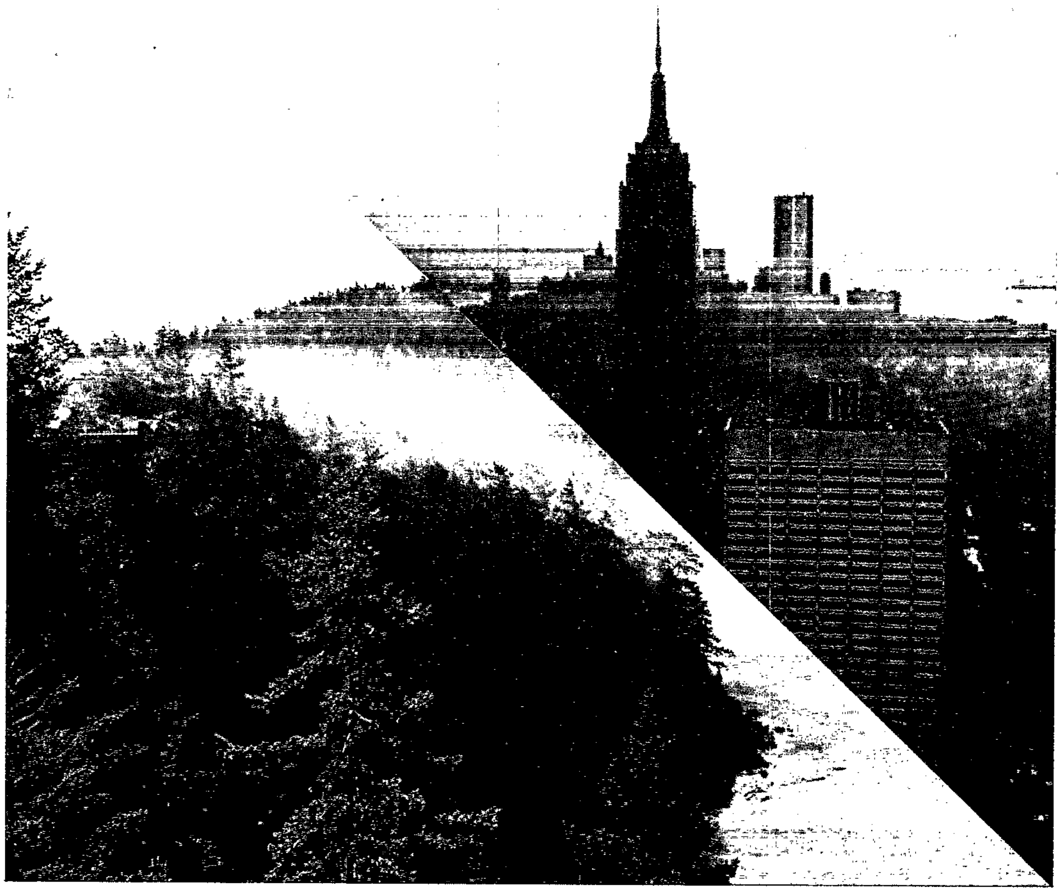
United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

September 1995

EPA-454/F-95-003

EPA Air Quality Trends



Air Quality Trends

The overall quality of our nation's air continues to improve. This brochure highlights the United States Environmental Protection Agency's (EPA's) most recent analysis of trends in air pollution emissions and air quality concentrations.

Highlights include:

- Emissions of the six principal pollutants increased significantly between 1900 and 1970. However, since 1970 (the year the Clean Air Act was signed into law), emissions of all but one of these pollutants have declined, in some cases dramatically.
- Economic growth and environmental protection can go hand-in-hand. Between 1970 and 1994, total emissions of the six principal pollutants decreased while gross domestic product, population, and total vehicle miles traveled all increased significantly.
- Between 1985 and 1994, air quality continued to improve as monitored concentrations of each of the six pollutants declined.
- Short-term trends between 1993 and 1994 showed slight increases in monitored concentration levels of nitrogen dioxide and carbon monoxide. Monitored concentration levels of lead, ozone, and sulfur dioxide continued to decrease, while particulate matter remained unchanged. During this same 1-year period, emissions of carbon monoxide, nitrogen oxides, particulate matter, and volatile organic compounds also increased.
- Despite the improvements to date in air quality since 1970, approximately 62 million people lived in counties where air quality levels exceeded the national air quality standards for at least one of the six principal pollutants in 1994.
- Toxic air emissions from sources such as organic chemical plants, oil refineries, dry cleaning operations, and aerospace manufacturing are decreasing as federal air toxic regulations take effect.

Background

Air pollution comes from many different sources. "Stationary sources" such as factories, power plants, and smelters — "mobile sources" including cars, buses, planes, trucks and trains — and "natural sources" such as wildfires, windblown dust and volcanic eruptions — contribute to air pollution in the United States. The Clean Air Act provides the principal framework for State, tribal, national and local efforts to protect air quality. Under the Clean Air Act, which was last amended in 1990, EPA has a number of responsibilities, including:

- Setting National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment.
- Ensuring that these air quality standards are met or attained (in cooperation with States) through national standards and strategies to control air emissions from sources such as automobiles and factories.
- Ensuring that sources of toxic air pollutants are well controlled.

The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary air quality standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

EPA has set national air quality standards for six principal pollutants (referred to as "criteria" pollutants): carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM-10), and sulfur dioxide (SO_2). [Note: The pollutant ozone is not emitted directly to the air, but is formed by sunlight acting on emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOC).

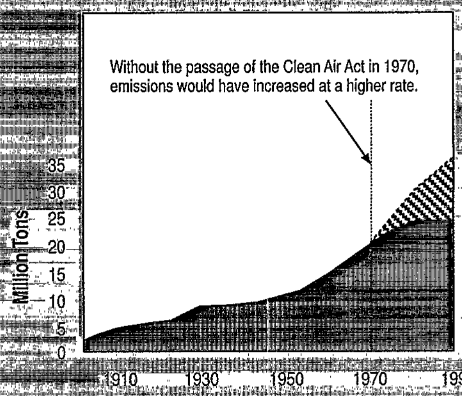
For the past 22 years, EPA has examined air pollution trends of each of the six principal pollutants in this country. EPA examines changes in air pollution levels over time and summarizes the current air pollution status. Each year, EPA publishes a comprehensive technical document titled "National Air Quality and Emissions Trends Report." The 1994 report is scheduled for publication in late October 1995. This brochure is a summary of trends in the nation's air quality for the last 10 years.

Emissions of some particulate matter and some volatile organic compounds, as well as other chemicals, may be more dangerous and have been designated as toxic air pollutants. The Clean Air Act contains requirements for reducing air toxics. EPA has responsibility for developing regulations to control toxic air pollutants from industrial factories and other sources. This brochure also provides an overview of trends in toxic air pollution, sources of toxic air emissions and the process EPA has developed for controlling toxic air pollution.

