Air Quality Trends - 1994

Document Index

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.

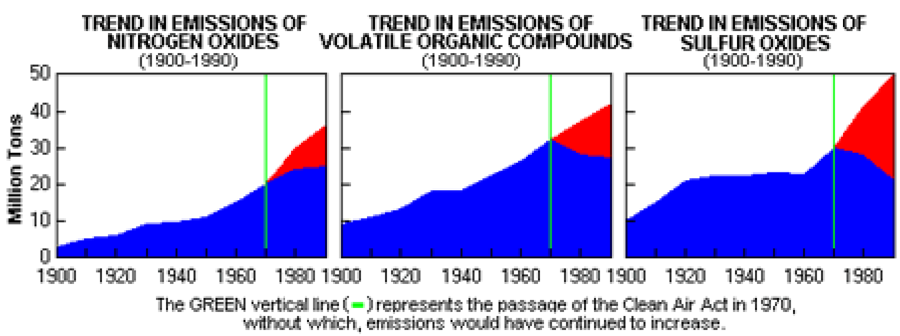
The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary air quality standards set limits to protect public welfare, including 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 oxide (NOx) 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 chemical, 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.

Last revision: *November 2, 1995*

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.



Last revision: *November 2, 1995*

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%

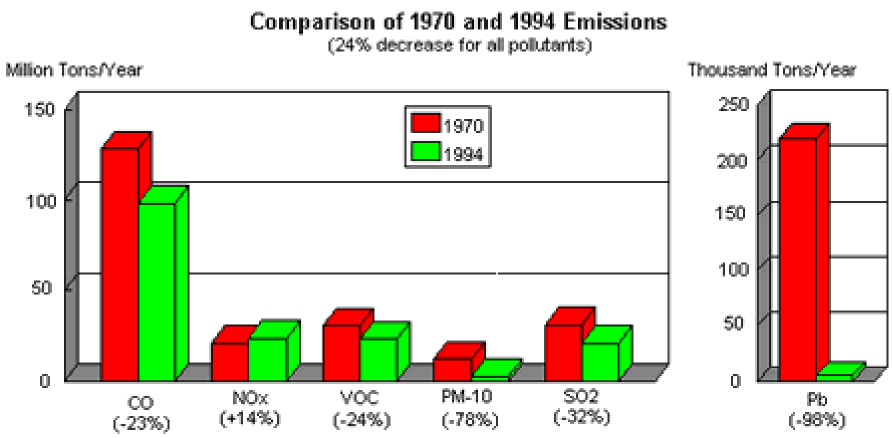
EPA estimates nationwide air emissions trends based on engineering calculations of the amounts and types of pollutants emitted by automobiles, factories, and other sources. Emission trends are based on many factors, including the level of industrial activity, technology developments, fuel consumption, 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 amount of fuels burned by electric utility plants.

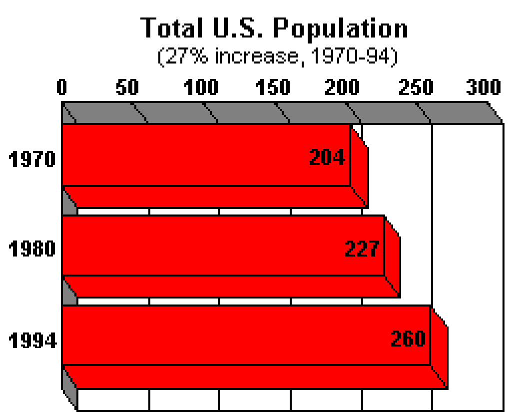
PERCENT DECREASE IN EMISSIONS (1985-1994)*

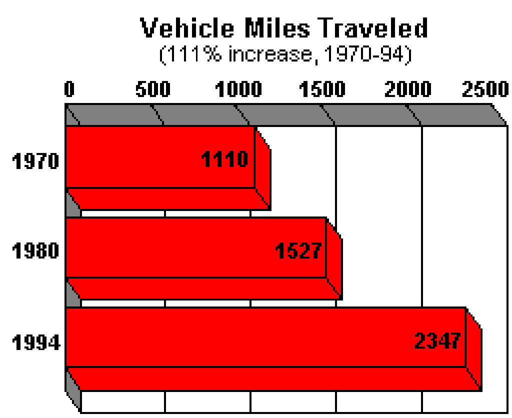
CO	15%
Lead	75%
VOC	10%
PM-10	12%
SO_2	9%

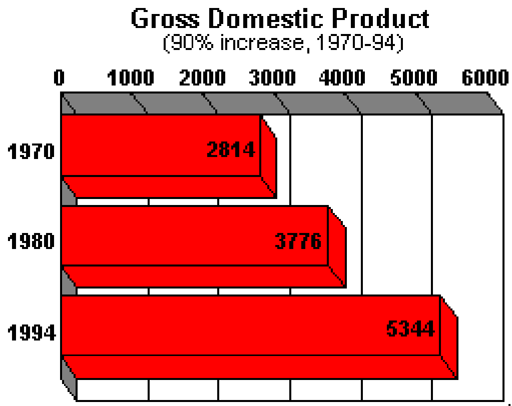
** Unlike the other pollutants, NOx emissions increased 3 percent.*

As illustrated in the following charts, since 1970, the combined emissions of the six principal pollutants decreased 24 percent, while U.S. populations increased 27 percent, vehicle miles traveled increased 111 percent, and gross domestic product increased 90 percent.

