

Brief



February 2001

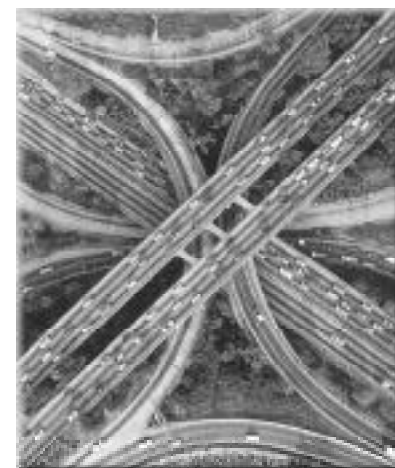
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Clean Air Compliance in Texas for 2001

Air Pollution throughout History

Although we tend to think of air pollution as a twentieth century blight, it has been a social problem for hundreds, if not thousands, of years. As early as 61 A.D, the Roman philosopher Seneca noted the discomfort caused by his city's "heavy air" and the "stink of the smoky chimneys." Centuries later, around 1300, King Edward II of England banned coal burning in London while parliament was in session and announced that "whosoever shall be found guilty of burning coal shall suffer the loss of his head." By the middle of the seventeenth century, industries in London had moved to the city's outskirts, and by the mid-1800s, Britain's first public health act confirmed that smoke and ash abatement were the responsibility of the city's public health agency. In the United States, some 25 cities had smoke control ordinances by 1912, but it was not until the 1950s that Americans adopted comprehensive laws designed to curb air pollution. The federal Clean Air Act (CAA) was passed in 1963, followed by the establishment of the U.S. Environmental Protection Agency (EPA) in 1970, which provided significant federal enforcement authority and more or less completed the federalization of clean air compliance.

Air Pollution Today



Congress amended the Clean Air Act in 1990, and it is these relatively recent changes that are at the heart of the much-discussed clean air compliance challenges facing the entire country today. The 1990 amendments charge EPA with fixing the maximum concentration permissible for each of six pollutants without incurring risk to health, property, and the environment. These standards are called the National Ambient Air Quality Standards (NAAQS), and are determined according to certain health- and welfare-based criteria. They apply to six "criteria" pollutants: ozone, particulate matter (PM), lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.



Air Pollution Today (Continued)



Many people consider the obligations imposed by the CAA and related EPA regulations to be overly burdensome and this

has made both the act and the agency the subject of repeated litigation. The 1990 amendments also require the standards to be maintained according to the "latest scientific knowledge," meaning that they are subject to review every five years. In 1997, EPA introduced new standards for ozone and PM, but the agency's authority to enforce these standards has been successfully challenged in federal court. In the 1999 case, *American Trucking Associations, Inc. v. EPA*, various interest groups argued that EPA had interpreted the 1990 CAA amendments so loosely that its actions amounted to an unconstitutional delegation of legislative power from Congress to the agency. The federal appeals court in Washington, D.C., sided against EPA, holding that the new standards were indeed unenforceable because the agency had overstepped its authority. The U.S. Supreme Court heard the case in November of 2000 and is expected to hand down its decision this summer. The case is significant because if the court decides EPA did exceed its authority, the regulatory authority of other federal agencies may be in question. The case is particularly problematic for Texas because it must continue developing programs for reducing pollution without knowing which areas will ultimately be classified as nonattainment.

