DANGER IN THE AIR:

UNHEALTHY LEVELS OF SMOG IN 2002

U.S. PIRG EDUCATION FUND
AUGUST 2003

ACKNOWLEDGEMENTS

Lara Chausow and Eric Hananoki compiled the data for this report, which was written by Emily Figdor of the U.S. PIRG Education Fund. Alison Cassady of the U.S. PIRG Education Fund provided essential editorial support.

Cover photo of Denver obtained from the WinHaze Air Quality Modeler, available at http://webcam.srs.fs.fed.us/winhaze.htm.

This report was made possible with funding from The Pew Charitable Trusts, Breakthrough Technologies Institute, Energy Foundation, and Nathan Cummings Foundation. The opinions expressed in this report are those of the author and do not necessarily reflect the views of our funders.

Clear the Air is a joint project of the Clean Air Task Force, National Environmental Trust, and U.S. PIRG Education Fund. The state PIRGs established the U.S. Public Interest Research Group (U.S. PIRG) in 1983 to act as a watchdog for the public interest in our nation's capital, much as the state PIRGs have worked to safeguard the public interest in state capitals since 1971. The U.S. PIRG Education Fund is a 501(c)(3) organization that serves as the national research and policy center for the state PIRGs.

To obtain a copy of the report, send a check for $30 (including shipping) made payable to the U.S. PIRG Education Fund to the following address:

U.S. PIRG Education Fund
218 D Street, SE
Washington, DC 20003
202-546-9707
www.pirg.org

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The 1970 Clean Air Act, one of the nation's preeminent public health laws, has substantially improved air quality in the United States. Despite this progress, many of our cities, suburbs, and even treasured national parks are shrouded in smog for much of the summer. The major sources of this pollution include power plants, cars, trucks, and heavy equipment, such as that used in construction and farming.

Ground-level ozone, the primary component of smog, is a dangerous respiratory irritant that adversely affects the health of millions of Americans each year. Nearly half (49 percent) of all Americans live in places with unhealthy levels of ozone, which can cause chest pain and cough, aggravate asthma, reduce lung function, increase emergency room visits and hospital admissions for respiratory problems, and lead to irreversible lung damage. Recent studies have provided the first evidence linking ozone to the onset of asthma as well as to mortality from strokes, a leading cause of death in the U.S.

Danger in the Air: Unhealthy Levels of Smog in 2002 is the fourth annual compilation of data from the nation's network of more than 1,000 ozone monitors. Key findings include the following:

- 2002 was the worst smog season for which we have data (1998-present).
- Forty-one (41) states and the District of Columbia exceeded the national health standard for ozone 8,818 times during the 2002 ozone season.
- Twenty-nine (29) states and the District of Columbia exceeded the old, 1-hour peak ozone standard 811 times in 2002.
- California, Texas, and Tennessee led the nation with the most "smog days"— days on which at least one ozone monitor in the state exceeded the national health standard. Close behind were Pennsylvania, North Carolina, Ohio, New Jersey, Virginia, South Carolina, Kentucky, and New York.
- Ozone monitors in California, Texas, and along the Eastern seaboard recorded 55 exceedances falling within the "very unhealthy" range in 2002.
- Every region of the country exceeded the national health standard for ozone more often in 2002 than 2001. The largest increases were in the Midwest, Southeast, and Central states, which exceeded the ozone standard 2.6, 2.8, and 5.6 times more frequently than the previous year, respectively.

The timing of this year's report allows us to include a limited amount of preliminary data for 2003, which has been a relatively mild and wet summer. With fewer hot and sunny days, ozone levels appear to have declined in many areas but still are unacceptably high and will rise again as soon as the heat returns, unless we successfully reduce emissions levels.

Key findings based on preliminary data through July 2003 for 21 states and the District of Columbia include the following:

- Twenty (20) of the 21 states and the District of Columbia exceeded the national health standard for ozone 1,148 times through the end of July 2003 compared with a total of 3,961 times in those states during the entire 2002 ozone season, making for a less smoggy season overall.
- However, Colorado is having its worst smog season in recent years, and Florida and Louisiana already have exceeded the national health standard for ozone more frequently than in all of 2002.