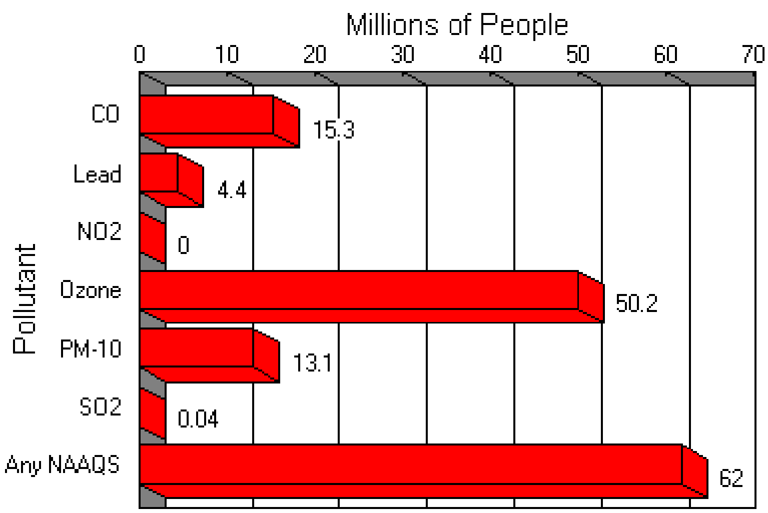






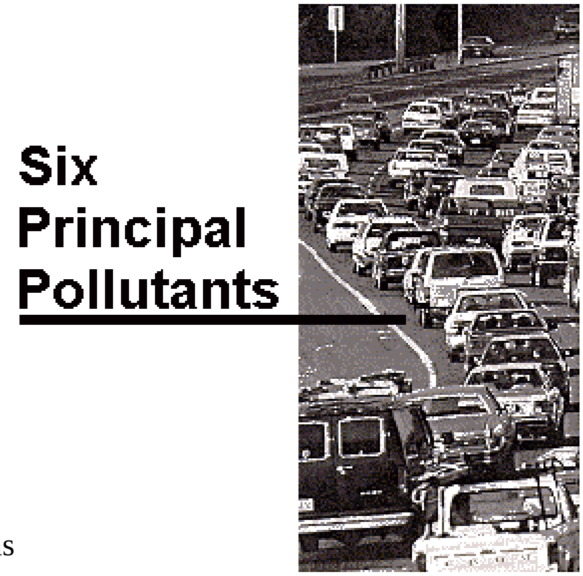


These dramatic improvements in emissions and air quality occurred simultaneously with significant increases in economic growth and population. The improvements are a direct result of effective implementation of clean air laws and regulations. Despite great progress in air quality improvement, in 1994 approximately 62 million people nationwide lived in counties with air quality levels above the primary national air quality standards.



Last revision: *November 2, 1995*

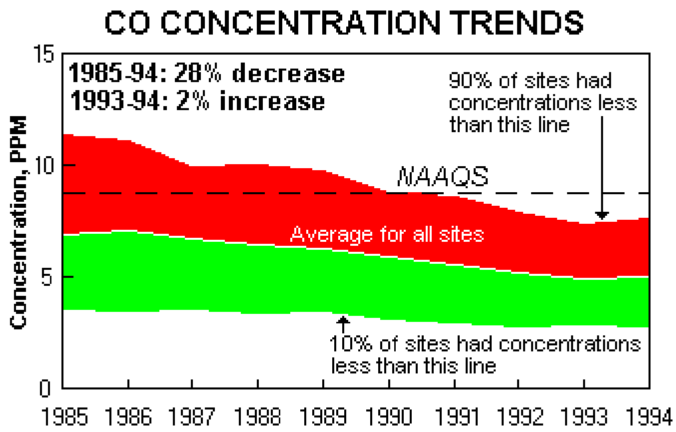
Carbon Monoxide (CO):

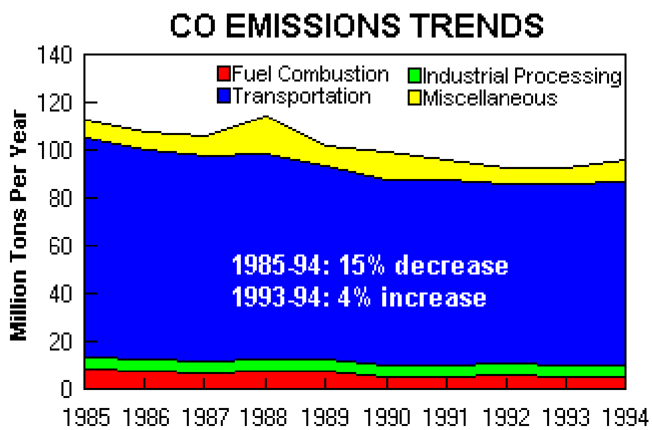


Nature and Sources of the Pollutant: Carbon monoxide is a colorless odorless poisonous gas formed when carbon in fuels is not burned completely. It is a byproduct of motor vehicle exhaust, which contributes more than two-thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as 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. Health 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 pas 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 nations'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%).

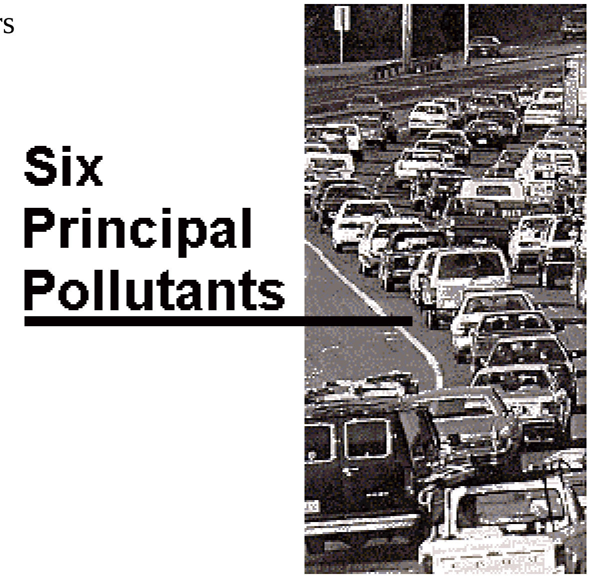




November 2, 1995

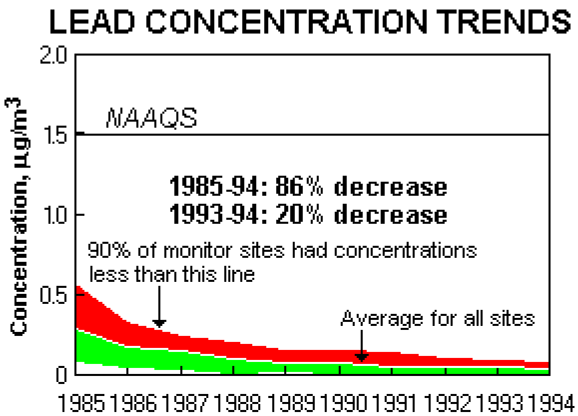
Lead (Pb)

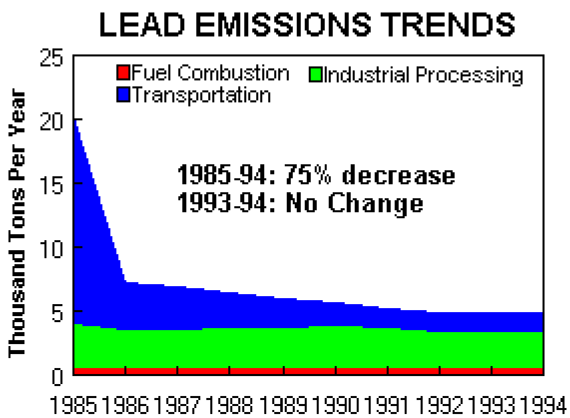
Nature and Sources of the Pollutant: Smelters and battery plants are the major sources of the pollutant "lead" in the air. The highest concentrations of lead are found in the vicinity of nonferrous smelters and other stationary sources of lead emissions.



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 postmenopausal women. EPA's health-based national air quality standard for lead is 1.5 micrograms per cubic meter (µg/m3) [measured as a quarterly average].