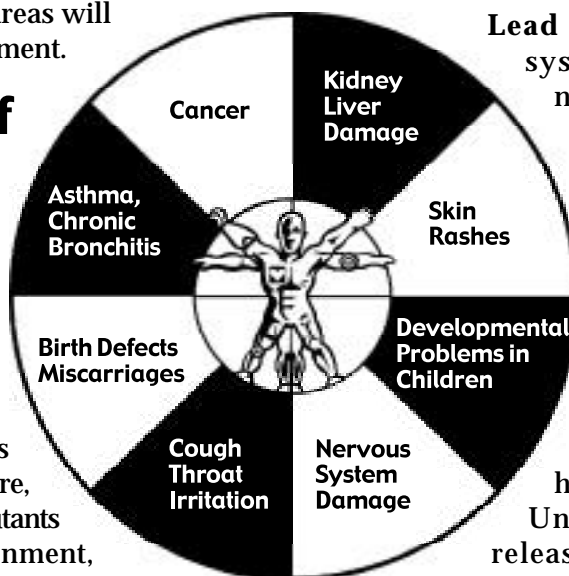
Damaging Effects of Air Pollution

Air pollutants can adversely affect human health, as well as cause damage to the environment. People may feel sick, experience eye and throat irritation, or have trouble breathing. These health effects vary, depending upon the toxicity of the pollutant, its concentration, the duration of exposure, and the degree to which multiple pollutants are present. In terms of the environment, animals and plant life suffer equally from polluted water and air, and in our cities even monuments and

buildings are susceptible to erosion by common pollutants. A description of negative health effects caused by prolonged or elevated exposure to the six criteria pollutants follows.

Ozone in high levels may cause or worsen respiratory symptoms, such as decreased lung capacity, asthma, inflammation of lung tissue, difficulty in breathing, and tightness in the chest. These symptoms may make people more vulnerable to infections, colds, bronchitis, and pneumonia. Regular exposure may lead to premature aging of the respiratory system, and in combination with other pollutants, exposure to ozone may contribute to the recently documented increase in deaths from asthma. Among those most vulnerable to elevated ozone concentrations are older people, children, those with pre-existing respiratory problems, and athletes who perform outdoors.

Particulate Matter (PM) refers to any of a variety of particles suspended in the air such as those from combustion in fuel-powered vehicles, industrial processing, power generation, and cigarette smoke, as well as from road dust, tire particles, soil disturbance from agriculture and construction, and natural sources such as pollen and animal dander. When drawn deep into the lungs, particles are caught inside the millions of small hollows and remain lodged there. Epidemiological studies have linked high levels to asthma, acute respiratory symptoms, chronic bronchitis, and decreased lung function. Research has shown some PM, such as that in diesel exhaust, to be carcinogenic.



Lead can impact every organ system in our bodies—brain, nervous, blood, digestive, and reproductive systems—to the extent of causing birth defects and learning disabilities. Children are especially susceptible because of their relatively small body weights and because they are growing and developing. Use of lead in paint and gasoline has been phased out in the United States, but it can be released into the air by smelting operations, lead battery manufacturing, and the burning of lead-containing coal.



Carbon monoxide impairs the blood's ability to carry oxygen from the lungs to other parts of our bodies and can affect persons with heart disease or even decrease performance levels for young athletes. People exercising near traffic can also be affected since carbon monoxide levels in traffic can accumulate.

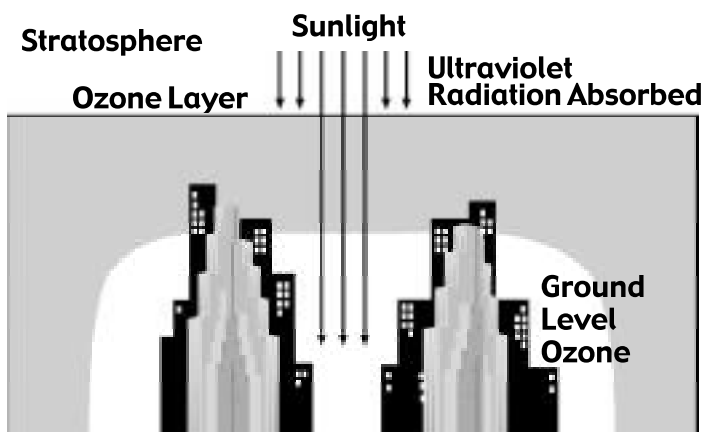
Nitrogen dioxide in elevated levels can cause lung irritation and lower resistance to pneumonia, bronchitis, and allergies or increased breathing difficulty for people with asthma. At high levels this pollutant can cause pulmonary edema or death, and some forms of nitrogen may cause sudden changes in genetic matter.

