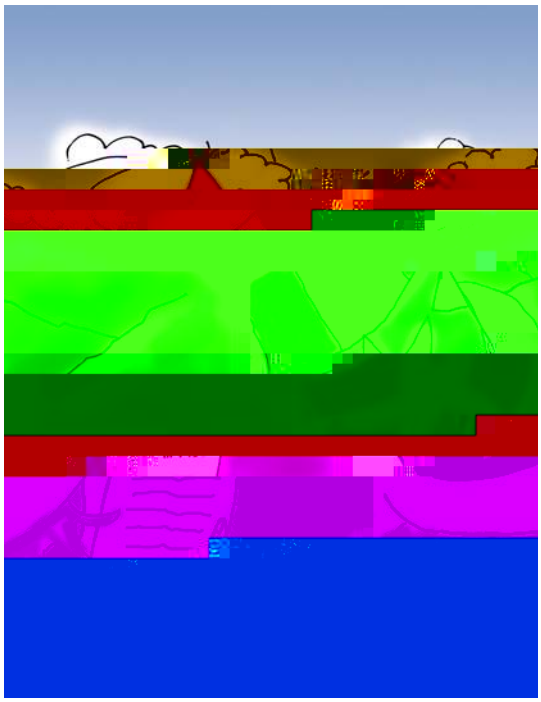

The Plain English Guide

T e P a E G de
e C ea A , Ac



EPA U S P

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

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C e

W S d Y Be
C ce ed Ab A P ?

Y c ld g da i h f d and h i h a e , b y ld la nl a fe min e i h ai . On a e age, each f b ea he e 3,000 gall n f ai each da . Y m ha e ai li e. H e e , did y kn ha b ea hing ll ed ai can make y ick?

Ai ll i n can damage ee , c , he lan , lake , and animal . In addi i n damaging he na al en i nmen , ai ll i n al damage b ilding , m n men , and a e . I n nl y ed ce h fa y can ee in na i nal a k and ci ie , i e en in e fe e i h a ia i n.

In 1970, C ng e c ea ed he En i nmen al P ec i n Agenc (EPA) and a ed he Clean Ai Ac , gi ing he fede al g e nmen a h i y clean ai ll i n in hi c n y. Since hen, EPA and a e , ibe , l cal g e nmen , ind y, and en i nmen al g ha e ked e abli h a a ie y f g am ed ce ai ll i n le el ac Ame ica.

The Clean Ai Ac ha hel ed change he a y man y f k d b ine . In me ca e , i ha e en changed he a y e li e. Thi g ide ide a b ief in d c i n he g am , hil hie , and licie in he Clean Ai Ac .

Air Pollution and Your Health

B ea hing ll ed ai can make y e e and n e b n. I can i i a e y h a and make b ea hing diffic l . In fac , ll an like in ai b ne a icle and g nd le el ne can igge e i a y blem , e ecial f e le i h a hma. T da , nea l 30 milli n ad l and child en in he Uni ed S a e ha e been diagn ed i h a hma. A hma ffe e can be e e el affec ed b ai ll i n. Ai ll i n can al agg a a e heal h blem f he elde l and he i h hea e i a y di ea e .

S me ic chemical elea ed in he ai ch a ben ene in l chl ide a e highl ic and can ca e cance , bi h defec , l ng e m inj y he l ng , a ell a b ain and ne e damage. And in me ca e , b ea hing he e chemical can e en ca e dea h.

O he ll an make hei a y in he e a m he e, ca ing a hinning f he ec i e ne la e . Thi ha led change in he en i nmen and d ama ic inc ea e in kin cance and ca a ac (e y e damage).

Air Pollution and the Environment

Ai ll i n i n j a h ea heal h, i al damage en i nmen . T ic ai ll an and he chemical ha f m acid ain and g nd le el ne can damage ee , c , ildlife, lake and he b die f a e . Th e ll an can al ha m fi h and he a a ic life.

Ian Greaves, M.D., University of Minnesota School of Public Health, Minneapolis, MN

W y h ld y be c nce ned ab ai ll i n?

EPAs Role

Unde he Clean Ai Ac , EPA e limi n ce ain ai ll an , incl ding e ing limi n h m ch can be in he ai an y he e in he Uni ed S a e . Thi hel en e ba ic heal h and en i nmen al ec i n f m ai ll i n f all Ame ican . The Clean Ai Ac al gi e EPA he a h i y limi emi i n f ai ll an c ming f m ce like chemical lan ,

Ke E e e
e C ea A , Ac

PA mi i n i ec h man heal h and he en i nmen . T achie e hi mi i n, EPA im lemen a a ie y f g am nde he Clean Ai Ac ha f c n:

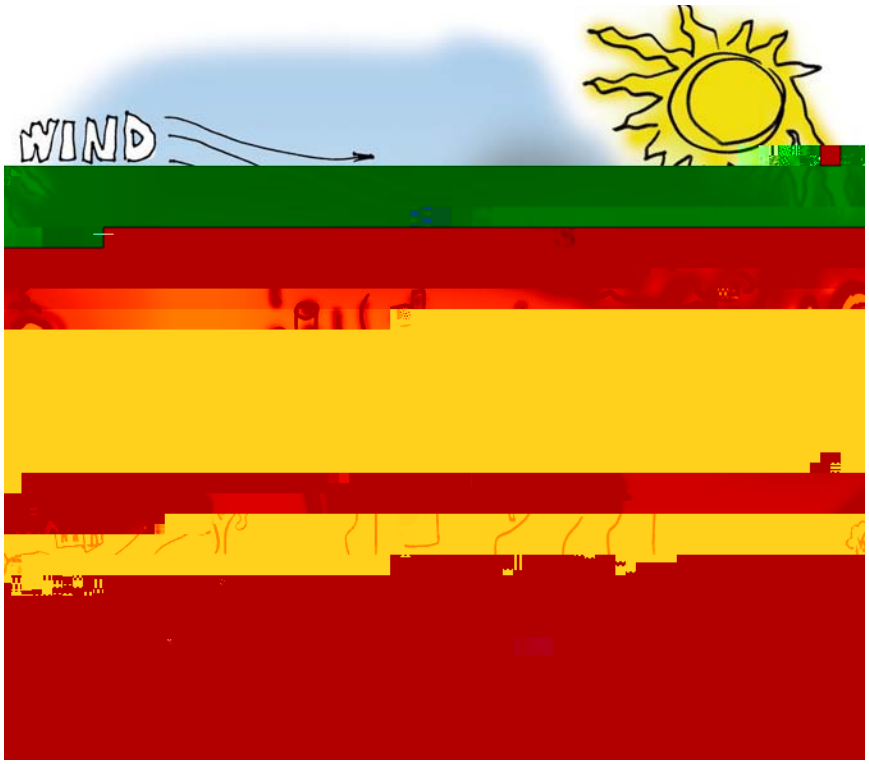
- ed cing d , ambien , c ncen a i n f ai ll an ha ca e m g, ha- , acid ain, and he blem ;
- ed cing emi i n f ic ai ll an ha a e kn n , a e ec ed f, ca ing cance he e i heal h effec ; and
- ha ing d c i n and e f chemical ha de y a he ic ne.

The e ll an c me f m a i na y ce (like chemical lan , ga a i n , and e lan) and m bile ce (like ca , ck , and lane).

Cleaning Up Commonl Found Air Pollutants

Si c mm n ai ll an (al kn n a "c i e ia ll an ") a e f nd all e he Uni ed S a e . The a e a icle ll i n (f en efe ed a a ic la e ma e), g nd le el ne, ca b n m n ide, lf ide , ni gen ide , and lead. The e ll an can ha m y heal h and he en i nmen , and ca e e y damage. Of he i ll an , a icle ll i n and g nd le el ne a e he m ide ead heal h h ea . De ail ab he e ll an a e di c ed bel . F inf ma i n ab he he c mm n ll an , i i EPA eb i e a .e a.g /ai / banai /.

EPA call he e ll an "c i e ia" ai ll an beca e i eg la e hem b de el ing h man heal h ba ed and/ en i nmen all ba ed c i e ia (cience ba ed g ideline) f e ing e mi ible le el . The e f limi ba ed n h man heal h i called ima y anda d . An he e f limi in ended e en en i nmen al and e y damage i called ec nda y anda d . A ge g a hic a ea i h ai ali y ha i cleane han he ima y anda d i called an "a ainmen " a ea; a ea ha d n mee he ima y anda d a e called "n na ainmen " a ea .



EPA ha been de el ing g am c emi i n f he e c mm nl f nd ai ll an ince he Clean Ai Ac a a ed in 1970. I ' a big j b, and al h gh a g ea deal f g e ha been made, i ill ake ime make he ai heal h h gh he c n y. F he la e inf ma i n n ai ali y end in he U.S., i i .e a.g /ai end . The e a e ill e e al a ea f he c n y, incl ding man y la ge ci ie , ha a e cla ified a n na ainmen f a lea ne f he i c mm n ll an . De i e c n in ed im emen in ai ali y, milli n f e le li e in a ea i h m ni ing da a mea ing nheal h y le el f ll i n.

T ee he he y a ea i a ainmen n na ainmen , c n ac y l cal ai ll i n c n l agenc y i i EPA eb i e a : .e a. g /ai / banai .

Particle Pollution

Pa icle ll i n, al kn n a a ic la e ma e (PM), incl de he e y fine d , , m ke, and d le ha a e f med f m chemical eac i n , and d ced hen f el ch a c al, d, il a e b ned. F e am le, lf di ide and ni gen ide ga e f m m e ehicle , elec ic e gene a i n, and ind ial facili ie eac i h nligh and a e a f m a icle . Pa icle ma y al c me f m fi e lace , d e , n a ed ad , c hing and g inding e a i n , and ma y be bl n in he ai b y he ind.

EPA cien i and he heal h e e a e c nce ned ab a icle ll i n beca e e y mall "fine" a icle can ge dee in he l ng . The e fine a icle , b y hem el e , in c mbina i n i h he ai ll an , can ca e inc ea ed eme genc y m i i and h i al admi i n f e i a y illne e , and en f h and f dea h each y ea . The y can agg a a e a hma, ca e ac e e i a y y m m ch a c ghing, ed ce l ng f nc i n e l ing in h ne f b ea h, and ca e ch nic b nchi i .

The elde l y, child en, and a hma ic a e a ic la l y ce ible heal h blem ca ed b y b ea hing fine a icle . Indi id al i h e e i ing hea l ng di ea e a e al a an inc ea ed i k f heal h blem d e a icle ll i n.

Pa icle al ca e ha- ed cing i ibili y in lace like na i nal a k and ilde ne a ea ha a e

EPA is tackling particle pollution in several different ways.