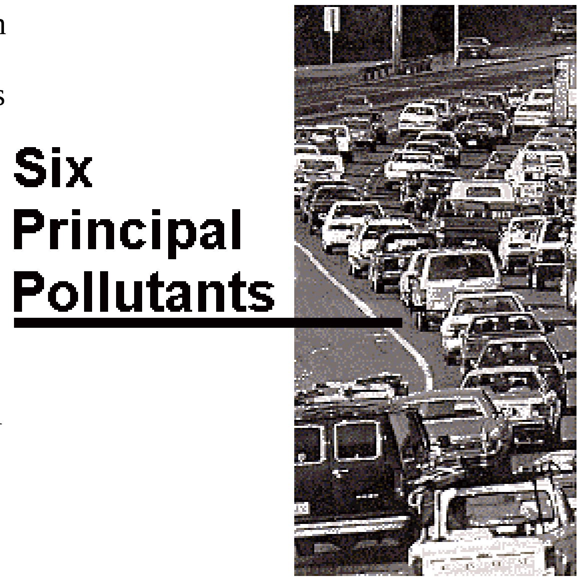
Trends in Lead Levels: Between 1985 and 1994, average lead concentrations in urban areas throughout the country decreased 86 percent while total lead emissions decreased 75 percent. These reductions are a direct result of the use of unleaded gasoline in automobiles. The large reduction in lead emissions 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.





November 2, 1995

Nitrogen Dioxide (NO_2)

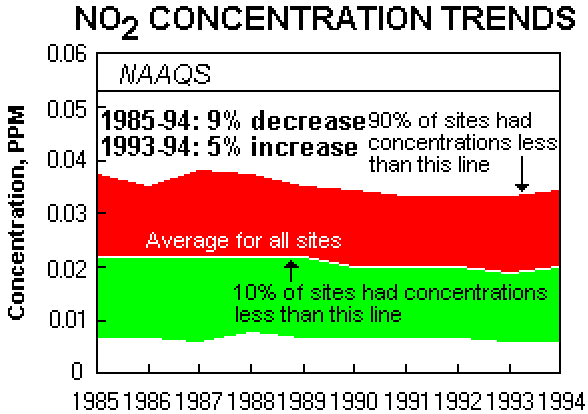


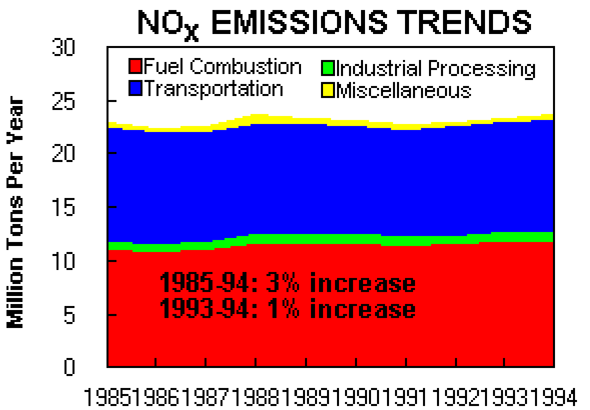
Nature and Sources of the Pollutant: Nitrogen dioxide belongs to a family of highly reactive gases called nitrogen oxides (NOx). These gases form when fuel is burned at high temperatures, and come principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial 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 NOX emissions increased 3 percent since 1985. The two primary sources of the NOX 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 increased 8 percent. Between 1993 and 1994, NOX 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 NOX 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.





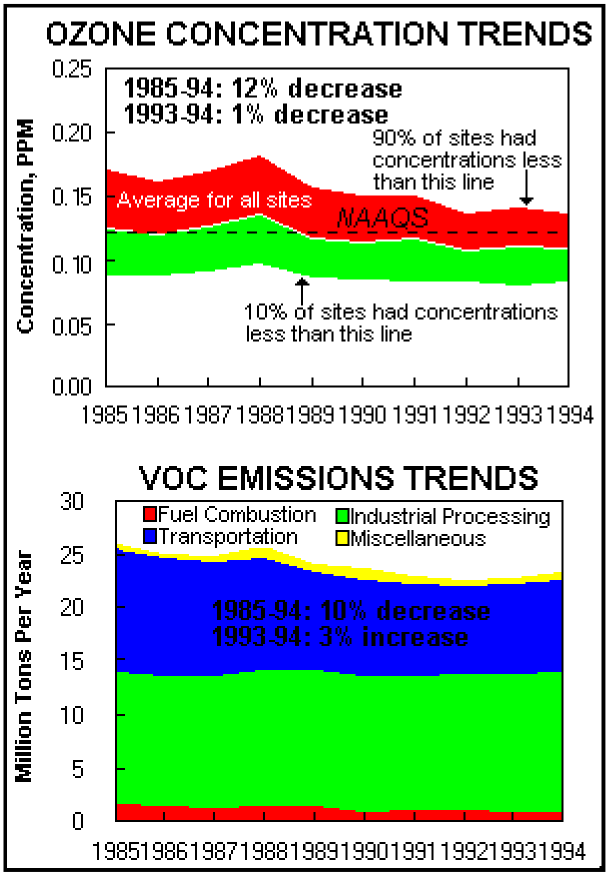
November 2, 1995

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 NOx 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 NOx 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.

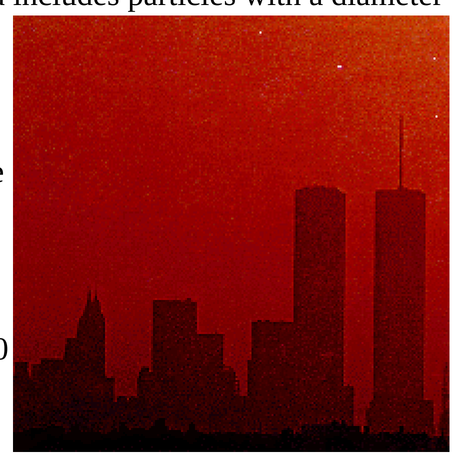


November 2, 1995

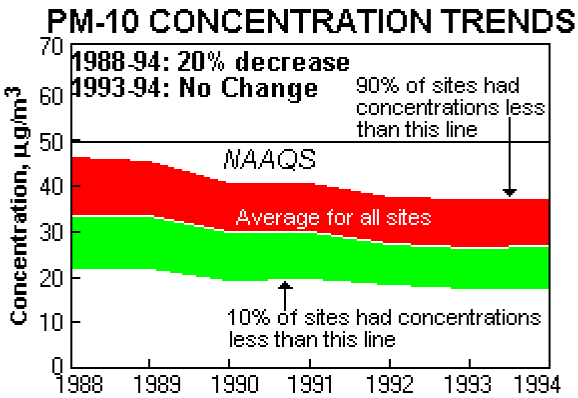
Particulate Matter (PM-10)

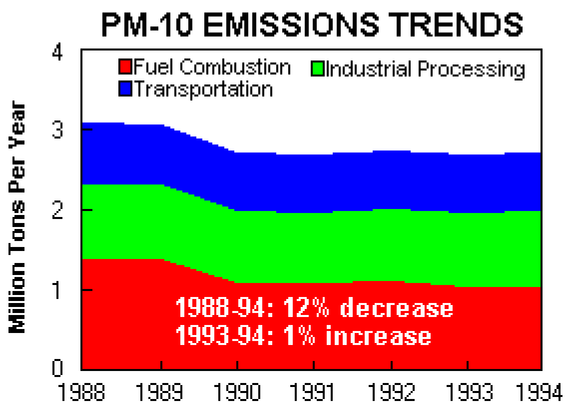
Nature and Sources of the Pollutant:
Particulate matter is the term for solid or liquid particles found in the air. Some particles are large or dark enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Because particles originate from a variety 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 µg/m3 (measured as an annual average) and 150 µg/m3 (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.