Sulfur dioxide can decrease lung function and elevated levels in urban areas have been shown to exacerbate allergies and asthma and possibly contribute to cardiovascular-related deaths. Sulfur dioxide as a byproduct of coal burning in midwestern coal factories has been a primary component of acid rain in North America.

The Most Problematic Air Pollutant

The most problematic of these pollutants is ground-level or tropospheric ozone, the primary component of smog. Ozone may very well be the hardest pollutant to control because under the right conditions, it is produced every time we turn on a car, fill our tanks with gasoline, mow the lawn, turn on the air conditioner—in short, every time we use any kind of engine. (Note that stratospheric ozone, high in the Earth's atmosphere, performs the beneficial function of absorbing the sun's harmful ultraviolet rays.)

WHAT IS OZONE?



Ozone is a reactive form of oxygen and is the product of complex photochemical reactions between volatile organic compounds (VOCs), produced by burning or evaporating hydrocarbons and nitrogen oxides (NOx), produced by combustion. These chemicals (NOx and VOCs) mix in sunlight to form ozone, hence the so-called "ozone season," the period coinciding with daylight savings time from April 1 through October 31, when ozone levels are elevated. Sources of NOx are automobiles, trucks, construction equipment, ships, incinerators, power plants, factories, natural gas furnaces and stoves, fireplaces, and forest fires. VOCs come from chemicals that evaporate easily and major sources include petroleum storage tanks, oil refineries, petrochemical manufacturing plants, and on-road mobile sources such as cars, trucks, and motorcycles. Off-road mobile sources are planes, trains, boats, and construction equipment. Area sources include gasoline stations, paint, gasoline-powered lawn equipment, and printing operations. Trees and plants produce biogenic emissions and, according to the EPA, generate more VOCs nationally than do people and people-related activities. However, vegetation produces oxygen, filters our air, and prevents erosion, all of which are benefits that far outweigh their contribution to air pollution.

Government and Air Pollution in Texas



In Texas the agency that is responsible for clean air compliance is the Texas Natural Resource Conservation Commission, (TNRCC). If a state or any region within a state falls short of the NAAQS, EPA must assign it "nonattainment" status and require TNRCC to develop a formal plan to improve that region's air quality. This is called a state implementation plan, or SIP, and it sets forth the technical and regulatory process for the state to achieve and maintain clean air compliance. Each state has only one SIP, and regional plans referred to as the "Houston SIP" or "Dallas-Fort Worth SIP" are parts of the whole. After TNRCC adopts the SIP or SIP improvements, the governor submits the plan to EPA. Following a public comment period, EPA may approve the SIP, at which point it becomes finalized and is enforceable under state and federal law. Under the CAA amendments, EPA must impose sanctions if the

SIP is not approved by the agency, the state fails to submit a SIP, or part of an approved SIP is not properly implemented. In addition, if a state does not show due progress in correcting a deficient SIP, EPA may adopt its own implementation plan, taking over the job of enforcing the CAA in Texas.



The threat of sanction is taken very seriously by the state of Texas because sanctions would impede the vitality and growth of our state's economy. The first type of EPA-imposed sanction (enforcement of which begins within 18 months) would increase the current industrial emissions offset ratio of 1.3:1 to 2:1. This means that in order for an industry to obtain a permit to locate in a nonattainment area there must be a corresponding reduction of emissions within that area of twice the new industry's projected emissions. Authorities fear that this would seriously hamper an area's ability to attract business and commerce. The second economic sanction (enforcement of which begins within 24 months) would halt highway projects funded under the federal highway program, with exceptions for safety, mass transit, or air quality projects.

The current EPA standard for ozone is the one-hour standard and is based on the average of readings taken from monitors all across the state over one-hour time periods. An area violates this standard when the highest one-hour reading of the day at any one monitor equals or exceeds 125 parts per billion (ppb) more than three times during any consecutive three-year period. In 1991, EPA named four areas in Texas as being nonattainment: Houston-Galveston-Brazoria; Dallas-Fort Worth; Beaumont-Port Arthur; and El Paso.

