Max. 8-Hr. Concentration	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	0.152	0.133	0.141	0.128	0.117
Maximum 1-Hr. Concentration	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	0.194	0.158	0.173	0.175	0.158
Days Above State 8-Hr. Std.	201	192	157	151	172	156	138	132	114	101	71	58	76	79	106	113	102	90	101	72
Days Above Nat. 8-Hr. Std.	193	171	148	141	163	136	131	118	98	71	56	41	55	61	92	99	87	74	79	56
Days Above State 1-Hr. Std.	205	192	168	159	174	158	142	127	109	89	68	43	57	70	86	101	80	74	73	51

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	138	172	161	151	222	104	127	157	138	116	87	103	105	106	121	117	83	131	117	232
Max. 24-Hr. Concentration (Nat)	138	172	161	151	222	104	127	157	138	116	87	103	105	106	121	119	83	131	117	232
Max. 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	37.2	43.1	38.1	43.4	32.0	33.0
Max. Annual Average (Nat)	67.9	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	44.4	38.1	43.5	45.0	37.7
Calc Days Above State 24-Hr Std		249	187	183	146	155	145	143	153	149	67	213	92	119	71	118	76	112	47	31
Calc Days Above Nat 24-Hr Std		6	6	0	11	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												85.6	92.5	104.0	80.2	121.2	75.6	132.6	72.2	82.8
Max. 24-Hr. Concentration (Nat)												85.6	92.5	94.7	72.4	121.2	75.6	132.6	72.2	82.8
98th Percentile of 24-Hr Conc.												64.2	83.0	69.4	57.9	61.3	54.3	58.2	44.4	51.2
Annual Average (State)													24.0	24.8	24.0	20.3	16.6	17.8	16.6	
Avg. of Qtrly. Means (Nat)												25.7	24.0	25.2	24.0	22.1	20.0	17.8	16.7	16.9

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.5	15.4	13.7	12.6	11.2	9.4	8.7	8.3	7.1	6.4	6.0
Max. 1-Hr. Concentration	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	12.2	10.4	7.4	8.4	7.8
Max. 8-Hr. Concentration	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	7.3	6.5	5.9	6.2	5.3
Days Above State 8-Hr. Std.	70	70	49	51	39	29	27	17	26	18	13	11	6	0	1	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	63	67	41	41	34	19	19	14	19	13	10	7	3	0	1	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.157	0.150	0.142	0.120	0.109
Max. 1-Hr. Concentration	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	0.163	0.157	0.136	0.137	0.108
Max. Annual Average (Nat)	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	0.035	0.034	0.031	0.031	0.031
Max. Annual Average (State)	0.061	0.057	0.056	0.055	0.051	0.05	0.05	0.046	0.042	0.043	0.043	0.05	0.044	0.041	0.04	0.036	0.033	0.031	0.031	0.031

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.07	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	0.04	0.03	0.04	0.04	0.03
Max. Annual Average	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	0.01	0.01	0.00	0.00
Max. 24-Hr. Concentration	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	0.01	0.02	0.01	0.01	0.01

Table A-99

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

South Coast Air Basin

County: Orange

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.171	0.167	0.162	0.152	0.145	0.139	0.141	0.125	0.116	0.105	0.105	0.097	0.098	0.098	0.095	0.100	0.101	0.100	0.099	0.095
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.077	0.080	0.086	0.087	0.086	0.084	0.083
Peak 1-Hour Indicator (State)	0.246	0.235	0.227	0.219	0.205	0.197	0.192	0.165	0.156	0.137	0.141	0.131	0.131	0.116	0.117	0.123	0.123	0.121	0.118	0.115
4th High 1-Hr. in 3 Yrs2	0.240	0.240	0.240	0.220	0.210	0.190	0.190	0.170	0.156	0.138	0.144	0.130	0.132	0.119	0.125	0.131	0.131	0.127	0.118	0.128
Max. 8-Hr. Concentration	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	0.105	0.097	0.085	0.114	0.107
Maximum 1-Hr. Concentration	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	0.165	0.120	0.125	0.146	0.152
Days Above State 8-Hr. Std.	88	80	77	66	66	57	44	38	35	17	26	11	17	19	15	37	59	13	25	12
Days Above Nat. 8-Hr. Std.	70	63	63	55	49	46	31	21	16	11	16	6	12	9	6	21	33	7	14	9
Days Above State 1-Hr. Std.	96	81	80	71	63	59	46	39	27	13	22	8	14	12	9	19	23	4	17	8

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)		88	158	146	88	115	106	172	101	91	81	122	126	93	78	96	74	65	103	488
Max. 24-Hr. Concentration (Nat)		88	158	146	88	115	106	172	101	91	81	122	126	93	80	96	74	65	104	489
Max. 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	33.5	32.8	34.0	28.1		38.4
Max. Annual Average (Nat)		41.7	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	32.8	33.9	28.2	33.3	38.6
Calc Days Above State 24-Hr Std		122		89	31	78	67	86	37	66	72	37	48	18	30	38	42	18		37
Calc Days Above Nat 24-Hr Std		0	6	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	6

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												68.6	113.9	70.8	68.6	115.5	58.9	54.7	56.2	79.4
Max. 24-Hr. Concentration (Nat)												68.6	113.9	70.8	68.6	115.5	58.9	54.7	56.2	79.4
98th Percentile of 24-Hr Conc.												63.7	66.3	60.2	48.1	51.8	48.2	41.8	36.9	46.5
Annual Average (State)													14.7		18.6			10.6		
Avg. of Qtrly. Means (Nat)													20.3	18.5	18.6	17.3	17.0	14.7	14.0	14.4

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	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	4.6	4.4	4.1	3.5	3.1
Max. 1-Hr. Concentration	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	8.4	7.4	6.8	6.0	6.3
Max. 8-Hr. Concentration	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	5.9	4.1	3.3	3.0	3.1
Days Above State 8-Hr. Std.	9	13	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	7	12	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.129	0.119	0.115	0.096	0.090
Max. 1-Hr. Concentration	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	0.158	0.122	0.090	0.114	0.086
Max. Annual Average (Nat)	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	0.025	0.028	0.025	0.025	0.022	0.021
Max. Annual Average (State)	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	0.027	0.025	0.024	0.022	0.021

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.02	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	0.02	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	0.01	0.01	0.01	0.00	0.00

Table A-100

South Coast Air Basin

County: Riverside

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.216	0.217	0.209	0.207	0.204	0.198	0.178	0.170	0.157	0.153	0.158	0.149	0.147	0.136	0.131	0.137	0.137	0.139	0.131	0.126
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	0.180	0.180	0.177	0.175	0.169	0.165	0.157	0.149	0.140	0.129	0.127	0.124	0.114	0.111	0.113	0.118	0.117	0.119	0.112	0.106
Peak 1-Hour Indicator (State)	0.276	0.269	0.263	0.261	0.251	0.240	0.225	0.208	0.193	0.187	0.188	0.176	0.171	0.153	0.155	0.159	0.155	0.156	0.145	0.145
4th High 1-Hr. in 3 Yrs2	0.270	0.270	0.270	0.270	0.250	0.240	0.240	0.220	0.200	0.187	0.187	0.170	0.166	0.149	0.149	0.157	0.157	0.157	0.141	0.140
Max. 8-Hr. Concentration	0.241	0.213	0.181	0.196	0.193	0.195	0.208	0.161	0.162	0.148	0.169	0.123	0.126	0.135	0.130	0.146	0.116	0.132	0.122	0.116
Maximum 1-Hr. Concentration	0.280	0.270	0.290	0.240	0.260	0.260	0.253	0.213	0.203	0.187	0.195	0.144	0.164	0.152	0.160	0.169	0.156	0.149	0.169	0.138
Days Above State 8-Hr. Std.	198	190	163	166	180	171	163	145	141	160	119	123	129	136	127	129	123	116	114	105
Days Above Nat. 8-Hr. Std.	184	178	147	154	154	155	147	129	111	145	88	92	107	104	106	108	93	89	100	83
Days Above State 1-Hr. Std.	191	182	150	155	159	157	144	134	107	128	80	83	93	97	93	102	84	73	87	77

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	252	252	250	179	126	231	161	219	162	163	116	153	139	219	126	159	133	119	119	1155
Max. 24-Hr. Concentration (Nat)	252	252	250	179	126	231	161	219	162	163	116	153	139	219	130	164	137	123	125	1212
Max. 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	56.2	55.1	53.5	50.4	52.7	57.1
Max. Annual Average (Nat)	103.7	93.0	78.2	76.1	62.6	72.5	65.5	68.8	62.8	65.6	58.7	72.2	59.1	63.3	58.1	55.6	54.8	51.8	55.1	59.5
Calc Days Above State 24-Hr Std		305	275	250	233	251	244	226	251	257		261	248	240	228	201	210	198	214	204
Calc Days Above Nat 24-Hr Std		34	18	12	0	18	6	25	6	6	0	0	0	6	0	6	0	0	0	12

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												111.2	119.6	98.0	77.6	104.3	93.8	98.7	68.4	75.6
Max. 24-Hr. Concentration (Nat)												111.2	119.6	98.0	77.6	104.3	93.8	98.7	68.4	75.6
98th Percentile of 24-Hr Conc.												75.4	77.1	74.3	66.3	76.6	59.5	58.3	54.4	60.0
Annual Average (State)																24.8		21.0		19.8
Avg. of Qtrly. Means (Nat)												30.2	28.3	31.0	27.5	24.8	22.1	20.9	19.0	19.0

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	8.7	8.5	8.1	8.0	6.9	6.6	6.3	6.2	6.2	5.9	5.3	4.7	4.7	4.4	4.7	3.9	3.3	3.2	2.9	2.5
Max. 1-Hr. Concentration	17.0	14.0	15.0	14.0	11.0	10.0	11.0	9.0	9.1	10.7	6.4	7.4	8.8	5.8	6.5	4.6	4.3	4.0	3.8	3.8
Max. 8-Hr. Concentration	10.0	10.3	7.3	7.4	6.1	7.1	7.3	6.3	5.3	5.6	4.8	4.4	4.2	4.5	3.8	3.7	3.0	2.5	2.4	2.9
Days Above State 8-Hr. Std.	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Days Above Nat. 8-Hr. Std.	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.170	0.176	0.174	0.172	0.168	0.159	0.138	0.134	0.133	0.127	0.167	0.185	0.213	0.216	0.200	0.161	0.109	0.090	0.082	0.080
Max. 1-Hr. Concentration	0.190	0.160	0.160	0.210	0.230	0.140	0.181	0.147	0.110	0.200	0.255	0.307	0.214	0.237	0.149	0.099	0.092	0.077	0.107	0.079
Max. Annual Average (Nat)	0.037	0.036	0.034	0.035	0.030	0.030	0.031	0.030	0.029	0.026	0.022	0.025	0.022	0.024	0.023	0.021	0.017	0.022	0.020	0.020
Max. Annual Average (State)		0.036	0.034	0.035	0.030		0.031	0.030	0.029	0.026	0.017	0.025	0.022	0.024	0.017	0.021	0.017	0.022	0.020	0.020

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.02	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	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.01	0.00	0.01	0.02	0.01	0.00	0.00

Table A-101

Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

South Coast Air Basin

County: San Bernardino

OZONE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hour Indicator (State)	0.223	0.215	0.214	0.209	0.209	0.209	0.195	0.196	0.183	0.177	0.190	0.187	0.186	0.151	0.151	0.151	0.150	0.152	0.141	0.140
Avg. of 4th High 8-Hr. in 3 Yrs (Nat)	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	0.131	0.127	0.127	0.121	0.122
Peak 1-Hour Indicator (State)	0.285	0.277	0.272	0.267	0.266	0.252	0.254	0.234	0.234	0.223	0.222	0.209	0.211	0.171	0.172	0.181	0.171	0.171	0.155	0.159
4th High 1-Hr. in 3 Yrs2	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	0.167	0.163	0.163	0.163	0.164
Max. 8-Hr. Concentration	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	0.153	0.145	0.145	0.142	0.137
Maximum 1-Hr. Concentration	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	0.176	0.163	0.182	0.166	0.171
Days Above State 8-Hr. Std.	190	201	177	170	192	192	173	148	147	145	124	130	123	135	132	132	138	119	112	118
Days Above Nat. 8-Hr. Std.	186	192	168	157	179	177	157	134	130	119	113	107	104	107	114	118	99	102	104	99
Days Above State 1-Hr. Std.	193	192	161	160	176	170	158	135	132	122	100	98	101	99	94	106	88	87	87	76

PM_{10} ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)	287	271	475	163	649	143	147	178	136	208	114	183	124	166	98	145	114	104	135	266
Max. 24-Hr. Concentration (Nat)	287	271	475	163	649	143	210	178	136	208	114	183	124	166	102	149	118	108	142	276
Max. 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	48.2	43.2	46.9	48.4	51.1	58.2
Max. Annual Average (Nat)	80.6	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	44.9	48.6	50.4	53.7	60.7
Calc Days Above State 24-Hr Std		293	265	250	243	231	232	209	211	174	171	223	195	208	194	129	158	166	176	209
Calc Days Above Nat 24-Hr Std		18	19	6	12	0	3	21	0	6	0	6	0	6	0	0	0	0	0	13

$PM_{2.5}$ ($\mu g/m^3$)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Max. 24-Hr. Concentration (State)												121.4	89.8	78.5	82.1	98.1	93.4	106.2	55.0	77.5
Max. 24-Hr. Concentration (Nat)												121.4	89.8	78.5	82.1	98.1	93.4	106.2	55.0	77.5
98th Percentile of 24-Hr Conc.												85.6	70.3	69.5	66.3	66.9	72.4	49.5	49.0	70.7
Annual Average (State)														25.0	25.8	23.8				
Avg. of Qtrly. Means (Nat)												25.7	25.9	26.5	25.8	23.8	21.9	18.8	18.4	18.9

CARBON MONOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 8-Hr. Indicator	7.5	7.8	7.7	7.4	6.7	6.1	5.5	6.4	6.3	6.1	5.1	4.9	4.9	4.1	3.5	3.6	3.5	3.2	2.6	2.5
Max. 1-Hr. Concentration	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	5.1	4.1	3.8	2.8	3.7
Max. 8-Hr. Concentration	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	4.5	3.2	2.5	2.2	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)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	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	0.125	0.118	0.117	0.107	0.102
Max. 1-Hr. Concentration	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	0.117	0.118	0.102	0.100	0.095
Max. Annual Average (Nat)	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	0.034	0.031	0.031	0.031	0.027
Max. Annual Average (State)	0.047	0.045	0.041	0.043	0.04	0.042	0.041	0.046	0.038	0.036	0.036	0.039	0.038	0.037	0.036	0.034	0.031	0.031	0.031	0.024

SULFUR DIOXIDE (ppm)	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Peak 1-Hr. Indicator	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Max. Annual Average	0.00	0.00	0.00	0.00	0.00	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	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Table A-102

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

(This page intentionally left blank)

APPENDIX B

Air Quality Trend Data by Pollutant:

Ozone, PM_{10}, $PM_{2.5}$ CO, NO_2, NO_x, SO_2

Appendix B: *Air Quality Trend Data by Pollutant: Ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, NO_x, SO_2*

List of Tables

List of Tables (continued)

Introduction

This appendix contains air quality trend data for each of California's 15 air basins, organized by pollutant. The seven pollutants included are ozone, particulate matter (PM_{10} & $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), oxides of nitrogen (NO_x), and sulfur dioxide (SO_2). The statistics are the same as those presented in Chapter 4, and the time period covered is 1988 through 2007 for $PM_{2.5}$. the time period is 1999 to 2007.

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 were below the levels of the State and national standards from 1988 through 1993. In 1994, however, the concentrations show a significant increase, and both the State and national standards were 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 online at *www.arb.ca.gov/aqd/netrpt/netrpt.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). The exception is PM_{10}, these data reflect the estimated number of exceedances at the one site with the highest total in the air basin.

Also included is a table of population-weighted exposure to concentrations above the State 1-hour ozone standard. The next section provides additional information on the exposure indicator.

Population-Weighted Exposure Over the State Ozone Standard

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 day, the calculations simultaneously consider daily ozone data from all of the monitors in a region. People living in areas where the daily maximum 8-hour ozone concentration exceeds the standard are then included in the population-weighted exposure for that day. These daily population-weighted exposures are then aggregated into an annual population-weighted exposure for each year and each basin.

The following example shows a simple 8-hour ozone exposure calculation. A daily maximum 8-hour ozone concentration of 0.090 ppm represents an exposure of 0.160 ppm-hours above the State 8-hour ozone standard of 0.070 ppm:

(0.090 ppm - 0.070 ppm) x 8 hours = 0.160 ppm-hours

Additionally, when the daily maximum 8-hour ozone concentration is equal to or below the level of the State 8-hour standard of 0.070 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.

The 1-hour ozone exposures are calculated in a similar way using the hourly ozone data instead of using the daily maximum 8-hour ozone data. For example, a measured hourly ozone concentration of 0.110 ppm for one hour represents an exposure of 0.020 ppm-hours above the State 1-hour ozone standard of 0.090 ppm:

(0.110 ppm - 0.090 ppm) x 1 hour = 0.020 ppm-hours

In contrast to this example, when the hourly ozone concentration is equal to or below the level of the State 1-hour standard of 0.090 ppm, the exposure is zero. Similarly, the population associated with these “zero” exposures are not included in the exposure calculations.

The calculations for the exposure indicators are based on all concentrations measured in the area that satisfies 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 1988 through 1999 use census information for 1990, while exposures for the years 2000 through 2007 use census information for the year of 2000. General details about these computational procedures 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).*

Page B-26 of the appendix provides estimates of 1-hour ozone exposures. Estimates of 8-hour ozone exposures are provided in Chapter 3.

Ozone

Peak 1-Hour Indicator (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	0.100	0.100	0.099	0.097	0.115	0.110	0.108	0.097	0.100	0.097	0.097	0.089	0.089	0.106	0.106	0.097	0.093	0.092	0.091	0.097
LAKE COUNTY	0.080	0.083	0.074	0.075	0.077	0.077	0.083	0.082	0.082	0.073	0.075	0.087	0.083	0.080	0.081	0.080	0.081	0.076	0.076	0.074
LAKE TAHOE	0.089	0.092	0.092	0.093	0.088	0.079	0.079	0.083	0.084	0.083	0.082	0.081	0.081	0.081	0.082	0.081	0.079	0.072	0.079	0.080
MOJAVE DESERT	0.233	0.204	0.215	0.223	0.219	0.193	0.191	0.194	0.186	0.172	0.176	0.162	0.154	0.136	0.140	0.137	0.139	0.138	0.132	0.135
MOUNTAIN COUNTIES	0.155	0.134	0.134	0.118	0.128	0.122	0.127	0.128	0.137	0.140	0.147	0.143	0.143	0.136	0.142	0.146	0.143	0.130	0.122	0.126
NORTH CENTRAL COAST	0.137	0.132	0.115	0.113	0.113	0.112	0.107	0.106	0.112	0.111	0.112	0.102	0.106	0.101	0.103	0.103	0.102	0.097	0.095	0.097
NORTH COAST	0.059	0.057	0.066	0.066	0.085	0.088	0.088	0.088	0.086	0.091	0.104	0.110	0.106	0.093	0.083	0.082	0.082	0.077	0.075	0.076
NORTHEAST PLATEAU	0.081	0.083	0.082	0.084	0.080	0.073	0.075	0.074	0.075	0.073	0.075	0.077	0.079	0.081	0.085	0.082	0.082	0.078	0.078	0.077
SACRAMENTO VALLEY	0.168	0.164	0.162	0.153	0.158	0.159	0.151	0.148	0.152	0.138	0.159	0.154	0.152	0.139	0.136	0.137	0.133	0.131	0.130	0.132
SALTON SEA	0.182	0.180	0.181	0.175	0.168	0.159	0.162	0.164	0.157	0.155	0.153	0.149	0.149	0.153	0.142	0.136	0.132	0.131	0.131	0.130
SAN DIEGO	0.179	0.187	0.181	0.171	0.162	0.152	0.151	0.149	0.142	0.132	0.133	0.133	0.131	0.118	0.117	0.116	0.111	0.110	0.111	0.116
SAN FRANCISCO BAY AREA	0.147	0.149	0.137	0.130	0.130	0.126	0.121	0.136	0.151	0.149	0.151	0.143	0.144	0.122	0.125	0.129	0.127	0.122	0.123	0.122
SAN JOAQUIN VALLEY	0.171	0.171	0.164	0.166	0.162	0.163	0.159	0.164	0.163	0.166	0.162	0.160	0.159	0.146	0.151	0.152	0.151	0.144	0.140	0.142
SOUTH CENTRAL COAST	0.178	0.173	0.174	0.165	0.159	0.159	0.150	0.162	0.161	0.154	0.144	0.136	0.131	0.125	0.125	0.124	0.118	0.116	0.113	0.113
SOUTH COAST	0.317	0.317	0.310	0.304	0.286	0.284	0.279	0.249	0.234	0.229	0.222	0.209	0.211	0.171	0.172	0.182	0.180	0.174	0.158	0.159

Table B-1

Peak 8-Hour Indicator (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	0.096	0.094	0.096	0.091	0.100	0.097	0.096	0.090	0.090	0.085	0.089	0.089	0.087	0.095	0.095	0.089	0.088	0.090	0.090	0.095
LAKE COUNTY	0.078	0.074	0.062	0.066	0.066	0.069	0.074	0.074	0.074	0.064	0.066	0.078	0.076	0.074	0.075	0.073	0.073	0.067	0.068	0.067
LAKE TAHOE	0.083	0.084	0.085	0.086	0.083	0.072	0.076	0.078	0.079	0.077	0.077	0.077	0.077	0.075	0.075	0.075	0.075	0.071	0.074	0.076
MOJAVE DESERT	0.198	0.169	0.178	0.177	0.172	0.162	0.154	0.157	0.154	0.152	0.151	0.138	0.130	0.118	0.120	0.121	0.122	0.121	0.119	0.120
MOUNTAIN COUNTIES	0.128	0.125	0.119	0.112	0.114	0.114	0.113	0.117	0.122	0.119	0.125	0.124	0.126	0.119	0.124	0.127	0.126	0.116	0.111	0.114
NORTH CENTRAL COAST	0.114	0.110	0.095	0.095	0.097	0.095	0.091	0.091	0.097	0.097	0.099	0.093	0.094	0.089	0.092	0.092	0.091	0.084	0.085	0.086
NORTH COAST	0.055	0.051	0.064	0.064	0.070	0.074	0.072	0.075	0.074	0.082	0.091	0.097	0.093	0.081	0.071	0.071	0.070	0.065	0.067	0.067
NORTHEAST PLATEAU	0.076	0.076	0.076	0.077	0.073	0.069	0.069	0.066	0.066	0.068	0.071	0.071	0.072	0.070	0.074	0.075	0.075	0.074	0.073	0.073
SACRAMENTO VALLEY	0.134	0.133	0.132	0.128	0.129	0.130	0.121	0.123	0.126	0.120	0.130	0.128	0.122	0.119	0.119	0.116	0.117	0.116	0.115	0.118
SALTON SEA	0.146	0.148	0.146	0.146	0.140	0.136	0.132	0.130	0.128	0.126	0.128	0.118	0.116	0.114	0.123	0.125	0.121	0.120	0.119	0.117
SAN DIEGO	0.138	0.142	0.146	0.141	0.135	0.128	0.124	0.126	0.122	0.117	0.119	0.117	0.116	0.104	0.106	0.104	0.101	0.097	0.099	0.101
SAN FRANCISCO BAY AREA	0.116	0.116	0.108	0.102	0.100	0.098	0.095	0.107	0.116	0.114	0.114	0.111	0.114	0.097	0.100	0.101	0.100	0.094	0.097	0.095
SAN JOAQUIN VALLEY	0.144	0.137	0.132	0.134	0.129	0.131	0.127	0.134	0.136	0.139	0.134	0.132	0.139	0.123	0.124	0.128	0.127	0.124	0.119	0.124
SOUTH CENTRAL COAST	0.152	0.150	0.152	0.148	0.138	0.137	0.126	0.138	0.140	0.138	0.129	0.119	0.116	0.111	0.110	0.107	0.104	0.102	0.101	0.101
SOUTH COAST	0.241	0.224	0.225	0.222	0.211	0.212	0.202	0.196	0.183	0.177	0.190	0.187	0.186	0.151	0.151	0.153	0.150	0.152	0.141	0.140