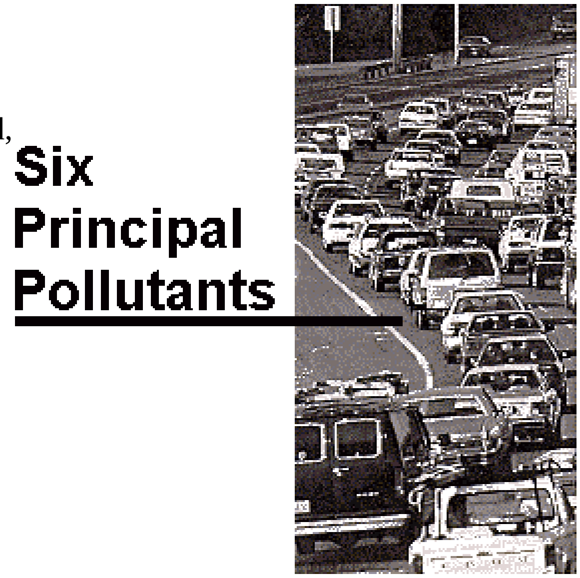




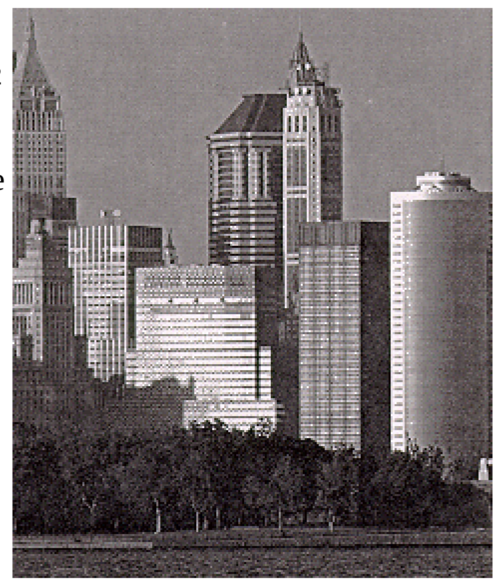
November 1, 1995

Sulfur Dioxide

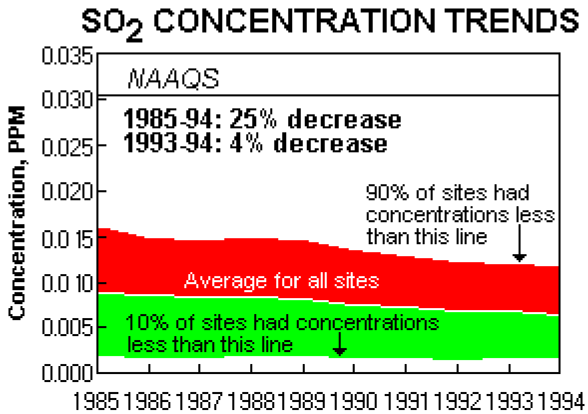
Nature and Sources of the Pollutant: Sulfur dioxide belongs to the family of sulfur oxide gases (SOx). These gases are formed when fuel containing sulfur (mainly coal and oil) is burned, and during metal smelting and other industrial processes.

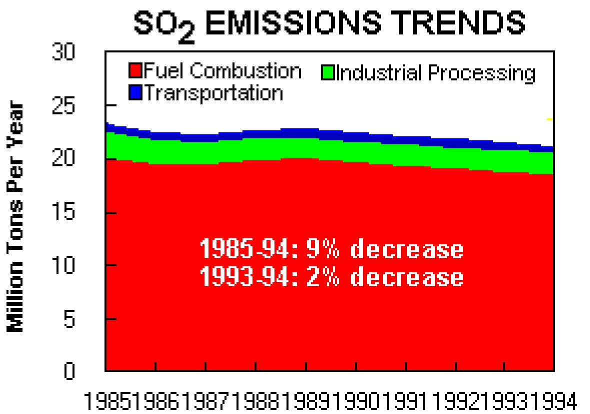


Health and Other Effects: The major health concerns associated with exposure to high concentrations of SO_2 include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive 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 cf SO_2 also can damage the foliage of trees and agricultural crops. Together, SO_2 and NOX 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.



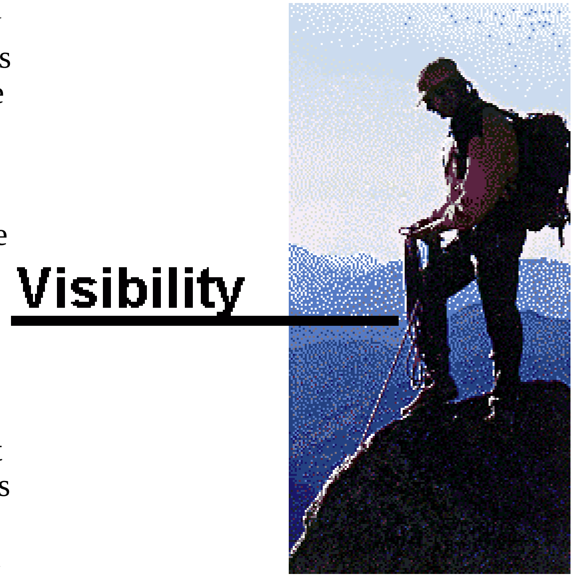
Trends in Sulfur Dioxide Levels: Between 1985 and 1994, SO_2 emissions decreased 9 percent while national SO_2 concentrations decreased 25 percent. Between 1993 and 1994, national SO_2 concentrations decreased 4 percent and SO_2 emissions decreased 2 percent. EPA's Acid Rain Program calls for major reductions of SO_2 and NOX, 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.