- EPA's health-based standards include limits for smaller-sized or "fine" particles. States are taking actions to meet these standards. To learn more, visit www.epa.gov/particles.
- EPA's rule for Clean Diesel Trucks and Buses will result in a fleet of heavy-duty trucks and buses that will be 95 percent cleaner than today's trucks and buses. To learn more, visit www.epa.gov/otaq/diesel.
- Visibility protection regulations are designed to reduce emissions that cause haze in our national parks and wilderness areas. States are working together on strategies to improve visibility in these natural areas. To learn more, visit www.epa.gov/visibility.
- EPA created the Air Quality Index (AQI) to provide simple information on local air quality, the health concerns for different levels of air pollution, and how people can protect their health when pollutants reach unhealthy levels. To learn more, visit www.airnow.gov.

kn n f hei cenic i a . The e a e lace he e e ex ec ee clea l y f l ng di ance . In man y a f he Uni ed S a e , ll i n ha ed ced he di ance and cla i y f ha e ee b y 70 e cen .

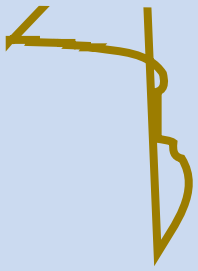
Fine a icle can emain ended in he ai and a el l ng di ance i h he ind. F e am le, e 20 e cen f he a icle ha f m ha- in he R ck y M n ain Na i nal Pa k ha e been e ima ed c me f m h nd ed f mile a a y.

Pa icle al make b ilding , a e and he d c e di y. T ini y Ch ch in d n n Ne Y k Ci y a black n il a fe y ea ag , hen cleaning ff alm 200 y ea h f b gh he ch ch ne all back hei iginal ligh ink c l .

Bef e he 1990 Clean Ai Ac en in effec , EPA e limi n ai b ne a icle malle han 10 mic me e in diame e called PM_{10}. The e a e in y a icle (e en f he e a icle lined ne ex each he ld c e a di ance n ide han a h man hai). Re ea ch ha h n ha e en malle a icle (1/4 he i- f a PM_{10} a icle) a e m e likel y ha m heal h. S in 1997, EPA bli hed limi f fine a icle , called $PM_{2.5}$. T ed ce a icle le el , addi nal c n l a e being e i ed n a a ie y f ce incl ding e lan and die el ck .

Hair sprays, interior and exterior paints, foam plastic

use, or disposal can contribute to air pollution.



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How the Clean Air Act Reduces Air Pollution Such as Particle Pollution and Ground level O one

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c mm n ai ll an . S a e and ibe all d
m ch f he lanning f cleaning c mm n ai
ll an . The de el lan , called S a e/T ibal
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all able le el . Then he e a e mi em a
a f hei lan make e e lan , fac ie ,
and he ll i n ce mee hei g al clean
he ai .

The Clean Ai Ac e i emen a e c m ehen i e
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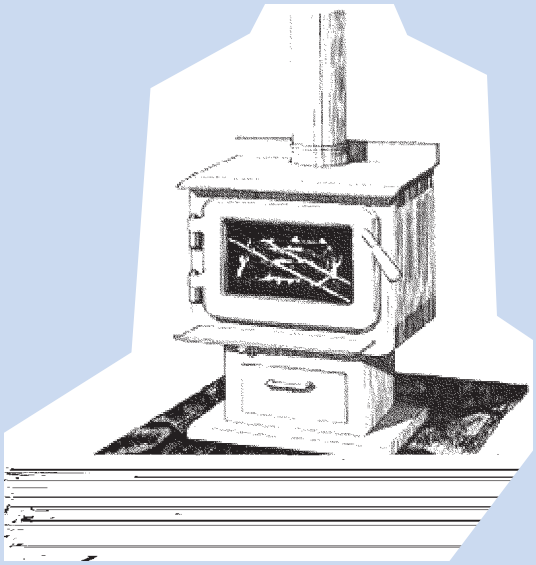
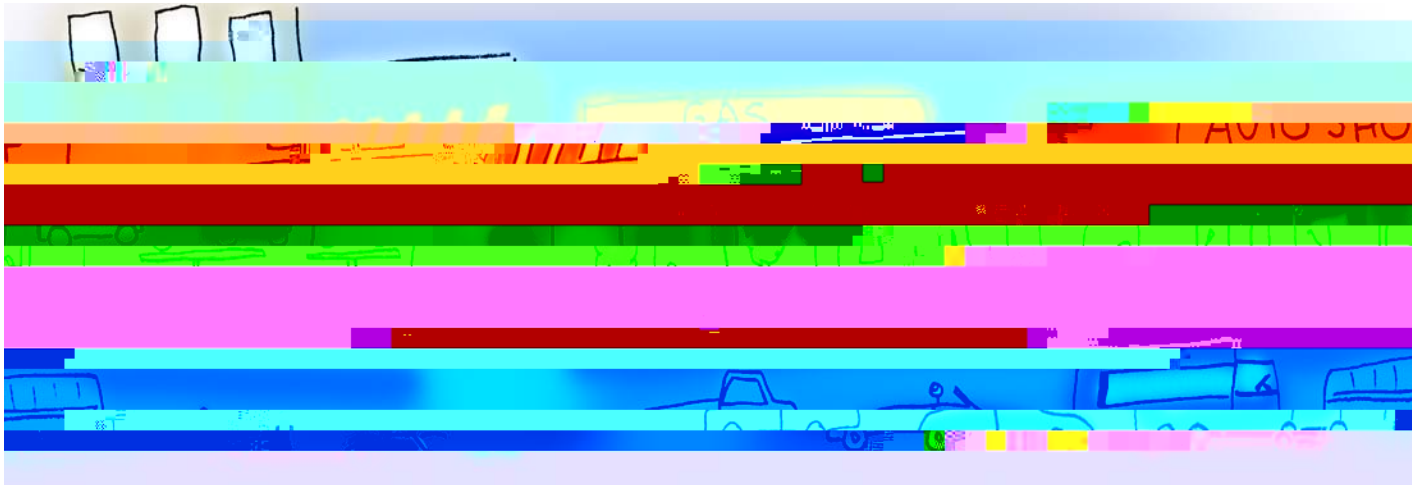
(ca , ck , and b e). Al , in n na ainmen a ea ,
c n l a e gene all e i ed f malle ll i n
ce , ch a ga line a i n and ain h .