From 1998 to 2002, the nation's air quality monitors recorded unhealthy levels of ozone more than 33,000 times. Against this backdrop, the Bush administration is pursuing policies to weaken existing clean air protections on several fronts, such as a plan dubbed the "Clear Skies Initiative," which would allow power plants to emit more pollution over a longer period than simply enforcing current law.

Rather than exacerbating the already pervasive public health threat posed by unhealthy levels of ozone, policymakers and regulators should work to clear the smog from our skies by reducing emissions from smokestacks and tailpipes, the largest sources of smog-forming pollutants. The U.S. EPA, state environmental agencies, and other policymakers should:

- Reject the Bush administration's "Clear Skies" plan, which would allow more than one and a half times more smog-forming nitrogen oxides in our air from 2010 to 2018 compared with the timely enforcement of current law.
- Adopt a comprehensive new program to reduce emissions of sulfur dioxide, nitrogen oxides, carbon dioxide, and mercury from power plants.
- Abandon regulatory efforts designed to weaken the application of New Source Review, a critical clean air enforcement program that requires industrial facilities to install modern pollution controls when they make other major modifications that increase emissions.
- Ensure timely designation of 8-hour ozone nonattainment areas.
- Oppose efforts to delay or weaken Clean Air Act requirements that apply to ozone nonattainment areas.
- Adopt fuel and emission standards for "non-road" diesel construction, farming, and industrial equipment, as well as trains and ships, to reduce emissions from these vehicles and engines by at least 90 percent.

SOURCES OF OZONE

Ground-level ozone, an odorless, colorless gas, is not emitted directly into the air but is formed when nitrogen oxides (NOx) and volatile organic compounds (VOCs) react with heat and sunlight. Ozone levels typically rise between May and October, often referred to as the "smog season," when higher temperatures and sunlight combine with stagnant atmospheric conditions. Suburban areas downwind of urban centers typically have the highest ozone concentrations.[1] Prevailing winds can carry ozone and its constituents into areas hundreds of miles from their sources.

The vast majority (95 percent) of NOx emissions results from the combustion of fossil fuels to generate electricity, run motor vehicles, and power industry (see Figure 1). VOCs are emitted from a variety of sources, including highway vehicles, heavy equipment, chemical plants, refineries, factories, and commercial and consumer products (see Figure 2).

Figure 1. Nitrogen Oxide Emissions by Source, 1999

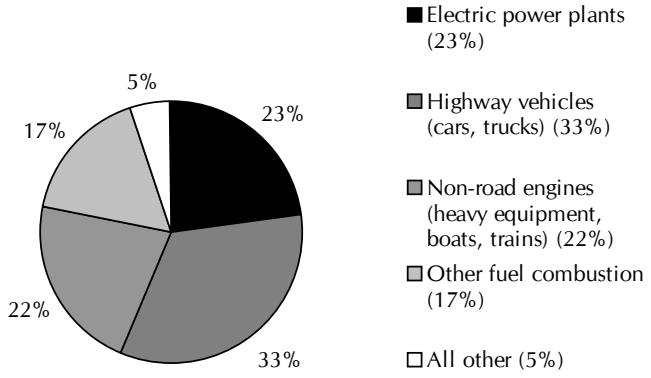
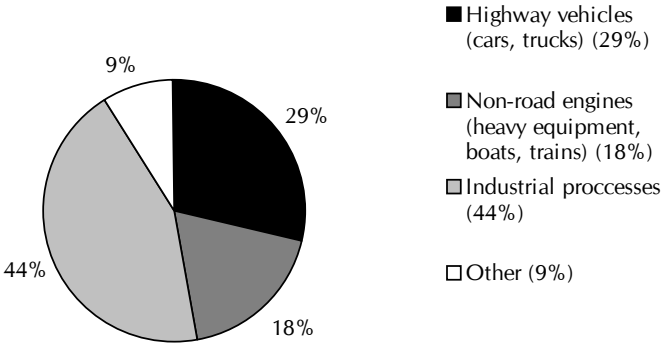


Figure 2. Volatile Organic Compounds Emissions by Source, 1999



Source: EPA, *National Air Quality and Emissions Trends Report*, 1999, (EPA 454/R-01-004), March 2001.

HEALTH EFFECTS OF OZONE

Exposure to even very low levels of ozone contributes to a wide range of adverse health effects.[2] Ozone is a powerful oxidant that burns our lungs and airways, causing them to become inflamed, reddened, and swollen. According to the American Lung Association, nearly half (49 percent) of all Americans live in places with unhealthy levels of ozone.[3] Children, senior citizens, and people with respiratory disease are particularly vulnerable to the health effects of ozone.