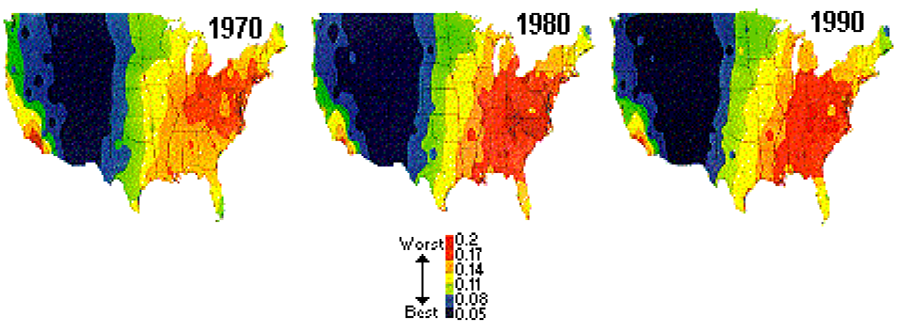
November 2, 1995

Visibility Impairment



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 a 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 SOx emissions during these periods. Sulfur oxides are a major source of fine particles.

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.

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.

November 2, 1995

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 NMQS program complement each other. Many air toxics are emitted in the form of particulates or as volatile organic compounds. Control programs to meet the NMQS 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 totaling 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.

November 2, 1995

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)

Last revision: *November 2, 1995*

Acronyms

Principal Pollutants:

CO	Carbon Monoxide
Pb	Lead
NO_2, NOx	Nitrogen Dioxide, Nitrogen Oxides
O_3	Ozone
PM-10	Particulate Matter
SO_2, SOx	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

Press Release: EPA Report Shows Americans Breathing Healthier Air

United States Environmental Protection Agency
Communications, Education And Public Affairs (1703)
Environmental News

FOR RELEASE: MONDAY, NOVEMBER 6, 1995
EPA REPORT SHOWS AMERICANS BREATHING HEALTHIER AIR
DAVE RYAN (202) 260-2981

Underscoring the success of efforts to protect public health from air pollution, EPA today released its annual report on the air quality trends in America's urban areas. The report shows reductions in all major air pollutants nationally.

The trends analysis shows the following improvements in air quality during the 10-year period 1985-94:

- Smog (ground-level ozone) levels dropped 12 percent.
- Lead levels decreased 86 percent.
- Sulfur dioxide levels fell 25 percent.
- Carbon monoxide levels declined 28 percent.
- Particulate (dirt, dust, soot) levels decreased 20 percent from 1988-1994 (the particulate standard was changed in 1987, so long-term data are not available).
- Nitrogen dioxide levels fell nine percent.

"In the last five years, our efforts to protect public health have resulted in 50 million more Americans who are now breathing far healthier air," said EPA Administrator Carol Browner. "The Clinton Administrations is working with industry and state and local governments to find common-sense ways to keep ensuring cleaner air for all Americans."

EPA today also released 1994 air quality data [see Ozone and Carbon Monoxide, Air Quality Fact Sheet - 1994 later in this document] showing that more than half of the 98 areas that did not meet the health standard for smog now do. What this means in human terms is that when the Clean Air Act Amendments were passed in 1990, 140 million people were living in areas violating the health protection standard for smog, the nations's most pervasive air pollutant. Today, however, more than one third, or nearly 50 million, of those people are now breathing air meeting the standard and free of dangerous smog levels.

The 1994 data also show that 28 of the 42 areas not meeting the health standards for carbon monoxide now have air quality data meeting the standard.

The air quality data also show that 1994 was the third consecutive year in which no U.S. cities violated the nitrogen dioxide standard. Nitrogen dioxide is not only a health danger in itself, but is also a prime ingredient in the formation of both acid rain and smog.

(Limited copies of the air trends report are available to reporters from EPA's press office. Others can obtain copies from and direct questions on the report to the Emissions, Monitoring, and Analysis Division (MD-14), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711; phone 919-541-5558. A brochure on the report will also be computer-accessible immediately through EPA's Home Page on the Internet at (http://www.epa.gov/docs/air/oarhome.html) and on the electronic bulletin board system, the Technology Transfer Network (TTN), at 919-541-5742 (backup number for access problems is 919-541-5384) under "Recently Signed Rules" on the TTN's Clean Air Act Amendments bulletin board.)

November 7, 1995

Ozone and Carbon Monoxide, Air Quality Fact Sheet - 1994

The Clean Air Act and 1990 Amendments stipulate that EPA must determine and report annually the quality of the nation's air. EPA uses six "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Areas of the country where air pollution levels persistently exceed the standards may be designated "nonattainment." This report summarizes the current status and recent changes in nonattainment designations for two criteria pollutants, ozone and carbon monoxide.

Ozone

Ground-level ozone is a primary constituent of smog. The ozone threshold value is 0.12 parts per million, measured as 1-hour average concentration. An area meets the ozone NAAQS if there is no more than one day per year when the highest hourly value exceeds the threshold. (If monitoring did not take place every day because of equipment malfunction or other operational problems, actual measurements are prorated for the missing days. The estimated total number of above-threshold days must be 1.0 or less.) To be in attainment, an area must meet the ozone NAAQS for three consecutive years.

In 1991 EPA designated 98 areas as nonattainment for ground-level ozone. These areas were classified as Marginal, Moderate, Serious, Severe, or Extreme nonattainment areas based on air quality monitoring data. Since then, EPA has removed the nonattainment designation for 22 areas and added it for one area (Sunland Park, NM), leaving 77 ozone nonattainment areas in 1994. During the three years 1992-94, 44 of the 77 areas met the ozone NAAQS. During the same time period, three additional areas, not designated nonattainment, failed to meet the ozone NAAQS (Mono County, CA; Imperial County, CA; Warrick County, IN). EPA is reviewing the air quality status of these areas to determine if further changes in nonattainment designations are warranted. The table below summarizes ozone nonattainment designations. A complete list of nonattainment area names and "design values" is available [see Ozone Nonattainment Areas and Design Values - 1992-94 Update later in this document].

Ozone Air Quality Update - 1992-1994

- 98 Nonattainment Areas as of 1991
- 22 areas redesignated to Attainment
- 1 area designated Nonattainment

Nonattainment Areas meeting ozone NAAQS in 1992-1994

Classification	Yes	No	Total
Extreme	0	1	1
Severe	0	9	9
Serious	1	11	12
Moderate	15	8	23

Marginal	28	4	32
Total	44	33	77

3 additional areas did not meet the NAAQS in 1992-94

Carbon Monoxide

The main source of carbon monoxide is motor vehicle exhaust. The threshold value for carbon monoxide is 9 parts per million, measured as 8-hour average concentration. An area meets the carbon monoxide NAAQS if no more than one 8-hour value per year exceeds the threshold. (High values that occur within 8 hours of the first one are exempted. This is known as using "nonoverlapping averages.") To be in attainment, an area must meet the NAAQS for two consecutive years and carry out air quality monitoring during the entire time.