Table B-2

Ozone

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

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	0.100	0.100	0.100	0.090	0.140	0.140	0.130	0.100	0.100	0.092	0.091	0.089	0.090	0.100	0.100	0.100	0.090	0.090	0.090	0.098
LAKE COUNTY	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	0.070	0.070	0.070
LAKE TAHOE	0.090	0.090	0.090	0.090	0.090	0.080	0.083	0.086	0.083	0.083	0.081	0.081	0.081	0.083	0.083	0.083	0.079	0.073	0.086	0.086
MOJAVE DESERT	0.230	0.210	0.220	0.230	0.230	0.200	0.190	0.210	0.182	0.175	0.167	0.166	0.164	0.135	0.143	0.138	0.138	0.138	0.134	0.133
MOUNTAIN COUNTIES	0.160	0.160	0.160	0.150	0.150	0.120	0.124	0.124	0.136	0.145	0.145	0.145	0.144	0.144	0.148	0.148	0.145	0.139	0.126	0.126
NORTH CENTRAL COAST	0.140	0.140	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	0.106	0.104	0.095	0.095	0.097
NORTH COAST	0.060	0.059	0.070	0.060	0.080	0.090	0.090	0.090	0.090	0.090	0.110	0.110	0.110	0.100	0.083	0.083	0.083	0.080	0.080	0.080
NORTHEAST PLATEAU	0.080	0.080	0.080	0.080	0.080	0.070	0.070	0.070	0.070	0.070	0.078	0.077	0.081	0.082	0.082	0.087	0.081	0.077	0.076	0.074
SACRAMENTO VALLEY	0.160	0.160	0.160	0.150	0.160	0.150	0.142	0.145	0.145	0.143	0.149	0.149	0.149	0.138	0.134	0.138	0.138	0.131	0.134	0.134
SALTON SEA	0.180	0.180	0.180	0.180	0.170	0.170	0.152	0.205	0.192	0.180	0.155	0.160	0.157	0.166	0.147	0.142	0.131	0.130	0.127	0.127
SAN DIEGO	0.180	0.190	0.190	0.170	0.170	0.154	0.150	0.146	0.141	0.137	0.133	0.131	0.130	0.118	0.118	0.118	0.115	0.112	0.113	0.113
SAN FRANCISCO BAY AREA	0.140	0.140	0.130	0.130	0.130	0.120	0.121	0.138	0.138	0.138	0.138	0.139	0.139	0.126	0.124	0.123	0.123	0.113	0.118	0.120
SAN JOAQUIN VALLEY	0.170	0.180	0.170	0.160	0.160	0.160	0.160	0.164	0.165	0.164	0.161	0.161	0.161	0.146	0.151	0.151	0.151	0.149	0.135	0.135
SOUTH CENTRAL COAST	0.180	0.179	0.171	0.170	0.150	0.150	0.146	0.157	0.158	0.152	0.144	0.134	0.132	0.128	0.124	0.124	0.118	0.118	0.121	0.113
SOUTH COAST	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	0.184	0.169	0.184	0.171	0.173	0.164	0.164

Table B-3

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

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	0.079	0.081	0.081	0.080	0.081	0.082	0.084
LAKE COUNTY	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	0.064	0.064	0.064	0.065	0.061	0.061	0.060
LAKE TAHOE	0.074	0.076	0.075	0.076	0.075		0.061	0.070	0.071	0.068	0.069	0.069	0.069	0.067	0.066	0.066	0.062			0.067
MOJAVE DESERT	0.165	0.153	0.151	0.151	0.147	0.139	0.138	0.133	0.131	0.124	0.127	0.118	0.110	0.102	0.106	0.106	0.107	0.105	0.103	0.103
MOUNTAIN COUNTIES		0.090	0.090	0.092	0.089	0.096	0.097	0.099	0.103	0.099	0.103	0.103	0.107	0.104	0.106	0.107	0.102	0.098	0.097	0.096
NORTH CENTRAL COAST	0.079	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	0.081	0.081	0.076	0.075	0.074
NORTH COAST		0.042	0.046	0.044	0.051	0.050	0.066	0.069	0.069	0.072	0.077	0.082	0.076	0.069	0.063	0.062	0.061	0.057	0.057	0.056
NORTHEAST PLATEAU	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	0.057	0.065	0.064	0.064	0.063
SACRAMENTO VALLEY	0.114	0.114	0.107	0.105	0.105	0.110	0.104	0.106	0.106	0.097	0.095	0.101	0.105	0.101	0.101	0.100	0.097	0.097	0.097	0.098
SALTON SEA	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	0.108	0.104	0.104	0.102	0.101
SAN DIEGO	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	0.089	0.086	0.088	0.089
SAN FRANCISCO BAY AREA	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	0.084	0.078	0.080	0.077
SAN JOAQUIN VALLEY	0.121	0.116	0.112	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	0.116	0.113	0.110	0.107
SOUTH CENTRAL COAST	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	0.095	0.094	0.091	0.090	0.088
SOUTH COAST	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	0.131	0.127	0.127	0.121	0.122

Table B-4

Ozone

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	0.099	0.100	0.089	0.092	0.105	0.092	0.107
LAKE COUNTY	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	0.080	0.080	0.070	0.080	0.070
LAKE TAHOE	0.090	0.100	0.090	0.090	0.100	0.090	0.086	0.092	0.083	0.095	0.081	0.095	0.083	0.088	0.083	0.086	0.066	0.073	0.086	0.090
MOJAVE DESERT	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	0.163	0.138	0.145	0.148	0.132
MOUNTAIN COUNTIES	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	0.145	0.137	0.128	0.134	0.115
NORTH CENTRAL COAST	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	0.111	0.093	0.107	0.105	0.100
NORTH COAST	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	0.090	0.090	0.088	0.081	0.080
NORTHEAST PLATEAU	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	0.089	0.077	0.070	0.080	0.072
SACRAMENTO VALLEY	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	0.131	0.134	0.143	0.138
SALTON SEA	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	0.144	0.125	0.139	0.129	0.126
SAN DIEGO	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	0.129	0.113	0.121	0.134
SAN FRANCISCO BAY AREA	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	0.113	0.120	0.127	0.120
SAN JOAQUIN VALLEY	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	0.155	0.134	0.141	0.138
SOUTH CENTRAL COAST	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	0.130	0.122	0.121	0.130	0.113
SOUTH COAST	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	0.163	0.182	0.175	0.171

Table B-5

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	0.084	0.083	0.101	0.088	0.094
LAKE COUNTY	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	0.065	0.066	0.066	0.071	0.063
LAKE TAHOE	0.085	0.085	0.080	0.081	0.082	0.071	0.079	0.089	0.073	0.071	0.077	0.079	0.072	0.077	0.079	0.070	0.061	0.067	0.075	0.073
MOJAVE DESERT	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	0.130	0.119	0.123	0.124	0.109
MOUNTAIN COUNTIES	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	0.122	0.124	0.120	0.115	0.106
NORTH CENTRAL COAST	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	0.088	0.083	0.085	0.088	0.083
NORTH COAST	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	0.080	0.077	0.060	0.069	0.067
NORTHEAST PLATEAU	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	0.074	0.071	0.064	0.072	0.064
SACRAMENTO VALLEY	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	0.101	0.117	0.114	0.122
SALTON SEA	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	0.110	0.106	0.116	0.109	0.102
SAN DIEGO	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	0.095	0.089	0.100	0.092
SAN FRANCISCO BAY AREA	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	0.084	0.090	0.105	0.091
SAN JOAQUIN VALLEY	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	0.126	0.113	0.121	0.110
SOUTH CENTRAL COAST	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	0.114	0.102	0.100	0.104	0.101
SOUTH COAST	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	0.145	0.145	0.142	0.137

Table B-6

Ozone

Days Above National 8-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	26	3	9	0	19	4	28	5	12	11	14	10	8	16	13	13	18	24	9	18
LAKE COUNTY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
LAKE TAHOE	8	11	1	2	5	0	2	2	0	0	1	1	0	1	1	0	0	0	0	0
MOJAVE DESERT	162	166	165	148	156	147	161	131	132	123	105	124	107	107	109	111	104	93	100	98
MOUNTAIN COUNTIES	77	69	59	69	85	80	93	89	102	71	86	108	87	86	107	96	76	61	88	57
NORTH CENTRAL COAST	24	19	15	20	14	20	13	16	34	6	17	13	9	8	23	9	6	2	6	3
NORTH COAST	1	0	0	0	0	0	2	2	0	4	7	6	1	0	0	1	1	0	0	0
NORTHEAST PLATEAU	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SACRAMENTO VALLEY	99	77	75	89	82	49	87	64	82	44	89	88	62	69	71	69	57	45	68	34
SALTON SEA	108	127	89	95	101	124	141	130	99	126	81	91	70	86	92	77	71	77	72	68
SAN DIEGO	170	164	143	112	105	91	90	94	64	43	58	44	46	43	31	38	23	24	38	27
SAN FRANCISCO BAY AREA	34	24	13	16	18	18	13	22	25	5	24	18	9	13	15	12	7	5	17	2
SAN JOAQUIN VALLEY	178	159	153	145	155	144	137	142	143	138	112	153	144	162	158	160	143	102	120	110
SOUTH CENTRAL COAST	156	136	125	141	103	80	110	110	104	80	75	61	61	60	46	75	52	39	59	35
SOUTH COAST	207	210	181	176	191	183	164	150	141	155	120	120	126	128	132	133	115	116	114	108

Table B-7

Ozone

Days Above State 1-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	3	0	2	0	5	0	4	2	1	0	0	0	0	4	2	0	0	1	0	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	2	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
MOJAVE DESERT	152	158	136	135	150	135	137	119	108	101	77	83	86	72	75	93	75	66	61	50
MOUNTAIN COUNTIES	51	39	22	23	54	35	57	49	65	29	52	66	51	50	62	56	33	41	50	19
NORTH CENTRAL COAST	14	10	11	12	9	12	6	8	16	1	10	3	3	3	8	3	0	2	2	1
NORTH COAST	0	0	0	0	0	0	1	1	0	2	7	4	0	0	0	0	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	98	68	50	68	74	34	60	50	58	25	62	59	41	44	46	51	29	33	44	15
SALTON SEA	107	119	83	86	100	113	126	124	98	91	72	88	54	81	68	66	48	54	51	39
SAN DIEGO	160	159	139	106	97	90	79	96	51	43	54	27	24	29	15	24	12	16	23	21
SAN FRANCISCO BAY AREA	41	22	14	23	23	19	13	28	34	8	29	20	12	15	16	19	7	9	18	4
SAN JOAQUIN VALLEY	156	148	131	133	127	125	118	124	120	110	90	123	114	123	127	137	106	83	90	69
SOUTH CENTRAL COAST	138	117	105	112	75	63	90	95	82	59	54	33	38	34	24	45	23	17	23	9
SOUTH COAST	216	211	185	184	190	185	165	153	141	144	107	111	115	121	116	125	105	99	102	96

Table B-8

Days Above State 8-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	36	6	20	3	33	16	54	8	30	25	31	32	27	37	34	35	41	47	33	35
LAKE COUNTY	0	0	0	0	0	1	2	0	0	0	1	3	1	0	5	0	0	0	1	0
LAKE TAHOE	20	20	8	10	20	2	6	5	2	1	7	3	2	2	1	2	0	0	2	5
MOJAVE DESERT	177	178	179	163	174	162	175	151	159	154	128	156	140	144	132	141	132	128	124	124
MOUNTAIN COUNTIES	109	85	83	92	114	93	122	108	124	107	104	133	116	116	135	134	106	85	103	88
NORTH CENTRAL COAST	48	28	32	33	30	29	26	32	50	17	33	24	22	20	36	28	13	7	20	17
NORTH COAST	3	0	0	0	2	3	3	4	2	9	11	9	1	1	2	1	1	0	0	0
NORTHEAST PLATEAU	1	2	3	0	1	0	0	0	0	1	1	0	1	0	1	3	1	0	2	0
SACRAMENTO VALLEY	125	99	104	111	107	61	113	86	103	60	97	111	81	84	95	92	87	62	88	61
SALTON SEA	124	145	107	114	125	145	173	151	120	158	111	138	100	111	117	101	108	102	94	99
SAN DIEGO	189	189	167	144	133	127	122	127	89	73	88	74	75	64	56	59	43	51	68	50
SAN FRANCISCO BAY AREA	44	34	17	26	30	23	20	30	37	10	29	28	17	21	19	20	13	9	22	9
SAN JOAQUIN VALLEY	200	182	179	167	169	174	166	163	164	169	127	175	158	192	181	172	167	124	141	138
SOUTH CENTRAL COAST	181	164	150	170	138	105	138	138	131	123	104	100	87	83	73	102	79	67	78	76
SOUTH COAST	215	221	192	188	199	205	176	173	165	175	139	146	147	154	147	153	152	138	130	127

Table B-9

PM_{10}

Maximum 24-Hour Concentration (State) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	166	227	866	150	493	981	388	692	309	402	1022	2708	9967	3643	7401	15641	4797	1720	7709	8338
LAKE COUNTY		29	30	31	22	30	21	30	26	18	34	40	21	23	85	32	22	20	33	19
LAKE TAHOE					52	92	78	71	72	55	50	36	44	50	46	87	81	33	67	56
MOJAVE DESERT	63	191	462	780	80	79	140	143	138	130	159	109	90	112	194	169	83	70	77	339
MOUNTAIN COUNTIES	113	144	209	350	120	130	115	118	114	138	92	115	89	277	72	58	124	73	97	116
NORTH CENTRAL COAST	65	58	56	55	41	102	106	152	115	113	78	106	77	74	81	90	83	69	65	51
NORTH COAST	101	92	266	78	58	54	77	68	87	66	52	95	53	72	72	71	64	71	154	54
NORTHEAST PLATEAU		59	63	60	74	60	101	78	188	97	63	93	74	91	73	31	29	28	44	189
SACRAMENTO VALLEY	100	147	153	136	111	113	154	145	98	126	130	179	90	112	96	123	171	109	111	119
SALTON SEA	368	712	520	340	175	175	258	229	359	532	181	238	279	634	361	848	195	220	261	296
SAN DIEGO	80	90	115	81	67	159	129	121	93	125	89	119	136	106	131	289	138	154	134	392
SAN FRANCISCO BAY AREA	146	147	165	155	112	93	97	74	76	85	100	117	80	114	84	60	65	81	106	78
SAN JOAQUIN VALLEY	206	237	439	279	186	239	192	279	153	199	167	186	153	221	194	150	219	137	255	135
SOUTH CENTRAL COAST	132	119	133	96	135	141	139	129	93	321	111	86	102	77	100	169	146	87	135	400
SOUTH COAST	287	271	475	179	649	231	161	219	162	208	116	183	139	219	126	159	133	131	135	1155

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.*

Maximum 24-Hour Concentration (National) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	394	1861	866	181	526	981	1381	3929	2383	2229	1464	2901	10466	4482	7915	16619	5225	3988	8299	10020
LAKE COUNTY		29	30	31	22	30	21	30	26	18	35	43	22	21						
LAKE TAHOE					52	92	78	71	72	55	59	41	50	58	51	61	47	38		
MOJAVE DESERT	63	191	462	780	80	79	140	235	138	130	165	166	163	172	522	361	199	131	184	358
MOUNTAIN COUNTIES	113	144	209	350	120	130	115	118	114	179	114	125	98	312	76	66	133	127	167	127
NORTH CENTRAL COAST	65	58	57	58	45	102	106	152	115	113	76	103	74	72	77	87	80	66	63	49
NORTH COAST	101	92	266	78	58	54	77	68	87	66	50	100	51	73	74	68	61	67	161	51
NORTHEAST PLATEAU		59	63	60	74	60	101	78	188	97	66	100	80	105	86	33	32	29	50	205
SACRAMENTO VALLEY	100	147	153	136	111	113	204	287	98	126	130	275	109	123	145	89	169	110	160	119
SALTON SEA	368	712	520	340	175	175	258	278	359	532	185	227	268	647	373	840	201	211	248	291
SAN DIEGO	80	90	115	81	67	159	129	121	93	125	89	121	139	107	130	280	137	155	133	394
SAN FRANCISCO BAY AREA	146	150	165	155	112	101	97	75	77	95	92	119	76	109	80	58	63	78	104	73
SAN JOAQUIN VALLEY	206	237	439	279	186	239	192	279	153	228	160	183	145	212	189	150	217	131	304	172
SOUTH CENTRAL COAST	132	119	133	96	135	141	139	129	98	321	110	99	111	115	178	168	146	83	131	320
SOUTH COAST	287	271	475	179	649	231	210	219	185	208	116	183	139	219	130	164	137	131	142	1212

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.*

PM_{10}

Maximum Annual Average (State) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	116.8	63.1	159.3	130.4	68.3	30.1	63.1	14.6
LAKE COUNTY		12.9			11.9	11.3	11.0	10.8	10.2	8.6			10.6	10.2	13.1	10.0	10.0	9.7	11.7	8.9
LAKE TAHOE							27.1	22.5		21.6	19.8	16.9	17.3	16.9	17.1	17.9		14.8	17.2	
MOJAVE DESERT		42.5			39.7	35.1	27.9		29.0	27.4	15.6	32.2	33.6	29.7	34.0	27.9	18.3	26.1	30.5	36.0
MOUNTAIN COUNTIES				48.4		18.4	33.9	24.2	21.5	28.3	25.3	25.3	19.9	29.6	25.9	21.0	17.3	18.0	17.6	16.3
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	31.6	28.2	24.3	25.0	25.4
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	22.2	20.6	18.6	21.9	20.6
NORTHEAST PLATEAU		24.8			23.6		22.1	16.0				16.8			17.5	12.8	12.8	13.3	13.4	4.6
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	28.8	35.2	27.9	28.8	28.1
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	80.9	79.7	60.3	52.7	71.6	65.5
SAN DIEGO		44.4	32.8	40.7	29.0	45.8	50.7	47.1	30.2	46.6	42.5	50.9	44.5	47.4	52.4	52.6	51.7	28.6	54.1	58.5
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	29.7	26.4	24.8	26.0	24.2	35.0	25.6
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	52.3	43.6	44.5	56.5	48.5
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	31.2	28.8	28.6	30.0	31.4	27.8	29.6	33.9
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	56.2	55.1	53.5	50.4	52.7	58.2

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.*

Maximum Annual Average of Quarters (National) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	36.1	91.0	48.3	28.6	37.3	59.4	43.6	69.9	54.2	36.8	53.8	55.2	121.2	230.8	147.5	147.3	105.7	83.5	93.2	114.9
LAKE COUNTY		12.9	11.4	12.6	11.8	11.3	10.9	10.7	10.2	8.6	7.8	12.5	10.8	7.6						
LAKE TAHOE					5.9	26.0	27.1	22.5	23.4	21.6	23.4	19.9	20.4	19.8	19.9	17.6	15.2	17.5		
MOJAVE DESERT	34.7	42.5	49.5	58.0	39.4	35.2	42.1	25.5	29.0	29.4	27.8	32.1	33.6	29.8	34.3	33.2	28.7	28.9	33.0	38.4
MOUNTAIN COUNTIES	28.1	77.9	40.9	47.8	37.5	35.4	34.6	28.0	32.2	38.3	32.5	27.9	26.3	33.3	28.5	23.1	32.3	29.9	29.0	24.1
NORTH CENTRAL COAST	26.3	25.5	29.9	24.3	19.7	35.6	31.1	36.4	32.8	37.0	28.5	30.9	29.9	29.4	27.7	30.1	27.3	23.6	23.9	24.4
NORTH COAST	27.1	31.4	28.0	25.3	21.8	22.6	24.3	26.1	24.6	23.4	24.7	25.3	22.4	24.1	22.2	21.4	20.7	18.0	25.8	19.6
NORTHEAST PLATEAU		24.8	23.5	21.4	23.6	21.4	29.6	30.3	16.2	20.2	14.7	32.9	27.9	25.1	18.6	13.3	13.6	13.9	14.1	18.0
SACRAMENTO VALLEY	51.2	46.0	51.9	46.4	42.3	36.9	34.5	40.7	32.6	28.6	29.0	38.4	27.9	30.2	30.9	28.4	34.5	27.2	37.8	27.5
SALTON SEA	61.8	89.9	80.3	69.3	47.5	53.3	75.1	71.9	73.6	77.7	74.1	77.8	95.2	86.2	79.9	80.0	60.8	53.2	70.9	65.6
SAN DIEGO	40.0	43.8	37.6	36.4	35.9	45.9	50.7	46.8	38.5	46.6	42.5	52.2	45.2	49.1	54.9	52.1	51.2	49.8	53.7	58.8
SAN FRANCISCO BAY AREA	33.8	40.8	35.2	38.3	33.7	28.8	28.6	28.4	24.9	25.8	25.1	28.7	26.8	28.9	30.6	24.2	25.3	23.5	34.1	24.8
SAN JOAQUIN VALLEY	74.3	79.3	79.3	76.3	62.9	56.9	50.1	58.2	52.0	48.2	52.5	59.5	53.1	57.4	59.2	52.4	47.9	44.3	55.4	54.8
SOUTH CENTRAL COAST	40.1	41.5	36.6	40.1	43.1	42.8	31.6	39.9	31.7	37.0	25.2	31.3	33.8	31.5	43.2	30.7	31.5	24.9	27.3	39.4
SOUTH COAST	103.7	93.0	78.2	76.1	79.0	72.5	65.5	68.8	62.8	65.6	58.7	72.2	59.1	63.3	58.1	55.6	54.8	51.8	55.1	60.7

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.*

PM_{10}

Calculated Days Above State 24-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS		36	18	12	83	62	64	37	7	36	80	0	58	41	93	44	35	36	38	3
LAKE COUNTY		0			0	0	0	0	0	0			0	0	12	0	0	0	0	0
LAKE TAHOE							42	18		13	0	0	0	0	0	6		0	3	
MOJAVE DESERT		72			84	58	6		18	6	0	31	37	18	55	18	0	19	26	37
MOUNTAIN COUNTIES				95		6	87	12	6	41	19	24	25	37	18	6	0	6	0	0
NORTH CENTRAL COAST		6	6	0		12	31	71	71	72		50	24		25	41	43	12	18	6
NORTH COAST		40	29	23	6	13	13	13	12	6	6	36	7	24	12	25	0	0	12	4
NORTHEAST PLATEAU		29			24		0	0				0			6	0	0	0	0	0
SACRAMENTO VALLEY		82	74	104	70	63	36	57	44	22	60	64	43	50	41	31	80	42	53	36
SALTON SEA		221	254	230	143	151	136	218	244	294	227	289	313	312	305	284	220	160	241	219
SAN DIEGO		114	38	84	12	134	134	122	12	125	107	124	109	129	173	151	175	13	159	159
SAN FRANCISCO BAY AREA		76	70	91	53	37	36	24	12	18	18	37	42	48	24	18	25	23	77	24
SAN JOAQUIN VALLEY	159	208	292	225	246	183	166	184	204	107	102	182	196	168	256	167	113	146	167	145
SOUTH CENTRAL COAST	102	139	66	99	57	53	24	57	29	47	18	13	39	18	19	31	61	12	30	51
SOUTH COAST		305	275	250	243	251	244	226	251	257	171	261	248	240	228	201	210	198	214	209

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.*

Calculated Days Above National 24-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	13	27	12	0	19	8	4	14	8	17	22	5	32	17	39	31	23	14	13	19
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		
MOJAVE DESERT		6	6	13	0	0	0	0	0	0	0	0	0	0	7	8	0	0	0	7
MOUNTAIN COUNTIES			10	14	0	0	0	0	0	2	0	0	0	6	0	0	0	0	1	0
NORTH CENTRAL COAST		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH COAST		0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHEAST PLATEAU		0	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	8
SACRAMENTO VALLEY		0	0	0	0	0	1	0	0	0	0	7	0	0	0	0	6	0	0	0
SALTON SEA		27	26	19	6	13	0	13	30	13	12	32	38	18	18	25	6	6	16	14
SAN DIEGO		0	0	0	0	6	0	0	0	0	0	0	0	0	0	6	0	0	0	6
SAN FRANCISCO BAY AREA		0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	0	29	31	18	18	20	6	12	0	6	6	8	0	14	6	0	7	0	13	0
SOUTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	7
SOUTH COAST		34	19	12	12	18	6	25	6	6	0	6	0	6	0	6	0	0	0	13

Table B-15 ** Salton Sea PM_{10} statistics exclude data from the Calexico - East site because data from this site do not represent widespread exposure.*