Following a lengthy scientific review process, in 1997 EPA tightened the national ambient air quality standard for ozone.[4] Based on extensive evidence of the risks posed by ozone at lower concentrations and over longer periods of exposure, EPA set the new standard at 0.08 parts per million (ppm) averaged over an eight-hour period. The new "8-hour standard" replaced the previous "1-hour standard" of 0.12 ppm averaged over one hour.

At the time, EPA concluded that, when inhaled even at very low levels, ozone can cause chest pain and cough, aggravate asthma, reduce lung function, increase emergency room visits and hospital admissions for respiratory problems, and lead to irreversible lung damage.[5]

Since 1997, more than 1,700 new studies on the health and environmental effects of ozone have been published in peer-reviewed journals.[6] These studies point to additional, even more serious health effects associated with exposure to ozone, particularly in the following areas:

DEVELOPMENT OF ASTHMA: Asthma is the most common chronic disease among children.[7] Between 1980 and 1994, the prevalence of asthma increased 74 percent among children 5 to 14 years of age.[8] While it is well documented that ozone triggers asthma attacks, a recent study provides the first evidence that ozone may increase children's risk of developing asthma. A 2002 study of more than 3,500 children in 12 communities in Southern California found that children who played three or more sports in high ozone areas were three times more likely to develop asthma compared with children who did not play sports.[9] Sports had no effect in areas of low ozone concentration. In addition, the amount of time the children spent outside was associated with a higher incidence of asthma in areas of high ozone but not in areas of low ozone.

HOSPITAL ADMISSIONS OF YOUNG CHILDREN: EPA concluded in 1997 that 10 to 20 percent of all summertime respiratory-related hospital visits in the northeast U.S. are associated with ozone pollution.[10,11] New research suggests that exposure to ozone increases the risk that children under two years of age are hospitalized for acute respiratory diseases.[12]

BIRTH DEFECTS: A 2002 study by UCLA researchers found that women in four Southern California counties who were exposed to ozone in their second month of pregnancy had an increased risk of giving birth to babies with serious heart defects, including aortic artery and valve defects.[13]

STROKE MORTALITY: Research by Korean scientists in collaboration with the Harvard School of Public Health documented an increase in mortality from strokes with rising levels of ozone and other pollutants.[14]

While high ozone concentrations pose pervasive health risks and may be even more serious than previously believed, declines in ozone levels reduce these effects. For example, Atlanta made a concerted effort to reduce traffic congestion during the 1996 Summer Olympics in order to ensure that people could get to the games by closing the downtown to traffic and increasing public transit, among other measures, which led to a prolonged reduction in ozone and significantly lower rates of acute care visits and hospitalizations for asthma among children.[15]

CODE ORANGE, RED, AND PURPLE FOR OZONE

The information newspaper, television, and radio weather reports provide on local air quality, such as warnings of "code red" days, is based on EPA's Air Quality Index (AQI). The AQI divides ambient air pollution levels into color categories, including green (good), yellow (moderate), orange (unhealthy for sensitive groups), red (unhealthy), and purple (very unhealthy), and describes actions people should take at each pollution level to protect their health.[16] For instance, on code red days EPA warns everyone to limit outdoor activities and sensitive groups (active children and adults and people with respiratory disease) to avoid outdoor activities altogether.

Table 1 provides additional information on the AQI for ozone.

Table 1. Air Quality Index for 8-hour Concentrations of Ozone[17]

8-Hour Ozone Concentration (in parts per million)	Air Quality (Level of Health Concern) and Color	EPA's Cautionary Statement
0.000–0.064	Good (Green)	None.
0.065–0.084	Moderate (Yellow)	Unusually sensitive people should consider limiting prolonged outdoor exertion.
0.085–0.104	Unhealthy for sensitive groups (Orange)	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
0.105–0.124	Unhealthy (Red)	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
0.125–0.374	Very unhealthy (Purple)	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

OZONE TRENDS

Nationally, ambient ozone levels decreased 11 percent between 1982 and 2001, with substantial regional variation.[18] In the West and Northeast, ozone levels declined by at least 20 percent, but the Southeast saw only modest declines, and ozone levels were stagnant in the central Midwestern states of Iowa, Kansas, Missouri, and Nebraska (see Figure 3). Looking just at the 1990s, however, ozone levels actually increased in several regions, most notably in the central Midwest, where levels rose 13 percent.[19]