Residential wood smoke (from wood stoves, fireplaces, and outdoor wood-fired hydronic heaters) contributes 6 percent (420,000 tons) of the total amount of fine particle pollution ($PM_{2.5}$) directly emitted in the United States each year. That contribution can be significantly higher in some areas with increased wood burning. EPA and state and local agencies are working on a number of fronts to help reduce residential wood smoke pollution. To learn more, visit www.epa.gov/woodstoves.

If you use wood:

- **replace your old wood stove or fireplace with an EPA-certified model, and get more heat and less pollution while burning less wood;**
- **burn only clean, dry, "seasoned" wood;**
- **regularly remove ashes from your wood stove and store outside away from wood.**





Cars, Trucks, Buses, and Nonroad Equipment

Today, most vehicles are responsible for nearly one-half of smog-forming volatile organic compounds (VOC), more than half of the nitrogen oxides (NO_x) emissions, and about half of the toxic air pollutant emissions in the United States. Motor vehicles, including nonroad vehicles, now account for 75 percent of carbon monoxide emissions.

The total vehicle miles traveled level in the United States increased 178 percent between 1970 and 2005 and continues to increase at a pace of more than three percent each year. In the United States, there are more than 210 million cars and light duty trucks on the road. In addition, heavy duty diesel vehicles have changed greatly since 1970. Beginning in the late 1980s, American began driving more sport utility vehicles (SUVs), and light duty trucks and personal vehicles. By the year 2000, the three light duty truck categories accounted for about half of the new car sales. The three biggest vehicles typically consume more gasoline per mile and many of them fail to meet three times more than cars.

The Clean Air Act takes a comprehensive approach to reducing all sources from the transportation sector by requiring manufacturers to build cleaner engines; refining cleaner fuels; and certain areas with air pollution problems to adopt inspection and maintenance programs. EPA has issued a series of regulations affecting gasoline cars, diesel trucks and buses, and so-called nonroad equipment (recreational vehicles, lawn and garden equipment, etc.) that will dramatically reduce emissions from new vehicles and equipment.

Cleaner Cars

The Clean Air Act required EPA to issue a series of rules to reduce pollution from vehicle exhaust, refueling emissions and evaporating gasoline. As a result, emissions from a new car today are 90 percent cleaner than a new vehicle in 1970. This applies to SUVs and trucks, as well. Beginning in 2004, all new passenger vehicles, including SUVs, minivans, vans and trucks must meet more stringent emissions standards. This makes the first time that light duty trucks, including SUVs, trucks, and minivans are subject to the same national controls and standards as cars. Most of the cleaner vehicles entering the national fleet, have small emissions and will do so automatically.

The reductions will be possible with cleaner, low sulfur gasoline and diesel fuel. In addition to the direct emissions benefits, cleaner fuel enables sophisticated emissions control devices to effectively control pollution. Congress recognized the importance of cleaner fuels requiring vehicle emissions and gave EPA authority to regulate fuels in the Clean Air Act.

Lead and Other Toxic Pollutants

One of EPA's greatest accomplishments has been the elimination of lead from gasoline. Elevated levels of lead can damage organs and the brain and nervous system, and affect the heart and blood. Adverse health effects range from behavior disorders and anemia to permanent and irreversible damage. Children are especially susceptible to lead's toxic effects on the nervous system, which can result in learning deficits and lowered IQ. In the mid 1970s, EPA began its lead phase down by requiring limiting the amount of lead that could be used in gasoline. By the summer of 1974, unleaded gasoline accounted

available and the country, improving public health and providing protection for the cardiovascular system and vehicles. This effort has been followed by even stronger efforts in the 1980s. In 1996, leaded gasoline was finally banned as a result of the Clean Air Act.

Under the Clean Air Act, EPA has also put in place standards designed to control toxic air emissions from mobile sources. These standards will control toxic emissions from gasoline, vehicles, and even gas containers.

Reformulated Gasoline

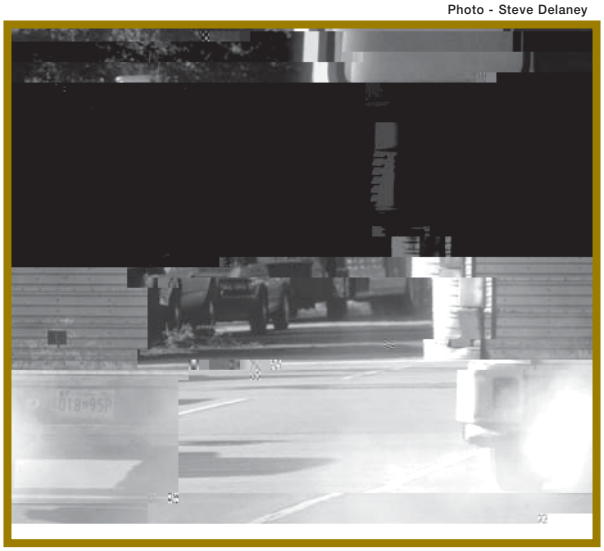
The Clean Air Act requires certain metropolitan areas with the worst ground-level ozone pollution to use reformulated gasoline that has been formulated to reduce air pollution. Of the areas, including the District of Columbia and 17 states, with ground-level ozone levels exceeding the public health standard, have voluntarily chosen to use reformulated gasoline. Reformulated gasoline reduces toxic air pollutants, such as benzene, as well as other pollutants that contribute to smog.