$PM_{2.5}$

Maximum 24-Hour Concentration (State) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS												40.7	68.0	76.0	68.0	44.0	81.0	27.0	193.0	57.0
LAKE COUNTY												14.5	10.0	15.1	74.7	21.9	18.1	11.3	21.6	9.5
LAKE TAHOE												21.0	23.0	31.0	27.0	27.4	23.2			
MOJAVE DESERT												47.6	38.6	35.0	38.0	28.0	34.0	28.0	22.0	28.0
MOUNTAIN COUNTIES												92.0	48.0	120.0	41.0	54.0	148.4	179.7	62.7	134.0
NORTH CENTRAL COAST												31.4	26.4	25.6	23.5	15.9	22.6	21.7	13.0	20.9
NORTH COAST												36.9	24.0	38.3	59.7	36.1	25.6	31.8	35.0	33.8
NORTHEAST PLATEAU												40.0	38.0	35.0	5.0	10.0		26.0	22.0	
SACRAMENTO VALLEY											96.0	108.0	123.1	128.2	96.1	73.2	76.3	82.7	78.6	83.7
SALTON SEA												52.5	84.2	60.2	142.7	153.6	76.0	85.2	80.8	95.0
SAN DIEGO												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	151.0
SAN FRANCISCO BAY AREA												90.5	67.2	107.5	84.5	56.1	73.7	55.6	75.3	57.5
SAN JOAQUIN VALLEY												136.0	160.0	154.7	104.3	84.5	77.0	102.1	88.1	154.0
SOUTH CENTRAL COAST												64.6	55.3	57.7	46.4	116.0	91.9	51.1	119.5	108.0
SOUTH COAST												121.4	119.6	104.0	82.1	121.2	93.8	132.6	72.2	82.8

Table B-16

Maximum 24-Hour Concentration (National) (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS												40.7	68.0	76.0	68.0	41.0	81.0	27.0	193.0	57.0
LAKE COUNTY												14.5	10.0	15.1	74.7	21.9	18.1	11.3	21.6	9.5
LAKE TAHOE												21.0	23.0	31.0	27.0	21.0	20.0			
MOJAVE DESERT												47.6	38.6	35.0	38.0	28.0	34.0	28.0	22.0	28.0
MOUNTAIN COUNTIES												92.0	48.0	120.0	41.0	43.0	44.0	60.0	51.0	72.0
NORTH CENTRAL COAST												31.4	26.4	25.6	23.5	15.9	22.6	21.7	13.0	20.9
NORTH COAST												36.9	24.0	38.3	59.7	36.1	25.6	31.8	35.0	33.8
NORTHEAST PLATEAU												40.0	38.0	35.0	5.0	10.0		26.0	22.0	
SACRAMENTO VALLEY											96.0	108.0	98.0	78.0	91.0	65.0	65.0	80.0	78.0	61.0
SALTON SEA												52.5	84.2	60.2	46.5	65.1	74.2	67.6	68.8	52.7
SAN DIEGO												64.3	66.3	60.0	53.6	239.2	67.3	44.1	63.3	126.2
SAN FRANCISCO BAY AREA												90.5	67.2	107.5	76.7	56.1	73.7	54.6	75.3	57.5
SAN JOAQUIN VALLEY												136.0	160.0	154.7	90.7	67.8	71.0	92.5	87.0	104.0
SOUTH CENTRAL COAST												64.6	55.3	57.6	46.4	116.0	41.2	42.4	31.7	48.8
SOUTH COAST												121.4	119.6	98.0	82.1	121.2	93.8	132.6	72.2	82.8

Table B-17

$PM_{2.5}$

98th Percentile 24-Hour Concentration (ug/m³)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS													67.0	41.0	62.0					35.0
LAKE COUNTY													9.4	11.3	46.3	15.1	9.0	10.5	21.4	9.1
LAKE TAHOE												21.0	21.0	26.0	22.0	19.0				
MOJAVE DESERT												23.5	23.0	21.0	33.0	17.0	20.0	19.0	19.0	20.0
MOUNTAIN COUNTIES												84.0	44.0	43.0	38.0	40.0	33.0	27.0	31.0	41.0
NORTH CENTRAL COAST													21.5	23.1	22.8	14.0	15.5	14.2		19.4
NORTH COAST												27.7		29.0	39.7	36.1	23.1	15.2	17.4	27.2
NORTHEAST PLATEAU												27.0	37.0							
SACRAMENTO VALLEY											96.0	84.0	81.0	56.0	63.0	43.0	54.0	54.0	59.0	53.0
SALTON SEA												43.2	56.0	50.4	44.1	44.3	31.9	41.1	46.0	29.5
SAN DIEGO												45.1	48.7	40.8	39.3	46.9	37.4	30.2	28.4	37.7
SAN FRANCISCO BAY AREA												63.2	55.3	57.1	57.5	37.4	39.8	40.9	36.6	39.2
SAN JOAQUIN VALLEY												120.0	103.0	96.0	80.4	56.0	61.5	74.9	64.7	73.0
SOUTH CENTRAL COAST												35.4	42.4	50.7	35.2	33.4	36.7	26.3	27.6	31.8
SOUTH COAST												85.6	83.0	74.3	66.3	76.6	72.4	58.3	54.4	70.7

Table B-18

$PM_{2.5}$

Average of Quarterly Means (State) (ug/m^3)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS														5.5						5.8
LAKE COUNTY														4.1	6.3	4.4	4.4	4.8	5.1	3.3
LAKE TAHOE												8.3	7.8	8.2		7.2				
MOJAVE DESERT												11.2		11.5	13.9	9.4	10.8	8.9	10.3	9.7
MOUNTAIN COUNTIES												11.1	9.0	8.1	9.9	8.6	11.7	10.6	8.6	14.2
NORTH CENTRAL COAST													7.9	9.1	9.1	7.3		6.8		7.0
NORTH COAST												9.1		9.4	9.1	7.4	7.0	6.2	6.8	7.6
NORTHEAST PLATEAU													8.5							
SACRAMENTO VALLEY												17.5	15.8	11.9	15.1	15.9	16.5	13.8	15.2	14.4
SALTON SEA													11.2		15.1	11.4	16.1	15.5	17.3	23.2
SAN DIEGO															15.5	14.4	14.1		13.1	13.3
SAN FRANCISCO BAY AREA													11.6	12.9	14.0	11.7	12.7	11.8	12.4	13.3
SAN JOAQUIN VALLEY												23.4	23.9	20.8	24.1	24.8	18.2	22.4	21.6	25.2
SOUTH CENTRAL COAST												9.6		14.9	9.5	12.4	12.5	11.7	10.3	13.4
SOUTH COAST													24.0	25.0	25.8	24.8	16.6	21.0	16.6	19.8

Table B-19

Average of Quarterly Means (National) (ug/m^3)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS														5.5	8.2					5.8
LAKE COUNTY													4.3	4.1	6.3	4.4	4.4	4.8	5.1	3.3
LAKE TAHOE												8.3	7.7	8.2	7.6	7.2				
MOJAVE DESERT												11.9	12.0	11.5	13.9	9.4	10.8	9.7	10.4	9.7
MOUNTAIN COUNTIES												11.1	9.0	15.6	9.9	13.3	11.7	10.6	10.9	13.0
NORTH CENTRAL COAST													7.9	9.1	9.1	7.4	7.0	6.8		7.0
NORTH COAST												9.1		9.4	9.1	7.4	8.2	6.2	6.8	7.6
NORTHEAST PLATEAU												7.9	8.5							
SACRAMENTO VALLEY												19.9	15.8	13.0	15.1	12.3	15.1	12.3	13.2	12.3
SALTON SEA												15.2	16.9	14.9	15.1	11.4	11.8	9.4	12.5	8.6
SAN DIEGO												18.0	15.8	17.7	16.0	15.5	14.1	11.8	13.1	13.3
SAN FRANCISCO BAY AREA												16.8	13.6	12.8	14.0	11.7	11.6	11.8	9.3	10.7
SAN JOAQUIN VALLEY												27.6	23.9	22.5	24.1	19.6	18.9	19.8	19.3	22.0
SOUTH CENTRAL COAST												13.7	13.5	14.9	14.6	14.2	12.5	11.2	10.3	11.6
SOUTH COAST												30.2	28.3	31.0	27.5	24.8	22.1	20.9	19.0	19.0

Table B-20

Carbon Monoxide

Peak 8-Hour Indicator (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	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	1.9	2.0	1.9	1.9			
MOJAVE DESERT	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	2.0	2.0	1.9	1.8	1.6
MOUNTAIN COUNTIES		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	1.6	4.8	2.8	0.5	0.5
NORTH CENTRAL COAST	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.0	2.0	2.0	1.6	1.6	1.5	1.4	1.2	1.2	1.1	1.0
NORTH COAST		4.6	4.6			2.4		3.2	3.4	3.3	3.1	3.6	3.4	3.3	2.6	2.3	2.0	1.8	1.7	1.6
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	4.4	4.2	4.4	4.2	4.2
SALTON SEA	2.5	2.4	2.3	2.3	2.2	2.1	17.4	18.8	17.8	17.4	15.5	15.5	14.8	14.3	12.8	11.5	10.5	8.4	8.0	7.3
SAN DIEGO	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	5.0	4.6	4.4	3.8	4.3
SAN FRANCISCO BAY AREA	10.7	11.8	12.6	12.5	11.1	9.3	8.1	7.8	7.4	6.5	6.7	6.5	7.1	6.9	6.0	5.5	4.0	3.7	3.5	3.4
SAN JOAQUIN VALLEY	14.1	13.7	13.9	13.2	11.5	10.0	10.0	10.9	9.9	9.0	8.3	8.5	8.4	6.4	5.3	4.8	4.2	3.7	3.4	3.4
SOUTH CENTRAL COAST	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	2.7	2.4	1.9	1.9	1.7
SOUTH COAST	21.9	22.5	21.9	19.0	17.7	16.5	16.7	15.6	16.1	15.5	15.4	13.7	12.6	11.2	9.4	8.7	8.3	7.1	6.4	6.0

Table B-21

Carbon Monoxide

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	19.0	17.0	18.0	14.0	15.0	13.0	11.6	9.5	10.4	7.7	7.5	3.2	5.4	2.9	3.8	2.4	2.2			
MOJAVE DESERT	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	3.9	2.9	3.3	3.5	2.5
MOUNTAIN COUNTIES		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	2.5	6.5	2.4	2.2	1.2
NORTH CENTRAL COAST	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	2.8	2.1	2.1	2.5	2.0
NORTH COAST	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	5.3	2.3	2.6	2.2	2.1
NORTHEAST PLATEAU	4.0																			
SACRAMENTO VALLEY	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	17.2	7.8	8.5	7.3	8.0	7.5	6.3
SALTON SEA	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	11.8	12.6	12.4	14.3	10.4
SAN DIEGO	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	12.7	6.9	7.9	10.8	8.7
SAN FRANCISCO BAY AREA	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	8.6	4.8	4.5	5.5	5.5
SAN JOAQUIN VALLEY	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	8.4	6.1	5.8	4.6	4.3	6.9	4.4
SOUTH CENTRAL COAST	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	7.2	4.7	4.0	4.1	4.6
SOUTH COAST	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	12.2	10.4	7.4	8.4	7.8

Table B-22

Maximum 8-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	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	12.5	11.3	10.1	9.2	9.9	7.5	7.1	6.3	5.1	3.8	4.3	2.4	1.9	1.9	3.0	1.5	1.2			
MOJAVE DESERT	5.9	7.1	8.3	7.1	5.4	5.9	5.6	5.1	7.5	4.0	3.6	5.4	4.3	3.3	2.2	2.1	1.7	1.6	1.6	1.6
MOUNTAIN COUNTIES		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	1.9	5.7	1.2	0.6	0.7
NORTH CENTRAL COAST	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	1.1	1.2	0.9	1.0	1.2
NORTH COAST	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	2.2	1.8	1.5	1.6	1.7
NORTHEAST PLATEAU	1.8																			
SACRAMENTO VALLEY	12.3	15.9	14.0	12.3	8.6	9.4	8.5	7.4	7.2	7.2	7.1	6.6	6.3	5.3	4.3	4.5	4.1	4.2	4.2	5.6
SALTON SEA	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	8.8	10.3	9.0	9.8	7.5
SAN DIEGO	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	10.6	4.1	4.7	3.6	5.2
SAN FRANCISCO BAY AREA	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	4.4	3.4	3.1	2.9	2.7
SAN JOAQUIN VALLEY	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	4.1	3.0	3.0	3.7	3.2
SOUTH CENTRAL COAST	7.4	7.4	5.8	6.4	5.9	4.8	6.5	5.8	4.9	4.1	4.6	4.2	4.3	3.4	2.4	3.7	2.6	1.7	1.8	1.4
SOUTH COAST	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	7.3	6.5	5.9	6.2	5.3

Table B-23

Carbon Monoxide

Days Above State 8-Hour Standard

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	0	0	0	0	0	0	0	0	0	0	0		0	0	0					
LAKE COUNTY		0	0	0																
LAKE TAHOE	80	67	39	24	13	12	9	1	0	0	0	0	0	0	0	0	0			
MOJAVE DESERT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOUNTAIN COUNTIES		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0
NORTHEAST PLATEAU	0																			
SACRAMENTO VALLEY	12	22	14	9	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	10	17	11	15	12	13	8	6	4	0	1	0	1	0
SAN DIEGO	5	6	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
SAN FRANCISCO BAY AREA	4	10	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	5	24	10	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	73	71	50	51	39	29	27	17	26	18	13	11	6	0	1	0	0	0	0	0

Table B-24

** 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	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS	0	0	0	0	0	0	0	0	0	0	0		0	0	0					
LAKE COUNTY		0	0	0																
LAKE TAHOE	9	5	5	0	1	0	0	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	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	0
NORTHEAST PLATEAU	0																			
SACRAMENTO VALLEY	9	22	12	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALTON SEA	0	0	0	0	0	0	9	15	9	10	8	11	6	6	3	0	1	0	1	0
SAN DIEGO	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
SAN FRANCISCO BAY AREA	4	9	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAN JOAQUIN VALLEY	6	18	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH CENTRAL COAST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH COAST	65	67	42	41	34	19	19	14	19	13	10	7	3	0	1	0	0	0	0	0

Table B-25

Nitrogen Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	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	0.057	0.056	0.055	0.054			
MOJAVE DESERT	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	0.092	0.092	0.090	0.088	0.084
MOUNTAIN COUNTIES														0.068	0.063	0.062	0.062		0.006	0.006
NORTH CENTRAL COAST	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	0.046	0.050	0.051	0.052	0.048
NORTH COAST						0.054	0.053	0.053	0.053	0.049	0.050	0.054	0.053	0.052	0.042	0.045	0.044	0.039	0.039	0.042
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	0.089	0.091	0.084	0.076	0.071
SALTON SEA	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	0.147	0.128	0.113	0.102	0.099
SAN DIEGO	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	0.130	0.119	0.121	0.108	0.109
SAN FRANCISCO BAY AREA	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	0.075	0.079	0.080	0.079	0.073
SAN JOAQUIN VALLEY	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	0.106	0.097	0.087	0.084	0.092
SOUTH CENTRAL COAST	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	0.073	0.069	0.066	0.062	0.060
SOUTH COAST	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	0.161	0.150	0.142	0.120	0.109

Table B-26

Maximum 1-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	0.070	0.070	0.150	0.060	0.060	0.060	0.057	0.059	0.061	0.051	0.052	0.060	0.052	0.054	0.055	0.052	0.055			
MOJAVE DESERT	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	0.095	0.103	0.087	0.082	0.073
MOUNTAIN COUNTIES													0.086	0.090	0.088	0.059	0.068		0.006	0.010
NORTH CENTRAL COAST	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	0.053	0.139	0.052	0.067	0.050
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	0.053	0.037	0.037	0.040	0.043
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	0.102	0.146	0.079	0.097	0.127
SALTON SEA	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	0.189	0.108	0.131	0.101	0.112
SAN DIEGO	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	0.148	0.125	0.109	0.097	0.101
SAN FRANCISCO BAY AREA	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	0.081	0.073	0.074	0.107	0.069
SAN JOAQUIN VALLEY	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	0.107	0.092	0.083	0.087	0.100	0.101
SOUTH CENTRAL COAST	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	0.103	0.071	0.070	0.063	0.065
SOUTH COAST	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	0.163	0.157	0.136	0.137	0.108

Table B-27

Nitrogen Dioxide

Maximum Annual Average (State) (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	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	0.010				
MOJAVE DESERT	0.018	0.026	0.019	0.015	0.025	0.020	0.024	0.023	0.021	0.020	0.021	0.024	0.025	0.024	0.025	0.024	0.023	0.022	0.022	0.020
MOUNTAIN COUNTIES																0.002				
NORTH CENTRAL COAST	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	0.006	0.007	0.008	0.007	0.007
NORTH COAST							0.008	0.009		0.010	0.010	0.010	0.011	0.010	0.009	0.009	0.009	0.008	0.009	0.008
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.024	0.020	0.023	0.024	0.021	0.017	0.022	0.022	0.022	0.019	0.020	0.021	0.019	0.019	0.020	0.015	0.017	0.016	0.016	0.015
SALTON SEA	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	0.016	0.015	0.015	0.014	0.014
SAN DIEGO	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	0.021	0.023	0.018	0.024	0.022
SAN FRANCISCO BAY AREA	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	0.018	0.017	0.019	0.016	0.017
SAN JOAQUIN VALLEY	0.033	0.033	0.032	0.030	0.027	0.024	0.024	0.029	0.029	0.024	0.023	0.027	0.024	0.022	0.024	0.020	0.018	0.021	0.021	0.020
SOUTH CENTRAL COAST	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	0.015	0.014	0.015	0.013	0.013
SOUTH COAST	0.061	0.057	0.056	0.055	0.051	0.050	0.050	0.046	0.042	0.043	0.043	0.050	0.044	0.041	0.040	0.036	0.033	0.031	0.031	0.031

Table B-28

Maximum Annual Average (National) (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE	0.012	0.012	0.012	0.012	0.011	0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011	0.011	0.012	0.010				
MOJAVE DESERT	0.023	0.026	0.024	0.028	0.026	0.026	0.027	0.023	0.021	0.020	0.022	0.024	0.025	0.024	0.025	0.024	0.023	0.022	0.022	0.020
MOUNTAIN COUNTIES															0.001	0.002	0.002			
NORTH CENTRAL COAST	0.014	0.014	0.012	0.011	0.012	0.012	0.012	0.011	0.011	0.010	0.010	0.010	0.007	0.007	0.007	0.006	0.007	0.008	0.007	0.007
NORTH COAST							0.009	0.009		0.010	0.010	0.010	0.011	0.010	0.010	0.009	0.009	0.008	0.009	0.008
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	0.025	0.021	0.023	0.024	0.021	0.022	0.022	0.022	0.022	0.019	0.021	0.021	0.019	0.019	0.020	0.018	0.017	0.016	0.016	0.015
SALTON SEA	0.022	0.024	0.021	0.021		0.019	0.021	0.021	0.020	0.015	0.016	0.018	0.019	0.017	0.016	0.016	0.015	0.015	0.014	0.014
SAN DIEGO	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	0.021	0.023	0.024	0.024	0.022
SAN FRANCISCO BAY AREA	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	0.018	0.017	0.019	0.018	0.017
SAN JOAQUIN VALLEY	0.032	0.033	0.031	0.030	0.027	0.027	0.024	0.029	0.029	0.024	0.024	0.027	0.024	0.022	0.024	0.023	0.019	0.021	0.021	0.020
SOUTH CENTRAL COAST	0.024	0.027	0.025	0.024	0.022	0.023	0.024	0.024	0.022	0.020	0.021	0.022	0.020	0.019	0.017	0.015	0.014	0.015	0.013	0.013
SOUTH COAST	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	0.035	0.034	0.031	0.031	0.031

Table B-29

Oxides of Nitrogen (NOx)

Maximum 1-Hour Concentration (ppm)**

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS*																				
LAKE COUNTY*																				
LAKE TAHOE	0.220	0.290	0.270	0.190	0.180	0.120	0.139	0.132	0.140	0.109	0.128	0.126	0.134	0.113	0.138	0.175	0.144			
MOJAVE DESERT	0.790	0.410	0.500	0.440	0.710	0.440	0.455	0.410	0.423	0.510	0.465	0.585	0.537	0.454	0.469	0.471	0.473	0.458	0.425	0.386
MOUNTAIN COUNTIES													0.190	0.216	0.188	0.280	0.208	0.100	0.010	0.010
NORTH CENTRAL COAST	0.310	0.240	0.220	0.220	0.240	0.210	0.239	0.277	0.295	0.257	0.223	0.238	0.143	0.154	0.164	0.140	0.224	0.091	0.103	0.177
NORTH COAST	0.050				0.210	0.290	0.573													
NORTHEAST PLATEAU*																				
SACRAMENTO VALLEY	0.790	0.788	0.920	0.700	0.770	0.730	0.737	0.571	0.604	0.698	0.618	0.582	0.541	0.648	0.991	0.520	0.392	0.424	0.460	0.409
SALTON SEA	0.210	0.320	0.270	0.230	0.220	0.220	0.917	0.918	0.835	0.677	0.758	0.773	0.822	0.793	0.785	0.656	0.681	0.861	0.809	0.637
SAN DIEGO	0.980	0.780	0.760	0.640	0.660	0.531	0.605	0.506	0.606	0.609	0.486	0.609	0.598	0.632	0.605	0.658	0.657	0.682	0.541	0.628
SAN FRANCISCO BAY AREA	0.750	0.870	0.850	0.760	0.630	0.810	0.625	0.548	0.831	0.593	0.544	0.586	0.560	0.519	0.420	0.398	0.424	0.392	0.379	0.379
SAN JOAQUIN VALLEY	0.870	0.870	0.840	0.760	0.650	0.640	0.702	0.600	0.659	0.560	0.671	0.700	0.556	0.652	0.438	0.407	0.407	0.397	0.467	0.566
SOUTH CENTRAL COAST	0.680	0.600	0.600	0.630	0.570	0.470	0.561	0.575	0.823	0.454	0.536	0.550	0.430	0.276	0.314	0.395	0.273	0.308	0.238	0.216
SOUTH COAST	1.280	1.200	0.990	1.200	1.420	1.060	1.108	0.850	1.037	0.910	0.889	0.899	0.855	0.750	0.892	0.738	0.850	0.605	0.826	0.600

* No NOx data available
** All available data were used for the annual maximum 1-hour NOx.
*** SFB NOx for 1994-2003 was calculated using hourly NO + NO2

Table B-30

Maximum Annual Average (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS*																				
LAKE COUNTY*																				
LAKE TAHOE	0.021		0.022	0.022			0.018	0.016	0.015	0.015	0.012	0.014	0.015	0.015	0.015	0.013				
MOJAVE DESERT	0.044	0.049	0.022	0.032	0.046	0.037	0.048	0.047	0.043	0.037	0.047	0.055	0.051	0.049	0.053	0.050	0.049	0.048	0.046	0.039
MOUNTAIN COUNTIES																0.004				
NORTH CENTRAL COAST	0.022	0.021	0.023	0.022	0.021	0.020	0.019		0.017	0.017	0.015	0.008	0.011		0.011	0.010	0.010	0.010	0.010	0.010
NORTH COAST*																				
NORTHEAST PLATEAU*																				
SACRAMENTO VALLEY	0.045	0.043	0.056	0.055	0.042	0.029	0.047	0.043	0.045	0.042	0.043	0.047	0.045	0.038	0.042	0.027	0.033	0.034	0.032	0.028
SALTON SEA	0.028	0.030	0.026	0.026		0.025	0.026	0.033	0.028		0.021	0.037	0.021	0.022	0.033	0.028	0.030	0.030	0.030	0.030
SAN DIEGO	0.077	0.066	0.061	0.058	0.058	0.050	0.053	0.046	0.047	0.050	0.045	0.055	0.049		0.044	0.041	0.041	0.032	0.045	0.041
SAN FRANCISCO BAY AREA	0.072	0.083	0.075		0.065	0.068	0.066	0.056	0.054	0.055	0.052	0.057	0.054	0.051	0.046	0.035	0.032	0.040	0.038	0.033
SAN JOAQUIN VALLEY	0.074	0.078	0.078	0.068	0.058	0.047	0.049	0.050	0.052	0.045	0.044	0.051	0.049	0.043	0.045	0.040	0.035	0.036	0.036	0.039
SOUTH CENTRAL COAST	0.040	0.061	0.039	0.051	0.052	0.049	0.052	0.041	0.042	0.043	0.045	0.048	0.034	0.018	0.027	0.025	0.022	0.022	0.020	0.019
SOUTH COAST	0.132	0.137	0.121	0.118	0.121	0.106	0.129	0.108	0.106	0.127	0.119	0.133	0.115	0.102	0.098	0.089	0.081	0.079	0.081	0.069

* No NOx data available
** No Valid Annual Averages
*** SFB NOx for 1994-2003 was calculated using hourly NO + NO2

Representative Days: The data collected must be representative according to the following definition. There must be no more than two missing hours in any of the three consecutive eight hour periods within a day. For an entire day, no more than two consecutive hours can be missed. Therefore, for an entire day, if there were three consecutive hours missed, the day would be invalidated. Representative Days were used for all years except 1994-2003.
Data Represenativeness: For representative statistics computed from all individual values, such as the mean of all hours, 75 percent of the values in the respective period are required. Data Representativeness of 75% was applied to daily (94-03), monthly, and annual values.