Figure 3. Trend in 8-Hour Ozone Levels, 1982-2001, Averaged Across EPA Regions[20]

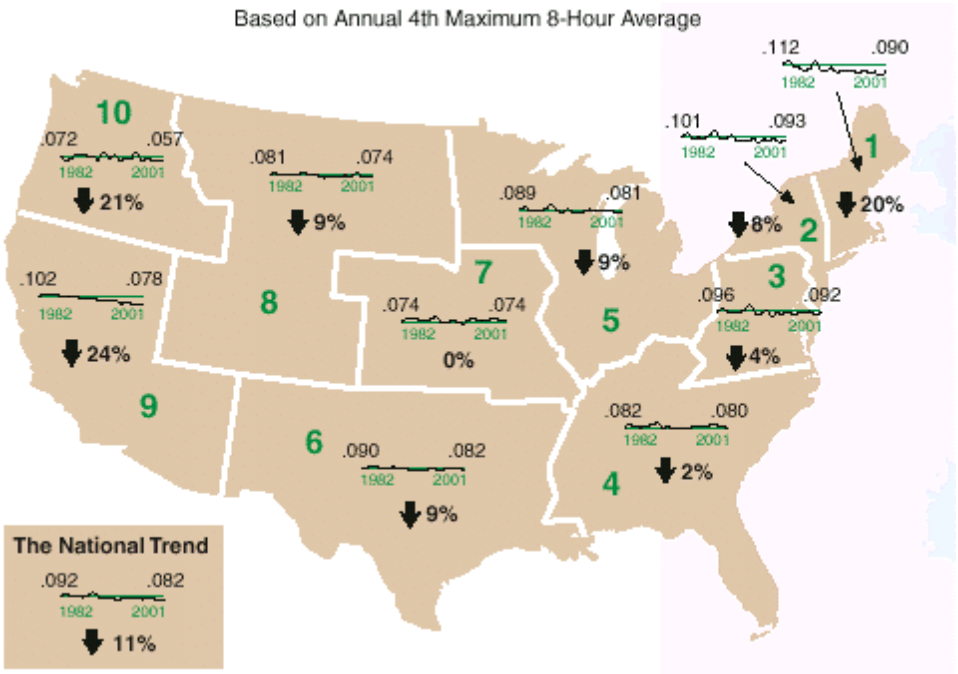
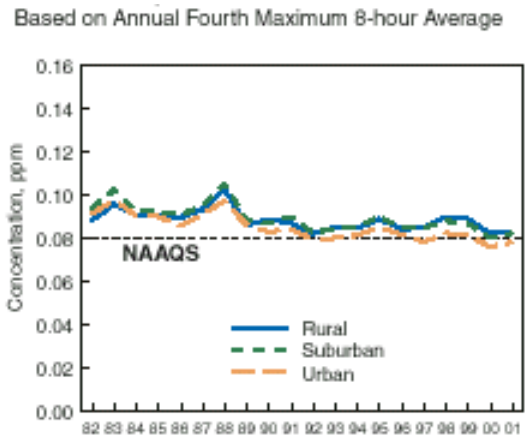


Figure 4. Trend in 8-Hour Ozone Levels, 1982-2001, by Location of Site



In addition, in rural areas and national parks, progress in reducing ozone has slowed or even reversed. In 2001, for the sixth consecutive year, rural 1-hour ozone levels, on average, were greater than levels in urban areas (see Figure 4).[21]

Ozone levels in several national parks rival or exceed those of the nation's most polluted cities.[22] In the 1990s, ozone levels at 33 national parks increased nearly 4 percent.[23] According to the National Park Service, in 2002 16 air monitors at 11 parks, including such treasured places as Acadia in Maine, the Great Smoky Mountains in Tennessee, and Yosemite in California, recorded 418 exceedances of the national health standard for ozone.[24]

REPORT FINDINGS: THE 2002 OZONE SEASON

This report compiles 2002 data from the network of 1,175 ozone monitors maintained by state and local agencies and EPA (see Appendix A for data sources). The findings below address the following questions:

- How often were people exposed to ozone concentrations that exceeded the national health standard in a given state or area?
- Which communities were exposed to the highest concentrations of ozone in 2002?
- How did 2002 compare to previous ozone seasons?