What Texas is Doing About Air Pollution

This year TNRCC worked on SIPs for Dallas-Fort Worth, Houston-Galveston, and Beaumont-Port Arthur, designed to bring these regions into compliance with the one-hour ozone standard by 2007.

Dallas-Fort Worth Nonattainment Area

The Dallas-Fort Worth SIP includes:

- an 88-percent reduction in NO_x emissions from power plants in the four core counties of the Metroplex (Collin, Dallas, Denton, and Tarrant) to start in 2003;
- an expanded and more effective vehicle emissions testing program to start in 2002;
- speed limit reductions from 70 to 65 miles per hour and from 65 to 60 miles per hour to start in September 2001;
- the sale of cleaner diesel fuel to start in 2002;
- reductions in emissions from airport ground-support equipment through electrification starting in 2003; and
- a ban on the use of construction equipment between 6:00 a.m. and 10:00 a.m. from June 1 through October 31 for the same core counties, starting in 2005. In addition, there is a requirement that cleaner equipment be purchased in some areas starting in 2004. Contractors may demonstrate equivalent emissions reductions in lieu of the ban and accelerated purchase requirement.

As part of the Dallas-Fort Worth SIP, TNRCC also adopted standards that will apply outside of nonattainment areas:

- cleaner-burning natural gas water heaters will be phased in starting in 2002; and
- electric power plants with current state permits are expected to reduce NO_x by 50 percent, while cement kilns are expected to reduce NO_x emissions by 30 percent starting in 2003.

TNRCC also approved reductions in NO_x emissions for certain grandfathered facilities, which are operations that have been exempt from air permit requirements because they were in existence or under construction prior to the state's clean air legislation of 1971.



Houston-Galveston-Brazoria Nonattainment Area

With regard to Houston, TNRCC approved air pollution-reduction strategies designed to reduce NOx emissions region-wide by 75 percent and VOCs by 40 percent.

The Houston-Galveston-Brazoria SIP includes:

- rules requiring an average of 90-percent reduction in NOx emissions from new controls on major industrial sources in all eight counties of the nonattainment area, including Harris, Galveston, Fort Bend, Brazoria, Montgomery, Waller, Liberty, and Chambers;
- a more effective vehicle emissions testing program for Harris, Galveston, Fort Bend, Brazoria, and Montgomery counties, while Waller, Liberty, and Chambers counties may substitute alternatives if equivalent emission reductions can be shown;
- a ban on heavy-duty construction equipment use in Harris, Galveston, Fort Bend, Brazoria, and Montgomery counties, from 6:00 a.m. to noon between April 1 and October 31, starting in 2005. The ban also includes the use of small gasoline-powered lawn care equipment by commercial operators. Alternatives will be considered if equivalent emissions reductions can be shown;
- early retirement and replacement of off-highway diesel equipment in the eight counties starting in December 2004;
- speed limit reductions to 55 miles per hour by May 1, 2002;
- a cap on NOx emissions and a provision for banking and trading NOx emissions as long as the amount remains below that cap;
- voluntary local measures such as the increased use of mass transit, telecommuting, stoplight synchronization, and HOV lanes;
- a ban on excessive engine idling applying to large commercial trucks; and
- commitments to review new clean-air technologies, including fuel additives, catalysts, and fuel cells. Also includes a commitment to develop an energy efficiency program, which would include use of more energy efficient appliances and changes in local building codes.

TNRCC also approved a statewide rule requiring the sale of low-emission diesel (LED) fuel used in on-road vehicles and in off-road vehicles in Central and East Texas beginning in 2002 and to be completed in 2006.

Other Texas Clean Air Initiatives

Texas has adopted the enhanced federal standard for new vehicles to begin in 2004. The federal emissions standard will reduce emissions from cars by 77 percent and from sports utility vehicles and trucks by 95 percent. Under the CAA, all states have the choice of adopting either the federal or California program for low-emission vehicles (LEV). The programs are similar with regard to NOx reduction (although the federal program offers slightly greater short-term NOx reductions), but differ regarding advance vehicle technology. The California program requires the sale of zero-emission vehicles—ten percent of manufacturer's overall fleet sold in that state—by 2003. In adopting the federal plan, TNRCC included a requirement that manufacturers add the same California VOC-reducing evaporative standards to LEVs sold in the state of Texas. TNRCC plans to monitor the marketing of clean technology vehicles such as electric-gasoline vehicles and fuel-cell vehicles.