Low Sulfur Fuels

Beginning in 2006, refineries have been supplying gasoline with significantly lower levels of sulfur than in the past, reducing the sulfur in gasoline by 90 percent. Sulfur in gasoline inhibits advanced vehicle catalytic converters from effectively cleaning the exhaust. The advanced vehicle emissions control systems in passenger cars and light trucks are even more sensitive to sulfur, reducing the sulfur content of gasoline will enable the advanced vehicle emissions control devices to effectively reduce pollution. In addition to reducing emissions from new vehicles, lower sulfur fuels will result in lower emissions from vehicles currently on the road.

Since 2006, refineries have begun supplying diesel fuel with significantly lower sulfur levels for highway diesel vehicles. As with gasoline vehicles, efficient new emissions control on diesel engines require the ultra low sulfur diesel (ULSD) fuel to function properly. Highway diesel fuel sulfur levels are 97 percent cleaner than diesel prior to 2006. In 2007, refineries began reducing sulfur in diesel fuel used for on-road diesel engines, which can continue in subsequent years.

Photo - Steve Delaney



EPA has issued less stringent emission standards for nonroad and nonroad vehicles by more than 90 percent by combining stringent emission standards for diesel engines and clean, low-sulfur diesel fuel. Under the Clean Air Act, EPA is also addressing all major categories of nonroad sources, including locomotives and marine vessels, recreational vehicles, and lawn and garden equipment. Together these sources contribute significantly to emissions from the transportation sector.

Transportation Policies

Congress directed conformity in the Clean Air Act Amendments of 1990. In the past, transportation projects such as construction of highways and mass transit lines cannot be federally funded or approved unless they are consistent with the area's clean air goal. In addition, transportation projects may cause violations of the air quality standard, or even delay attainment of air quality standard.

The conformity provisions have two parts, one addressing emissions in the area, and the other examining the long-term air quality impacts of projects in the area's clean air goal. In deciding whether to approve projects, the areas must consider the impacts of their air quality plans and decide how to manage growth. State and local agencies must work together to change the transportation plan and/or the area's plan to achieve the necessary emission reductions.

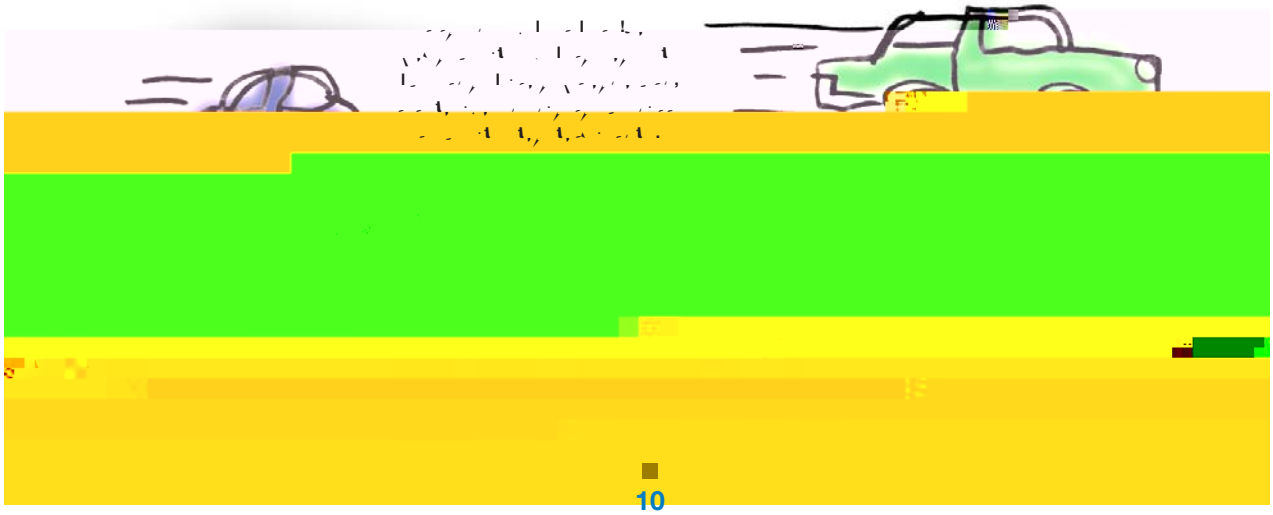
Inspection and Maintenance Programs

Poor maintenance of car engine and mass transit components is a critical source of excessive air pollution. To help encourage such maintenance, the Clean Air Act requires certain areas with air pollution problems to institute inspection and maintenance (I/M) programs. The 1990 Act also established the requirements that vehicles be tested with on-board diagnostic. The diagnostic system designed to trigger a dashboard check engine light alerting the driver of a possible mass transit control device malfunction. To help ensure that the check engine light is timely manner, the Act requires that I/M programs include an inspection of the on-board diagnostic system.

Interstate and International Air Pollution

Air mass transit does not recognize state boundaries. Pollution can be carried long distance by the wind. Different weather patterns in place the city may lead to excessive pollution in remote areas of the United States.