Table B-31

Sulfur Dioxide

Peak 1-Hour Indicator (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	0.07	0.06	0.06	0.04	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	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	0.03	0.03	0.02	0.02	0.01
NORTH COAST						0.01	0.01													0.01
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	0.02	0.01	0.01	0.01	0.01
SALTON SEA									0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.00	0.00	0.00	0.03	0.03
SAN DIEGO	0.07	0.07	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	0.04	0.03	0.04	0.04	0.03
SAN FRANCISCO BAY AREA	0.07	0.06	0.06	0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.05	0.04	0.05	0.04	0.03	0.04
SAN JOAQUIN VALLEY	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						0.11
SOUTH CENTRAL COAST	0.25	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	0.14	0.13	0.14	0.14	0.13
SOUTH COAST	0.07	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	0.04	0.03	0.04	0.04	0.03

Table B-32

Sulfur Dioxide

Maximum 24-Hour Concentration (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	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	0.01	0.01	0.00	0.01	0.01
MOUNTAIN COUNTIES																				
NORTH CENTRAL COAST	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00
NORTH COAST	0.01				0.01	0.00	0.00												0.00	0.00
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	0.01	0.00	0.00	0.00	0.00
SALTON SEA							0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00
SAN DIEGO	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	0.01	0.02	0.01	0.01	0.01
SAN FRANCISCO BAY AREA	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	0.01	0.01	0.01	0.01	0.01
SAN JOAQUIN VALLEY	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		0.00				0.07
SOUTH CENTRAL COAST	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	0.02	0.03	0.01	0.03	0.01
SOUTH COAST	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	0.01	0.02	0.01	0.01	0.01

Table B-33

Maximum Annual Average (ppm)

AIR BASIN	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GREAT BASIN VALLEYS																				
LAKE COUNTY																				
LAKE TAHOE																				
MOJAVE DESERT	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	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												0.00	0.00
NORTHEAST PLATEAU																				
SACRAMENTO VALLEY	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	0.00
SALTON SEA							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
SAN DIEGO	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	0.01	0.00	0.00	0.00
SAN FRANCISCO BAY AREA	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
SAN JOAQUIN VALLEY	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				0.01
SOUTH CENTRAL COAST	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
SOUTH COAST	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	0.01	0.01	0.00	0.00

Table B-34

Ozone Exposures Over the State 1-Hour Standard: Population-Weighted (ppm-hours / person)																				
	1988	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
South Coast Air Basin																				
Exposure	34.28	29.57	22.10	22.21	21.99	17.96	18.90	13.26	10.67	6.28	8.90	3.28	5.33	6.95	7.16	8.92	5.21	5.48	4.98	4.00
% Pop. Represented*	100%	100%	100%	100%	100%	100%	100%	97%	100%	92%	98%	99%	100%	88%	78%	91%	83%	77%	82%	96%
San Francisco Bay Area Air Basin																				
Exposure	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	0.35	0.35	0.32	0.11	0.15	0.49	0.06
% Pop. Represented	73%	53%	41%	45%	50%	72%	39%	81%	60%	48%	54%	65%	25%	48%	28%	62%	30%	40%	43%	6%
San Joaquin Valley Air Basin																				
Exposure	9.38	7.12	5.21	6.09	5.64	6.18	6.43	6.10	6.96	3.73	6.63	4.51	4.63	4.75	5.84	5.24	3.28	2.39	2.98	1.48
% Pop. Represented	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	97%	97%	99%	95%
San Diego Air Basin																				
Exposure	7.40	7.29	6.35	3.92	3.31	2.74	2.28	2.41	1.19	0.83	1.93	0.60	0.52	0.71	0.38	0.45	0.24	0.16	0.47	0.24
% Pop. Represented	100%	100%	100%	100%	100%	100%	79%	100%	98%	100%	82%	69%	72%	89%	62%	36%	71%	10%	30%	32%
Broader Sacramento Metropolitan Area																				
Exposure	4.22	1.83	2.14	2.47	2.35	1.10	1.76	2.20	1.85	0.51	1.98	1.45	1.15	1.08	1.52	1.15	0.43	0.99	1.33	0.38
% Pop. Represented	100%	100%	100%	99%	100%	100%	95%	100%	100%	98%	100%	100%	99%	100%	99%	97%	94%	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.

Table B-35

APPENDIX C

Emissions, Air Quality, and Health Risk

for Ten Toxic Air Contaminants

Appendix C: ***Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants***

List of Tables

List of Tables (continued)

Introduction

This appendix contains TAC emissions data for all counties in California. It also contains air quality and health risk data for the state as a whole, the five most populous air basins, and individual sites within these air basins. The five basins are the 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 provided 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 ambient 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 2008 emission inventory year. The data for stationary sources include emissions data from 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 2007. 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 (EMFAC1.99(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 2007. 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. 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.

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Great Basin Valleys Air Basin

TAC	Alpine	Inyo	Mono
Acetaldehyde	4	27	28
Benzene	6	39	15
1,3-Butadiene	2	12	11
Carbon Tetrachloride	0	0	0
Chromium, Hexavalent	< .01	< .01	0
para-Dichlorobenzene	< 1	< 1	< 1
Formaldehyde	9	56	43
Methylene Chloride	< 1	2	1
Perchloroethylene	< 1	2	2
Diesel PM	5	42	30

Table C-1

Lake County Air Basin

TAC	Lake
Acetaldehyde	47
Benzene	79
1,3-Butadiene	69
Carbon Tetrachloride	0
Chromium, Hexavalent	< .01
para-Dichlorobenzene	3
Formaldehyde	96
Methylene Chloride	8
Perchloroethylene	9
Diesel PM	45

Table C-2

Lake Tahoe Air Basin

TAC	El Dorado[1]	Placer[1]
Acetaldehyde	41	20
Benzene	22	10
1,3-Butadiene	13	7
Carbon Tetrachloride	< .01	0
Chromium, Hexavalent	< .01	< .01
para-Dichlorobenzene	2	< 1
Formaldehyde	72	28
Methylene Chloride	5	4
Perchloroethylene	6	2
Diesel PM	36	11

Table C-3

[1] This Air Basin includes only a portion of this county.

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Mojave Desert Air Basin

TAC	Kern[1]	Los Angeles[1]	Riverside[1]	San Bernardino[1]
Acetaldehyde	180	84	52	349
Benzene	106	81	21	397
1,3-Butadiene	59	21	4	111
Carbon Tetrachloride	0	< .01	0	0
Chromium, Hexavalent	0	< .01	< .01	0
para-Dichlorobenzene	6	15	1	20
Formaldehyde	476	202	107	799
Methylene Chloride	15	105	5	80
Perchloroethylene	16	41	4	98
Diesel PM	495	269	289	1450

Table C-4 [1] This Air Basin includes only a portion of this county.

Mountain Counties Air Basin

TAC	Amador	Calaveras	El Dorado[1]	Mariposa	Nevada	Placer[1]	Plumas	Sierra	Tuolumne
Acetaldehyde	31	47	85	26	119	39	50	15	62
Benzene	26	59	70	38	63	38	52	37	85
1,3-Butadiene	12	32	34	18	42	25	91	27	106
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0
Chromium, Hexavalent	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01
para-Dichlorobenzene	2	2	6	< 1	4	1	< 1	< 1	2
Formaldehyde	51	87	132	50	178	79	89	37	125
Methylene Chloride	5	5	16	2	21	7	2	< 1	9
Perchloroethylene	5	3	18	2	7	5	3	< 1	8
Diesel PM	25	36	37	11	122	122	42	4	47

Table C-5 [1] This Air Basin includes only a portion of this county.

North Central Coast Air Basin

TAC	Monterey	San Benito	Santa Cruz
Acetaldehyde	108	33	72
Benzene	159	26	79
1,3-Butadiene	78	18	23
Carbon Tetrachloride	0	0	< .01
Chromium, Hexavalent	< .01	< .01	< .01
para-Dichlorobenzene	18	2	11
Formaldehyde	254	69	132
Methylene Chloride	71	9	55
Perchloroethylene	63	9	39
Diesel PM	273	145	119

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	20	87	75	27	23
Benzene	11	66	58	47	22
1,3-Butadiene	35	88	25	10	90
Carbon Tetrachloride	0	< .01	0	0	0
Chromium, Hexavalent	< .01	< .01	0	0	< .01
para-Dichlorobenzene	1	5	4	3	< 1
Formaldehyde	29	151	128	54	40
Methylene Chloride	4	17	12	13	1
Perchloroethylene	4	19	15	9	2
Diesel PM	17	149	154	61	31

Table C-7 [1] This Air Basin includes only a portion of this county.

Northeast Plateau Air Basin

TAC	Lassen	Modoc	Siskiyou
Acetaldehyde	52	23	97
Benzene	39	8	55
1,3-Butadiene	35	25	110
Carbon Tetrachloride	0	0	0
Chromium, Hexavalent	< .01	< .01	< .01
para-Dichlorobenzene	2	< 1	2
Formaldehyde	85	39	161
Methylene Chloride	3	< 1	5
Perchloroethylene	5	1	6
Diesel PM	51	42	211

Table C-8

Outer Continental Shelf

Sources other than Ocean Going Vessels or Commercial Harbor Craft

TAC	Del Norte	Humboldt	Los Angeles	Marin	Mendocino	Monterey	Orange	San Diego	San Francisco	San Luis Obispo	San Mateo	Santa Barbara	Santa Cruz	Sonoma	Ventura
Acetaldehyde	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2
Benzene	0	0	0	0	0	0	0	0	0	0	0	24	0	0	1
1,3-Butadiene	0	0	0	0	0	0	0	0	0	0	0	< 1	0	0	1
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0	0	0	< .01	0	0	0
Chromium, Hexavalent	0	0	0	0	0	0	0	0	0	0	0	< .01	0	0	0
para-Dichlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Formaldehyde	0	0	0	0	0	0	0	0	0	0	0	39	0	0	6
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	< 1	0	0	0
Perchloroethylene	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
Diesel PM	0	0	0	0	0	0	0	0	0	0	0	10	0	0	2

Table C-9

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

Outer Continental Shelf 3-24 Miles

Ocean Going Vessels and Commercial Harbor Craft

TAC	Del Norte	Humboldt	Los Angeles	Marin	Mendocino	Monterey	Orange	San Diego	San Francisco	San Luis Obispo	San Mateo	Santa Barbara	Santa Cruz	Sonoma	Ventura
Acetaldehyde	0	1	10	1	1	2	4	7	6	1	2	3	1	1	2
Benzene	0	2	9	2	3	6	2	3	5	1	4	8	2	2	3
1,3-Butadiene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0	0
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromium, Hexavalent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
para-Dichlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Formaldehyde	< 1	2	21	2	3	4	8	14	12	2	3	6	3	2	3
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perchloroethylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel PM	3	173	626	175	216	498	183	138	363	92	316	721	156	124	218

Table C-10

Outer Continental Shelf 24-100 Miles

Ocean Going Vessels and Commercial Harbor Craft

TAC	Del Norte	Humboldt	Los Angeles	Marin	Mendocino	Monterey	Orange	San Diego	San Francisco	San Luis Obispo	San Mateo	Santa Barbara	Santa Cruz	Sonoma	Ventura
Acetaldehyde	1	2	11	1	1	2	2	6	10	2	2	3	1	1	2
Benzene	1	2	5	0	1	1	1	2	6	4	1	9	1	0	4
1,3-Butadiene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0	0
Carbon Tetrachloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromium, Hexavalent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
para-Dichlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Formaldehyde	2	4	23	2	3	3	4	13	20	4	3	7	3	2	5
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perchloroethylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel PM	123	152	253	8	82	55	36	79	362	386	98	822	22	8	359

Table C-11

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	116	28	29	91	253	169	67	52	70	63	48
Benzene	91	40	30	96	292	128	66	68	40	57	48
1,3-Butadiene	68	14	31	31	73	78	15	11	79	20	18
Carbon Tetrachloride	0	0	0	0	0	0	0	0	< .01	0	< .01
Chromium, Hexavalent	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01	< .01
para-Dichlorobenzene	9	< 1	1	11	56	8	5	4	2	8	3
Formaldehyde	229	87	57	188	542	302	144	125	120	132	118
Methylene Chloride	30	2	3	58	175	20	16	10	6	25	7
Perchloroethylene	29	3	4	34	192	25	13	12	8	26	9
Diesel PM	246	107	101	154	699	317	280	182	205	237	61

Table C-12 [1] This Air Basin includes only a portion of this county.

Salton Sea Air Basin

TAC	Imperial	Riverside[1]
Acetaldehyde	106	107
Benzene	159	85
1,3-Butadiene	38	20
Carbon Tetrachloride	0	< .01
Chromium, Hexavalent	< .01	< .01
para-Dichlorobenzene	7	17
Formaldehyde	260	232
Methylene Chloride	18	73
Perchloroethylene	23	56
Diesel PM	379	624

Table C-13 [1] This Air Basin includes only a portion of this county.

San Diego Air Basin

TAC	San Diego
Acetaldehyde	524
Benzene	770
1,3-Butadiene	233
Carbon Tetrachloride	0
Chromium, Hexavalent	0
para-Dichlorobenzene	122
Formaldehyde	1282
Methylene Chloride	359
Perchloroethylene	422
Diesel PM	1607

Table C-14

County Emissions (tons/year) for Ten Toxic Air Contaminants by Air Basin

San Francisco Bay Area Air Basin

TAC	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano[1]	Sonoma[1]
Acetaldehyde	264	224	66	43	128	130	268	116	110
Benzene	328	271	87	62	150	166	357	99	114
1,3-Butadiene	70	61	26	30	28	44	82	40	34
Carbon Tetrachloride	< .01	2	< .01	< .01	0	< .01	< .01	< .01	< .01
Chromium, Hexavalent	< .01	0	< .01	< .01	< .01	< .01	0	< .01	< .01
para-Dichlorobenzene	62	41	11	5	33	31	72	12	17
Formaldehyde	599	533	132	93	299	328	629	321	204
Methylene Chloride	201	112	31	16	101	100	251	33	61
Perchloroethylene	184	110	35	14	94	92	191	27	41
Diesel PM	1033	751	135	95	671	315	767	163	221

Table C-15 [1] This Air Basin includes only a portion of this county.

San Joaquin Valley Air Basin

TAC	Fresno	Kern[1]	Kings	Madera	Merced	San Joaquin	Stanislaus	Tulare
Acetaldehyde	320	360	136	82	143	258	155	148
Benzene	288	645	71	77	91	227	137	144
1,3-Butadiene	113	58	36	31	24	52	42	158
Carbon Tetrachloride	< .01	< .01	0	0	0	0	0	0
Chromium, Hexavalent	0	0	< .01	< .01	< .01	0	< .01	< .01
para-Dichlorobenzene	37	30	6	6	10	28	21	17
Formaldehyde	688	1301	365	196	302	565	334	315
Methylene Chloride	126	65	14	15	26	74	58	43
Perchloroethylene	170	96	22	25	36	117	89	62
Diesel PM	1159	1640	319	273	658	993	531	500

Table C-16 [1] This Air Basin includes only a portion of this county.

South Central Coast Air Basin

TAC	San Luis Obispo	Santa Barbara	Ventura
Acetaldehyde	96	129	161
Benzene	114	213	246
1,3-Butadiene	60	58	68
Carbon Tetrachloride	0	< .01	0
Chromium, Hexavalent	< .01	< .01	< .01
para-Dichlorobenzene	11	17	33
Formaldehyde	214	323	380
Methylene Chloride	43	107	157
Perchloroethylene	35	62	71
Diesel PM	193	298	436

Table C-17

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	1174	376	214	258
Benzene	1761	597	302	346
1,3-Butadiene	369	119	77	108
Carbon Tetrachloride	0	1	0	0
Chromium, Hexavalent	0	0	0	0
para-Dichlorobenzene	388	124	63	62
Formaldehyde	2870	947	502	604
Methylene Chloride	2039	965	234	278
Perchloroethylene	1276	433	216	226
Diesel PM	5163	1394	856	887

Table C-18 [1] This Air Basin includes only a portion of this county.

(This page intentionally left blank)

Air Quality and Health Risk

The air quality and health risk data in the following tables cover the time period of 1990 through 2007. Annual average concentrations and health risks are listed at the statewide level, the air basin level, and site level for California's five most populous air basins. The ten TACs presented here are ones that pose the most substantial ambient 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. It is important to note that there may be other compounds that pose a substantial risk, but for which data are not available.

The ambient data for all TACs except diesel PM are based on concentrations measured at sites in California's TAC monitoring network. In order to calculate a valid annual average (a mean of monthly means), each month during the year must have at least one valid measurement. Therefore, if there are no valid data in any given month, data for the year will appear to be missing, even though some data may be available. See chapter 5 for the discussion of toxic monitoring site closures in each of the air basins. 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: "R*isk 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.

The air quality and health risk data for the following monitoring sites have been removed from the almanac because of the limited amount of data available: Fontana-Arrow Highway; San Pablo-El Portal; Chico-Salem Street; Citrus Heights-Sunrise Blvd.

California

Statewide Summary

TAC	Conc.[1]/Risk[2]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Annual Average Concentrations and Health Risks																			
Acetaldehyde	Annual Avg	1.73	1.97	1.54	1.76	1.52	0.61	1.34	1.16	1.08	1.29	1	1.1	1.18	1.19	1.12	1.32	1.03	0.97
	Health Risk	8	10	7	9	7	3	6	6	5	6	5	5	6	6	5	6	5	5
Benzene	Annual Avg	2.57	2.14	1.71	1.5	1.58	1.31	0.93	0.85	0.86	0.85	0.71	0.608	0.625	0.565	0.461	0.478	0.41	0.375
	Health Risk	238	198	158	139	146	121	86	79	80	79	66	56	58	52	43	44	38	35
1,3-Butadiene	Annual Avg	0.412	0.341	0.32	0.392	0.343	0.31	0.262	0.234	0.245	0.225	0.183	0.174	0.172	0.117	0.107	0.101	0.085	0.092
	Health Risk	155	128	120	147	129	117	99	88	92	85	69	65	65	44	40	38	32	34
Carbon Tetrachloride	Annual Avg	0.131	0.128		0.106		0.1	0.078		0.114		0.094	0.087	0.091	0.094				
	Health Risk	34	34		28		26	21		30		25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.27	0.22	0.21	0.29	0.13	0.12	0.11	0.11	0.13	0.13	0.101	0.094	0.088	0.091	0.079	0.069
	Health Risk			40	33	31	43	20	18	17	17	19	19	15	14	13	14	12	10
para-Dichlorobenzene	Annual Avg		0.14	0.14	0.14	0.13	0.14	0.12	0.14			0.12	0.14	0.16	0.16	0.16	0.15	0.15	
	Health Risk		9	9	9	8	9	8	9			8	10	10	10	10	10	10	
Formaldehyde	Annual Avg	2.18	2.07	1.65	2.08	2.18	2.93	3.38	2.89	2.64	3.2	2.55	3.18	3.5	3.15	2.69	2.86	2.67	2.62
	Health Risk	16	15	12	15	16	22	25	21	19	24	19	23	26	23	20	21	20	19
Methylene Chloride	Annual Avg	1.09	1.27	0.75	0.93	0.79	0.77	0.66	0.66	0.62	0.66	0.67	0.36	0.28	0.28	0.25	0.25	0.18	0.27
	Health Risk	4	4	3	3	3	3	2	2	2	2	2	1	1	1	<1	<1	<1	1
Perchloroethylene	Annual Avg	0.277	0.271	0.21	0.27	0.18	0.166	0.134	0.116	0.114		0.115	0.089	0.077	0.057	0.046	0.047	0.039	0.035
	Health Risk	11	11	8	11	7	7	5	5	5		5	4	3	2	2	2	2	1
Diesel PM[3]	*Annual Avg*	*(3.0)*					*(2.2)*					*(1.8)*							
	Health Risk	*(900)*					*(660)*					*(540)*							
Average State Risk	w/o Diesel PM	466	409	357	394	347	351	272	228	250	213	218	206	208	177	133	135	119	105
	w/ Diesel PM	*(1366)*					*(1011)*					*(758)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m³, and concentrations for Diesel PM are expressed as µg/m³. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-19

South Coast Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	2.46	3	2.46	2.67	2.3	0.97	2.08	1.77	1.54	1.63	1.26	1.47	1.41	1.47	1.46	1.79	1.17	1.11
	Health Risk	12	15	12	13	11	5	10	9	7	8	6	7	7	7	7	9	6	5
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.4	1.89	1.45	1.34	1.25	1.2	0.97	0.86	0.769	0.745	0.589	0.634	0.504	0.474
	Health Risk	317	269	242	201	222	175	134	124	116	111	90	80	71	69	55	59	47	44
1,3-Butadiene	Annual Avg	0.532	0.452	0.498	0.565	0.497	0.459	0.39	0.378	0.354	0.328	0.251	0.251	0.211	0.147	0.143	0.137	0.111	0.145
	Health Risk	200	170	187	212	187	173	146	142	133	123	94	94	79	55	54	51	42	54
Carbon Tetrachloride	Annual Avg	0.136	0.134		0.105		0.102	0.079		0.114		0.096	0.086	0.092	0.093				
	Health Risk	36	35		28		27	21		30		25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18		0.179	0.158	0.126	0.139	0.139	0.106
	Health Risk			59	43	43	69	27	25	22	22	27		27	24	19	21	21	16
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13	0.15	0.16	0.17	0.16	0.15	0.15	
	Health Risk		11	13	11	8	11	7	9			9	10	11	11	11	10	10	
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	4.13	4.16	3.83	3.76	4.21	3.58	3.51
	Health Risk	22	23	16	24	23	26	37	33	28	30	23	30	31	28	28	31	26	26
Methylene Chloride	Annual Avg	1.86	1.51	0.9	1.23	1.1	1.28	0.95	1.14	0.85	0.92	0.83	0.63	0.57	0.59	0.57	0.57	0.32	0.62
	Health Risk	6	5	3	4	4	4	3	4	3	3	3	2	2	2	2	2	1	2
Perchloroethylene	Annual Avg	0.576	0.547	0.412	0.448	0.393	0.364	0.32	0.274	0.259		0.207	0.176	0.146	0.105	0.082	0.08	0.062	0.053
	Health Risk	23	22	16	18	16	15	13	11	10		8	7	6	4	3	3	2	2
Diesel PM[3]	*Annual Avg*	*(3.6)*					*(2.7)*					*(2.4)*							
	Health Risk	*(1080)*					*(810)*					*(720)*							
Average Basin Risk	w/o Diesel PM	616	550	548	554	514	505	398	357	349	297	285	253	258	225	179	186	155	149
	w/ Diesel PM	*(1696)*					*(1315)*					*(1005)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-20

South Coast Air Basin

Los Angeles County: Azusa

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg											1.1	1.31		1.25	1.53	1.86		1.11
	Health Risk											5	6		6	7	9		5
Benzene	Annual Avg											0.69		0.621	0.598	0.432	0.512	0.376	0.42
	Health Risk											64		57	55	40	47	35	39
1,3-Butadiene	Annual Avg											0.146		0.135	0.076	0.076	0.078	0.061	0.298
	Health Risk											55		51	29	29	29	23	112
Carbon Tetrachloride	Annual Avg											0.093		0.09	0.095				
	Health Risk											24		24	25				
Chromium, Hexavalent	Annual Avg											0.12			0.09	0.073	0.08		0.065
	Health Risk											19			14	11	12		10
para-Dichlorobenzene	Annual Avg											0.1		0.15	0.15	0.15	0.15	0.15	
	Health Risk											7		10	10	10	10	10	
Formaldehyde	Annual Avg											3.05	3.8		3.45	3.04	3.62		2.94
	Health Risk											22	28		25	22	27		22
Methylene Chloride	Annual Avg											1.32		1	0.96	1.43	1.26	0.56	0.63
	Health Risk											5		3	3	5	4	2	2
Perchloroethylene	Annual Avg											0.183		0.153	0.109	0.063	0.076	0.05	0.052
	Health Risk											7		6	4	3	3	2	2
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk												**208**	**34**	**151**	**171**	**127**	**141**	**72**	**192**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