It is important to note that the severity of the ozone season in a given location results from a complex set of factors, including emissions levels, the unique geography of the area, and wind and weather patterns. The only factor among these that we can control is emissions levels.

FREQUENCY OF EXPOSURE TO UNHEALTHY OZONE CONCENTRATIONS AND OZONE 'PEAKS'

During the 2002 ozone season, 41 states and the District of Columbia exceeded the 8-hour national health standard for ozone 8,818 times. Nine states avoided unhealthy levels of ozone, including Alaska, Hawaii, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Washington state, and Wyoming.

Because states vary in the number of ozone monitors they maintain, looking only at state exceedances can be misleading. For instance, a state with few monitors could have a more pervasive ozone problem than a state with more monitors but still record fewer exceedances. For that reason, we also consider each state's total "smog days"—days on which at least one ozone monitor in the state exceeds the national health standard. There were 163 smog days in 2002 nationally, where at least one ozone monitor in the country exceeded the standard.

States and EPA also continue to monitor air quality using the less stringent 1-hour standard, which EPA revised in 1997. We include the 1-hour data in this report because the data provide an indication of exposure to peak concentrations of ozone. In 2002, 29 states and the District of Columbia exceeded the 1-hour standard 811 times.

Table 2. Ten States with the Most Exceedances of the 8-Hour Ozone Standard in 2002

Rank	State	No. of Exceedances
1	California	2306
2	Ohio	800
3	North Carolina	602
4	Pennsylvania	594
5	Indiana	422
6	Texas	397
7	Tennessee	320
8	New Jersey	291
9	New York	290
10	Maryland	275

Table 3. 11 States with the Most Smog Days in 2002

Rank	State	No. of Smog Days
1	California	143
2	Texas	62
3	Tennessee	54
4	Pennsylvania	50
4	North Carolina	50
6	Ohio	47
7	Virginia	44
7	New Jersey	44
9	South Carolina	42
10	Kentucky	41
10	New York	41

Table 4. 11 States with the Most Exceedances of the 1-Hour Peak Ozone Standard in 2002

Rank	State	No. of Exceedances
1	California	326
2	Texas	83
3	Connecticut	51
4	Maryland	44
5	New Jersey	38
6	Virginia	29
6	New York	29
7	Pennsylvania	26
8	Indiana	24
9	Massachusetts	22
9	Ohio	22

The six states on each of the three lists of unhealthy levels of ozone include **California, Texas, New Jersey, New York, Ohio, and Pennsylvania**.

Table 5 lists 8-hour exceedances, unhealthy ozone days, and 1-hour exceedances by state. Tables 6, 7, and 8 rank the states based on these parameters.

Table 5. Summary of 2002 Ozone Data by State

State	No. of Monitors	Exceedances of 8-Hour Standard	No. of Unhealthy Ozone Days	Exceedances of 1-Hour Standard
Alabama	24	57	21	1
Alaska	1	0	0	0
Arizona	32	68	16	0
Arkansas	6	24	13	2
California	188	2306	143	326
Colorado	17	8	3	0
Connecticut	11	179	36	51
Delaware	7	74	25	6
District of Columbia	3	44	21	9
Florida	57	3	3	0
Georgia	22	166	40	14
Hawaii	2	0	0	0
Idaho	4	1	1	0
Illinois	43	217	35	7
Indiana	42	422	31	24
Iowa	13	7	3	0
Kansas	7	5	4	0
Kentucky	33	225	41	3
Louisiana	28	10	6	5
Maine	12	69	17	12
Maryland	16	275	40	44
Massachusetts	15	122	30	22
Michigan	26	221	32	6
Minnesota	9	2	2	0
Mississippi	15	15	8	1
Missouri	21	174	36	5
Montana	2	0	0	0
Nebraska	4	0	0	0
Nevada	22	23	5	0
New Hampshire	16	51	13	5
New Jersey	15	291	44	38
New Mexico	21	0	0	0
New York	32	290	41	29
North Carolina	48	602	50	19
North Dakota	6	0	0	0
Ohio	50	800	47	22
Oklahoma	21	20	11	0
Oregon	8	1	1	0
Pennsylvania	50	594	50	26