TNRCC has just released a report on grandfathered facilities that have obtained or applied for permits under the voluntary emissions reduction permit program (VERP) created by the legislature in 1999. The report includes information on the number of companies that have applied for permits and the reduction of emissions at their facilities anticipated through the issuance of these permits. There is also information about the overall progress of permitting and emissions reduction from grandfathered facilities under other programs.





A Sampling of Other States' Clean Air Legislation

California leads the country in air pollution reducing initiatives. California's own air quality standards are higher than the federal

NAAQS for all of the criteria pollutants, except lead, for which it is the same. California maintains controls on air pollution in transportation and industry, as well as small business and real estate development. The California legislature has approved a subsidy program to promote the use of electric vehicles to which \$18 million from the state's general revenue fund is allocated offering grants up to \$3,000 to persons buying a new zero emission vehicle (ZEV) (A.B. 2061). Currently, only electric cars meet the zero emission standard.

Kentucky has a plan to add twelve selective catalytic reduction (SCR) units to coal-fired power plants to reduce NOx emissions, particulate matter, and other air pollutants. In this instance, ammonia vapor is used as the reducing agent and reductions of NOx emissions approaching 80 to 90 percent are achievable. SCR units are some of the best options available to electric power plants under pressure to meet new air pollution standards. The cost of installing the 12 SCR units is around \$500 million.

Missouri has improved its auto emissions and maintenance program with remote sensing technology. In an effort to alleviate the crush at area service stations, the state has installed pollution-sensing devices at major intersections enabling authorities to ascertain which vehicles are clean enough to forego testing at designated service sites. Approximately 30 percent of motorists are notified by mail that their vehicles have already passed and the emissions testing fee may be paid by telephone.

North Carolina passed a bill in 1999 that expands its automobile inspection and maintenance program from nine counties to 48 (S. B. 953). The state is considering

an on-board diagnostic (OBD) test to analyze pollution data. OBD testing equipment is connected directly to the car's computer system and is less expensive than simulation tests requiring a vehicle to be placed on a treadmill before measuring emissions. The major disadvantage to OBD testing is that only vehicles of model year 1990 and later have the necessary computer equipment.

Delaware has passed legislation requiring new incinerators to be located more than three miles from any residence, church, school, park, or hospital in order to receive an operating permit (S.B. 280).

Georgia awards an income tax credit of up to \$2,500 per year for the purchase of a low-emission vehicle. The credit is also offered to a business purchasing or leasing an electric vehicle charger. There is a tax credit of up to 10 percent of the cost of diesel particulate emission reduction technology (H.B. 801).

Iowa allows for money from its primary road fund to be used for procedures to control fugitive dust within a municipality if the road in question is experiencing increased traffic due to closure of another primary road undergoing maintenance by the state department of transportation (S. B. 2164).

Maine has a rebate program encouraging the purchase of cleaner cars and trucks by offering rebates based upon the level of emissions reductions created by the use of that vehicle (L.D. 2182).

New Hampshire now has a mercury emissions reduction and control program in place (H. B. 1349). It has also passed a joint resolution calling for the U.S. Congress and EPA to authorize the use of regional gasoline with little or no MTBE and amending the CAA to remove the oxygenate content requirement for gasoline (H.J.R. 24).

New York has new legislation regulating the exchange of emissions credits and establishing an air pollution mitigation fund as the depository of mitigation offsets. New York also adopted the California emissions standards for new personal watercraft and established a watercraft emissions certification program (A.B. 9090).

Rhode Island provides for air pollution prevention equipment eligible for an amortization deduction of the business corporation tax (H.B. 7045). Rhode Island also has new laws requiring annual emissions testing for heavy duty diesel vehicles registered in that state



and authorizes state police to conduct on-road testing of diesel trucks (H. B. 7741). The state also provides for air pollution monitoring near refuse disposal facilities (H.B. 8093).