Los Angeles County: Burbank - West Palm Avenue

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	3.16	3.89		3.06	2.46	0.79			1.94	2.7	1.7	1.93	1.96		1.77	2.15	1.74	1.59
	Health Risk	15	19		15	12	4			9	13	8	9	10		9	10	8	8
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		0.754	0.832	0.689	0.601
	Health Risk	444	362	319	244	308	227	177	137	154	151	117	98	93		70	77	64	56
1,3-Butadiene	Annual Avg	0.782	0.623	0.725	0.749	0.752	0.605	0.512	0.421	0.483	0.483	0.345	0.328	0.283		0.18	0.196	0.169	0.136
	Health Risk	294	234	272	282	283	227	192	158	182	181	130	123	106		68	74	64	51
Carbon Tetrachloride	Annual Avg	0.141	0.133				0.104	0.082		0.114		0.094	0.086	0.091					
	Health Risk	37	35				28	22		30		25	23	24					
Chromium, Hexavalent	Annual Avg			0.65	0.37	0.43	1.24			0.23	0.2	0.19		0.123		0.113	0.113	0.115	0.08
	Health Risk			97	55	64	186			34	29	28		18		17	17	17	12
para-Dichlorobenzene	Annual Avg		0.23	0.22	0.19	0.14	0.2	0.1	0.11			0.13	0.15	0.17		0.17	0.15	0.15	
	Health Risk		15	15	12	9	13	7	7			8	10	11		11	10	10	
Formaldehyde	Annual Avg	4.05	3.59		3.66	3.92	4.58			4.72	6.07	4.14	4.87	5.48		3.85	4.42	3.95	3.54
	Health Risk	30	26		27	29	34			35	45	30	36	40		28	33	29	26
Methylene Chloride	Annual Avg	3.25	1.69	1.42	2.01	1.94	1.82	1.41	1.11	1.07		0.8	0.6	0.6		0.41	0.42	0.3	1.74
	Health Risk	11	6	5	7	7	6	5	4	4		3	2	2		1	1	1	6
Perchloroethylene	Annual Avg	1.19	0.785	0.609	0.62	0.663	0.487	0.44	0.365	0.503		0.368	0.296	0.247		0.151	0.135	0.094	0.083
	Health Risk	48	31	24	25	26	19	18	15	20		15	12	10		6	5	4	3
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**		**210**	**227**	**197**	**162**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

Los Angeles County: North Main Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	2.68	2.78	2.5	2.89	2.35	1.28	2.33			1.43	0.84	1.45	1.3	1.39	1.24	1.84	1.19	0.94
	Health Risk	13	13	12	14	11	6	11			7	4	7	6	7	6	9	6	5
Benzene	Annual Avg	3.5	3.25	2.97	2.54	2.45	2.24	1.86		1.36	1.5	1.04	1.03		0.853	0.677	0.722		0.532
	Health Risk	324	301	275	235	227	207	173		126	139	97	95		79	63	67		49
1,3-Butadiene	Annual Avg	0.6	0.547	0.643	0.733	0.588	0.599	0.542		0.421	0.432	0.296	0.313		0.186	0.195	0.164		0.118
	Health Risk	226	206	242	276	221	225	204		158	162	111	118		70	73	62		44
Carbon Tetrachloride	Annual Avg	0.138	0.134				0.103	0.079		0.112		0.098	0.086		0.095				
	Health Risk	36	35				27	21		30		26	23		25				
Chromium, Hexavalent	Annual Avg				0.24	0.27	0.23	0.17			0.11	0.13		0.133	0.07		0.125	0.105	0.095
	Health Risk				36	40	35	25			16	19		20	11		19	16	14
para-Dichlorobenzene	Annual Avg		0.19	0.22	0.19	0.16	0.19	0.12				0.16	0.17		0.16	0.17	0.15		
	Health Risk		13	14	12	10	13	8				11	11		10	11	10		
Formaldehyde	Annual Avg	3.5	3	2.3	3.23	3.54	4.13	5.87			3.88	2.42	4.3	4.32	3.79	5.69	6.64	6.69	5.87
	Health Risk	26	22	17	24	26	30	43			29	18	32	32	28	42	49	49	43
Methylene Chloride	Annual Avg	1.28	2.72	0.68	1.05	1.06	1.51	1.1		0.8	1.2	0.68	0.74		0.59	0.5	0.44		0.34
	Health Risk	4	9	2	4	4	5	4		3	4	2	3		2	2	2		1
Perchloroethylene	Annual Avg	0.551	0.603	0.536	0.588	0.503	0.574	0.502		0.232		0.187	0.177		0.109	0.088	0.087		0.057
	Health Risk	22	24	21	24	20	23	20		9		7	7		4	4	3		2
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**	**236**	**201**	**221**	**71**	**158**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as µg/m^3. Concentrations for all other TACs are expressed as ppb.
2 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-23

South Coast Air Basin

Los Angeles County: North Long Beach

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	2.49	2.52		2.36	2.18	0.81		1.43			1.16	1.11		1.06	1.19	1.39	0.91	0.81
	Health Risk	12	12		11	11	4		7			6	5		5	6	7	4	4
Benzene	Annual Avg	3.53	2.45	2.6	1.99	2.04	1.69		1.24	1.16	1.11	1		0.705	0.705	0.554		0.484	0.414
	Health Risk	327	227	241	185	188	157		115	108	103	92		65	65	51		45	38
1,3-Butadiene	Annual Avg	0.592	0.439	0.523	0.575	0.447	0.448		0.364	0.339	0.323	0.278		0.198	0.142	0.144		0.113	0.092
	Health Risk	223	165	197	216	168	169		137	127	121	104		75	53	54		42	34
Carbon Tetrachloride	Annual Avg	0.139	0.129				0.099			0.118		0.097		0.092	0.092				
	Health Risk	37	34				26			31		26		24	24				
Chromium, Hexavalent	Annual Avg			0.44	0.34	0.22	0.25		0.15	0.11	0.12	0.12		0.078		0.09	0.1	0.088	0.058
	Health Risk			66	51	33	38		22	16	18	18		12		14	15	13	9
para-Dichlorobenzene	Annual Avg		0.17	0.26	0.19	0.12	0.17		0.16			0.13		0.18	0.2	0.15		0.15	
	Health Risk		11	17	13	8	11		10			8		12	13	10		10	
Formaldehyde	Annual Avg	2.97	2.76		3.22	3.06	3.29		3.68			2.88	2.96		2.79	2.78	2.91	2.41	2.33
	Health Risk	22	20		24	23	24		27			21	22		21	20	21	18	17
Methylene Chloride	Annual Avg	2.05	0.88	1	1.15	0.84	0.98		0.74	0.6		0.65		0.27	0.31	0.24		0.21	0.2
	Health Risk	7	3	3	4	3	3		3	2		2		<1	1	<1		<1	<1
Perchloroethylene	Annual Avg	0.477	0.355	0.349	0.433	0.321	0.318		0.227	0.193		0.168		0.095	0.076	0.057		0.054	0.041
	Health Risk	19	14	14	17	13	13		9	8		7		4	3	2		2	2
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk		**647**	**486**	**538**	**521**	**447**	**445**		**330**	**292**	**242**	**284**	**27**	**192**	**185**	**157**	**43**	**134**	**104**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

South Coast Air Basin

Riverside County: Riverside - Rubidoux

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	1.66	1.59	1.7	0.97	1.08
	Health Risk	9	12	9	11	10	4	9			7	7	8	8	8	8	8	5	5
Benzene	Annual Avg	2.55	2.22	1.9	1.77	2.01	1.45	1.03			0.87	0.85	0.685		0.623	0.526	0.505	0.42	0.404
	Health Risk	236	206	176	164	186	134	95			80	79	63		58	49	47	39	37
1,3-Butadiene	Annual Avg	0.34	0.312	0.292	0.379	0.363	0.332	0.267			0.208	0.193	0.175		0.118	0.121	0.112	0.083	0.08
	Health Risk	128	117	110	143	136	125	100			78	72	66		44	45	42	31	30
Carbon Tetrachloride	Annual Avg	0.131	0.136				0.102	0.079				0.096	0.086		0.093				
	Health Risk	34	36				27	21				25	23		24				
Chromium, Hexavalent	Annual Avg			0.33	0.33	0.36	0.38	0.22			0.19	0.35		0.41	0.348				0.23
	Health Risk			50	50	55	56	33			29	52		62	52				35
para-Dichlorobenzene	Annual Avg		0.13	0.13	0.16	0.12	0.17	0.11				0.14	0.15		0.17	0.16	0.15	0.15	
	Health Risk		9	8	10	8	11	7				9	10		12	11	10	10	
Formaldehyde	Annual Avg	1.75	2.7	1.53	2.73	2.5	2.65	4.15			3.55	3.17	4.73	4.36	4.18	3.46	3.47	2.55	2.88
	Health Risk	13	20	11	20	18	19	31			26	23	35	32	31	25	26	19	21
Methylene Chloride	Annual Avg		0.69	0.6	1.1	0.93	0.98	0.83			0.58	0.69	0.44		0.45	0.29	0.3	0.18	0.19
	Health Risk		2	2	4	3	3	3			2	2	2		2	1	1	<1	<1
Perchloroethylene	Annual Avg	0.237	0.276	0.201	0.198	0.191	0.177	0.175				0.129	0.112		0.06	0.051	0.046	0.038	0.035
	Health Risk	9	11	8	8	8	7	7				5	4		2	2	2	1	1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk		**429**	**413**	**374**	**410**	**424**	**386**	**306**			**222**	**274**	**211**	**102**	**233**	**141**	**136**	**105**	**129**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

South Coast Air Basin

San Bernardino County: Upland - San Bernardino Road

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	2.7	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	0.348	0.341	0.308	0.391	0.336	0.312	0.257	0.254										
	Health Risk	131	128	116	147	126	117	97	95										
Carbon Tetrachloride	Annual Avg	0.133	0.137		0.103		0.1	0.075											
	Health Risk	35	36		27		26	20											
Chromium, Hexavalent	Annual Avg			0.22	0.16	0.16	0.2	0.12											
	Health Risk			33	24	24	30	17											
para-Dichlorobenzene	Annual Avg		0.13	0.14	0.14	0.1	0.13	0.1	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	5.2											
	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	1.7										
	Health Risk	5	6	3	3	3	4	2	6										
Perchloroethylene	Annual Avg	0.423	0.717	0.364	0.398	0.286	0.263	0.199	0.206										
	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**										

1 Concentrations for Hexavalent Chromium are expressed as ng/m3, and concentrations for Diesel PM are expressed as µg/m3. Concentrations for all other TACs are expressed as ppb.
2 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

Air Basin Summary

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.3	1.4	1.03	1.31	1.17	0.42	0.83	0.73	0.65	0.76	0.68	0.73	0.63	0.74	0.74	0.71	0.66	0.56
	Health Risk	6	7	5	6	6	2	4	4	3	4	3	4	3	4	4	3	3	3
Benzene	Annual Avg	2.18	1.82	1.49	1.49	1.4	1.26	0.71	0.61	0.71	0.6	0.56	0.425	0.454	0.439	0.372	0.314	0.326	0.274
	Health Risk	202	169	138	138	129	116	66	56	66	55	52	39	42	41	34	29	30	25
1,3-Butadiene	Annual Avg	0.359	0.287	0.275	0.367	0.287	0.277	0.218	0.187	0.217	0.17	0.149	0.133	0.137	0.098	0.09	0.075	0.069	0.06
	Health Risk	135	108	103	138	108	104	82	70	82	64	56	50	51	37	34	28	26	23
Carbon Tetrachloride	Annual Avg	0.128	0.125		0.108		0.1	0.078				0.094	0.087	0.089	0.095				
	Health Risk	34	33		29		26	21				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.23	0.2	0.19	0.25	0.13	0.12	0.1	0.1	0.12		0.074	0.096	0.094	0.08	0.063	0.053
	Health Risk			34	29	29	37	19	17	15	15	18		11	14	14	12	9	8
para-Dichlorobenzene	Annual Avg		0.12	0.12	0.12	0.11	0.13	0.14	0.12			0.11	0.14	0.15	0.15	0.17	0.15	0.15	
	Health Risk		8	8	8	7	8	9	8			7	9	10	10	11	10	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	2.22	1.71	1.32	1.59	1.45
	Health Risk	14	13	11	11	12	15	19	14	13	15	13	17	19	16	13	10	12	11
Methylene Chloride	Annual Avg	1.04	2.32	0.65	0.72	0.59	0.6	0.58	0.55			0.53	0.27	0.22	0.22	0.14	0.13	0.16	0.13
	Health Risk	4	8	2	2	2	2	2	2			2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.204	0.232	0.169	0.128	0.082	0.094	0.067	0.071			0.078	0.059	0.052	0.039	0.035	0.029	0.027	0.031
	Health Risk	8	9	7	5	3	4	3	3			3	2	2	2	1	1	1	1
Diesel PM[3]	*Annual Avg*	*(2.5)*					*(1.9)*					*(1.6)*							
	Health Risk	*(750)*					*(570)*					*(480)*							
Average Basin Risk	w/o Diesel PM	403	355	308	366	296	314	225	174	179	153	179	144	162	149	111	93	91	71
	w/ Diesel PM	*(1153)*					*(884)*					*(659)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-27

San Francisco Bay Area Air Basin

Alameda County: Fremont - Chapel Way

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.28	1.6	1.02	1.28	1.23	0.35	0.88	0.65	0.72					0.69	0.69	0.71	0.62	0.52
	Health Risk	6	8	5	6	6	2	4	3	4					3	3	3	3	3
Benzene	Annual Avg	1.92	1.67	1.21	1.35	1.25	1.24	0.58		0.76	0.61	0.53	0.439	0.418	0.356	0.286		0.295	0.246
	Health Risk	178	155	112	125	116	115	54		71	57	49	41	39	33	26		27	23
1,3-Butadiene	Annual Avg	0.283	0.259	0.193	0.321	0.252	0.27	0.199		0.238	0.176	0.136	0.132	0.116	0.078	0.049		0.054	0.052
	Health Risk	106	97	72	120	95	101	75		90	66	51	50	43	29	19		20	19
Carbon Tetrachloride	Annual Avg	0.131	0.127		0.105		0.101	0.076				0.095	0.085	0.089	0.096				
	Health Risk	35	34		28		27	20				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.2	0.19	0.21	0.2	0.11		0.1	0.1	0.1			0.045	0.053	0.05	0.03	0.03
	Health Risk			30	28	32	30	16		15	15	16			7	8	8	5	5
para-Dichlorobenzene	Annual Avg			0.11	0.11	0.1	0.12	0.1				0.1	0.13	0.15	0.16	0.15		0.15	
	Health Risk			7	7	7	8	7				7	9	10	11	10		10	
Formaldehyde	Annual Avg	1.84	1.98	1.3	1.37	1.78	2.02	2.16	1.79	1.96					2.15	1.46	1.21	1.52	1.3
	Health Risk	14	15	10	10	13	15	16	13	14					16	11	9	11	10
Methylene Chloride	Annual Avg	0.76	0.58	0.52	0.83	0.5	0.62	0.5				0.5	0.28	0.23	0.3	0.1		0.2	0.12
	Health Risk	3	2	2	3	2	2	2				2	1	<1	1	<1		<1	<1
Perchloroethylene	Annual Avg	0.189	0.21	0.134	0.114	0.086	0.118	0.069				0.083	0.056	0.05	0.039	0.029		0.024	0.035
	Health Risk	8	8	5	5	3	5	3				3	2	2	2	1		<1	1
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**	**118**	**127**	**78**	**20**	**76**	**61**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

Contra Costa County: Concord - 2975 Treat Boulevard

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	0.315	0.265	0.253	0.305	0.232	0.242	0.149	0.176	0.192	0.155								
	Health Risk	118	100	95	114	87	91	56	66	72	58								
Carbon Tetrachloride	Annual Avg	0.13	0.125		0.108		0.102	0.082											
	Health Risk	34	33		29		27	22											
Chromium, Hexavalent	Annual Avg				0.19	0.18	0.21	0.11	0.11		0.1								
	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	2.3	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	0.5										
	Health Risk	2	2	2	2	2	2	2	2										
Perchloroethylene	Annual Avg	0.337	0.419	0.39	0.204	0.098	0.147	0.082	0.102										
	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**								

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

Contra Costa County: Richmond - 13th Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	1.7	1.44	1											
	Health Risk		177	143	163	157	133	92											
1,3-Butadiene	Annual Avg		0.272	0.26	0.393	0.308	0.3	0.251											
	Health Risk		102	98	148	116	113	94											
Carbon Tetrachloride	Annual Avg		0.123		0.11		0.097	0.078											
	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	0.1	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	0.5	0.54	0.65											
	Health Risk		2	2	2	2	2	2											
Perchloroethylene	Annual Avg		0.147	0.093	0.092	0.056	0.043	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**											

1 Concentrations for Hexavalent Chromium are expressed as ng/m³, and concentrations for Diesel PM are expressed as µg/m³. Concentrations for all other TACs are expressed as ppb.
2 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-30

San Francisco Bay Area Air Basin

San Francisco County: San Francisco - Arkansas Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.32				0.98	0.4		0.75	0.54			0.57	0.54	0.68	0.69	0.65	0.54	0.44
	Health Risk	6				5	2		4	3			3	3	3	3	3	3	2
Benzene	Annual Avg		1.49	1.25		1.07	0.95	0.53	0.51	0.63	0.65	0.48	0.376		0.386	0.329	0.23	0.299	0.223
	Health Risk		138	116		99	88	49	48	59	61	45	35		36	30	21	28	21
1,3-Butadiene	Annual Avg		0.252	0.234		0.259	0.226	0.181	0.165	0.215	0.173	0.128	0.113		0.084	0.083	0.053	0.063	0.048
	Health Risk		95	88		97	85	68	62	81	65	48	42		32	31	20	24	18
Carbon Tetrachloride	Annual Avg		0.124				0.1	0.078				0.095	0.087		0.094				
	Health Risk		33				26	21				25	23		25				
Chromium, Hexavalent	Annual Avg				0.19	0.18	0.25	0.12	0.13	0.1		0.12		0.088	0.145	0.13	0.11	0.105	0.065
	Health Risk				29	26	37	18	19	15		18		13	22	20	17	16	10
para-Dichlorobenzene	Annual Avg		0.15	0.13		0.1	0.15	0.12	0.12			0.11	0.14		0.15	0.19	0.15	0.15	
	Health Risk		10	9		7	10	8	8			7	9		10	13	10	10	
Formaldehyde	Annual Avg	1.71				1.33	1.58		1.62	1.45			1.51	2.03	1.71	1.54	1.04	1.37	1.15
	Health Risk	13				10	12		12	11			11	15	13	11	8	10	8
Methylene Chloride	Annual Avg		3.22	0.88		0.6	0.63	0.66	0.5			0.6	0.26		0.17	0.17	0.12	0.14	0.11
	Health Risk		11	3		2	2	2	2			2	<1		<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg		0.229	0.13		0.105	0.092	0.084	0.065			0.068	0.074		0.038	0.04	0.026	0.03	0.031
	Health Risk		9	5		4	4	3	3			3	3		1	2	1	1	1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk		**19**	**296**	**221**	**29**	**250**	**266**	**169**	**158**	**169**	**126**	**148**	**126**	**31**	**142**	**110**	**80**	**92**	**60**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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 Francisco Bay Area Air Basin

Santa Clara County: San Jose - 4th Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	0.7							
	Health Risk	280	226	188	175	174	144	89	86	97	68	65							
1,3-Butadiene	Annual Avg	0.549	0.385	0.436	0.485	0.385	0.348	0.311	0.287	0.293	0.227	0.193							
	Health Risk	207	145	164	182	145	131	117	108	110	85	72							
Carbon Tetrachloride	Annual Avg	0.127	0.128		0.107		0.102	0.077				0.095							
	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	0.1	0.13							
	Health Risk			43	37	38	49	25	20	17	15	19							
para-Dichlorobenzene	Annual Avg			0.12	0.12	0.1	0.12	0.14	0.12			0.12							
	Health Risk			8	8	7	8	10	8			8							
Formaldehyde	Annual Avg	2.27	2	2.09	1.83	2.16	2.28	2.7	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	0.8	0.69	0.55	0.75			0.5							
	Health Risk	3	23	2	2	3	2	2	3			2							
Perchloroethylene	Annual Avg	0.161	0.153	0.1	0.094	0.064	0.069	0.068	0.096			0.088							
	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**						

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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 Francisco Bay Area Air Basin

Santa Clara County: San Jose - Jackson Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg														0.84	0.82	0.78	0.82	0.73
	Health Risk														4	4	4	4	4
Benzene	Annual Avg														0.577	0.502	0.414	0.383	0.353
	Health Risk														53	46	38	36	33
1,3-Butadiene	Annual Avg														0.131	0.137	0.104	0.091	0.081
	Health Risk														49	51	39	34	31
Carbon Tetrachloride	Annual Avg														0.096				
	Health Risk														25				
Chromium, Hexavalent	Annual Avg														0.098	0.1		0.053	0.063
	Health Risk														15	15		8	9
para-Dichlorobenzene	Annual Avg														0.15	0.15	0.15	0.15	
	Health Risk														10	10	10	10	
Formaldehyde	Annual Avg														2.79	2.13	1.71	1.88	1.9
	Health Risk														21	16	13	14	14
Methylene Chloride	Annual Avg														0.19	0.16	0.13	0.14	0.15
	Health Risk														<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg														0.04	0.037	0.032	0.029	0.028
	Health Risk														2	1	1	1	1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk															**179**	**143**	**105**	**107**	**92**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as µg/m^3. Concentrations for all other TACs are expressed as ppb.
2 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

Air Basin Summary

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.94	1.84	1.38	1.73	1.29	0.54	1.28	1.19	1.3	1.56	1.09	1.15	1.24	1.34	1.14	1.42	1.33	1.15
	Health Risk	9	9	7	8	6	3	6	6	6	8	5	6	6	7	6	7	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	0.538	0.552	0.463	0.372	0.374	0.362	0.318
	Health Risk	227	196	126	122	123	107	68	66	71	64	58	50	51	43	34	35	34	29
1,3-Butadiene	Annual Avg	0.409	0.36	0.236	0.339	0.323	0.264	0.222	0.195	0.233	0.177	0.158	0.15	0.146	0.095	0.08	0.082	0.069	0.065
	Health Risk	154	135	89	127	121	99	83	73	88	67	59	56	55	36	30	31	26	24
Carbon Tetrachloride	Annual Avg	0.128	0.129		0.109		0.098	0.077		0.114		0.096	0.086	0.091	0.097				
	Health Risk	34	34		29		26	20		30		25	23	24	26				
Chromium, Hexavalent	Annual Avg			0.23	0.21	0.19	0.28	0.13	0.11	0.1	0.1	0.12		0.086	0.078	0.083	0.076	0.05	0.083
	Health Risk			34	31	29	42	20	16	15	15	18		13	12	13	11	8	12
para-Dichlorobenzene	Annual Avg		0.11	0.11	0.13	0.11	0.11	0.1	0.13			0.11	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk		7	7	9	7	8	7	9			7	9	10	10	10	10	10	
Formaldehyde	Annual Avg	2.45	1.81	1.46	1.67	1.8	2.1	2.96	2.77	2.86	3.44	2.61	3.08	3.13	3.02	2.27	2.52	2.78	2.51
	Health Risk	18	13	11	12	13	15	22	20	21	25	19	23	23	22	17	19	20	18
Methylene Chloride	Annual Avg	0.76	0.59	0.55	0.76	0.59	0.61	0.54	0.53	0.52	0.5	0.53	0.27	0.16	0.14	0.11	0.12	0.11	0.1
	Health Risk	3	2	2	3	2	2	2	2	2	2	2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.126	0.133	0.104	0.473	0.067	0.068	0.068	0.056	0.039		0.076	0.052	0.039	0.033	0.027	0.032	0.032	0.026
	Health Risk	5	5	4	19	3	3	3	2	2		3	2	2	1	1	1	1	1
Diesel PM[3]	*Annual Avg*	*(2.6)*					*(1.7)*					*(1.3)*							
	Health Risk	*(780)*					*(510)*					*(390)*							
Average Basin Risk	w/o Diesel PM	450	401	280	360	304	305	231	194	235	181	196	169	184	157	111	114	105	90
	w/ Diesel PM	*(1230)*					*(815)*					*(586)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m³, and concentrations for Diesel PM are expressed as µg/m³. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-34

San Joaquin Valley Air Basin

Kern County: Bakersfield - Chester Avenue

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.87	1.83	1.6	2														
	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	0.389	0.306	0.24	0.327														
	Health Risk	146	115	90	123														
Carbon Tetrachloride	Annual Avg	0.127	0.125		0.104														
	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	0.087	0.127	0.075	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**														

1 Concentrations for Hexavalent Chromium are expressed as ng/m3, and concentrations for Diesel PM are expressed as µg/m3. Concentrations for all other TACs are expressed as ppb.
2 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