Of the 42 areas that were designated in 1992 as nonattainment for carbon monoxide, all were classified as Moderate nonattainment areas except Los Angeles, which was classified as Serious. Since 1992, five areas have been redesignated to attainment (Cleveland, OH; Duluth, MN; Memphis, TN; Syracuse, NY; and Winston-Salem, NC), leaving 37 carbon monoxide nonattainment areas in 1994. During the two years 1993-94, 28 of the 37 areas met the carbon monoxide NAAQS, and 9 areas did not (Anchorage, AK; Fairbanks, AK; Phoenix, AZ; Los Angeles, CA; Denver, CO; Las Vegas, NV; New York, NY;El Paso, TX; and Provo-Orem, UT). In 1994 two additional areas, not designated nonattainment, failed to meet the carbon monoxide NAAQS (Imperial County, CA, and Detroit, MI). The table below summarizes carbon monoxide nonattainment designations. A complete list of nonattainment area names and "design values" is available [see Carbon Monoxide Nonattainment Areas and Design Values - 1993-94 Update later in this document].

Carbon Monoxide Air Quality Update - 1993-1994

- 42 Nonattainment Areas as of 1992
- 5 areas redesignated to Attainment
- 37 Nonattainment Areas as of 1994

Nonattainment Areas meeting NAAQS in 1993-1994

Classification	**Yes**	**No**	**Total**
Serious	0	1	1
Moderate	28	8	36
Total	28	9	37

2 additional areas did not meet the NAAQS in 1994

Changing Nonattainment Designations

The summaries above noted that some nonattainment areas met the NAAQS for the required number years. These areas will not automatically be redesignated to attainment. Many of these nonattainment areas have begun the process toward redesignation. The Clean Air Act and 1990 Amendments state that an area can be redesignated to attainment if the following conditions are met:

1. the area has complete air quality data meeting the national air quality standards
2. the area has a fully approved State Implementation Plan meeting Clean Air Act requirements
3. the area has an approved maintenance plan, including a contingency plan, showing attainment for 10 years
4. the improvement in air quality is due to permanent and enforceable reductions in emissions
5. all applicable Clean Air Act requirements have been met

November 6, 1995

Ozone Nonattainment Areas and Design Values - 1992-94 Update

The table below gives the locations of ozone nonattainment areas and key air quality values used to determine nonattainment of EPA's National Ambient Air Quality Standard for ozone. The column labeled "A.Q.Value" is known as the current **design value**. See the notes following the table for additional information. In the table, numbers in parentheses refer to specific notes.

Ozone Nonattainment Areas						
			1992-94 Update		.	
State	**Nonattainment Area Name**	**Clean Air Act Classification**	**A.Q. Value**	**Average Est. Exc.**	**1994 2nd Daily Max 1-hr**	**1994 Estimated Exceedances**
AL	Birmingham NA Area	Marginal	0.124	0.7	0.108	0.0
AZ	Phoenix	Moderate	0.150	2.5 (#4)	0.121	0.0
CA	Los Angeles South Coast Air Basin	Extreme	0.280	103.3	0.240	88.0
CA	Monterey Bay Unified NA Area	Moderate	0.106	0.0	0.096	0.0
CA	Sacramento Metro NA Area	Severe 15	0.143	6.9	0.142	6.2
CA	San Diego NA Area	Serious	0.150	10.5	0.141	9.0
CA	San Francisco-Bay NA Area	Attainment	0.121	0.7	0.128	2.0
CA	San Joaquin Valley NA Area	Serious	0.160	20.9	0.165	32.1
CA	Santa Barbara - Santa Maria -	Moderate	0.129	1.7	0.129	3.1
CA	Southeast Desert Modified AQMA	Severe 17	0.190	47.5	0.184	25.3
CA	Ventura Co NA Area	Severe 15	0.146	10.3	0.162	16.5
CT	Greater Connecticut NA Area	Serious	0.147	2.4	0.148	2.0
DC-MD-VA	Washington NA Area	Serious	0.137	1.2	0.133	3.3
DE	Sussex Co NA Area	Marginal	0.110	0.0	0.099	0.0

FL	Miami- Fort Lauderdale- W. Palm Beach	Attainment	0.108	0.0	0.107	0.0
FL	Tampa-St. Petersburg- Clearwater	Marginal	0.103	0.0	0.101	0.0
GA	Atlanta NA Area	Serious	0.140	3.5	0.125	2.1
IL- IN	Chicago- Gary- Lake County NA Area	Severe 17	0.133	2.0 (#5)	0.124	1.2
IL	Jersey Co NA Area	Attainment	0.112	0.7	0.112	0.0
IN	Evansville NA Area	Marginal	0.113	0.0	0.114	0.0
IN	Indianapolis NA Area	Attainment	0.108	0.0	0.113	0.0
IN	South Bend- Elkhart NA Area	Attainment	0.102	0.0	0.106	0.0
KY	Edmonson Co NA Area	Attainment	0.092	0.0	0.090	0.0
KY- WV	Huntington- Ashland NA Area	Attainment	0.117	0.7 (#6)	0.130	2.1
KY	Lexington- Fayette NA Area	Marginal	0.106	0.0	0.110	0.0
KY- IN	Louisville NA Area	Moderate	0.130	2.0	0.133	3.0
KY	Owensboro NA Area	Attainment	0.106	0.3	0.107	1.0
KY	Paducah NA Area	Attainment	0.109	0.0	0.109	0.0
LA	Baton Rouge NA Area	Serious	0.139	1.8	0.139	2.0
LA	Lake Charles NA Area	Marginal	0.112	1.2	0.112	1.0
MA- NH	Boston- Lawrence- Worcester NA Area	Serious	0.136	2.7	0.125	2.0
MA	Springfield (W. Mass) NA Area	Serious	0.131	2.4	0.131	3.1
MD	Baltimore NA Area	Severe 15	0.135	3.8	0.151	5.0
MD	Kent County and Queen Anne's Counties	Marginal	0.121	0.7	0.105	0.0
ME	Hancock Co and Waldo Co NA Area	Marginal	0.102	0.0	0.092	0.0

ME	Knox Co and Lincoln Co NA Area	Moderate	0.122	0.4	0.115	0.0
ME	Lewiston - Auburn NA Area	Moderate	0.103	0.0	0.098	0.0
ME	Portland NA Area	Moderate	0.127	2.0	0.124	1.2
MI	Detroit-Ann Arbor NA Area	Attainment	0.122	0.7	0.137	2.0
MI	Grands Rapids NA Area	Moderate	0.106	0.7	0.114	0.0
MI	Muskegon NA Area	Moderate	0.124	1.0	0.117	1.0
MO-KS	Kansas City NA Area	Attainment	0.112	0.3	0.112	0.0
MO-IL	St. Louis NA Area	Moderate	0.128	2.1	0.147	4.2
NC	Charlotte-Gastonia NA Area	Attainment	0.119	0.7	0.114	0.0
NC	Greensboro-Winston-Salem-High Point	Attainment	0.113	0.3	0.111	0.0
NC	Raleigh-Durham NA Area	Attainment	0.118	0.7	0.111	0.0
NH	Manchester NA Area	Marginal	0.093	0.0	0.093	0.0
NH	Portsmouth-Dover-Rochester, NH	Serious	0.118	0.7	0.118	1.0
NJ	Atlantic City NA Area	Moderate	0.115	0.3	0.099	0.0
NV	Reno	Marginal	0.087	0.0	0.090	0.0
NM	Sunland Park, NM	Marginal	0.136	2.6 (#7)	0.136	2.0
NY	Albany-Schenectady-Troy NA Area	Marginal	0.109	0.3	0.116	1.0
NY	Buffalo-Niagara Falls NA Area	Marginal	0.098	0.0	0.095	0.0
NY	Essex Co NA Area	Marginal	0.103	0.0	0.087	0.0
NY	Jefferson Co NA Area	Marginal	0.098	0.0	0.098	0.0
NY-NJ-CT	New York-N. New Jersey-Long Island	Severe 17	0.165	4.4	0.174	4.0