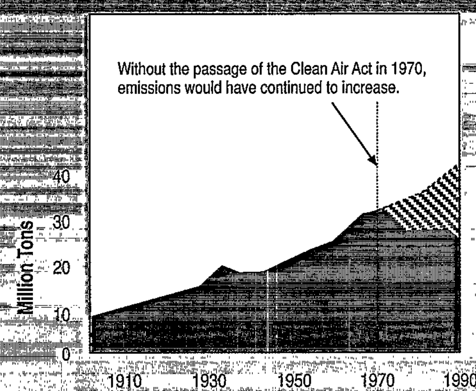
Long-Term Emissions Trends

Before the Clean Air Act was signed into law in 1970, the 20th century witnessed a significant, continued increase in air pollution levels. Although efforts made during the 1960's by State and local air pollution agencies in particular polluted cities in the Northeast did help reduce pollution in some local areas, emissions continued to increase on a national level. Between 1900 and 1970, emissions of nitrogen oxides increased 690 percent, volatile organic compounds increased 260 percent, and sulfur dioxide increased 210 percent. Emissions of these pollutants have decreased significantly since the 1970 Clean Air Act was passed. Without passage of the Clean Air Act in 1970, emissions would have continued to increase as illustrated in the charts.

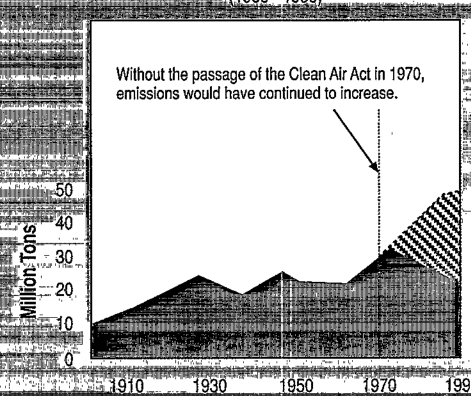
TREND IN EMISSIONS OF NITROGEN OXIDES
(1900 - 1990)



TREND IN EMISSIONS OF VOLATILE ORGANIC COMPOUNDS
(1900 - 1990)



TREND IN EMISSIONS OF SULFUR OXIDES
(1900 - 1990)



Summary of Air Quality and Emissions Trends

The 1994 Trends Report tracks two kinds of trends: **air concentrations** based on actual measurements of pollutant concentrations in the air at selected sites throughout the country, and **emissions** based on engineering estimates of the total tonnage of these pollutants released into the air annually.

Each year, EPA gathers and analyzes air quality concentration data from more than 4,000 monitoring stations around the country. Monitoring stations are operated by State, tribal, and local government agencies as well as some federal agencies, including EPA. Trends for 1994 are derived by averaging direct measurements from these monitoring sites. During the last 10 years (1985 through 1994), air quality has continued to improve as shown in the chart below. The most notable improvements were an 86 percent decrease in lead concentrations and a 28 percent decrease in carbon monoxide concentrations. Improvements in measured concentrations were also noted for the other principal pollutants including nitrogen dioxide, ozone, particulate matter and sulfur dioxide during this timeframe.

PERCENT DECREASE IN CONCENTRATIONS (1985–1994)

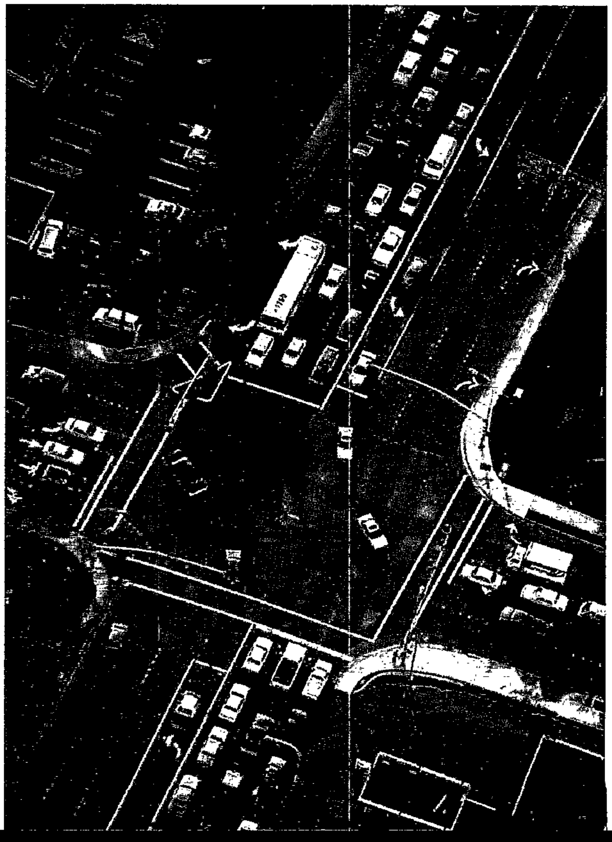
CO	28%
Lead	86%
NO_2	9%
Ozone	12%
PM-10	20%
SO_2	25%

EPA estimates nationwide air emissions trends based on engineering calculations of the amounts and types of pollutants emitted by automobiles, factories, and other sources. Emission trends are based on many factors, including the level of industrial activity, technology developments, fuel consumption, vehicle miles of travel, and other activities that cause air pollution. Emissions trends also reflect changes in air pollution regulations and installation of emissions controls. Over the last 10-year period (1985 through 1994), air emissions have shown improvement (decreased) for all pollutants except nitrogen oxides as shown in the chart below. The slight emissions increase (3 percent) observed for nitrogen oxides can be attributed to increased processing or manufacturing by industry and increased amounts of fuels burned by electric utility plants.

PERCENT DECREASE IN EMISSIONS (1985–1994)*

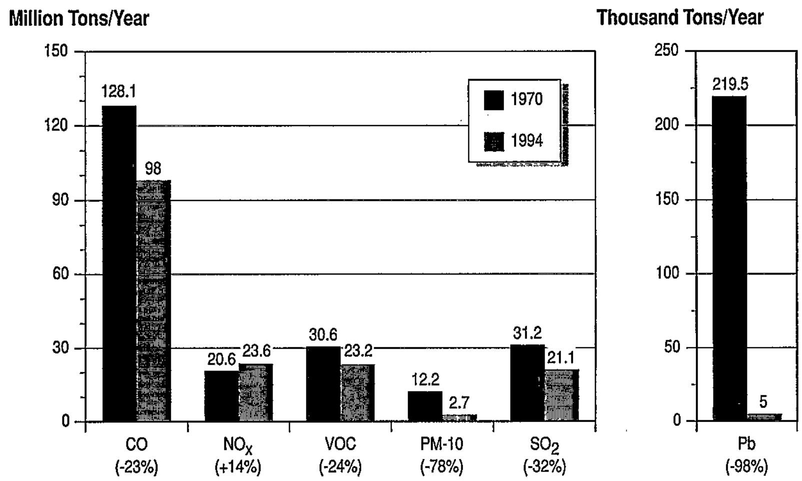
CO	15%
Lead	75%
VOC	10%
PM-10	12%
SO_2	9%