Kern County: Bakersfield - 5558 California Avenue

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg						0.49	1.59	1.22	1.27	1.69	1.19	1.27	1.37	1.51		1.65	1.43	1.24
	Health Risk						2	8	6	6	8	6	6	7	7		8	7	6
Benzene	Annual Avg						1.14	0.78	0.57	0.7	0.71	0.58	0.549	0.506	0.405		0.355	0.383	0.31
	Health Risk						106	72	53	65	66	54	51	47	37		33	35	29
1,3-Butadiene	Annual Avg						0.206	0.211	0.16	0.2	0.153	0.126	0.138	0.099	0.063		0.062	0.063	0.05
	Health Risk						78	79	60	75	58	47	52	37	24		23	24	19
Carbon Tetrachloride	Annual Avg						0.099	0.079				0.094	0.086	0.092	0.095				
	Health Risk						26	21				25	23	24	25				
Chromium, Hexavalent	Annual Avg						0.26	0.13	0.1	0.1	0.1	0.1		0.078	0.053		0.045	0.03	0.038
	Health Risk						39	19	15	15	16	16		12	8		7	5	6
para-Dichlorobenzene	Annual Avg						0.11	0.11	0.12			0.11	0.13	0.15	0.15		0.15	0.15	
	Health Risk						7	7	8			7	9	10	10		10	10	
Formaldehyde	Annual Avg						1.92	3.48	3.12	2.99	3.67	2.79	3.44	3.15	3.43		2.61	2.77	2.61
	Health Risk						14	26	23	22	27	21	25	23	25		19	20	19
Methylene Chloride	Annual Avg						0.54	0.64	0.5		0.5	0.58	0.26	0.1	0.11		0.09	0.09	0.1
	Health Risk						2	2	2		2	2	<1	<1	<1		<1	<1	<1
Perchloroethylene	Annual Avg						0.092	0.119	0.039			0.065	0.058	0.047	0.037		0.043	0.056	0.041
	Health Risk						4	5	2			3	2	2	1		2	2	2
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk							**278**	**239**	**169**	**183**	**177**	**181**	**168**	**162**	**137**		**102**	**103**	**81**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as µg/m^3. Concentrations for all other TACs are expressed as ppb.
2 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

Fresno County: Fresno - 1st Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg		2.29		1.89	1.4	0.67			1.5		1.43	1.6	1.55	1.71	1.27	1.63	1.63	1.32
	Health Risk		11		9	7	3			7		7	8	8	8	6	8	8	6
Benzene	Annual Avg		2.42	1.34	1.35	1.44	1.24	0.79	1	0.83	0.8	0.73	0.61	0.631	0.546	0.403	0.408	0.387	0.374
	Health Risk		224	124	125	133	115	73	92	76	74	68	56	58	51	37	38	36	35
1,3-Butadiene	Annual Avg		0.459	0.262	0.342	0.356	0.3	0.234	0.233	0.265	0.214	0.195	0.182	0.194	0.127	0.098	0.101	0.082	0.086
	Health Risk		173	99	129	134	113	88	87	100	80	73	68	73	48	37	38	31	32
Carbon Tetrachloride	Annual Avg		0.122		0.108		0.099	0.078				0.095	0.086	0.089	0.097				
	Health Risk		32		28		26	21				25	23	23	26				
Chromium, Hexavalent	Annual Avg			0.21	0.15	0.14	0.22	0.1	0.11	0.1	0.1	0.13		0.058	0.05	0.073	0.063	0.058	0.15
	Health Risk			31	22	21	33	16	16	15	15	20		9	8	11	9	9	23
para-Dichlorobenzene	Annual Avg			0.1	0.1	0.14	0.13	0.11	0.14			0.1	0.14	0.15	0.15	0.15	0.15	0.15	
	Health Risk			7	7	9	8	7	9			7	9	10	10	10	10	10	
Formaldehyde	Annual Avg		2.32		1.64	2.01	2.41			3.42		3.56	4.32	4.16	3.72	2.57	3	3.41	2.88
	Health Risk		17		12	15	18			25		26	32	31	27	19	22	25	21
Methylene Chloride	Annual Avg		0.62	0.54	0.69	0.59	0.58	0.5	0.52			0.5	0.27	0.24	0.15	0.14	0.15	0.14	0.12
	Health Risk		2	2	2	2	2	2	2			2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg		0.142	0.102	0.1	0.062	0.065	0.041	0.043			0.056	0.046	0.034	0.031	0.023	0.028	0.02	0.015
	Health Risk		6	4	4	2	3	2	2			2	2	1	1	<1	1	<1	<1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk			**465**	**267**	**338**	**323**	**321**	**209**	**208**	**223**	**169**	**230**	**198**	**213**	**179**	**120**	**126**	**119**	**117**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as µg/m^3. Concentrations for all other TACs are expressed as ppb.
2 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-37

San Joaquin Valley Air Basin

Stanislaus County: Modesto - I Street (Courthouse)

Annual Average Concentrations and Health Risks																			
TAC	Conc.[1]/Risk[2]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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										

1 Concentrations for Hexavalent Chromium are expressed as ng/m3, and concentrations for Diesel PM are expressed as µg/m3. Concentrations for all other TACs are expressed as ppb.
2 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 Joaquin Valley Air Basin

Stanislaus County: Modesto - 14th Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg										1.65								
	Health Risk										8								
Benzene	Annual Avg	2.25	1.86	1.2	1.23	1.14	1.2	0.7	0.77	0.85	0.61								
	Health Risk	208	172	111	114	105	111	65	71	78	56								
1,3-Butadiene	Annual Avg	0.379	0.353	0.224	0.348	0.293	0.298	0.236	0.208	0.26	0.162								
	Health Risk	142	133	84	131	110	112	89	78	98	61								
Carbon Tetrachloride	Annual Avg	0.128	0.132		0.112		0.094	0.074		0.113									
	Health Risk	34	35		30		25	20		30									
Chromium, Hexavalent	Annual Avg										0.1								
	Health Risk										15								
para-Dichlorobenzene	Annual Avg		0.11	0.1	0.12	0.1	0.11	0.1	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	0.5	0.59	0.51									
	Health Risk	2	2	2	2	2	2	2	2	2									
Perchloroethylene	Annual Avg	0.145	0.15	0.118	0.109	0.087	0.053	0.044	0.052	0.035									
	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**								

1 Concentrations for Hexavalent Chromium are expressed as ng/m³, and concentrations for Diesel PM are expressed as µg/m³. Concentrations for all other TACs are expressed as ppb.
2 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 Joaquin Valley Air Basin

San Joaquin County: Stockton - Hazelton Street

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.47	1.75	1.07	1.31	1.1		0.9	0.9	1	1.07	0.64	0.59	0.8	0.81	0.87	0.99	0.93	0.88
	Health Risk	7	9	5	6	5		4	4	5	5	3	3	4	4	4	5	5	4
Benzene	Annual Avg	2.01	1.95	1.37		1.23	1.05	0.64	0.52	0.69	0.65	0.58	0.454	0.521	0.437	0.37	0.358	0.317	0.271
	Health Risk	186	181	127		113	97	60	48	64	60	54	42	48	40	34	33	29	25
1,3-Butadiene	Annual Avg	0.336	0.321	0.217		0.281	0.25	0.206	0.181	0.206	0.18	0.155	0.13	0.146	0.096	0.079	0.085	0.063	0.057
	Health Risk	126	121	82		106	94	77	68	77	68	58	49	55	36	30	32	24	22
Carbon Tetrachloride	Annual Avg	0.131	0.136				0.099	0.077		0.115		0.098	0.087	0.091	0.098				
	Health Risk	35	36				26	20		30		26	23	24	26				
Chromium, Hexavalent	Annual Avg			0.22	0.25	0.25		0.14			0.1	0.12		0.123	0.13	0.123	0.12	0.063	0.06
	Health Risk			33	37	37		21			15	18		18	20	18	18	9	9
para-Dichlorobenzene	Annual Avg		0.1	0.1		0.1	0.11	0.1	0.11			0.11	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk		7	7		7	7	7	7			7	9	10	10	10	10	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	1.91	1.79	1.94	2.16	2.02
	Health Risk	13	14	9	10	12		17	16	17	20	12	11	15	14	13	14	16	15
Methylene Chloride	Annual Avg	0.63	0.5	0.6		0.5	0.75	0.53	0.5	0.5	0.5	0.53	0.27	0.14	0.16	0.12	0.12	0.11	0.1
	Health Risk	2	2	2		2	3	2	2	2	2	2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.129	0.113	0.12		0.066	0.061	0.068	0.09	0.033		0.108	0.053	0.035	0.03	0.022	0.024	0.018	0.02
	Health Risk	5	5	5		3	2	3	4	1		4	2	1	1	<1	1	<1	<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**	**139**	**175**	**151**	**109**	**113**	**93**	**75**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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-40

San Diego Air Basin

Air Basin Summary

TAC	Conc.[1]/Risk[2]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Annual Average Concentrations and Health Risks																			
Acetaldehyde	Annual Avg	1.33	1.5	1.22	1.41	1.48	0.64	1.03	1	0.86	1.04	0.84	0.95	0.97	0.89	0.89	1.01	0.85	0.88
	Health Risk	6	7	6	7	7	3	5	5	4	5	4	5	5	4	4	5	4	4
Benzene	Annual Avg	2.25	1.7	1.48	1.16	1.39	0.98	0.76	0.76	0.76	0.86	0.65	0.505	0.491	0.483	0.371	0.404	0.362	0.373
	Health Risk	208	158	137	107	129	90	71	70	70	79	60	47	45	45	34	37	34	35
1,3-Butadiene	Annual Avg	0.333	0.257	0.258	0.312	0.307	0.242	0.208	0.198	0.196	0.22	0.159	0.136	0.12	0.089	0.074	0.073	0.068	0.073
	Health Risk	125	97	97	117	115	91	78	75	74	83	60	51	45	33	28	27	26	27
Carbon Tetrachloride	Annual Avg	0.132	0.127		0.103		0.099	0.077				0.094	0.086	0.092	0.093				
	Health Risk	35	34		27		26	20				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.24	0.19	0.16	0.18	0.11	0.11	0.1	0.1	0.1		0.045	0.05	0.03	0.043	0.05	0.034
	Health Risk			36	28	23	27	16	16	15	15	15		7	8	5	6	8	5
para-Dichlorobenzene	Annual Avg		0.1	0.11	0.13	0.15	0.12	0.11	0.13				0.15	0.15	0.15	0.15	0.15	0.15	
	Health Risk		7	8	8	10	8	7	8				10	10	10	10	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	2.68	2.19	2.42	2.08	2.24
	Health Risk	12	11	9	13	17	16	19	19	17	20	16	19	22	20	16	18	15	16
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	0.16	0.13	0.14	0.14	0.14
	Health Risk	2	3	5	4	3	2	2	2		2	3	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.282	0.269	0.263	0.2	0.207	0.249	0.147	0.125			0.089	0.061	0.06	0.047	0.037	0.041	0.037	0.03
	Health Risk	11	11	11	8	8	10	6	5			4	2	2	2	1	2	1	1
Diesel PM[3]	*Annual Avg*	*(2.9)*					*(1.9)*					*(1.4)*							
	Health Risk	*(870)*					*(570)*					*(420)*							
Average Basin Risk	w/o Diesel PM	399	328	309	319	312	273	224	200	180	204	187	157	160	147	98	105	98	88
	w/ Diesel PM	*(1269)*					*(843)*					*(607)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-41

San Diego Air Basin

San Diego County: Chula Vista

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg	1.1	1.21	0.99	1.16	1.32	0.64	0.83	0.91	0.7	0.91	0.75	0.78	0.75	0.72	0.74	0.86	0.71	0.7
	Health Risk	5	6	5	6	6	3	4	4	3	4	4	4	4	3	4	4	3	3
Benzene	Annual Avg	2	1.21	1.03	0.8	1.08	0.81		0.63	0.61		0.55	0.421	0.419		0.341	0.358		0.273
	Health Risk	186	112	95	74	100	75		58	56		51	39	39		32	33		25
1,3-Butadiene	Annual Avg	0.278	0.183	0.184	0.225	0.262	0.205		0.162	0.153		0.136	0.11	0.107		0.07	0.064		0.056
	Health Risk	105	69	69	85	98	77		61	57		51	41	40		26	24		21
Carbon Tetrachloride	Annual Avg	0.132	0.129		0.101		0.097					0.093	0.086	0.091					
	Health Risk	35	34		27		26					25	23	24					
Chromium, Hexavalent	Annual Avg			0.24	0.2	0.17	0.2	0.11	0.1	0.1	0.11	0.1		0.05	0.063	0.03	0.038	0.03	0.03
	Health Risk			37	30	25	29	16	15	15	16	16		8	9	5	6	5	5
para-Dichlorobenzene	Annual Avg		0.1	0.11	0.13	0.12	0.11		0.13				0.15	0.15		0.15	0.15		
	Health Risk		7	7	8	8	7		8				10	10		10	10		
Formaldehyde	Annual Avg	1.26	1.3	1.1	1.46	2.08	1.81	2.1	2.37	2	2.49	2.14	2.54	2.56	2.3	1.93	2.08	1.88	1.83
	Health Risk	9	10	8	11	15	13	15	17	15	18	16	19	19	17	14	15	14	13
Methylene Chloride	Annual Avg	0.58	0.59	0.81	1.01	0.57	0.57		0.62			0.65	0.16	0.13		0.12	0.13		0.11
	Health Risk	2	2	3	3	2	2		2			2	<1	<1		<1	<1		<1
Perchloroethylene	Annual Avg	0.236	0.229	0.208	0.144	0.132	0.146		0.103			0.078	0.057	0.048		0.031	0.036		0.025
	Health Risk	9	9	8	6	5	6		4			3	2	2		1	1		1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk		**351**	**249**	**232**	**250**	**259**	**238**	**35**	**169**	**146**	**38**	**168**	**138**	**146**	**29**	**92**	**93**	**22**	**68**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

San Diego Air Basin

San Diego County: El Cajon - Redwood Avenue

TAC	Conc.[1]/Risk[2]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Annual Average Concentrations and Health Risks																			
Acetaldehyde	Annual Avg	1.56	1.78	1.46	1.66			1.23			1.17	0.92	1.11	1.2	1.06	1.04	1.16	0.99	1.06
	Health Risk	8	9	7	8			6			6	4	5	6	5	5	6	5	5
Benzene	Annual Avg	2.5	2.2	1.94	1.51		1.14	0.86	0.89	0.91	0.98	0.74	0.588	0.563	0.561	0.402	0.449	0.399	0.472
	Health Risk	231	203	179	140		106	79	82	84	91	69	54	52	52	37	42	37	44
1,3-Butadiene	Annual Avg	0.387	0.332	0.331	0.398		0.279	0.252	0.235	0.24	0.24	0.182	0.162	0.133	0.101	0.077	0.082	0.073	0.09
	Health Risk	145	125	125	150		105	95	88	90	90	68	61	50	38	29	31	28	34
Carbon Tetrachloride	Annual Avg	0.131	0.125				0.1	0.078				0.095	0.086	0.093	0.093				
	Health Risk	35	33				27	21				25	23	24	24				
Chromium, Hexavalent	Annual Avg			0.24	0.18			0.1	0.11		0.1	0.1		0.04	0.038		0.048	0.07	0.038
	Health Risk			36	26			16	17		15	15		6	6		7	11	6
para-Dichlorobenzene	Annual Avg			0.12	0.13		0.12	0.11	0.13				0.15	0.15	0.15	0.15	0.15	0.15	
	Health Risk			8	8		8	7	8				10	10	10	10	10	10	
Formaldehyde	Annual Avg	2.01	1.76	1.42	2.06			3.14			2.84	2.32	2.63	3.41	3.05	2.45	2.76	2.28	2.65
	Health Risk	15	13	10	15			23			21	17	19	25	22	18	20	17	19
Methylene Chloride	Annual Avg	0.59	1.07	1.87	1.25		0.7	0.61	0.52		0.52	0.87	0.19	0.18	0.18	0.14	0.14	0.17	0.16
	Health Risk	2	4	7	4		2	2	2		2	3	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.329	0.308	0.319	0.256		0.352	0.168	0.147			0.1	0.065	0.072	0.059	0.043	0.045	0.04	0.036
	Health Risk	13	12	13	10		14	7	6			4	3	3	2	2	2	2	1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk		**449**	**399**	**385**	**361**		**262**	**256**	**203**	**174**	**225**	**205**	**175**	**176**	**159**	**101**	**118**	**110**	**109**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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

Air Basin Summary

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
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	1.04	1.09	1.15	0.92	0.95
	Health Risk	6			7	5	2	5	5	4	6	4	4	6	5	5	6	4	5
Benzene	Annual Avg	2.02	1.88	1.35	1	1.02	0.8	0.56	0.55	0.5	0.56	0.45	0.422	0.443	0.406	0.406	0.335	0.268	0.239
	Health Risk	187	174	125	92	95	74	51	51	47	52	42	39	41	38	38	31	25	22
1,3-Butadiene	Annual Avg	0.378	0.332	0.283	0.288	0.221	0.186	0.176	0.16	0.154	0.128	0.119	0.125	0.116	0.094	0.093	0.08	0.051	0.045
	Health Risk	142	125	106	108	83	70	66	60	58	48	45	47	44	35	35	30	19	17
Carbon Tetrachloride	Annual Avg	0.123	0.123		0.109		0.099	0.078				0.094	0.088	0.09	0.093				
	Health Risk	33	32		29		26	21				25	23	24	25				
Chromium, Hexavalent	Annual Avg			0.17	0.14	0.13	0.18	0.11	0.1	0.1	0.1	0.1	0.1	0.053	0.05	0.068	0.058	0.041	0.03
	Health Risk			26	21	19	26	16	15	15	15	15	15	8	8	10	9	6	5
para-Dichlorobenzene	Annual Avg			0.11	0.1	0.2	0.14	0.11	0.14			0.1	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk			7	7	14	9	7	10			7	9	10	10	10	10	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	3.53	2.76	2.68	2.54	2.64
	Health Risk	12			13	13	14	20	22	19	27	18	18	28	26	20	20	19	19
Methylene Chloride	Annual Avg	0.65	0.56	0.55	0.98	0.66	0.53	0.54	0.52		0.6	0.57	0.29	0.08	0.08	0.07	0.08	0.07	0.07
	Health Risk	2	2	2	3	2	2	2	2		2	2	1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg	0.071	0.074	0.063	0.052	0.165	0.049	0.055	0.052			0.058	0.027	0.025	0.018	0.015	0.021	0.015	0.012
	Health Risk	3	3	3	2	7	2	2	2			2	1	1	<1	<1	<1	<1	<1
Diesel PM[3]	*Annual Avg*	*(2.5)*					*(1.6)*					*(1.2)*							
	Health Risk	*(750)*					*(480)*					*(360)*							
Average Basin Risk	w/o Diesel PM	385	336	269	282	238	225	190	167	143	150	160	157	162	147	118	106	83	68
	w/ Diesel PM	*(1135)*					*(705)*					*(520)*							

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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.
3 The Diesel PM concentrations are estimates based on receptor modeling, and they are available for selected years. Currently, the Diesel PM estimates are being reviewed.

Table C-44

Sacramento Valley Air Basin

Butte County: Chico - Manzanita Avenue

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg				1.55	1.11	0.54	1.15	1.17	0.96	1.41	0.89	1.1	1.33	1.14	1.32	1.4	1	1.11
	Health Risk				8	5	3	6	6	5	7	4	5	6	6	6	7	5	5
Benzene	Annual Avg				1.1	1.14	0.85	0.67		0.55	0.64	0.52	0.499	0.544	0.449	0.533	0.427	0.297	0.284
	Health Risk				102	106	78	62		51	59	48	46	50	42	49	40	28	26
1,3-Butadiene	Annual Avg				0.295	0.249	0.205	0.216		0.17	0.149	0.142	0.157	0.154	0.111	0.132	0.108	0.057	0.06
	Health Risk				111	94	77	81		64	56	54	59	58	42	50	41	21	22
Carbon Tetrachloride	Annual Avg				0.108		0.1	0.079					0.088	0.087	0.093				
	Health Risk				29		26	21					23	23	24				
Chromium, Hexavalent	Annual Avg				0.15	0.13	0.16	0.1	0.1	0.1	0.1	0.1	0.1	0.058	0.048	0.075	0.058	0.038	0.03
	Health Risk				23	19	24	16	15	15	15	15	15	9	7	11	9	6	5
para-Dichlorobenzene	Annual Avg				0.1	0.13	0.1	0.12					0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk				7	8	7	8					9	10	10	10	10	10	
Formaldehyde	Annual Avg				2.08	1.78	2.04	2.99	3.42	2.63	4.15	2.76	3.25	4.47	3.82	3.4	3.28	2.63	2.82
	Health Risk				15	13	15	22	25	19	31	20	24	33	28	25	24	19	21
Methylene Chloride	Annual Avg				0.81	0.5	0.53	0.58					0.36	0.09	0.07	0.08	0.09	0.07	0.07
	Health Risk				3	2	2	2					1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg				0.057	0.265	0.047	0.049					0.024	0.024	0.015	0.014	0.028	0.011	0.011
	Health Risk				2	11	2	2					<1	1	<1	<1	1	<1	<1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk					**300**	**258**	**234**	**220**	**46**	**154**	**168**	**141**	**182**	**190**	**159**	**151**	**132**	**89**	**79**

1 Concentrations for Hexavalent Chromium are expressed as ng/m3, and concentrations for Diesel PM are expressed as μg/m3. Concentrations for all other TACs are expressed as ppb.
2 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-45

Sacramento Valley Air Basin

Placer County: Roseville - North Sunrise Boulevard

Annual Average Concentrations and Health Risks																			
TAC	**Conc.[1]/Risk[2]**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Acetaldehyde	Annual Avg					0.96	0.25	0.9	0.93	0.88		0.77	0.39	0.95	0.93	0.87	0.89	0.84	0.79
	Health Risk					5	1	4	4	4		4	2	5	5	4	4	4	4
Benzene	Annual Avg					0.91	0.75	0.44	0.46	0.45	0.48	0.39	0.344	0.343	0.363	0.278	0.244	0.239	0.194
	Health Risk					84	70	40	42	42	44	36	32	32	34	26	23	22	18
1,3-Butadiene	Annual Avg					0.194	0.167	0.135	0.121	0.138	0.107	0.096	0.093	0.078	0.078	0.054	0.051	0.045	0.029
	Health Risk					73	63	51	46	52	40	36	35	29	29	20	19	17	11
Carbon Tetrachloride	Annual Avg						0.099	0.077				0.094	0.087	0.093	0.093				
	Health Risk						26	20				25	23	24	25				
Chromium, Hexavalent	Annual Avg					0.13	0.19	0.11	0.1	0.1	0.1	0.1		0.048	0.053	0.06	0.058	0.045	0.03
	Health Risk					19	29	16	15	15	15	15		7	8	9	9	7	5
para-Dichlorobenzene	Annual Avg					0.28	0.17	0.1	0.15			0.1	0.13	0.15	0.15	0.15	0.15	0.15	
	Health Risk					19	11	7	10			7	9	10	10	10	10	10	
Formaldehyde	Annual Avg					1.71	1.78	2.52	2.42	2.42		2.25	1.57	3.12	3.23	2.12	2.07	2.45	2.46
	Health Risk					13	13	19	18	18		17	12	23	24	16	15	18	18
Methylene Chloride	Annual Avg					0.82	0.54	0.5	0.5			0.52	0.23	0.08	0.09	0.06	0.08	0.06	0.07
	Health Risk					3	2	2	2			2	<1	<1	<1	<1	<1	<1	<1
Perchloroethylene	Annual Avg					0.065	0.051	0.061	0.063			0.047	0.031	0.026	0.022	0.016	0.014	0.019	0.012
	Health Risk					3	2	2	3			2	1	1	<1	<1	<1	<1	<1
Diesel PM	Annual Avg	No Monitoring Data Available																	
	Health Risk																		
Total Health Risk						**219**	**217**	**161**	**140**	**131**	**99**	**144**	**114**	**131**	**135**	**85**	**80**	**78**	**56**

1 Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for Diesel PM are expressed as $\mu g/m^3$. Concentrations for all other TACs are expressed as ppb.
2 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-46

APPENDIX D

Surface Area, Population, and Average Daily Vehicle Miles Traveled

Appendix D: *Surface Area, Population, and Average Daily Vehicle Miles Traveled*

List of Tables

List of Tables (continued)

List of Tables (continued)

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 2020. 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 VMT for the years 1980 through 2020 are found in ARB's motor vehicle emissions inventory model, EMFAC2007 version 2.3 (refer to www.arb.ca.gov/msei/msei.htm). The VMT estimates are the same as published in the last Almanac since those estimates were also based on EMFAC2007 version 2.3. For future calendar years, the VMT estimates in large urbanized areas are provided by RTPAs as an output of their travel demand models. For recent years (2000-2005), the VMT is calculated as the product of vehicle population from Department of Motor Vehicles (DMV) 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. For historical years (pre-2000), the VMT is calculated as the product of vehicle population backcast from DMV data and mileage accrual rates. More detailed information about the methodologies used in developing the VMT trends is available from the ARB staff at (916) 445-8699.