NY	Poughkeepsie NA Area	Moderate	0.120	1.0	0.119	1.3
OH	Canton NA Area	Marginal	0.107	0.0	0.101	0.0
OH-KY	Cincinnati-Hamilton NA Area	Moderate	0.121	0.3	0.128	2.0
OH	Cleveland-Akron-Lorain NA Area	Moderate	0.117	0.5	0.125	2.0
OH	Columbus NA Area	Marginal	0.104	0.0	0.104	0.0
OH	Dayton-Springfield NA Area	Attainment	0.116	0.3	0.116	0.0
OH	Toledo NA Area	Attainment	0.119	0.3	0.117	1.0
OH-PA	Youngstown-Warren-Sharon NA Area	Marginal	0.106	0.0	0.111	0.0
OR-WA	Portland-Vancouver AQMA NA Area	Marginal	0.108	0.3	0.106	0.0
PA-NJ	Allentown-Bethlehem-Easton NA	Marginal	0.108	0.0	0.119	0.0
PA	Altoona NA Area	Marginal	0.104	0.0	0.106	0.0
PA	Erie NA Area	Marginal	0.107	0.0	0.101	0.0
PA	Harrisburg-Lebanon-Carlisle NA	Marginal	0.118	0.0	0.122	0.0
PA	Johnstown NA Area	Marginal	0.095	0.0	0.094	0.0
PA	Lancaster NA Area	Marginal	0.116	0.3	0.111	0.0
PA-NJ-DE-MD	Philadelphia-Wilmington-Trenton	Severe 15	0.140	4.0	0.140	4.0
PA	Pittsburgh-Beaver Valley NA Area	Moderate	0.121	0.7	0.122	1.0
PA	Reading NA Area	Moderate	0.106	0.3	0.106	1.0
PA	Scranton-Wilkes-Barre NA Area	Marginal	0.109	0.0	0.106	0.0
PA	York NA Area	Marginal	0.112	0.0	0.115	0.0
RI	Providence (all of RI) NA Area	Serious	0.121	1.1	0.120	1.2

SC	Cherokee Co NA Area	Attainment	0.105	0.3	0.100	0.0
TN	Knoxville NA Area	Attainment	0.117	0.0	0.109	0.0
TN	Memphis NA Area	Attainment	0.115	0.3	0.107	0.0
TN	Nashville NA Area	Moderate	0.124	1.0	0.123	1.0
TX	Beaumont-Port Arthur NA Area	Serious	0.124	1.1	0.121	1.1
TX	Dallas-Fort Worth NA Area	Moderate	0.138	3.0	0.146	7.5
TX	El Paso NA Area	Serious	0.136	3.4	0.143	5.7
TX	Houston-Galveston-Brazoria NA	Severe 17	0.202	6.5	0.172	15.2
UT	Salt Lake City-Ogden NA Area	Moderate	0.109	0.0	0.113	0.0
VA	Norfolk-Virginia Beach-Newport	Marginal	0.131	1.7	0.102	0.0
VA	Symth County NA Area	Marginal	ND	ND (#8)	ND	ND
VA	Richmond-Petersburg NA Area	Moderate	0.128	1.4	0.119	0.0
WA	Seattle - Tacoma NA Area	Marginal	0.108	0.7	0.133	2.0
WI	Door Co NA Area	Marginal	0.112	0.7 (#9)	0.125	2.0
WI	Kewaunee Co NA Area	Moderate	0.113	1.0	0.113	1.0
WI	Manitowoc Co NA Area	Moderate	0.138	2.0	0.138	2.0
WI	Milwaukee-Racine NA Area	Severe 17	0.133	1.7	0.134	3.0
WI	Sheboygan NA Area	Moderate	0.101	0.3	0.106	1.0
WI	Walworth Co NA Area	Marginal	0.098	0.0	0.094	0.0
WV	Charleston NA Area	Attainment	0.086	0.0	0.099	0.0
WV	Greenbrier NA Area	Attainment	0.097	0.0	0.100	0.0
WV	Parkersburg NA Area	Attainment	0.112	0.3	0.114	1.0

Additional Areas With Average Estimated Exceedances Greater than 1.0 for 1992-94						
CA	Mono County	Unclassifiable	0.130	1.8 (#10)	0.120	1.2
CA	Imperial County	Transitional	0.150	10.9 (#11)	0.150	9.2
IN	Warrick County	Unclassifiable	0.131	1.7 (#12)	0.135	5.1

Totals:
77 Nonattainment Areas, 3 Additional Areas

Source:
EPA's air quality data system, the Aerometric Information Retrieval System (AIRS), with supplemental data from EPA Regional Offices.

Notes:

1. Designations and classifications for ozone nonattainment areas as published in the Federal Register, 40 CFR Part 81. Unclassified and transitional nonattainment areas are not included in this listing.

2. The updated air quality value is estimated for the 1992-94 period using EPA guidance for calculating design values (Laxton Memorandum, June 18, 1990). Generally, the fourth highest monitored value with 3 complete years of data is selected as the updated air quality value because the standard allows one exceedance for each year. It is important to note that the 1990 Clean Air Act Amendments required that ozone nonattainment areas be classified on the basis of the design value at the time the Amendments were passed, generally the 1987-89 period was used.

3. The National Ambient Air Quality standard for ozone is 0.12 parts per million (ppm) daily maximum 1-hour average not to be exceeded more than once per year on average. The average estimated number of exceedances column shows the number of days the 0.12 ppm standard was exceeded on average at the site recording the highest updated air quality value. This is done after adjustment for incomplete, or missing days, during the 3-year period, 1992-94. The last two columns contain data from the site recording the highest second daily maximum 1-hour concentration in 1994. The last column shows the estimated exceedances for 1994 at the site recording the highest second maximum 1-hour concentration listed in the previous column.

4. Special purpose monitoring (SPM) operating during the ozone monitoring season.

5. The nonattainment/updated air quality value site for the Chicago NA Area is in Kenosha County, WI.

6. Calculation of the updated air quality value and estimated exceedances was derived by combining data from the new replacement site and the original site location.