* *Unlike the other pollutants, NO_x emissions increased 3 percent.*

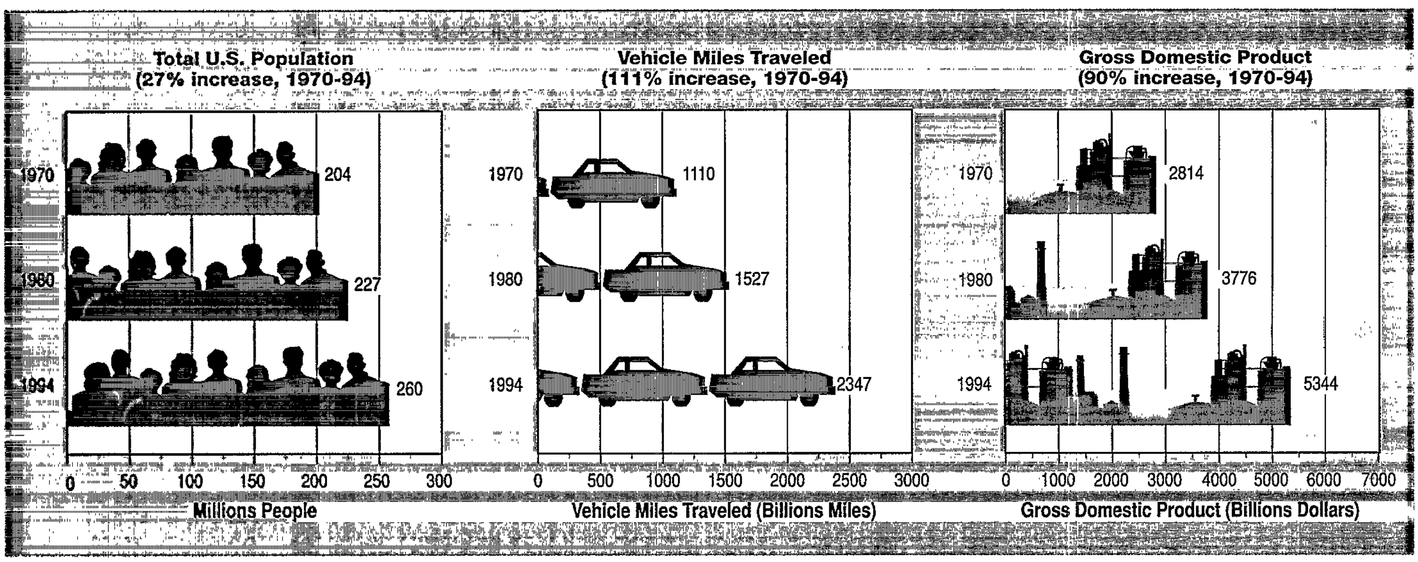


As illustrated in the following charts, since 1970, the combined emissions of the six principal pollutants decreased 24 percent, while U.S. population increased 27 percent, vehicle miles traveled increased 111 percent, and gross domestic product increased 90 percent. These dramatic improvements in emissions and air quality occurred simultaneously with significant increases in economic growth and population. The improvements are a direct result of effective implementation of clean air laws and regulations.

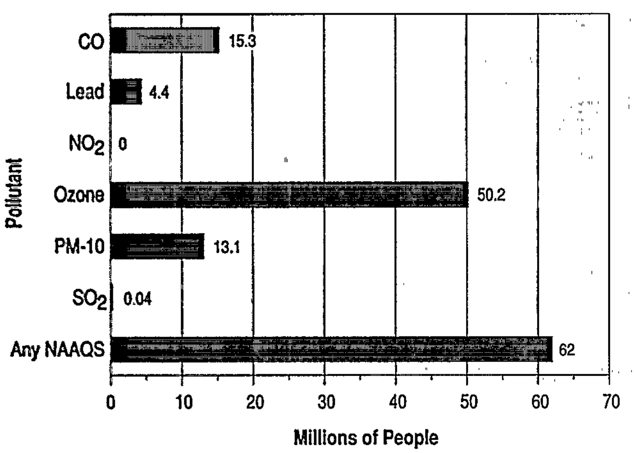
Comparison of 1970 and 1994 Emissions
(24% decrease for all pollutants)



Although some areas of the United States are experiencing air quality problems, overall air quality continues to show improvement, despite extensive national growth.

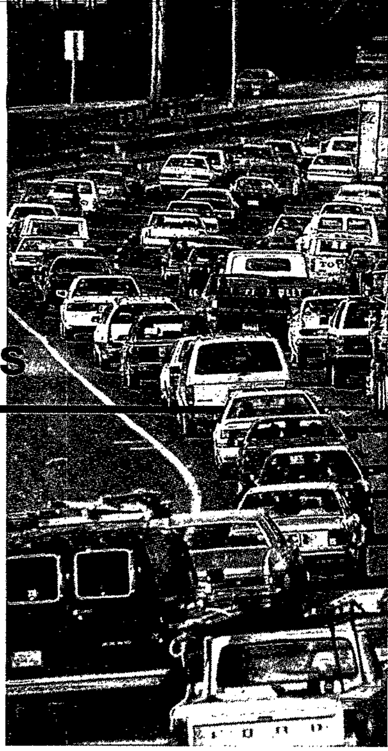


Since 1970, the United States has experienced extensive national growth.



Despite great progress in air quality improvement, in 1994 approximately 62 million people nationwide lived in counties with air quality levels above the primary national air quality standards.

SIX PRINCIPAL POLLUTANTS



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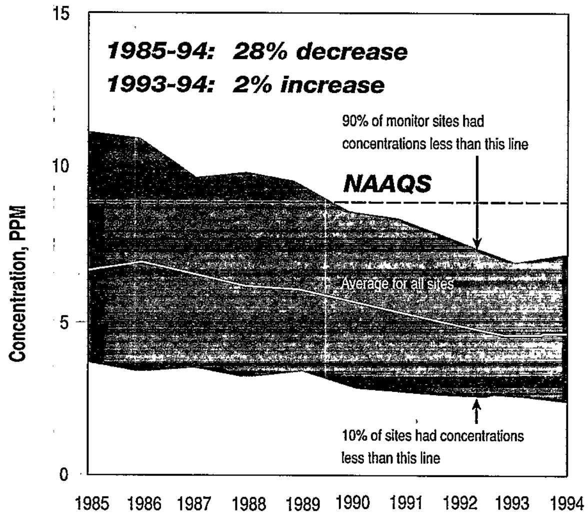
CARBON MONOXIDE (CO)

Nature and Sources of the Pollutant: Carbon monoxide is a colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. It is a by-product of motor vehicle exhaust, which contributes more than two-thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

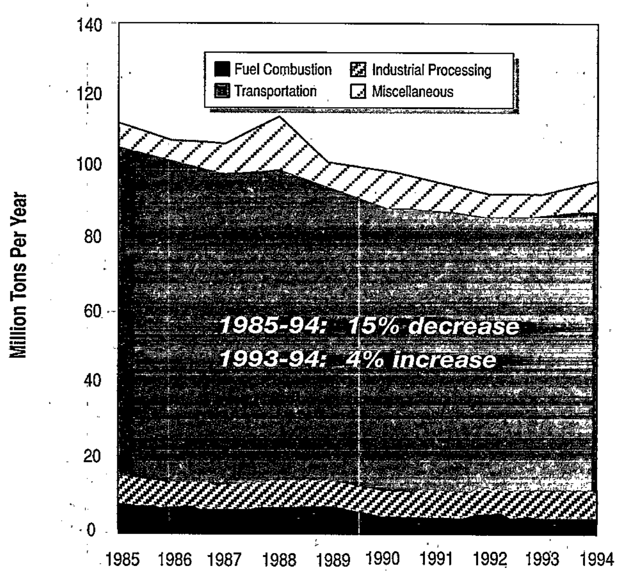
Health and Other Effects: Carbon monoxide enters the bloodstream and reduces oxygen delivery to the body's organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected, but only at higher levels of exposure. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, and difficulty in performing complex tasks. EPA's health-based national air quality standard for CO is 9 parts per million (ppm) [measured over 8 hours].