California

Surface Area = 155959 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	23782000	26402401	29828496	31711849	34095209	36896218	39135677	41635800	44135923
Avg. Daily VMT/1000	403567	538319	691049	733629	799848	955234	958079	1033400	1104522

Table D-1

Great Basin Valleys Air Basin

Surface Area = 13986 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	27700	27900	29370	30942	32333	33178	35385	37707	40028
Avg. Daily VMT/1000	914	987	1139	1085	1095	1370	1475	1694	1954

Table D-2

Alpine County
Surface Area = 739 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1100	1100	1094	1171	1204	1204	1369	1411	1453
Avg. Daily VMT/1000	30	32	40	41	45	57	59	68	79

Table D-3

Inyo County
Surface Area = 10203 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	17900	18000	18198	18371	18193	18257	19183	19839	20495
Avg. Daily VMT/1000	547	546	670	647	665	808	873	1001	1155

Table D-4

Mono County
Surface Area = 3044 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	8700	8800	10078	11400	12936	13717	14833	16457	18080
Avg. Daily VMT/1000	337	409	429	397	385	505	543	625	720

Table D-5

Lake County Air Basin

Surface Area = 1258 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	36800	45600	50962	56630	58575	63073	67530	72721	77912
Avg. Daily VMT/1000	870	1151	1307	1496	1503	1819	2001	2324	2744

Table D-6

Lake Tahoe Air Basin

Surface Area = 224 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	36205	36237	39330	43690	46861	53307	58226	63673	69119
Avg. Daily VMT/1000	769	869	1000	1140	1161	1268	1404	1626	1896

Table D-7

El Dorado County
Surface Area = 157 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	27680	27520	29955	32837	34527	38015	41231	44698	48164
Avg. Daily VMT/1000	585	617	695	777	777	844	937	1090	1276

Table D-8 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	2015	2020
Population	8525	8717	9375	10853	12334	15292	16995	18975	20955
Avg. Daily VMT/1000	184	252	305	363	384	424	467	536	620

Table D-9 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	2015	2020
Population	357420	485698	676413	749355	822210	919846	999166	1078724	1158282
Avg. Daily VMT/1000	6745	11130	20896	22712	24999	34411	34880	40184	44740

Table D-10

Kern County
Surface Area = 3786 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	82560	96324	111407	115376	112767	129695	147758	165927	184096
Avg. Daily VMT/1000	1879	2677	3359	3662	4010	5149	5806	6866	7942

Table D-11 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	2015	2020
Population	97504	160542	231253	262112	300686	320194	330160	341144	352127
Avg. Daily VMT/1000	1927	3082	5740	5527	5883	7981	8164	9531	10546

Table D-12 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	2015	2020
Population	10449	13048	18537	22199	25880	31908	37168	42694	48220
Avg. Daily VMT/1000	336	433	807	875	1012	1386	1458	1804	2140

Table D-13 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	2015	2020
Population	166907	215784	315216	349668	382877	438049	484080	528960	573839
Avg. Daily VMT/1000	2603	4938	10990	12648	14094	19895	19452	21983	24112

Table D-14 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	2015	2020
Population	229578	272823	346018	385722	410899	444830	472991	507386	541781
Avg. Daily VMT/1000	5967	7522	9662	10720	11055	13811	14805	16823	18982

Table D-15

Amador County
Surface Area = 593 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	19500	22200	30462	33395	35322	37686	40337	43965	47593
Avg. Daily VMT/1000	548	653	872	982	986	1225	1346	1545	1780

Table D-16

Calaveras County
Surface Area = 1020 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	20900	25000	32466	38352	40733	45047	47750	52034	56318
Avg. Daily VMT/1000	658	768	1049	1213	1221	1586	1755	2023	2335

Table D-17

El Dorado County
Surface Area = 1553 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	58820	71580	97350	112073	124001	136527	148077	160527	172976
Avg. Daily VMT/1000	1374	1815	2283	2733	2874	3706	3780	4156	4413

Table D-18

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	2015	2020
Population	11200	12500	14422	16450	16984	17942	19108	20426	21743
Avg. Daily VMT/1000	282	324	456	502	475	577	642	741	856

Table D-19

Nevada County
Surface Area = 958 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	52500	64700	79019	87059	92381	98506	102649	108550	114451
Avg. Daily VMT/1000	1442	1997	2402	2579	2666	3184	3429	3921	4522

Table D-20

Placer County
Surface Area = 908 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	11958	15143	20499	21790	22424	27801	30897	34497	38097
Avg. Daily VMT/1000	322	446	506	581	746	988	1034	1169	1251

Table D-21

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	2015	2020
Population	17400	18600	19779	20823	20712	21032	21824	22379	22934
Avg. Daily VMT/1000	327	362	489	528	562	682	757	875	1032

Table D-22

Sierra County
Surface Area = 953 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	3100	3200	3318	3560	3629	3473	3628	3568	3508
Avg. Daily VMT/1000	74	82	104	95	96	118	130	149	173

Table D-23

Tuolumne County
Surface Area = 2235 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	34200	39900	48703	52220	54713	56816	58721	61441	64161
Avg. Daily VMT/1000	940	1075	1501	1507	1429	1745	1932	2244	2620

Table D-24

North Central Coast Air Basin

Surface Area = 5156 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	506400	565800	623037	645899	714162	738792	765529	806722	847914
Avg. Daily VMT/1000	9864	13153	16546	16926	18206	20398	21330	22121	23017

Table D-25

Monterey County
Surface Area = 3321 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	292100	327400	356797	360350	403910	421211	433283	454963	476642
Avg. Daily VMT/1000	5764	7526	9445	9501	10475	11926	12245	12752	13339

Table D-26

San Benito County
Surface Area = 1389 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	25200	29900	36911	44347	53787	57112	64230	74011	83792
Avg. Daily VMT/1000	821	1105	1428	1607	1671	2025	2027	2136	2255

Table D-27

Santa Cruz County
Surface Area = 445 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	189100	208500	229329	241202	256465	260469	268016	277748	287480
Avg. Daily VMT/1000	3279	4522	5673	5818	6060	6447	7058	7233	7423

Table D-28

North Coast Air Basin

Surface Area = 12339 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	244387	258167	286742	303199	310946	322611	335388	350722	366056
Avg. Daily VMT/1000	5535	6305	8049	8159	8048	9264	10101	11513	13209

Table D-29

Del Norte County
Surface Area = 1008 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	18300	19100	24426	27862	27495	28918	30983	33530	36077
Avg. Daily VMT/1000	450	437	598	601	551	643	703	807	944

Table D-30

Humboldt County
Surface Area = 3572 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	108900	110600	119370	124979	126853	131452	134785	138476	142167
Avg. Daily VMT/1000	2365	2632	3325	3307	3241	3702	4017	4588	5360

Table D-31

Mendocino County
Surface Area = 3508 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	67000	73400	80574	83753	86536	89373	93166	97592	102017
Avg. Daily VMT/1000	1632	1875	2402	2473	2463	2867	3153	3653	4228

Table D-32

Sonoma County
Surface Area = 1071 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	38187	42267	49347	53128	57083	58899	61282	64421	67559
Avg. Daily VMT/1000	793	1042	1298	1379	1400	1582	1722	1879	1988

Table D-33

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	2015	2020
Population	12000	12800	13025	13477	12979	13969	15172	16704	18236
Avg. Daily VMT/1000	295	319	426	399	393	470	506	586	689

Table D-34

Northeast Plateau Air Basin

Surface Area = 14788 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	70500	75200	81007	83873	87975	90227	95836	101324	106811
Avg. Daily VMT/1000	1784	1973	2612	2794	2452	2991	3134	3571	4192

Table D-35

Lassen County
Surface Area = 4557 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	21800	24300	27693	28891	33971	35016	37918	40156	42394
Avg. Daily VMT/1000	415	462	613	715	697	820	907	1042	1223

Table D-36

Modoc County
Surface Area = 3944 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	8700	9400	9685	9983	9525	9605	10809	11972	13134
Avg. Daily VMT/1000	172	179	217	234	219	257	283	325	381

Table D-37

Siskiyou County
Surface Area = 6287 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	40000	41500	43629	44999	44479	45606	47109	49196	51283
Avg. Daily VMT/1000	1197	1332	1782	1845	1536	1914	1944	2204	2588

Table D-38

Sacramento Valley Air Basin

Surface Area = 14994 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1500924	1688217	1977544	2155490	2352967	2627717	2817815	3056169	3294522
Avg. Daily VMT/1000	30025	38728	50471	54826	57268	71433	73601	82374	89914

Table D-39

Butte County
Surface Area = 1639 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	144900	161600	183229	197464	203954	215255	230116	255779	281442
Avg. Daily VMT/1000	2619	3257	4344	4546	4480	5362	5751	6239	7430

Table D-40

Colusa County
Surface Area = 1151 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	12900	14600	16300	17833	18916	21147	23787	26688	29588
Avg. Daily VMT/1000	382	463	564	581	574	737	781	917	1086

Table D-41

Glenn County
Surface Area = 1314 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	21500	22900	24827	26398	26618	28227	30880	34420	37959
Avg. Daily VMT/1000	611	753	845	880	747	920	969	1132	1367

Table D-42

Placer County
Surface Area = 429 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	97917	114940	145031	178912	217475	269631	299652	334568	369483
Avg. Daily VMT/1000	2404	2989	3851	4729	6034	8947	8373	9461	10055

Table D-43

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	2015	2020
Population	787900	890700	1046870	1120733	1233549	1378299	1451866	1537086	1622306
Avg. Daily VMT/1000	14730	19621	25096	27114	27090	32513	33091	35567	37370

Table D-44

Shasta County
Surface Area = 3785 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	116600	129100	147966	159742	164638	178528	191722	208054	224386
Avg. Daily VMT/1000	2336	2867	3886	4019	4100	5188	5663	6582	7632

Table D-45

Solano County
Surface Area = 511 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	63807	75977	98287	109170	121891	128646	135362	144905	154447
Avg. Daily VMT/1000	1794	2341	3712	4116	4731	5705	5970	7425	7969

Table D-46

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	2015	2020
Population	52600	57800	64814	74167	79499	89970	102326	121743	141159
Avg. Daily VMT/1000	995	1253	1684	1845	1921	2443	2922	3534	4196

Table D-47

Tehama County
Surface Area = 2951 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	39100	44000	49866	54573	55918	60165	65593	72539	79484
Avg. Daily VMT/1000	1026	1149	1752	1763	1736	2279	2427	2825	3317

Table D-48

Yolo County
Surface Area = 1013 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	113900	123500	141773	154603	170096	189403	206100	225576	245052
Avg. Daily VMT/1000	2423	3154	3592	4008	4577	5733	5812	6535	7007

Table D-49

Yuba County
Surface Area = 631 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	49800	53100	58581	61895	60413	68446	80411	94814	109216
Avg. Daily VMT/1000	705	881	1145	1225	1278	1606	1842	2157	2485

Table D-50

Salton Sea Air Basin

Surface Area = 6304 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	230077	270397	354144	422147	469830	565839	658309	752722	847134
Avg. Daily VMT/1000	5782	7545	11915	13396	12093	16213	17138	19798	22306

Table D-51

Imperial County
Surface Area = 4174 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	92500	98600	110074	136183	143522	163521	189675	214412	239149
Avg. Daily VMT/1000	2421	2693	3660	3815	4004	5008	5562	6473	7563

Table D-52

Riverside County
Surface Area = 2129 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	137577	171797	244070	285964	326308	402318	468634	538310	607985
Avg. Daily VMT/1000	3361	4852	8255	9581	8089	11205	11576	13325	14743

Table D-53

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	2015	2020
Population	1873300	2109300	2504897	2615201	2836477	3051175	3199706	3375210	3550714
Avg. Daily VMT/1000	32722	45636	65250	68235	74567	87944	86948	91223	96987

Table D-54

San Francisco Bay Area Air Basin

Surface Area = 5340 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	5095406	5473956	5874273	6182722	6647035	6900697	7154533	7453884	7753235
Avg. Daily VMT/1000	93109	111964	132558	141224	154959	163790	170505	183332	194476

Table D-55

Alameda County
Surface Area = 738 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1109500	1196000	1276100	1335230	1453136	1501124	1550133	1606807	1663481
Avg. Daily VMT/1000	21249	25726	30002	30270	33456	36218	39569	42329	45448

Table D-56

Contra Costa County
Surface Area = 720 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	658500	710900	806315	872804	956197	1021555	1075931	1156738	1237544
Avg. Daily VMT/1000	12629	15708	19083	20742	22858	25768	26550	28340	29621

Table D-57

Marin County
Surface Area = 520 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	222700	220200	229887	238409	248176	252179	253682	256994	260305
Avg. Daily VMT/1000	3602	4340	5248	5501	5991	6269	6325	6650	7009

Table D-58

Napa County
Surface Area = 754 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	99300	102900	111017	117269	124962	132833	142767	154277	165786
Avg. Daily VMT/1000	2040	2326	2732	3345	3710	4216	4728	5127	5440

Table D-59

San Francisco County
Surface Area = 47 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	680500	727500	723187	739863	781172	799731	818163	831315	844466
Avg. Daily VMT/1000	8785	10521	12084	12237	12775	12942	12789	13500	14235

Table D-60

San Mateo County
Surface Area = 449 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	588100	617300	648162	675919	710734	722012	736667	749061	761455
Avg. Daily VMT/1000	11882	13706	16192	18133	20124	19096	20235	21600	22761

Table D-61

Santa Clara County
Surface Area = 1291 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	1300200	1410500	1495296	1573477	1693000	1763481	1837361	1915083	1992805
Avg. Daily VMT/1000	24573	29169	33996	36547	40206	41306	41896	45701	48916

Table D-62

Solano County
Surface Area = 318 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	173393	197323	244177	258531	275279	290534	305699	327250	348801
Avg. Daily VMT/1000	3273	4196	5440	5436	6063	7230	7571	8432	8807

Table D-63

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	2015	2020
Population	263213	291333	340132	371220	404379	417248	434130	456361	478592
Avg. Daily VMT/1000	5076	6272	7781	9013	9776	10745	10842	11653	12239

Table D-64

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	2015	2020
Population	1979840	2275776	2645311	2972667	3212225	3637150	4076050	4605243	5134435
Avg. Daily VMT/1000	32804	41697	58326	68389	77176	98950	103176	115884	129484

Table D-65

Fresno County
Surface Area = 5963 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	517400	582800	670250	755971	804274	888879	983478	1092635	1201792
Avg. Daily VMT/1000	7738	9910	13251	15763	17464	21547	22756	25481	28198

Table D-66

Kern County
Surface Area = 4355 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	323540	377476	436585	503592	552527	635466	723970	812994	902017
Avg. Daily VMT/1000	6565	8423	11344	12677	14852	19818	19857	22610	25545

Table D-67

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	2015	2020
Population	74200	83900	101866	115865	130057	146595	164535	185121	205707
Avg. Daily VMT/1000	1055	1345	1927	2822	3127	4048	4201	4634	5100

Table D-68

Madera County
Surface Area = 2136 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	63900	74800	88506	109941	124515	142498	162114	187494	212874
Avg. Daily VMT/1000	1625	1970	2425	2725	3375	4392	5435	6304	7327

Table D-69

Merced County
Surface Area = 1929 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	135500	157000	179400	199020	211228	242260	273935	311313	348690
Avg. Daily VMT/1000	2892	3440	5386	6043	6652	8683	8915	10231	11582

Table D-70

San Joaquin County
Surface Area = 1399 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	350200	417200	481939	522089	568978	659707	741417	853256	965094
Avg. Daily VMT/1000	5490	7334	10225	12293	13863	18112	18754	20973	23566

Table D-71

Stanislaus County
Surface Area = 1494 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	267700	302000	373650	415341	451016	508082	559708	629426	699144
Avg. Daily VMT/1000	3608	4528	7752	8845	9761	12401	11915	13082	14339

Table D-72

Tulare County
Surface Area = 4824 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	247400	280600	313115	350848	369630	413663	466893	533005	599117
Avg. Daily VMT/1000	3831	4747	6016	7221	8082	9949	11343	12569	13827

Table D-73

South Central Coast Air Basin

Surface Area = 7887 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	988800	1119300	1255854	1319020	1407706	1493444	1560107	1634769	1709430
Avg. Daily VMT/1000	15280	20840	28757	29642	32257	37805	39847	43236	46356

Table D-74

San Luis Obispo County
Surface Area = 3304 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	156600	184200	217808	230223	248178	262480	269734	281637	293540
Avg. Daily VMT/1000	3093	4255	5655	5787	6295	7498	8292	9504	10892

Table D-75

Santa Barbara County
Surface Area = 2737 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	300000	338200	368953	383717	400923	418899	434497	446998	459498
Avg. Daily VMT/1000	5205	6888	9510	9151	9633	10943	12446	13460	14613

Table D-76

Ventura County
Surface Area = 1845 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	532200	596900	669093	705080	758605	812065	855876	906134	956392
Avg. Daily VMT/1000	6982	9697	13592	14704	16329	19364	19109	20272	20851

Table D-77

South Coast Air Basin

Surface Area = 6480 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	10604663	11698030	13083594	13745292	14685008	15954332	16839106	17738828	18638550
Avg. Daily VMT/1000	161397	228818	282561	292884	323009	393767	377734	397696	414267

Table D-78

Los Angeles County
Surface Area = 2538 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	7402796	8030358	8629028	8839010	9275290	9877053	10184503	10523307	10862110
Avg. Daily VMT/1000	112914	156791	182709	181641	193986	229225	211882	219707	225189

Table D-79 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	2015	2020
Population	1944800	2166300	2411976	2604532	2863394	3056814	3227836	3374051	3520265
Avg. Daily VMT/1000	28849	43196	55940	60031	67138	78333	78937	82529	85272

Table D-80

Riverside County
Surface Area = 2024 square miles

Parameter	1980	1985	1990	1995	2000	2005	2010	2015	2020
Population	521774	651556	925658	1070642	1206858	1487982	1733251	1990947	2248643
Avg. Daily VMT/1000	8295	12324	21330	25384	32792	47891	49080	54224	58942

Table D-81 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	2015	2020
Population	735293	849816	1116932	1231108	1339466	1532483	1693516	1850524	2007532
Avg. Daily VMT/1000	11339	16507	22582	25828	29093	38318	37835	41236	44864

Table D-82 A portion of San Bernardino County lies within the Mojave Desert Air Basin.

(This page intentionally left blank)

APPENDIX E

Natural Sources

Appendix E: *Natural Sources*

List of Tables

List of Tables (continued)

List of Tables (continued)

Introduction

Appendix E contains estimates of emissions from natural processes occurring in terrestrial, marine, or aquatic ecosystems. Natural source air emissions include a variety of compounds and occur as a result of geologic or meteorological activity (such as petroleum seeps, or wildfires), or living processes by flora and fauna (such as emissions from vegetation foliage, or from soil microbes). Emissions resulting from anthropogenic activities, such as soil ammonia (NH_3) emissions resulting from fertilizer application, burning of agricultural crop residues, prescribed burning of natural areas, wildfires that are managed for resources benefit, and windblown dust from crop fields and pastures are provided in Chapter 2. Windblown dust emissions from dry lake beds have also not been included.

For this edition of the Almanac, categories of natural sources include geogenic (petroleum seeps) and biogenic (vegetation) sources, and wildfires. Other categories may be added in future editions. Natural emissions are strongly affected by seasonal influences on factors such as temperature and moisture conditions, or wind regimes. Emissions during "peak season" are often orders of magnitude greater than emissions during dormant periods. Emissions for some categories (for example see Figure E-1) are therefore reported with respect to time of year, in addition to annual averages. Emissions can fluctuate greatly from year-to-year due to variation in meteorology or land cover/land use. Methods for forecasting future natural emissions due to changes in climate or land cover/land use remain in the realm of on-going scientific research, and have not been applied in this edition of the Almanac.

Statewide

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**2225**	**2482**	**79**	**24**	**253**	**215**	**76**
Biogenic Sources*	2067	0	0	0	0	0	15
Geogenic Sources*	29	0	0	0	0	0	36
Wildfires**	128	2482	79	24	253	215	25

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

Table E-1

Biogenic Sources

Biogenic volatile organic compounds (BVOCs) are emitted into the atmosphere from terrestrial ecosystems such as vegetation. BVOCs include isoprene, monoterpenes, methylbutenol (MBO), and other biogenic VOCs (OVOCs). These compounds are of interest because of their roles in atmospheric chemistry and climate. In the presence of anthropogenic NO_x compounds, isoprene has been found to play a significant role in ozone chemistry. Monoterpenes and MBO are moderately reactive. OVOCs are a general category comprised of less reactive compounds, such as methanol and acetone. Isoprene, monoterpenes, MBO, and a fraction of the OVOCs are considered as reactive organic gas (ROG).

Plant BVOC emissions vary by compound and by orders of magnitude among various plant species. BVOCs play roles in plant physiology and chemical defense from pests and plant diseases. BVOC emissions are strongly influenced by environmental factors such as temperature and sunlight. Biophysical and environmental mechanisms controlling the synthesis and emission of isoprene, monoterpenes, and MBO have been studied across a variety of plant species and landscapes. Less is known about OVOCs. As a result, the BVOC research community has developed BVOC emission models, which have been routinely applied by the climate research, air quality, and emissions modeling community. A statewide model was developed to estimate BVOC emissions from vegetation over the course of a calendar year. The model runs at a 4 km x 4 km spatial resolution and generates hourly emissions of isoprene, monoterpenes, MBO, and OVOCs. Emissions from vegetation were estimated from plant species leaf mass and emission factors, and environmental adjustment algorithms representing light and temperature dependence of BVOC emissions. Leaf mass density estimates, used to scale emissions from leaf to landscapes, were based on Geographic Information System (GIS) land use/land cover databases, species leaf weight factors, and monthly satellite leaf area index (LAI) data. Temporal and spatial variation in the model was driven by monthly estimates of leaf mass densities and hourly light and temperature. The annual statewide emission of BVOC (reported here as ROG) is estimated to be over 750,000 tons, composed of 37 percent isoprene, 30 percent MBO, 24 percent monoterpenes, and nine percent OVOC. As shown in Figure E-1, the majority of biogenic emissions are produced during the ozone season (May through October).

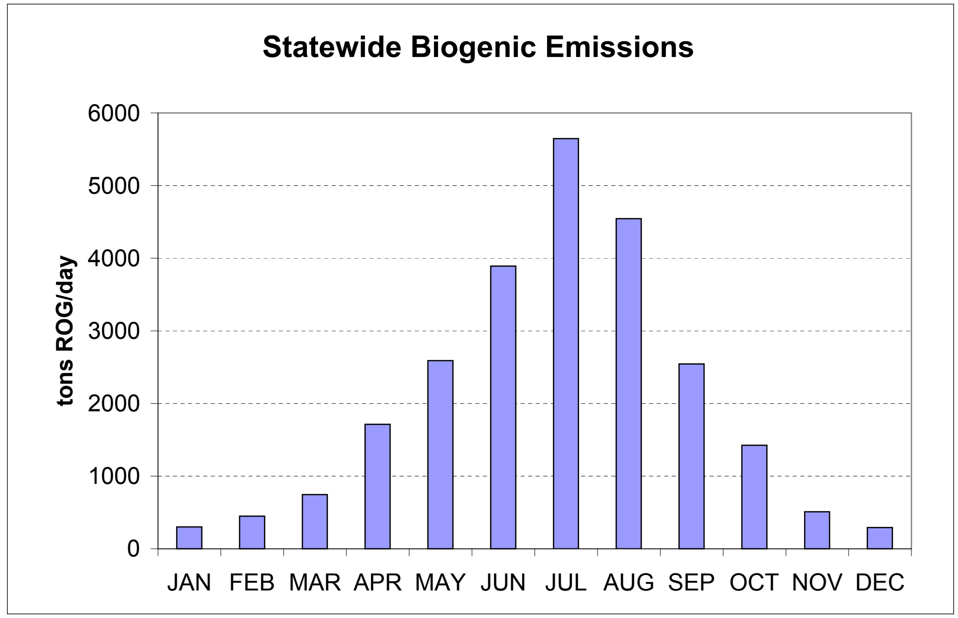


Figure E-1

Geogenic Sources

Petroleum gas and oil seeps occur naturally in California and have been active for millennia. Oil and gas seeps form where oil or natural gas emerge from subsurface sources to the ground or water surface. Seeps are associated with water springs in which oil floats to the surface of the water, and gas bubbles out into the atmosphere. Large seeps may be comprised of nearly pure oil, asphaltum, or semisolid bitumen. Most seeps are mixed with varying amounts of sand, clay, and biomass debris. Terrestrial seep flows vary with the seasons, with elevated flows occurring during warm weather. Seismic activity can create new seeps or cause increased flows from existing seeps. Major marine seeps are located off the coast of Santa Barbara County. Other seeps occur in regions of oil and gas production throughout the state.