Taller smokestacks can lift mass transit above local community but mass transit



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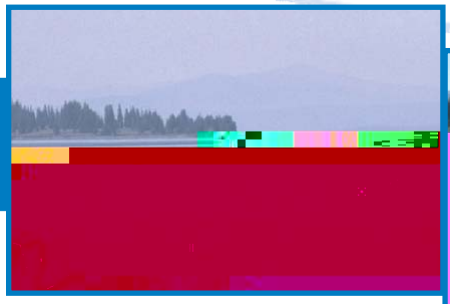
Clearing the Air in Our National Parks

Yellowstone



poor

good

Rocky Mountains

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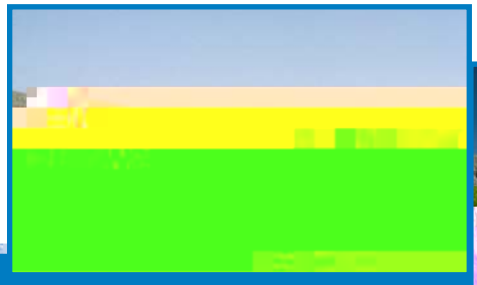
Big Bend



poor

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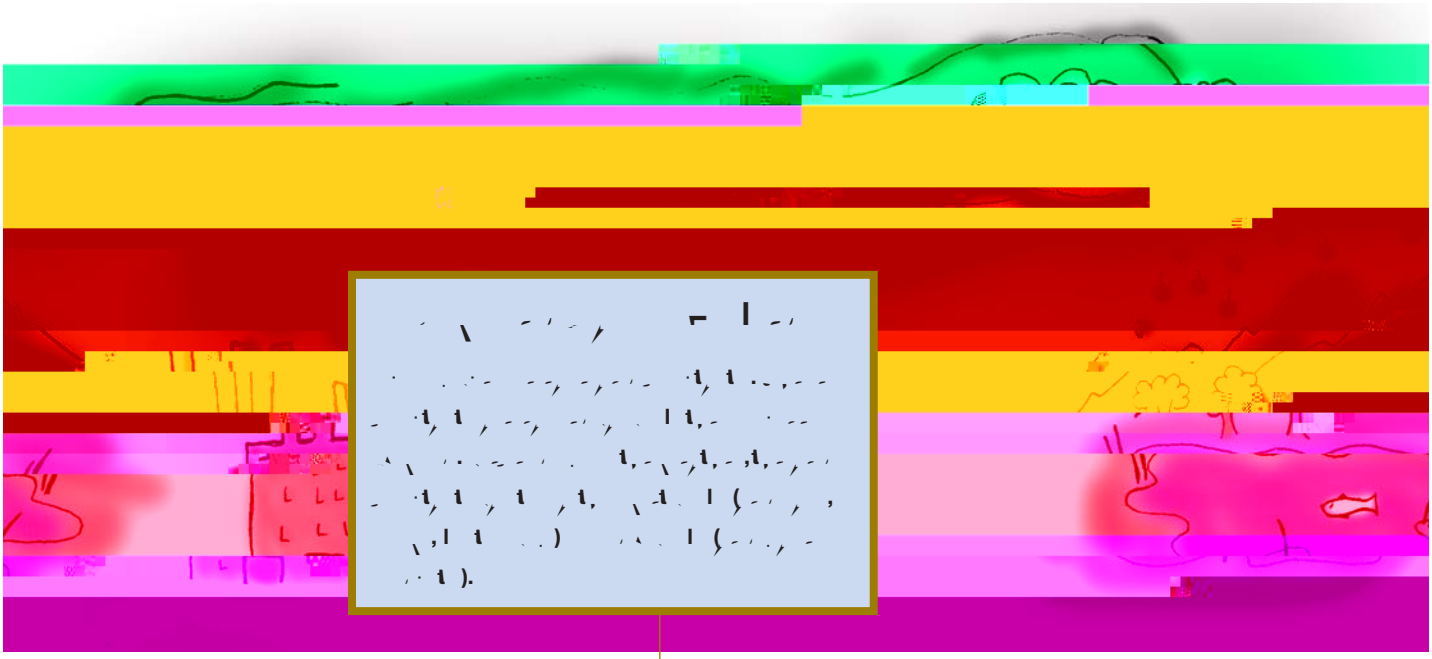
These photos show how good and bad visibility can be at national parks from coast to coast. You can see real time pictures of visibility at several national parks by visiting the National Park Service Website, www.nps.gov. Air resource specialists at national parks (rangers) who specialize in air pollution prevention programs, participate in air pollution monitoring and research, and provide information to visitors interested in air quality.

Photos - National Park Service and Colorado State University

Acadia



Reducing Acid Rain

You have probably heard of "acid rain." But you may not have heard of the formation of acid precipitation such as acid rain, acid fog, mist, dry forms of acidic pollution such as acid gas and acid dust. All of these can be formed in the atmosphere and fall to Earth causing human health problems, harm to wildlife, environmental problems and property damage. Acid precipitation is produced when certain pollutants mix with the moisture in the air to form an acid. These acids then fall to Earth as rain, snow, fog. Even when the weather is dry, acids still can may fall to Earth in gases or particles.

Sulfur dioxide (SO_2) and nitrogen oxides (NO_x) are the principal pollutants causing acid precipitation. SO_2 and NO_x emissions released into the air each year and the chemical forms of acids that fall back to Earth. Power plants burning coal and heavy oil produce the majority of the annual SO_2 emissions in the United States. The majority of NO_x (about 50 percent) comes from cars, buses, and the forms of transportation. About 40 percent of NO_x emissions are from power plants. The pollutants emitted from various industrial and commercial boilers.

Heavy rainstorms and melting snow can cause streams to experience increases in acidity in lakes and streams, primarily in the eastern United States. The streams may increase for many days or even weeks, causing harm to fish and the aquatic life.