Trends in Carbon Monoxide Levels: Long-term improvements continued between 1985 and 1994. National average CO concentrations decreased 28 percent while CO emissions decreased 15 percent. Long-term air quality improvement in CO occurred despite a 32 percent increase in vehicle miles traveled in the U.S. during the past 10 years. Between 1993 and 1994, national average CO concentrations increased 2 percent while total CO emissions increased 4 percent. Transportation sources now account for 78 percent of the nation's total CO emissions. The observed increase in CO emissions between 1993 and 1994 is attributed to two sources: transportation emissions (up 2%) and wildfire emissions (up 160%).

CO CONCENTRATION TRENDS



CO EMISSIONS TRENDS

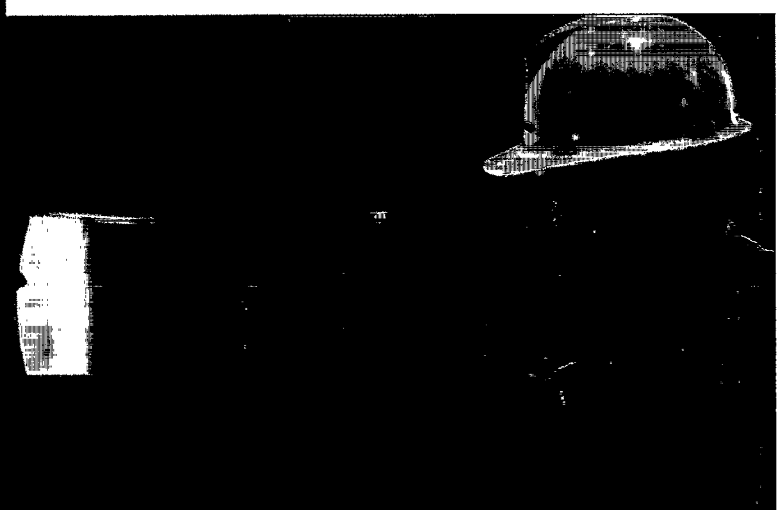


LEAD (Pb)

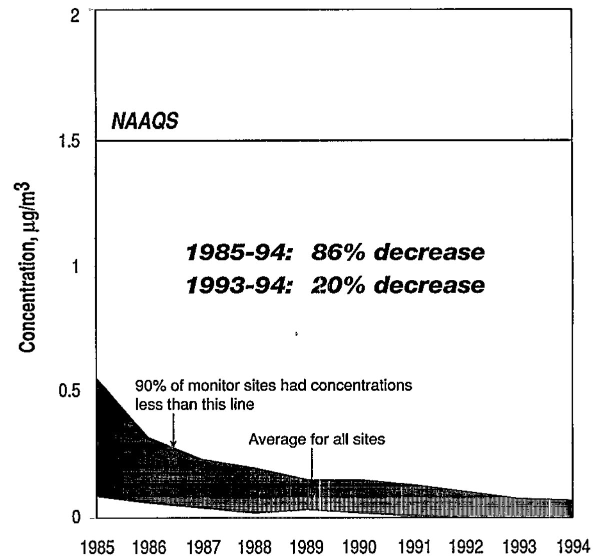
Nature and Sources of the Pollutant: Smelters and battery plants are the major sources of the pollutant "lead" in the air. The highest concentrations of lead are found in the vicinity of nonferrous smelters and other stationary sources of lead emissions.

Health Effects: Exposure to lead mainly occurs through inhalation of air and ingestion of lead in food, paint, water, soil, or dust. Lead accumulates in the body in blood, bone, and soft tissue. Because it is not readily excreted, lead can also affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause anemia, kidney disease, reproductive disorders, and neurological impairments such as seizures, mental retardation, and/or behavioral disorders. Even at low doses, lead exposure is associated with changes in fundamental enzymatic, energy transfer, and other processes in the body. Fetuses and children are especially susceptible to low doses of lead, often suffering central nervous system damage or slowed growth. Recent studies show that lead may be a factor in high blood pressure and subsequent heart disease in middle-aged white males. Lead may also contribute to osteoporosis in post-menopausal women. EPA's health-based national air quality standard for lead is 1.5 micrograms per cubic meter ($\mu g/m^3$) [measured as a quarterly average].

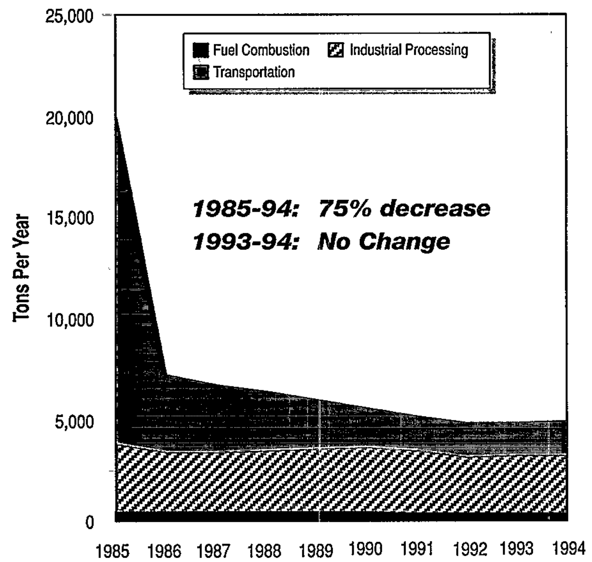
Trends in Lead Levels: Between 1985 and 1994, average lead concentrations in urban areas throughout the country decreased 86 percent while total lead emissions decreased



LEAD CONCENTRATION TRENDS



LEAD EMISSIONS TRENDS



75 percent. These reductions are a direct result of the use of unleaded gasoline in automobiles. The large reduction in lead emissions from transportation sources has changed the nature of the air quality problem for lead in the U.S. Violations of the lead air quality standard still occur, but tend to occur near large industrial complexes such as lead smelters. Between 1993 and 1994, lead emissions remained unchanged while national average lead concentrations decreased 20 percent.

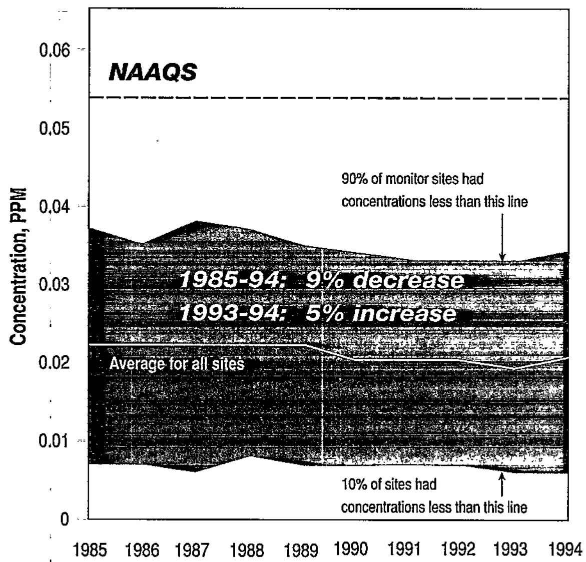
NITROGEN DIOXIDE (NO_2)

Nature and Sources of the Pollutant: Nitrogen dioxide belongs to a family of highly reactive gases called nitrogen oxides (NO_X). These gases form when fuel is burned at high temperatures, and come principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A suffocating, brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates. It also plays a major role in the atmospheric reactions that produce ground-level ozone (or smog).