Wildfires

A wildfire is a natural event that burns a variety of vegetation types ranging in age, size, and density. This wildfire category does not include prescribed fires such as agriculture burning, forest management fires, or Wildland Fire Use (WFU). A prescribed burn is a fire ignited by a planned management action whereas a WFU is a naturally ignited lightning fire that is managed for resources benefit.

Wildfires can vary significantly from year to year; an area may have extreme wildfire behavior one year and none the following year. Emissions for PM_{10}, $PM_{2.5}$, CO, NO_x, SO_2, NO_2, NH_3, CH_4, and ROG (Total Non-Methane Hydrocarbon, reported here as ROG) are estimated by air basin and county. About 97 percent of wildfires occur between May and October, with August as the highest month. The wildfire emission estimates presented in this Almanac are based on a 10-year average that was calculated from actual 1994-2003 wildfire activity. Figure E-2 is a map showing all of the wildfires that burned between 1994 and 2003 in California. The tables that follow show the 10-year average emissions per air basin and county.

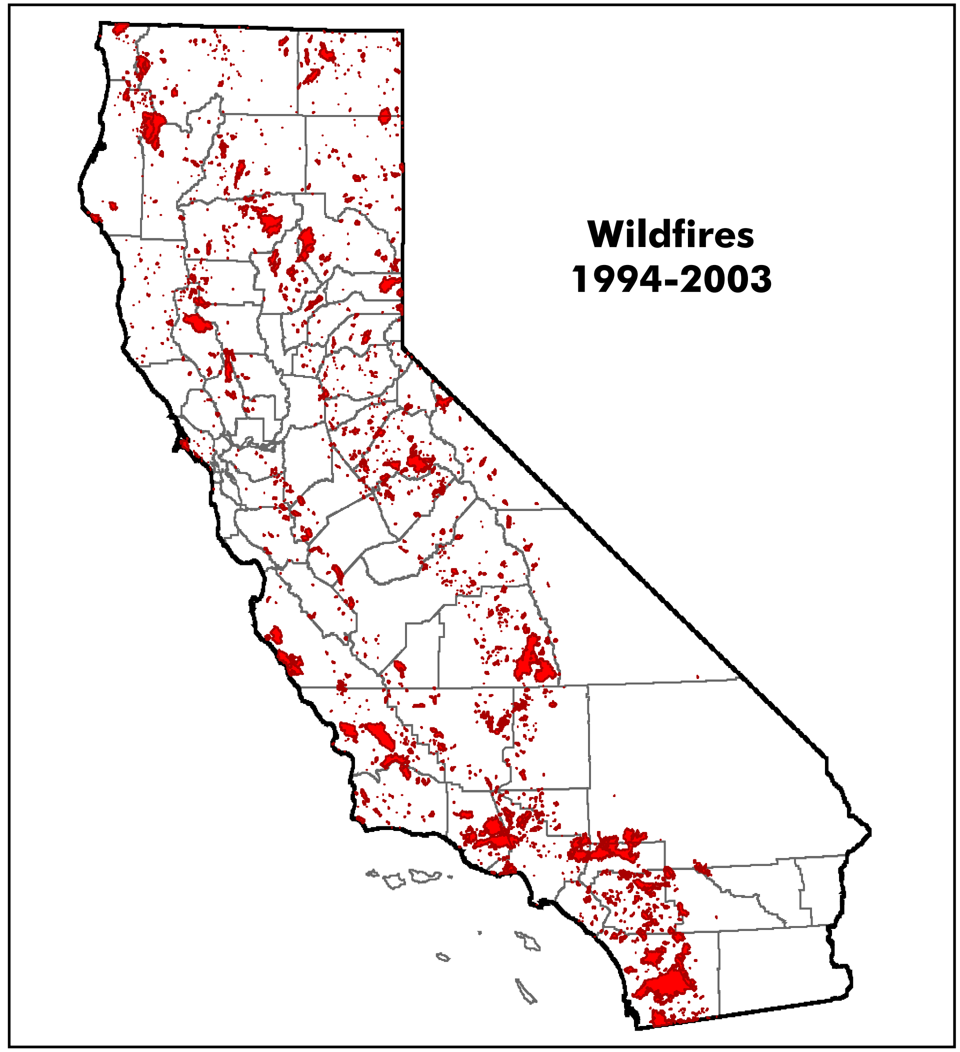


Figure E-2

Great Basin Valleys Air Basin
Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**37**	**8**	**0**	**0**	**1**	**1**	**3**
Biogenic Sources	36	0	0	0	0	0	2
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	8	0	0	1	1	0

Table E-2

Alpine County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**9**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	9	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-3

Inyo County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**7**	**2**	**0**	**0**	**0**	**0**	**2**
Biogenic Sources	7	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	0	2	0	0	0	0	0

Table E-4

Mono County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**21**	**6**	**0**	**0**	**1**	**1**	**1**
Biogenic Sources	21	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	6	0	0	1	1	0

Table E-5

Lake County Air Basin
Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**64**	**124**	**4**	**1**	**13**	**11**	**2**
Biogenic Sources	55	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	9	124	4	1	13	11	1

Table E-6

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

Lake Tahoe Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**3**	**1**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	3	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	1	0	0	0	0	0

Table E-7

El Dorado County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**2**	**1**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	2	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	1	0	0	0	0	0

Table E-8 A portion of El Dorado County lies within the Mountain Counties Air Basin.

Placer County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	1	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-9 Portions of Placer County lie within the Mountain Counties and Sacramento Valley Air Basins.

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

Mojave Desert Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**39**	**95**	**3**	**1**	**10**	**8**	**5**
Biogenic Sources	36	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	3
Wildfires	4	95	3	1	10	8	1

Table E-10

Kern County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**25**	**41**	**1**	**0**	**4**	**4**	**1**
Biogenic Sources	23	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	3	41	1	0	4	4	0

Table E-11 A portion of Kern County lies within the Mojave Desert Air Basin.

Los Angeles County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**6**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	6	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-12 A portion of Los Angeles County lies within the South Coast Air Basin.

Riverside County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**0**	**2**	**0**	**0**	**0**	**0**	**1**
Biogenic Sources	0	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	0	2	0	0	0	0	0

Table E-13 Portions of Riverside County lie within the Salton Sea and South Coast Air Basins.

San Bernardino County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**8**	**52**	**1**	**0**	**5**	**4**	**3**
Biogenic Sources	6	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	2
Wildfires	1	52	1	0	5	4	1

Table E-14 A portion of San Bernardino County lies within the Mojave Desert Air Basin.

Mountain Counties Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**330**	**396**	**12**	**4**	**40**	**34**	**6**
Biogenic Sources	305	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	25	396	12	4	40	34	4

Table E-15

Amador County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**15**	**1**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	15	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	1	0	0	0	0	0

Table E-16

Calaveras County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**39**	**15**	**0**	**0**	**2**	**1**	**0**
Biogenic Sources	38	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	15	0	0	2	1	0

Table E-17

El Dorado County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**50**	**5**	**0**	**0**	**1**	**0**	**0**
Biogenic Sources	49	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	5	0	0	1	0	0

Table E-18

A portion of El Dorado County lies within the Lake Tahoe Air Basin.

Mariposa County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**36**	**15**	**0**	**0**	**2**	**1**	**0**
Biogenic Sources	35	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	15	0	0	2	1	0

Table E-19

Nevada County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**36**	**7**	**0**	**0**	**1**	**1**	**0**
Biogenic Sources	36	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	7	0	0	1	1	0

Table E-20

Placer County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**28**	**34**	**1**	**0**	**3**	**3**	**0**
Biogenic Sources	26	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	2	34	1	0	3	3	0

Table E-21

Portions of Placer County lie within the Lake Tahoe and Sacramento Valley Air Basins.

Plumas County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**51**	**161**	**5**	**1**	**16**	**14**	**2**
Biogenic Sources	43	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	8	161	5	1	16	14	2

Table E-22

Sierra County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**20**	**38**	**1**	**0**	**4**	**3**	**1**
Biogenic Sources	17	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	3	38	1	0	4	3	0

Table E-23

Tuolumne County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**54**	**120**	**4**	**1**	**12**	**10**	**2**
Biogenic Sources	46	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	8	120	4	1	12	10	1

Table E-24

North Central Coast Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**73**	**44**	**1**	**0**	**5**	**4**	**2**
Biogenic Sources	72	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	44	1	0	5	4	0

Table E-25

Monterey County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**51**	**41**	**1**	**0**	**4**	**4**	**2**
Biogenic Sources	50	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	41	1	0	4	4	0

Table E-26

San Benito County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**17**	**3**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	17	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	3	0	0	0	0	0

Table E-27

Santa Cruz County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**5**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	5	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-28

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

North Coast Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**373**	**393**	**14**	**4**	**41**	**35**	**6**
Biogenic Sources	363	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	9	393	14	4	41	35	4

Table E-29

Del Norte County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**27**	**39**	**1**	**0**	**4**	**3**	**1**
Biogenic Sources	24	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	3	39	1	0	4	3	0

Table E-30

Humboldt County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**86**	**149**	**5**	**2**	**16**	**13**	**2**
Biogenic Sources	81	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	5	149	5	2	16	13	1

Table E-31

Mendocino County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**118**	**6**	**0**	**0**	**1**	**1**	**1**
Biogenic Sources	117	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	6	0	0	1	1	0

Table E-32

Sonoma County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**23**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	23	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-33

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

Trinity County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**119**	**198**	**7**	**2**	**21**	**17**	**3**
Biogenic Sources	118	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	2	198	7	2	21	17	2

Table E-34

Northeast Plateau Air Basin
Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**283**	**212**	**7**	**2**	**22**	**19**	**6**
Biogenic Sources	269	0	0	0	0	0	2
Geogenic Sources	0	0	0	0	0	0	2
Wildfires	14	212	7	2	22	19	2

Table E-35

Lassen County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**59**	**47**	**1**	**0**	**5**	**4**	**2**
Biogenic Sources	56	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	3	47	1	0	5	4	0

Table E-36

Modoc County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**57**	**52**	**2**	**1**	**5**	**5**	**2**
Biogenic Sources	54	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	3	52	2	1	5	5	1

Table E-37

Siskiyou County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**166**	**113**	**4**	**1**	**12**	**10**	**2**
Biogenic Sources	159	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	8	113	4	1	12	10	1

Table E-38

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

Sacramento Valley Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**379**	**379**	**12**	**4**	**39**	**33**	**8**
Biogenic Sources	367	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	3
Wildfires	12	379	12	4	39	33	4

Table E-39

Butte County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**44**	**89**	**3**	**1**	**9**	**8**	**1**
Biogenic Sources	41	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	3	89	3	1	9	8	1

Table E-40

Colusa County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**23**	**15**	**1**	**0**	**2**	**1**	**1**
Biogenic Sources	22	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	15	1	0	2	1	0

Table E-41

Glenn County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**19**	**37**	**1**	**0**	**4**	**3**	**1**
Biogenic Sources	17	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	3	37	1	0	4	3	0

Table E-42

Placer County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**7**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	7	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-43

Portions of Placer County lie within the Lake Tahoe and Mountain Counties Air Basins.

Sacramento County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**10**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	10	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-44

Shasta County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**167**	**49**	**2**	**1**	**5**	**4**	**1**
Biogenic Sources	166	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	49	2	1	5	4	0

Table E-45

Solano County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**4**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	4	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-46

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

Sutter County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	3	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-47

Tehama County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**71**	**170**	**5**	**2**	**17**	**15**	**2**
Biogenic Sources	66	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	4	170	5	2	17	15	2

Table E-48

Natural Source Emissions (tons/day, annual average)

Yolo County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**16**	**17**	**1**	**0**	**2**	**2**	**1**
Biogenic Sources	15	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	17	1	0	2	2	0

Table E-49

Yuba County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**15**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	15	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-50

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

Salton Sea Air Basin
Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**11**	**12**	**0**	**0**	**1**	**1**	**5**
Biogenic Sources	10	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	4
Wildfires	1	12	0	0	1	1	0

Table E-51

Imperial County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**3**	**0**	**0**	**0**	**0**	**0**	**4**
Biogenic Sources	3	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	4
Wildfires	0	0	0	0	0	0	0

Table E-52

Riverside County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**8**	**12**	**0**	**0**	**1**	**1**	**1**
Biogenic Sources	7	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	12	0	0	1	1	0

Table E-53 Portions of Riverside County lie within the Mojave Desert and South Coast Air Basins.

San Diego Air Basin and County
Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**76**	**138**	**4**	**1**	**14**	**12**	**2**
Biogenic Sources	67	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	9	138	4	1	14	12	1

Table E-54

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

San Francisco Bay Area Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**106**	**49**	**2**	**1**	**5**	**4**	**1**
Biogenic Sources	105	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	49	2	1	5	4	1

Table E-55

Alameda County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**11**	**2**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	11	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	2	0	0	0	0	0

Table E-56

Contra Costa County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**11**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	11	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-57

Marin County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**7**	**4**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	7	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	4	0	0	0	0	0

Table E-58

Napa County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**27**	**37**	**1**	**0**	**4**	**3**	**1**
Biogenic Sources	26	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	1	37	1	0	4	3	0

Table E-59

San Francisco County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	1	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-60

San Mateo County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**7**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	7	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-61

Santa Clara County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**29**	**6**	**0**	**0**	**1**	**1**	**0**
Biogenic Sources	29	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	6	0	0	1	1	0

Table E-62

Solano County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	3	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	0	0	0	0	0	0

Table E-63

A portion of Solano County lies within the Sacramento Valley Air Basin.

Sonoma County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**10**	**1**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	10	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	1	0	0	0	0	0

Table E-64

A portion of Sonoma County lies within the North Coast Air Basin.

San Joaquin Valley Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**235**	**348**	**11**	**3**	**35**	**30**	**19**
Biogenic Sources	211	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	14
Wildfires	24	348	11	3	35	30	3

Table E-65

Fresno County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**64**	**15**	**0**	**0**	**1**	**1**	**3**
Biogenic Sources	63	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	3
Wildfires	1	15	0	0	1	1	0

Table E-66

Kern County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**19**	**17**	**1**	**0**	**2**	**1**	**4**
Biogenic Sources	18	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	4
Wildfires	1	17	1	0	2	1	0

Table E-67

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

Kings County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**4**	**1**	**0**	**0**	**0**	**0**	**2**
Biogenic Sources	4	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	2
Wildfires	0	1	0	0	0	0	0

Table E-68

Madera County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**38**	**3**	**0**	**0**	**0**	**0**	**1**
Biogenic Sources	38	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	0	3	0	0	0	0	0

Table E-69

Merced County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**6**	**1**	**0**	**0**	**0**	**0**	**2**
Biogenic Sources	6	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	2
Wildfires	0	1	0	0	0	0	0

Table E-70

San Joaquin County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**8**	**0**	**0**	**0**	**0**	**0**	**1**
Biogenic Sources	8	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	0	0	0	0	0	0	0

Table E-71

Stanislaus County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**13**	**16**	**1**	**0**	**2**	**1**	**1**
Biogenic Sources	12	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	1	16	1	0	2	1	0

Table E-72

Tulare County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**82**	**296**	**9**	**3**	**30**	**25**	**5**
Biogenic Sources	61	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	21	296	9	3	30	25	3

Table E-73

South Central Coast Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**123**	**120**	**4**	**1**	**12**	**10**	**5**
Biogenic Sources	93	0	0	0	0	0	0
Geogenic Sources	23	0	0	0	0	0	4
Wildfires	8	120	4	1	12	10	1

Table E-74

San Luis Obispo County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**36**	**62**	**2**	**1**	**6**	**5**	**3**
Biogenic Sources	32	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	2
Wildfires	4	62	2	1	6	5	1

Table E-75

Santa Barbara County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**54**	**12**	**0**	**0**	**1**	**1**	**1**
Biogenic Sources	35	0	0	0	0	0	0
Geogenic Sources	19	0	0	0	0	0	1
Wildfires	0	12	0	0	1	1	0

Table E-76

Ventura County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**33**	**46**	**1**	**0**	**5**	**4**	**2**
Biogenic Sources	26	0	0	0	0	0	0
Geogenic Sources	4	0	0	0	0	0	1
Wildfires	3	46	1	0	5	4	0

Table E-77

* Biogenic and geogenic emissions are not year-specific.
** Wildfire emissions reflect 10-year averages.

South Coast Air Basin

Natural Source Emissions (tons/day, annual average)

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**86**	**164**	**5**	**2**	**17**	**14**	**6**
Biogenic Sources	76	0	0	0	0	0	3
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	11	164	5	2	17	14	2

Table E-78

Los Angeles County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**34**	**65**	**2**	**1**	**7**	**6**	**2**
Biogenic Sources	30	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	1
Wildfires	4	65	2	1	7	6	1

Table E-79 A portion of Los Angeles County lies within the Mojave Desert Air Basin.

Orange County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**9**	**2**	**0**	**0**	**0**	**0**	**0**
Biogenic Sources	9	0	0	0	0	0	0
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	0	2	0	0	0	0	0

Table E-80

Riverside County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**24**	**38**	**1**	**0**	**4**	**3**	**1**
Biogenic Sources	22	0	0	0	0	0	1
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	2	38	1	0	4	3	0

Table E-81 Portions of Riverside County lie within the Mojave Desert and Salton Sea Air Basins.

San Bernardino County

Category	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	NH_3
Natural Sources Total	**19**	**59**	**2**	**1**	**6**	**5**	**3**
Biogenic Sources	15	0	0	0	0	0	2
Geogenic Sources	0	0	0	0	0	0	0
Wildfires	4	59	2	1	6	5	1

Table E-82 A portion of San Bernardino County lies within the Mojave Desert Air Basin.

(This page intentionally left blank)

APPENDIX F

Lists of Figures and Tables

for Chapters 1 through 5

List of Figures

Chapter 1: *Introduction*

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

List of Figures (continued)

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

Chapter 4: ***Air Basin Trends and Forecasts -- Criteria Pollutants***

South Coast Air Basin:

List of Figures (continued)

List of Figures (continued)

List of Figures (continued)

List of Tables

Chapter 1: ***Introduction***

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

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

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

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

List of Tables (continued)

List of Tables (continued)

(This page intentionally left blank)

Glossary of Air Quality Terms

Air: So-called "pure" air is a mixture of gases containing about 78 percent nitrogen; 21 percent oxygen; less than one percent of carbon dioxide, argon, and other gases; and varying amounts of water vapor.

Air Basin: A land area with generally similar meteorological and geographic conditions throughout. To the extent possible, air basin boundaries are defined along political boundary lines and include both the source and receptor areas. California is currently divided into 15 air basins.

Air District: A political body responsible for managing air quality on a regional or county basis. California is currently divided into 35 air districts.

Air Monitoring: Sampling for and measuring of pollutants present in the atmosphere.

Air Pollution: Degradation of air quality resulting from unwanted chemicals or other materials occurring in the air.

Air Pollution Control District (APCD): An agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a district air pollution control board composed of the elected county supervisors.

Air Quality Management District (AQMD): A group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region.

Air Quality Management Plan (AQMP): A plan prepared by an APCD / AQMD, for a county or region designated as a nonattainment area, for the purpose of bringing the area into compliance with the requirements of the national and/or California ambient air quality standards. AQMPs are incorporated into the State Implementation Plan (SIP).

Air Quality Standard (AQS): The prescribed level of a pollutant in the outside air that should not be exceeded during a specific time period to protect public health. Established by both federal and state governments.

Air Toxics: A generic term referring to a harmful chemical or group of chemicals in the air. Substances that are especially harmful to health, such as those considered under U.S. EPA's hazardous air pollutant program or California's AB 1807 and / or AB 2588 air toxics programs, are considered to be air toxics. Technically, any compound that is in the air and has the potential to produce adverse health effects is an air toxic.

Ambient Air Quality Standards (California-CAAQS or National-NAAQS): Health- and welfare-based standards for outdoor air which identify the maximum acceptable average concentrations of air pollutants during a specified period of time.

Area-wide Sources (also known as "Area Sources"): Stationary sources of pollution (e.g., water heaters, gas furnaces, fireplaces, and woodstoves) that are typically associated with homes and non-industrial sources. Area-wide sources do not include mobile sources. The California Clean Air Act requires air districts to include area-wide sources in the development and implementation of their Air Quality Maintenance Plan. Under the federal air toxics program, an area-wide source is defined as any source that emits less than 10 tons per year of a single hazardous air pollutant (HAP) or 25 tons per year of all HAPs.

Attainment Area: A geographical area identified to have air quality as good as, or better than, the national and/or California ambient air quality standards. An area may be an attainment area for one pollutant and a nonattainment area for others.

California Clean Air Act (CCAA): A California law passed in 1988 which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air districts in violation of the CAAQS must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM_{10}, and $PM_{2.5}$.

Climate Change: A change in the temperature of the earth's troposphere. Climate change has occurred in the past as a result of natural influences, but the term is most often used in reference to the warming predicted by computer models to occur as a result of increased emissions of greenhouse gases.

Design Value (DV): The concentration that is compared to the standard for the purpose of determining attainment status.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Emission Standard: The maximum amount of a pollutant that is allowed to be discharged from a polluting source such as an automobile or smoke stack.

Environmental Justice: The fair treatment of people of all races and incomes with respect to development, implementation, and enforcement of environmental laws, regulations, and policies.

Expected Peak Day Concentration (EPDC): See Peak Indicator

Exceedance: A measured level of an air pollutant higher than the national or state ambient air quality standards.

Exposure: The concentration of the pollutant in the air multiplied by the population exposed to that concentration over a specified time period.

Exposure Assessment: Measurement or estimation of the magnitude, frequency, duration and route of exposure to a substance for the populations of interest.

Federal Clean Air Act (FCAA): A federal law passed in 1970 and amended in 1974, 1977 and 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, mobile and stationary control measures, air toxics standards, acid rain control measures, and enforcement provisions.

Hydrocarbon: 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.

Mean: Average.

Mobile Sources: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes (compare with Stationary Sources).

Nonattainment Area: A geographic area that does not meet either a State or federal standard for a given pollutant. This area usually consists of an air basin or county, but can be any geographic area defined by the U.S. EPA.

Nonattainment Transitional: A subcategory of the nonattainment designation category for State standards that signals progress and implies the area is nearing attainment.

Peak Indicator: Using a statistical process, it is a site-specific and pollutant-specific value that represents the concentration expected to be exceeded once per year, on average, based on the distribution of data for the monitoring site. The calculation procedure uses data collected at the monitoring site for a three-year period. For example, the 2004 peak indicator is calculated using data for the years 2002, 2003, and 2004. The site with the highest peak indicator for a region is used for the long-term trends in the almanac. It is also referred to as the California Design Value or the Expected Peak Day Concentration.

Precursor Emissions: Emissions which form pollutants in the atmosphere due to the reaction of themselves with each other or with sunlight. Ozone is formed in the atmosphere when hydrocarbon and NO_x react in the presence of sunlight. Particulate Matter (PM) is a complex pollutant that can be formed from the reaction of gaseous precursors such as NO_x, ROG, SO_x, and ammonia.

Reactive Organic Gas (ROG): A reactive chemical gas, composed of non-methane hydrocarbons that may contribute to the formation of smog. Also sometimes referred to as non-methane organic gases (NMOGs).

Risk Assessment: An evaluation of risk which estimates the relationship between exposure to a harmful substance and the likelihood that harm will result from that exposure.

State Implementation Plan (SIP): A plan prepared by states and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical foundation for understanding the air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and modeling analyses.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants (compare with Mobile Sources).

Total Organic Gases (TOG): All gases consisting of substances containing carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

Toxic Air Contaminant (TAC): An air pollutant, identified in regulation by the ARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650, et seq.) than pollutants subject to CAAQSs. Health effects from TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure which do not produce adverse health effects.

Vehicle Miles Traveled (VMT): The miles traveled by motor vehicles over a specified length of time (e.g., daily, monthly, or yearly) or over a specified road or transportation corridor.

Volatile Organic Compounds (VOC): A group of chemicals that react in the ambient air with nitrogen oxides in the presence of heat and sunlight to form ozone. Examples of VOCs include gasoline fumes and oil-based paints. This group of chemicals does not include methane or other compounds determined by U.S. EPA to have negligible photochemical reactivity.