The pollutants that cause acid rain can do more than damage the environment they can damage human health. High levels of SO_2 in the air aggravate existing lung problems in asthmatics and can cause breathing difficulties in children and the elderly. In some instances, breathing high levels of SO_2 can even damage lung tissue and cause premature death.

[illegible]

Acid lakes and streams have been found all over the country. For instance, lakes in Acadia National Park on Maine's Mt. Desert Island have become acidic due to pollution from the midwest and the east coast. Streams in Maryland and West Virginia, as well as lakes in the Upper Peninsula of Michigan, have been damaged by acid rain. Since the wind can carry pollutants across the country, the effects of acid rain can be seen far from the original source of the acid-forming pollutant.

Acid rain has damaged trees in the mountains of Vermont and other states. Red spruce trees at high altitudes appear to be especially sensitive to acid rain. The pollutants that cause acid rain can make the air hazy or foggy; this occurs in the eastern United States in areas like the Great Smokies and Shenandoah National Park, areas where vacationers go to enjoy the beautiful scenery and awe-inspiring views. In addition to damaging the natural environment, acid rain can damage manmade objects such as stone statues, buildings, and monuments.

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EPA ha bli hed eg la i n c e ing a ide ange f ind ial ca eg ie , incl ding chemical lan , incine a , d y cleane , and man fac e f d f ni e. Ha mf l ai ic f m la ge ind ial ce , ch a chemical lan , e le m efine ie , and a e mill , ha e been ed ced b y nea l y 70 e cen . The e eg la i n m l y a l la ge, called "maj " ce and al me malle ce kn n a "a ea" ce . In m ca e , EPA d e n e c ibe a ecific c n l echn l g y, b e a e f mance le el ba ed n a echn l g y he ac ice al ead y ed b y he be e c n lled and l e emi ing ce in an ind y. EPA k de el eg la i n ha gi e c m anie a m ch fle ibili y a ible in deciding h he y ed ce hei ic ai emi i n a l ng a he c m anie mee he le el e i ed in he eg la i n .

The 1990 Clean Ai Ac e i e EPA fi e eg la i n ing a echn l g y ba ed e f mance ba ed a ach ed ce ic emi i n f m ind ial ce . Af e EPA e he echn l g y ba ed eg la i n , he Ac e i e EPA e al a e an y emaining (" e id al") i k , and decide he he i i nece a y c n l he ce f he . Tha a e men f emaining i k a ini ia ed in he y ea 2000 f me f he ind ie c e ed b y he echn l g y ba ed anda d .

The 1984 chemical disaster that resulted in thousands of deaths in Bhopal, India, inspired sections of the 1990 Clean Air Act that require factories and other businesses to develop plans to prevent accidental releases of highly toxic chemicals.

The 1990 Act also established the Chemical Safety Board, an independent agency that investigates and reports on accidental releases of toxic chemicals from industrial facilities. The Board operates much like the National Transportation Safety Board, the agency that investigates airplane and train crashes. The Chemical Safety Board assembles the information necessary to determine how and why an accident involving toxic chemicals happened. The goal is to apply understanding of accidents to prevent other accidents involving toxic chemicals.

Air Toxics and Risk

The Clean Ai Ac e i e a n mbe f die hel EPA be e cha ac e i- i k h man heal h and he en i nmen f m ai ic . Th e die ide inf ma i n f lemaking and na i nal and l cal eff add e i k h gh ll i n e en i n and he l n a y g am . Am ng he e i k ed c i n ini ia i e a e:

- The In eg a ed U ban Ai T ic S a eg y incl de l cal and c mm ni y ba ed ini ia i e ed ce l cal ic ai emi i n . The ima y g al f he a eg y i ed ce blic heal h i k f m b h ind and d ce f ic ai ll an . M e inf ma i n can be f nd a .e a.g /n/a .
- The G ea Wa e P g am inc a e ac i i ie in e iga e and ed ce he de i i n f ic ai ll an he "G ea Wa e ," hich incl de he Che a eake Ba y, Lake Cham lain, he G ea Lake , Na i nal E a y P g am a ea , and Na i nal E a ine Re ea ch Re e e . T lea n m e, i i .e a.g /gln .
- Ini ia i e a ge ing emi i n ed c i n f e i en bi acc m la i e ic (PBT) like me c y, DDT (a e icide banned in he Uni ed S a e), and di in .

Protecting the Stratospheric O one La er

O ne can be g d bad de ending n he e i i l ca ed. Cl e he Ea h face, g nd le el ne i a ha mf l ai ll an . O ne in he a he e, high ab e he Ea h, ec h man heal h and he en i nmen f m he n ha mf l l a i le adia i n. Thi na al hield ha been g ad all y de le ed b y manmade chemical . S in 1990, C ng e added i n he Clean Ai Ac f ec ing he a he ic ne la y e .

O ne in he a he e, a la y e f he a m he e l ca ed 10 30 mile ab e he Ea h, e e a a hield, ec ing e le and he en i nmen f m he n ha mf l l a i le adia i n. The a he ic ne la y e fil e ha mf l n a y , incl ding a y e f nligh called l a i le B. E x e l a i le B (UVB) ha been linked ca a ac (e y e damage) and kin cance . Scien i ha e al linked inc ea ed UVB e x e c inj y and damage cean lan life.

Protecting the Stratospheric Ozone Layer

In the mid-1970's, scientists became concerned that chlorofluorocarbon (CFC) could deplete the stratospheric ozone. At that time, CFC were widely used as propellants in consumer products such as hairsprays and deodorants, and as coolants in refrigerators and air conditioners. In 1978, the U.S. government banned CFC aerosol propellants in most aerosol uses.