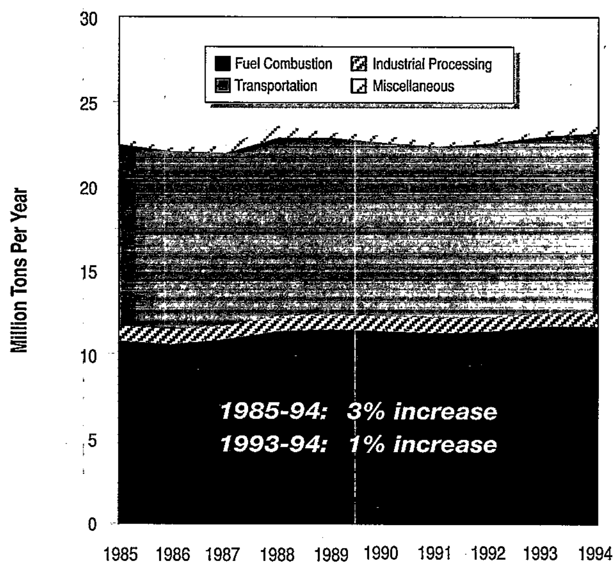
Health and Other Effects: Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections such as influenza. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children. EPA's health-based national air quality standard for NO_2 is 0.053 ppm (measured as an annual average). Nitrogen oxides are important in forming ozone and may affect both terrestrial and aquatic ecosystems. Nitrogen oxides in the air are a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters like the Chesapeake Bay. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

Trends in Nitrogen Dioxide Levels: Nationally, annual NO_2 concentrations remained relatively constant throughout the 1980's, followed by decreasing concentrations in the 1990's. Average NO_2 concentrations in 1994 were 9 percent lower than the levels recorded in 1985. National total NO_X emissions increased 3 percent since 1985. The two primary sources of the NO_X emissions in 1994 were fuel combustion (50 percent) and transportation (45 percent). Since 1985, emissions from highway vehicles decreased 7 percent while fuel combustion emissions

NO_2 CONCENTRATION TRENDS



NO_X EMISSIONS TRENDS



increased 8 percent. Between 1993 and 1994, NO_X emissions and NO_2 concentrations increased. The emissions increases are attributed to increased emissions from off-highway vehicles and wildfires. Even with an increase in NO_X emissions, 1994 is the third year in a row that all monitoring locations across the nation, including Los Angeles, met the federal NO_2 air quality standard.

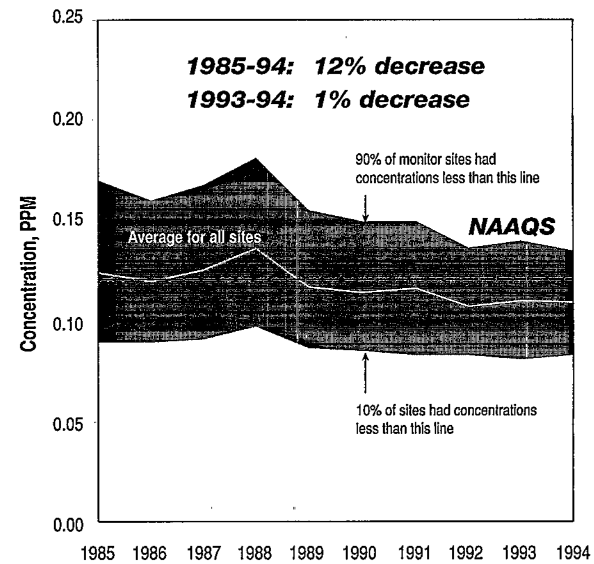
OZONE (O_3)

Nature and Sources of the Pollutant: Ground-level ozone (the primary constituent of smog) is the most complex, difficult to control, and pervasive of the six principal pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on NO_X and VOC emissions in the air. There are literally thousands of sources of these gases. Some of the more common sources include gasoline vapors, chemical solvents, combustion products of various fuels, and consumer products. They can originate from large industrial facilities, gas stations, and small businesses such as bakeries and dry cleaners. Often these "precursor" gases are emitted in one area, but the actual chemical reactions, stimulated by sunlight and temperature, take place in another. Combined emissions from motor vehicles and stationary sources can be carried hundreds of miles from their origins, forming high ozone concentrations over very large regions. Approximately 50 million people lived in counties with air quality levels above EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles. High levels also persist in other heavily populated areas like the Texas Gulf Coast and much of the Northeast.

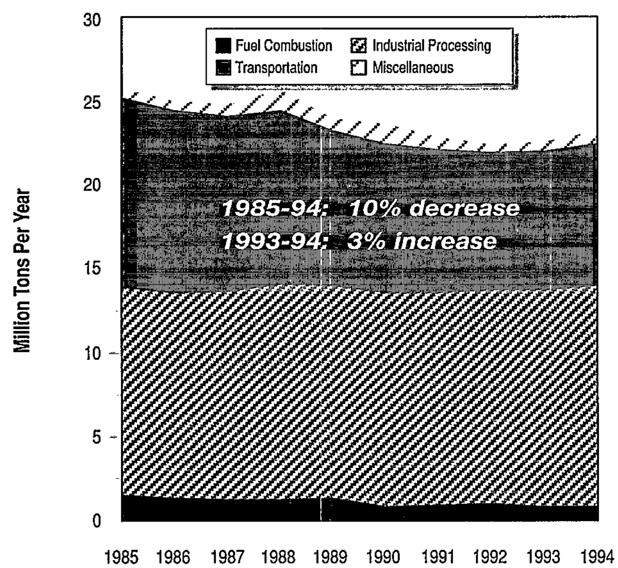
Health and Other Effects: Scientific evidence indicates that ground-level ozone not only affects people with impaired respiratory systems (such as asthmatics), but healthy adults and children as well. Exposure to ozone for 6 to 7 hours, even at relatively low concentrations, significantly reduces lung function and induces respiratory inflammation in normal, healthy people during periods of moderate exercise. It can be accompanied by symptoms such as chest pain, coughing, nausea, and pulmonary congestion. Recent studies provide evidence of an association between elevated ozone levels and increases in hospital admissions for respiratory problems in several U.S. cities. Results from animal studies indicate that repeated exposure to high levels of ozone for several months or more can produce permanent structural damage in the lungs. EPA's health-based national air quality standard for ozone is 0.12 ppm (measured at the highest hour during the day). Ozone is also responsible for several billion dollars of agricultural crop yield loss in the U.S. each year. Ozone also damages forest ecosystems in California and the eastern U.S.

Trends in Ozone Levels: Ground-level ozone has been a pervasive pollution problem throughout the U.S. Ozone concentration trends are influenced by year-to-year changes in meteorological conditions as well as emission reductions from ongoing control measures. Although meteorological conditions in 1994 were conducive to ozone formation (especially in the Southeast), national ozone levels were 12 percent lower than those in 1985. Levels in 1994 are the second lowest national average for the period between 1985 and 1994. The lowest level was recorded in 1992, and the highest in 1988. Recent control measures include regulations to reduce evaporation of fuel and limit NO_X and VOC emissions from tailpipe exhaust. Emissions of VOCs (which contribute to ozone formation) decreased 10 percent between 1985 and 1994, despite a slight increase between 1993 and 1994.