Utah has authorized grant funding for purchases of clean fuel vehicles or conversion to clean fuel vehicles and the extension of a tax credit for the purchase of clean fuel vehicles (H.B. 323).

Virginia exempts records related to proposed sanctions or penalties from the Freedom of Information Act in any administrative enforcement action by the state environment department, including the air pollution control board (H.B. 1165).

Washington provides tax exemptions for the purchase of equipment used to decrease emissions from combustion through agricultural burning (H. B. 1987).

The 77th Legislature and Clean Air Compliance

In light of the fact that federal law governs in this area, it is important to realize that there is relatively little the legislature can do to change or alter clean air compliance laws in our state. Nevertheless, clean air compliance is an important issue before the Texas Legislature this year. In 1999, Texas led the nation in the number of days exceeding the one-hour ozone standard. Furthermore, on one level or another, clean air compliance affects all of us: private industry, environmentalists, governmental agencies, and the public at large. In general, the private sector is concerned that it must bear the costly burden of paying for clean air through expensive compliance measures. Environmentalists are concerned that clean air compliance may not be strict enough at present or that current standards will drop if clean air requirements are lowered or compliance deadlines are postponed. Governmental agencies are concerned because it is their task to carry out the EPA mandate, and if they fail, federal sanctions may be triggered that could impact the entire state.

Some opponents of the clean air plans have included airlines, electric utilities, cement makers, engine manufacturers, and landfill operators, all of whom feel the plans are too far-reaching. Arguments range from claims that the emissions reduction goals are based on insufficient or inaccurate data to the assertion that the

cost of reducing emissions is unfairly high. Business officials have argued that the high reductions in emissions will hamper industrial growth, leaving no room for extra emission reduction to offset future expansion. Members of the construction industry opposing the plans have said that workers will have to work longer hours to make up for the ban on morning operations, increasing the overall cost of jobs and bringing negative social impacts to bear on construction workers.

Proponents of the SIPs maintain that the reduction strategies are necessary in order to bring the areas into compliance by 2007, and any changes would be unacceptable because the plans currently leave very small margins to achieve the compliance goal. The SIPs are calculated to achieve a certain amount of emissions reductions daily and removing just one control could risk a shortfall, throwing a region into nonattainment. In addition, tinkering with the SIP could meet with EPA disapproval and risk the possibility of sanctions, affecting a region's growth and economy. Proponents argue that targeting industry point sources for high emissions reductions in the way the SIPs have done is exactly the correct starting place. They represent fixed, ascertainable reductions unlike mobile point sources, for example, which by their very nature are hard to control.





Senator J.E. “Buster” Brown, Chairman of the Senate Natural Resources Committee, has cautioned legislators, pointing out that any changes or deletions made to the SIP by legislators should substitute equivalent pollution cuts or risk not being approved

by the EPA. Senator Brown plans to propose legislation designed to award emissions credits for new approaches to clean air compliance and to expedite the process for assigning emission reductions credit values to new technologies.

The future of clean air



The future of clean air is yet to be guaranteed, and several sets of circumstances illustrate the possibility of different outcomes. For example, although EPA has proposed to accept the SIP for Dallas-Fort Worth, final approval for that plan as well as other regional plans is still pending. Rejection by EPA could not only trigger cuts in transportation funds and limits on industrial growth, but could also mean the imposition of a federal implementation plan. Lawsuits are another unknown—either brought by industry groups objecting to the SIPs or environmental groups arguing the SIPs should be more stringent. Scientific studies may also weigh in, showing the need for greater reductions or for reductions to vary from the current SIPs. Finally, the 77th legislature plays a critical role since lawmakers may propose legislation that would either strengthen or erode the state implementation plan. In order to achieve clean air, Texas needs a broad range of control strategies so that different communities with their varying emissions quotients can design specific programs to improve air for the state as a whole.

—by Mahan Farmaian, SRC