7. This is a new nonattainment area established in July 1995. The area is adjacent to the El Paso, TX nonattainment area.

8. The site was located atop Whitetop Mountain, VA as part of the Mountain Cloud Study. Site elevation is 5520 feet. No data reported after 1988. This is a rural transport area. The nonattainment area is that portion of Whitetop Mountain above 4500 feet elevation.

9. Calculation of estimated exceedances in Wisconsin nonattainment areas is adjusted to account for the shorter Wisconsin ozone season not yet reflected in AIRS.

10. Exceedances are under review by the APCD.

11. A new monitoring site which started in October 1991.

12. A privately operated PSD monitoring site in Warrick County which is adjacent to the Evansville, IN and Owensboro, KY nonattainment areas.

November 6, 1995

Carbon Monoxide Nonattainment Areas and Design Values - 1993-94 Update

The table below gives the locations of carbon monoxide nonattainment areas and key air quality values used to determine nonattainment of EPA's National Ambient Air Quality Standard (NAAQS). The column labeled "A.Q.Value" is known as the current **design value**. See the notes following the table for additional

				1993-94 Update			
State	**Nonattainment Area Name**	**Clean Air Act Classification**	**A.Q. Value**	**8-hr Exc.**	**YEAR**	**1994 2nd Max 8-hr**	**1994 8-hr Exc.**
AK	Anchorage Area	Moderate >= 12.7	11.0	2	1994	11.0	2
AK	Fairbanks North Star Borough	Moderate < 12.7	10.2	3	1994	10.2	3
AZ	Phoenix NA Area	Moderate < 12.7	10.4	3	1994	10.4	3
CA	Chico NA Area	Moderate < 12.7	5.4	0	1993	5.0	0
CA	Fresno NA Area	Moderate >= 12.7	9.1	0	1993	8.5	0
CA	Lake Tahoe S. Shore	Moderate < 12.7	7.4	0	1993	6.8	0
CA	Los Angeles South Coast Air Basin	Serious	15.3	24	1994	15.3	24
CA	Modesto NA Area	Moderate < 12.7	6.6	0	1993	6.3	0
CA	Sacramento NA Area	Moderate < 12.7	9.0	0	1993	8.0	0
CA	San Diego NA Area	Moderate < 12.7	7.0	0	1994	7.0	0
CA	San Francisco-Oakland-San Jose	Moderate < 12.7	7.5	0	1994	7.5	0
CA	Stockton NA Area	Moderate < 12.7	7.5	0	1994	7.5	0
CO	Colorado Springs NA Area	Moderate < 12.7	5.7	0	1993	4.9	0
CO	Denver-Boulder NA Area	Moderate >= 12.7	10.4	2	1993	8.2	1
CO	Fort Collins Area	Moderate < 12.7	6.6	0	1993	6.0	0
CO	Longmont NA Area	Moderate < 12.7	5.8	0	1993	5.2	0
CT	Hartford-New Britain-Middletown	Moderate < 12.7	7.9	0	1994	7.9	0
DC-MD-VA	Washington NA Area	Moderate < 12.7	7.6	0	1993	6.3	0
MA	Boston NA Area	Moderate < 12.7	6.5	0	1994	6.5	0
MD	Baltimore NA Area	Moderate < 12.7	7.1	1	1993	7.1	1

MN	Duluth NA Area	Attainment	4.1	0	1993	3.9	0
MN	Minneapolis- St. Paul NA Area	Moderate < 12.7	7.1	0	1993	6.3	0
MT	Missoula	Moderate < 12.7	7.1	0	1993	6.9	0
NC	Raleigh- Durham NA Area	Moderate < 12.7	7.2	0	1993	6.9	0
NC	Winston- Salem NA Area	Attainment	6.0	0	1994	6.0	0
NM	Albuquerque NA Area	Moderate < 12.7	8.5	0	1993	7.6	0
NV	Las Vegas NA Area	Moderate >= 12.7	10.6	5	1994	10.6	5
NV	Reno NA Area	Moderate < 12.7	9.0	0	1994	9.0	0
NY-NJ	New York- N. New Jersey- Long Island	Moderate >= 12.7	11.3	2	1994	11.3	2
NY	Syracuse NA Area	Attainment	6.5	0	1994	6.5	0
OH	Cleveland NA Area	Attainment	7.7	0	1994	7.7	0
OR	Grants Pass	Moderate < 12.7	7.1	0	1993	6.0	0
OR	Klamath Falls	Moderate < 12.7	5.9	0	1993	5.1	0
OR	Medford	Moderate < 12.7	7.5	0	1993	6.7	0
PA-NJ	Philadelphia- Camden Co NA Area	Moderate < 12.7	8.3	1	1994	8.3	1
TN	Memphis NA Area	Attainment	9.3	1	1993	8.1	0
TX	El Paso	Moderate < 12.7	10.6	2	1993	7.6	0
UT	Ogden NA Area	Moderate < 12.7	8.6	0	1992	6.4	0
UT	Provo- Orem NA Area	Moderate >= 12.7	9.6	2	1993	9.3	1
WA-OR	Portland- Vancouver NA Area	Moderate < 12.7	8.4	0	1993	7.8	1
WA	Seattle- Tacoma NA Area	Moderate >= 12.7	7.5	0	1994	7.5	0
WA	Spokane NA Area	Moderate >= 12.7	9.4	1	1993	8.8	0
Additional Areas Not Meeting the Carbon Monoxide NAAQS, 1993-94							
CA	Imperial County, CA	Not Classified	12.9	10	1994	12.9	10
MI	Detroit, MI	Not Classified	10.3	2	1994	10.3	2

Totals:
37 Nonattainment Areas, 2 Additional Areas

Source:
EPA's air quality data system, the Aerometric Information Retrieval System (AIRS), with supplemental data from EPA Regional Offices.

Notes:

1. Designations and classifications for carbon monoxide nonattainment areas as published in the Federal Register, 40CFR, Part 81. Unclassified nonattainment areas are not included in this listing.

2. The National Ambient Air Quality Standard for carbon monoxide is 9 ppm 8-hour nonoverlapping average not to be exceeded more than once per year. The rounding convention in the standard specifies that values of 9.5 ppm, or greater, are counted as exceeding the level of the standard. The updated air quality value listed for the 1993-94 period shown in the fourth column is the highest of the annual second maximum 8-hour concentrations observed at any site in the area during the two year period. The exceedances of the carbon monoxide standard listed in the fifth column are from the site recording that updated value.

3. The year associated with the updated air quality value concentration is listed in the sixth column. The last two columns contain 1994 data from the site recording the highest second maximum non-overlapping 8-hour concentration in 1994. The number of exceedances shown in the last column are from the site recording the highest second maximum non-overlapping 8-hour concentration listed in the previous column.

November 6, 1995