OZONE CONCENTRATION TRENDS



VOC EMISSIONS TRENDS

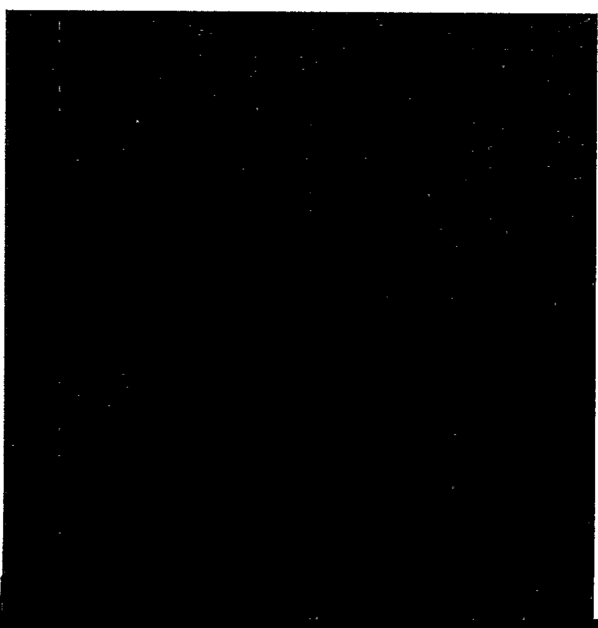


PARTICULATE MATTER (PM-10)

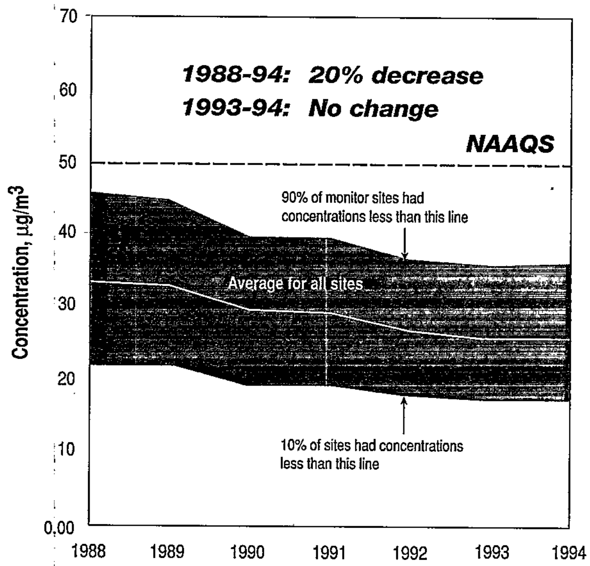
Nature and Sources of the Pollutant: Particulate matter is the term for solid or liquid particles found in the air. Some particles are large or dark enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Because particles originate from a variety of mobile and stationary sources (diesel trucks, wood stoves, power plants, etc.), their chemical and physical compositions vary widely.

Health and Other Effects: In 1987, EPA replaced the earlier Total Suspended Particulate (TSP) air quality standard with a PM-10 standard. The new standard focuses on smaller particles that are likely responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract. The PM-10 standard includes particles with a diameter of 10 micrometers or less (0.0004 inches or one-seventh the width of a human hair). EPA's health-based national air quality standard for PM-10 is 50 $\mu g/m^3$ (measured as an annual average) and 150 $\mu g/m^3$ (measured as a daily average). Major concerns for human health from exposure to PM-10 are: effects on breathing and respiratory systems, damage to lung tissue, cancer, and premature death. The elderly, children, and people with chronic lung disease, influenza, or asthma, tend to be especially sensitive to the effects of particulate matter. Acidic PM-10 can also damage manmade materials and is a major cause of reduced visibility in many parts of the U.S.

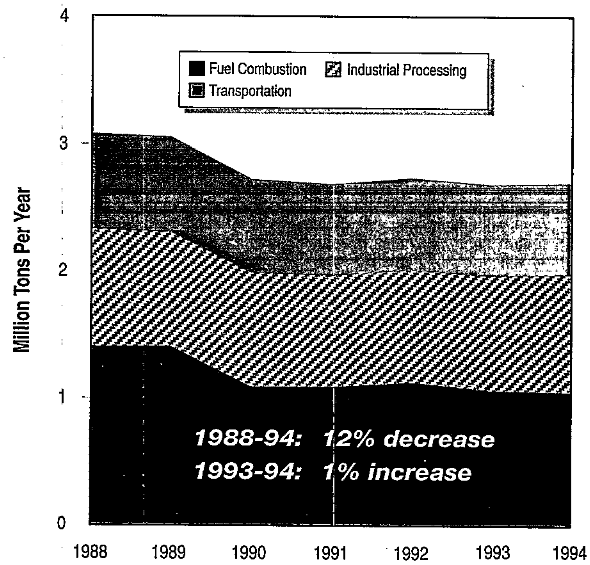
Trends in PM-10 Levels: Air monitoring networks were changed in 1987 to measure PM-10 (replacing the earlier TSP monitors). Between 1988 and 1994, average PM-10 concentrations decreased 20 percent, while PM-10 emissions decreased 12 percent. Particulate matter emissions from sources such as fuel combustion, industrial processes, and transportation decreased 17 percent since 1985. Emissions from residential wood combustion decreased 50 percent in the past 10 years. Although not included in the above chart, fugitive emissions (such as those from construction) are also a significant source of particulate matter in the air. Between 1993 and 1994, PM-10 concentrations remained unchanged. Between 1993 and 1994, emissions of PM-10 increased 1 percent due to emissions from transportation, industrial sectors, and wildfires.