Table 5, continued

State	No. of Monitors	Exceedances of 8-Hour Standard	No. of Unhealthy Ozone Days	Exceedances of 1-Hour Standard
Rhode Island	3	29	17	3
South Carolina	23	189	42	0
South Dakota	2	0	0	0
Tennessee	25	320	54	1
Texas	65	397	62	83
Utah	14	19	9	0
Vermont	2	7	5	1
Virginia	25	264	44	29
Washington	18	0	0	0
West Virginia	8	80	30	2
Wisconsin	37	147	22	15
Wyoming	2	0	0	0
TOTAL	**1173***	**8818**	**163****	**811**

* There are two additional monitors in the Virgin Islands and Puerto Rico, totaling 1,175 ozone monitors in 2002.
** Nationally, there were 163 days on which at least one ozone monitor in the country exceeded the national health standard.

Table 6. States Ranked by 2002 Smog Days

Rank	State	No. of Unhealthy Ozone Days
1	California	143
2	Texas	62
3	Tennessee	54
4	North Carolina	50
4	Pennsylvania	50
6	Ohio	47
7	New Jersey	44
7	Virginia	44
9	South Carolina	42
10	Kentucky	41
10	New York	41
12	Georgia	40
12	Maryland	40
14	Connecticut	36
14	Missouri	36
16	Illinois	35
17	Michigan	32
18	Indiana	31
19	Massachusetts	30
19	West Virginia	30
21	Delaware	25
22	Wisconsin	22
23	Alabama	21
23	District of Columbia	21
25	Maine	17
25	Rhode Island	17
27	Arizona	16
28	New Hampshire	13
28	Arkansas	13
30	Oklahoma	11
31	Utah	9
32	Mississippi	8
33	Louisiana	6
34	Nevada	5
34	Vermont	5
36	Kansas	4
37	Colorado	3
37	Florida	3
37	Iowa	3
40	Minnesota	2
41	Idaho	1
41	Oregon	1
TOTAL		163*

* Nationally, there were 163 days on which at least one ozone monitor in the nation exceeded the national health standard.

Table 7. States Ranked by 2002 8-Hour Ozone Exceedances

Rank	State	Exceedances of 8-Hour Standard
1	California	2306
2	Ohio	800
3	North Carolina	602
4	Pennsylvania	594
5	Indiana	422
6	Texas	397
7	Tennessee	320
8	New Jersey	291
9	New York	290
10	Maryland	275
11	Virginia	264
12	Kentucky	225
13	Michigan	221
14	Illinois	217
15	South Carolina	189
16	Connecticut	179
17	Missouri	174
18	Georgia	166
19	Wisconsin	147
20	Massachusetts	122
21	West Virginia	80
22	Delaware	74
23	Maine	69
24	Arizona	68
25	Alabama	57
26	New Hampshire	51
27	District of Columbia	44
28	Rhode Island	29
29	Arkansas	24
30	Nevada	23
31	Oklahoma	20
32	Utah	19
33	Mississippi	15
34	Louisiana	10
35	Colorado	8
36	Iowa	7
36	Vermont	7
38	Kansas	5
39	Florida	3
40	Minnesota	2
41	Idaho	1
41	Oregon	1
TOTAL		8818

Table 8. States Ranked by 2002 1-Hour Exceedances

Rank	State	Exceedances of 1-Hour Standard
1	California	326
2	Texas	83
3	Connecticut	51
4	Maryland	44
5	New Jersey	38
6	New York	29
6	Virginia	29
8	Pennsylvania	26
9	Indiana	24
10	Massachusetts	22
10	Ohio	22
12	North Carolina	19
13	Wisconsin	15
14	Georgia	14
15	Maine	12
16	District of Columbia	9
17	Illinois	7
18	Delaware	6
18	Michigan	6
20	Louisiana	5
20	Missouri	5
20	New Hampshire	5
23	Kentucky	3
23	Rhode Island	3
25	Arkansas	2
25	West Virginia	2
27	Alabama	1
27	Mississippi	1
27	Tennessee	1
27	Vermont	1
TOTAL		811

'VERY UNHEALTHY' OZONE CONCENTRATIONS IN 2002

Nationwide, 55 8–hour ozone concentrations fell within the "very unhealthy" range (0.125 – 0.374 ppm) on EPA's Air Quality Index in 2002 (see page 8 for more information on the Air Quality Index).