Scientists have been monitoring the stratospheric ozone layer since the 1970's. In the 1980's, scientists began accumulating evidence that the ozone layer was being depleted. The ozone hole in the region of the South Pole, which has appeared each spring during the Antarctic winter (September-October), is bigger than the continental United States. Between 1978 and 1997, scientists have measured a 5 percent loss of stratospheric ozone, a significant amount.

Over 190 countries, including the majority of industrialized nations, which are signatories of the 1987 Montreal Protocol, which calls for elimination of chemicals that deplete stratospheric ozone. Countries that signed the Protocol are committed to limiting the production and use of these chemicals.

The 1990 Clean Air Act required EPA to establish a program for reducing production and use of ozone depleting chemicals. In 1996, U.S. production ended for many of the chemicals available for sale, including the most commonly used CFC, halons, and methyl chloroform.

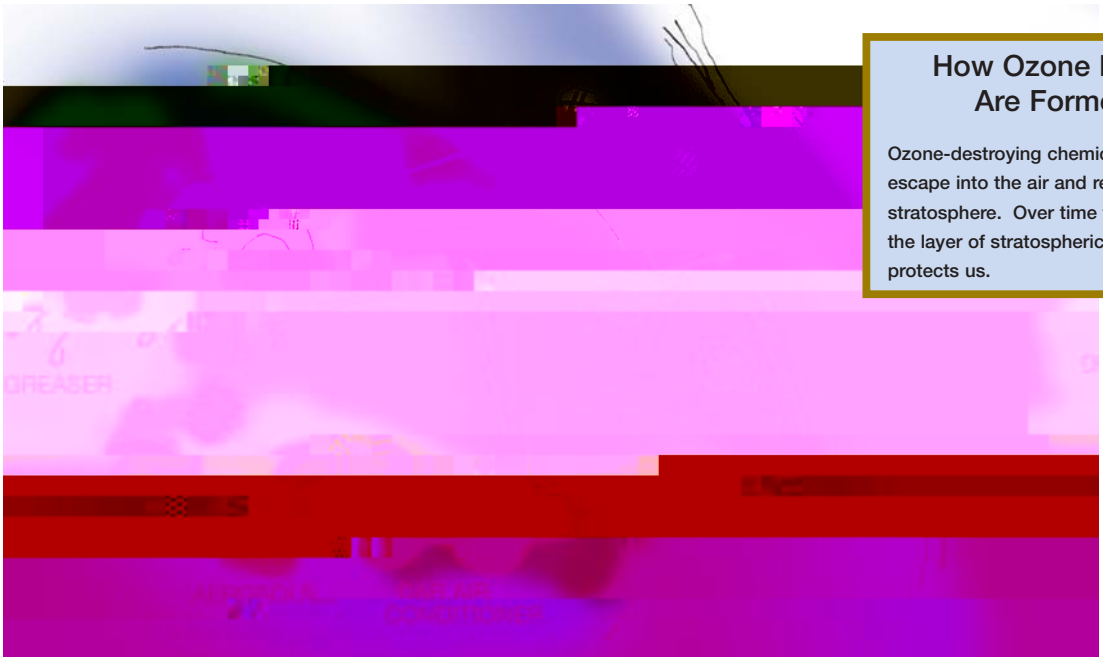
Photo - Steve Delaney

When the protective ozone layer is damaged, there is an increase in harmful rays from the sun reaching the Earth. These rays can harm both health and the environment.

Unfortunately, it will be about 60 years before the stratospheric ozone layer heals. Because of the ozone depleting chemicals already in the atmosphere and how they have will affect it within the next few years, atmospheric ozone depletion will likely continue throughout the decade. September 24, 2006, marked the largest ozone hole recorded at 29 million square miles (11.4 million square miles). The year 2006 also marked the second largest sustained ozone hole.

The Clean Air Act includes other sections that protect the ozone layer. The Act encourages the development of "ozone friendly" substitutes for ozone depleting chemicals. Many products and services have been reformulated to be more "ozone friendly." For instance, refrigerant manufacturers no longer produce CFC.

Sometimes in trying to find substitutes for ozone depleting chemicals. For instance, substitutes have been found for CFC used in certain medical applications. The limitation on the production of methyl bromide, a pesticide, was extended because farmers did not have an effective alternative. Despite the inevitable delays because of technical and economic concerns, ozone depleting chemicals are being phased out, and, with continued work, the time when protective ozone layer will be restored.



How Ozone Holes Are Formed

Ozone-destroying chemicals escape into the air and reach the stratosphere. Over time they reduce the layer of stratospheric ozone that protects us.

H e C ea A ,

Ac I W ,

The e a e e e al a y y can ell h ell he Clean Ai Ac i king. O e ime, he Clean Ai Ac ill c n in e ed ce ai ll i n, b i ill ake ime f me f he Ac , i i n ha e hei f ll im ac .

In gene al, hen EPA a e, l cal, and ibal g e nmen e i e ce f ll i n ad c n l mea e , y ill ee e l igh a a y. F in ance, hen la ge ind ial facili ie a e e i ed in all ll i n c n l e i men , elea e f ll an h ld d hen he e i men i in alled. On he he hand, in he ca e f ca and ck , i ma y ake e e al y ea f ld ehicle be e i ed f m he ad bef e he f ll effec f cleaning ca and ck ill be een.

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At Home

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  gov/woodstoves.
-
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- Connect your outdoor lights to a timer or use solar lighting.

S a e a d T, ba
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F m e inf ma i n n a e and e i ial ai ll i n c n l agencie , i i .4cleanai . g.

F m e inf ma i n n ibal ai ll i n c n l agencie , i i .e a.g / a / ibal .n aa ibalai . g.

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