PM-10 CONCENTRATION TRENDS



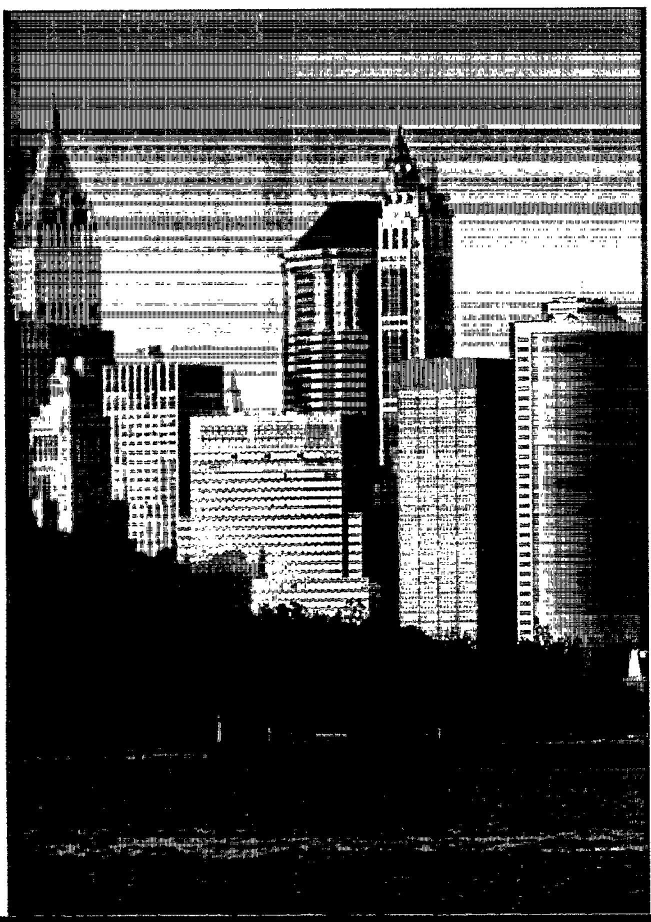
PM-10 EMISSIONS TRENDS



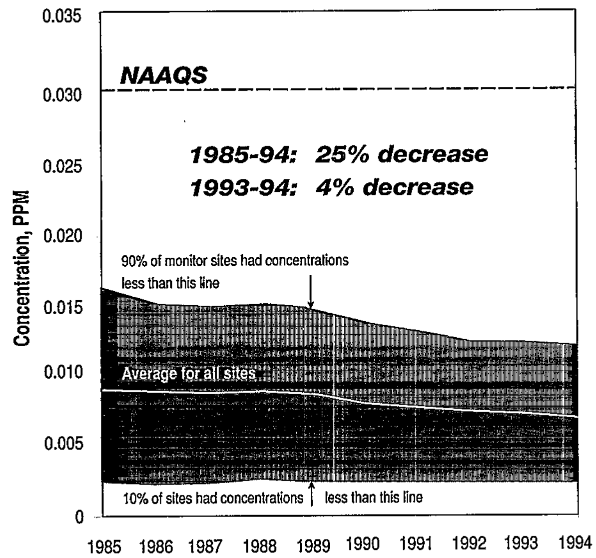
SULFUR DIOXIDE (SO_2)

Nature and Sources of the Pollutant: Sulfur dioxide belongs to the family of sulfur oxide gases (SO_X). These gases are formed when fuel containing sulfur (mainly coal and oil) is burned, and during metal smelting and other industrial processes.

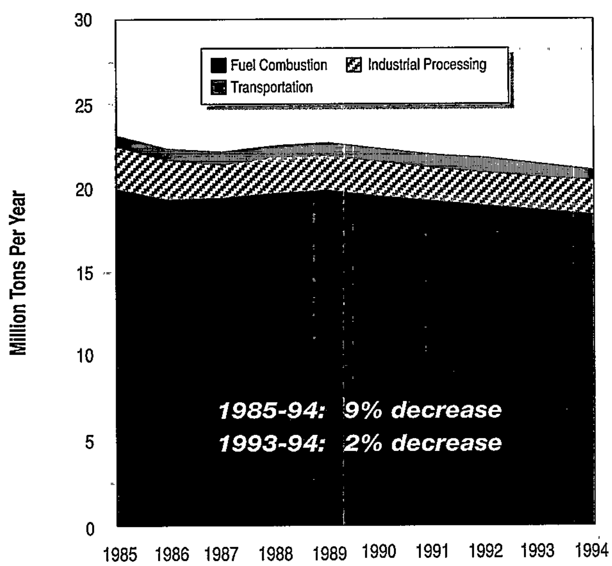
Health and Other Effects: The major health concerns associated with exposure to high concentrations of SO_2 include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_2 include asthmatics and individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) as well as children and the elderly. EPA's health-based national air quality standard for SO_2 is 0.03 ppm (measured on an annual average) and 0.14 ppm (measured over 24 hours). Emissions of SO_2 also can damage the foliage of trees and agricultural crops. Together, SO_2 and NO_X are the major precursors to acid rain, which is associated with the acidification of lakes and streams, accelerated corrosion of buildings and monuments, and reduced visibility.



SO_2 CONCENTRATION TRENDS



SO_2 EMISSIONS TRENDS



Trends in Sulfur Dioxide Levels: Between 1985 and 1994, SO_2 emissions decreased 9 percent while national SO_2 concentrations decreased 25 percent. Between 1993 and 1994, national SO_2 concentrations decreased 4 percent and SO_2 emissions decreased 2 percent. EPA's Acid Rain Program calls for major reductions of SO_2 and NO_X, the pollutants that cause acid rain. The program sets a permanent cap on the total amount of SO_2 that may be emitted by electric utilities nationwide, about one-half the amount emitted in 1980.

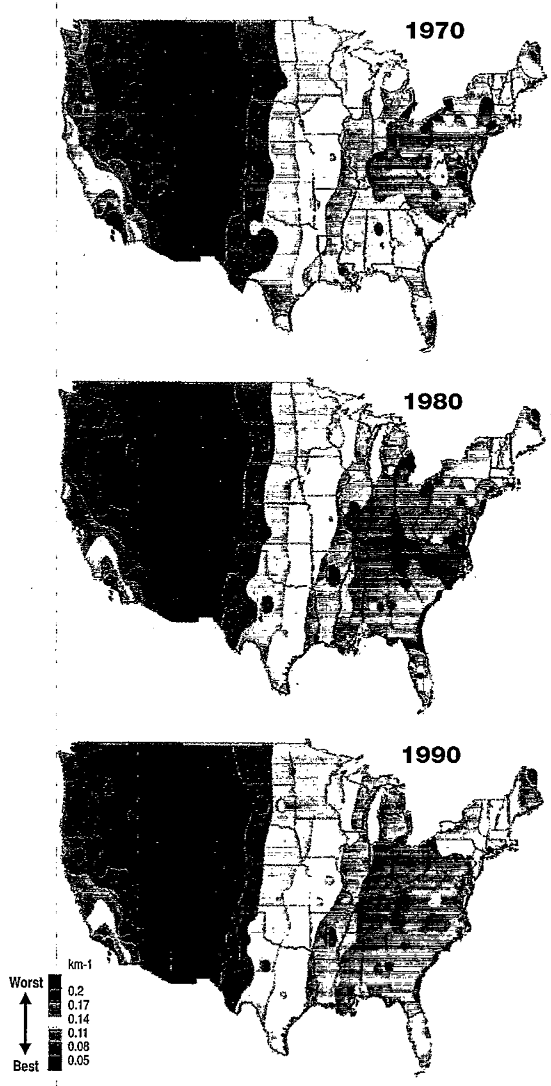
VISIBILITY

New Monitoring Network: EPA and the National Park Service established a long-term visibility monitoring program at locations throughout the U.S. The effort has been expanded to incorporate other federal and regional monitoring programs. The network is the largest in the country devoted to fully characterizing visibility. Sulfates are the largest single contributor to haze, or visibility reduction, in many parts of the U.S. Data from this monitoring network reveals that sulfates account for 68 percent of the visibility reduction in the Appalachian Mountains in the East. Organic carbon, the next-largest contributor, causes 16 percent of visibility reduction. In most areas of the western U.S. and Alaska, sulfates and organic particles contribute equally to haze. In southern California, nitrate particles are the greatest contributor to haze.

Nature and Sources of the Problem: Visibility impairment is caused by the presence of particles in the air. It is most simply described as the haze which obscures the clarity, color, texture, and form of what we see, and is actually a complex problem that relates to several pollutants. Visibility impairment is primarily a result of fine particles (even smaller than PM-10) in the air. These particles cause light to be scattered or absorbed, thereby reducing visibility.

Long Term Trends: Visibility impairment has been analyzed using data collected since 1960 at 280 monitoring stations located at airports across the country. At these stations, measurements of visual range (the maximum distance at which an observer can discern the outline of an object) were recorded. Long-term records of visual range (derived from weather data) help reveal trends in visibility. The following maps display U.S. visibility trends derived from such data.

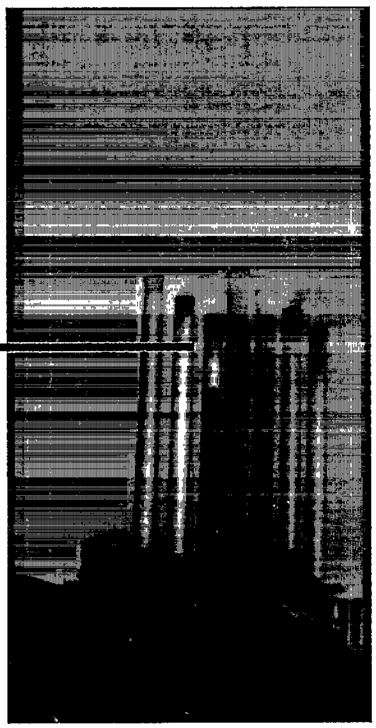
The maps show the amount of haze during the summer months of 1970, 1980, and 1990. The greater the haze, the poorer the visibility. The dark blue color represents the best visibility and red represents the worst visibility. Overall, these maps show that visibility impairment in the eastern U.S. increased greatly between 1970 and 1980, and decreased slightly in 1990. This follows the overall trends in SO_X emissions during these periods. Sulfur oxides are a major source of fine particles.



Map of haze from airport visual data (July–September).

Programs to Improve Visibility: In April 1994, EPA announced development of its new regional haze program to address visibility impairment in national parks and wilderness areas. This program will introduce new approaches to monitoring and modeling regional haze as well as define a policy for achieving "reasonable progress" toward the reduction of visibility impairment. The program will build on efforts of the Grand Canyon Visibility Transport Commission which was established to address visibility impairment in the region around the Grand Canyon National Park. This commission is in the process of developing recommendations for EPA regarding protection of the national park areas on the Colorado Plateau in the western United States. In addition, it is expected that better controls for sources of pollutants such as sulfur oxides as a result of the Acid Rain Program will also lead to improvements in visibility.

Toxic Air Pollutants



Nature and Source: Toxic air pollutants are those pollutants known to or suspected of causing cancer or other serious health effects such as birth defects or reproductive effects. Examples of toxic air pollutants include dioxins, benzene, arsenic, beryllium, mercury, and vinyl chloride. The Clean Air Act lists 189 toxic air pollutants to be regulated by EPA. They are emitted from all types of sources, including motor vehicles and stationary sources such as factories. Control of toxic air pollutants differs in focus from control of the six principal pollutants for which EPA has established national air quality standards (discussed earlier). For the six principal pollutants, a variety of control strategies are used in geographic areas where the national air quality standards have been violated. In contrast, for toxic air pollutants, EPA has focused on identifying all major sources that emit these pollutants and developing national technology-based performance standards to significantly reduce their emissions. The objective is to ensure that major sources of toxic air pollution are well controlled regardless of geographic location.

The air toxics program and the NAAQS program complement each other. Many air toxics are emitted in the form of particulates or as volatile organic compounds. Control programs to meet the NAAQS for ozone and PM-10 also reduce toxic air emissions. Likewise, emission requirements under the toxic air pollutant program can significantly reduce emissions of the six principal pollutants for which EPA has national ambient air quality standards. For example, EPA's final toxic air pollutant regulation for organic chemical manufacturing is expected to reduce VOC emissions (which form ground-level ozone or smog) by an amount equivalent to removing millions of cars from the road.

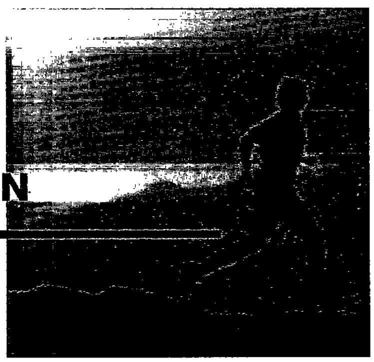
The toxic air pollutant program is especially important in reducing air emissions at or near industrial locations and in controlling pollutants that are toxic even when emitted in small amounts. Companies handling toxic chemicals are required by EPA to develop plans to prevent accidental releases and to contain any releases in the event they should occur.

Health and Other Effects: At sufficient concentrations and exposure durations, human health effects from toxic air pollutants can include cancer, poisoning, and rapid onset of sickness such as nausea and difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory effects. Toxic air pollutants may also be deposited onto soil or into lakes and streams, thereby affecting ecological systems and eventually human health through consumption of contaminated food (mainly freshwater fish).

Trends in Toxic Air Pollutants: In 1993, industrial sources emitted toxic air pollutants totalling 1.2 billion pounds nationally, as reported in EPA's toxic release inventory (TRI). Reporting under TRI is required for manufacturers handling toxic chemicals and represents only a subset of total nationwide emissions. This total represents a decrease of approximately 600 million pounds (or 33 percent) from 1989 levels and reduction of 110 million pounds (or 8 percent) from 1992 levels.

These downward trends in emissions are expected to continue. The 1990 Clean Air Act Amendments greatly expanded the number of industries that will be affected by national air toxic emission controls. The emission reductions from these controls are just beginning to be realized for some industries. Large industrial complexes such as chemical plants, oil refineries, aerospace manufacturers, and steel mills are some of the industries being controlled for toxic air pollution. It is necessary to control smaller sources of toxic air pollution such as dry cleaning operations, solvent cleaning, and chrome plating. Within the next 10 years, the air toxics program is projected to reduce emissions of toxic air pollutants by at least 1 billion pounds.

CONCLUSION



Since EPA was established in 1970, air quality in the U.S. has improved tremendously. Many of these improvements can be attributed to pollution control programs instituted by EPA, State and local agencies and industry. Because air pollution problems continue in many parts of the country, EPA and states are actively seeking innovative and more cost-effective programs to further reduce emissions. Market-based programs like emissions trading provide incentives for industry to develop new pollution control technologies or pollution prevention approaches. Through continued interaction with the regulated community, environmental groups, State, tribal, and local governments, and concerned citizens, EPA is working to develop effective common-sense control strategies to improve our nation's air quality.

For Further Information:

Call **(919) 541-5285**
National Air Pollutant Emission Trends, 1900-1994 (EPA-454/R-95-011)

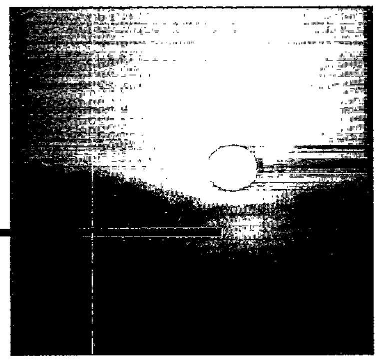
(919) 541-5558
National Air Quality and Emissions Trends, 1994 (EPA-454/R-95-014)

Internet Users: EPA Homepage at:
(http://www.epa.gov/docs/oar/oarhome.html)

Technology Transfer Network (TTN) Users:

- Access by modem, dial: **(919) 541-5742**
- Access by Internet, use telnet address: **(ttnbbs.rtpnc.epa.gov)**

ACRONYMS



Principal Pollutants:

CO . . . . Carbon Monoxide
Pb . . . . Lead
NO_2, NO_X . . . . . Nitrogen Dioxide, Nitrogen Oxides
O_3 . . . . Ozone
PM-10. . . . . Particulate Matter
SO_2, SO_X . . . . . Sulfur Dioxide, Sulfur Oxides

EPA . . . . Environmental Protection Agency
NAAQS . . . . National Ambient Air Quality Standard
TRI . . . . Toxic Release Inventory
TSP . . . . Total Suspended Particulates
VOC . . . . Volatile Organic Compounds

United States
Environmental Protection Agency
Office of Air Quality Planning and Standards
TSD / AQTAG (MD-14)
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