Los Angeles County, California and Harris County, Texas: With recorded values of 0.144 ppm, the Santa Clarita monitor in Los Angeles County and the Houston Regional Office monitor in Harris County tied for the highest 8-hour ozone concentration in 2002. Of 55 "very unhealthy" values, 17 were in California (Los Angeles, San Bernardino, El Dorado, Fresno, Riverside, and Merced Counties), whereas three were in Texas (Harris and Tarrant Counties).

Mid-Atlantic and Northeast: The majority of the other "very unhealthy" values were scattered among states along the Eastern seaboard, including **Massachusetts** (Norfolk, Suffolk, and Essex Counties), **Connecticut** (New Haven, Fairfield, New London, Middlesex, and Hartford Counties), **New York** (Dutchess County), **New Jersey** (Ocean, Morris, Gloucester, and Monmouth Counties), **Pennsylvania** (Allegheny and Chester Counties), **Maryland** (Harford and Cecil Counties), the **District of Columbia**, **Virginia** (Arlington, Fairfax, Stafford, and Henrico Counties), and **Georgia** (Rockdale and Henry Counties).

Table 9 lists the 55 locations that recorded 8-hour ozone concentrations in the "very unhealthy" range in 2002. See Appendix B for a complete list of the concentration of each 8-hour and 1-hour exceedance in 2002.

Table 9. Locations Recording 'Very Unhealthy' 8-Hour Ozone Readings (.125 ppm or Higher) in 2002

Rank	State	Date	Monitoring Location	County	8-Hour Reading (ppm)
1	California	7/10/02	Santa Clarita	Los Angeles	0.144
1	Texas	9/13/02	Houston Regional Office	Harris	0.144
3	District of Columbia	7/2/02	Washington DC	McMillan Reservoir	0.143
4	California	8/11/02	Santa Clarita	Los Angeles	0.142
5	California	7/9/02	Crestline	San Bernardino	0.139
6	California	6/15/02	Crestline	San Bernardino	0.138
6	New Jersey	7/9/02	Colliers Mills	Ocean	0.138
8	California	8/14/02	Cool-Highway 193	El Dorado	0.137
8	New York	8/14/02	Millbrook	Dutchess	0.137
10	California	7/9/02	Santa Clarita	Los Angeles	0.134
10	Connecticut	7/2/02	Madison	New Haven	0.134
10	Massachusetts	8/13/02	Blue Hill	Norfolk	0.134
11	Virginia	7/2/02	Arlington	Arlington	0.133
12	California	9/14/02	Fresno-Sierra Skypark #2	Fresno	0.132
12	Indiana	6/21/02	NAC	Marion	0.132
16	California	6/23/02	Crestline	San Bernardino	0.131
16	California	6/17/02	Crestline	San Bernardino	0.131
16	California	6/16/02	Santa Clarita	Los Angeles	0.131
16	Pennsylvania	7/8/02	New Garden	Chester	0.131
20	California	8/17/02	Banning Airport	Riverside	0.130
20	Georgia	6/12/02	McDonough	Henry	0.130
22	Connecticut	7/2/02	Stratford	Fairfield	0.129
22	New Jersey	8/12/02	Chester	Morris	0.129
24	California	7/11/02	Fresno-Sierra Skypark #2	Fresno	0.128
24	California	6/29/02	Crestline	San Bernardino	0.128
24	California	7/10/02	Fresno-Sierra Skypark #2	Fresno	0.128
24	District of Columbia	7/2/02	Washington DC	River Terrace	0.128
24	Maryland	6/24/02	Edgewood	Harford	0.128
24	New Jersey	7/8/02	Colliers Mills	Ocean	0.128
24	New Jersey	7/9/02	Clarksboro	Gloucester	0.128
24	Virginia	8/13/02	Franconia	Fairfax	0.128
32	Pennsylvania	8/11/02	Lawrenceville	Allegheny	0.127
32	Texas	8/9/02	Grapevine Fairway	Tarrant	0.127
32	Virginia	7/2/02	Mount Vernon	Fairfax	0.127
32	Wisconsin	6/22/02	Chiwaukee	Kenosha	0.127
36	California	8/1/02	Crestline	San Bernardino	0.126
36	Connecticut	7/18/02	Madison	New Haven	0.126
36	Connecticut	7/2/02	Groton	New London	0.126

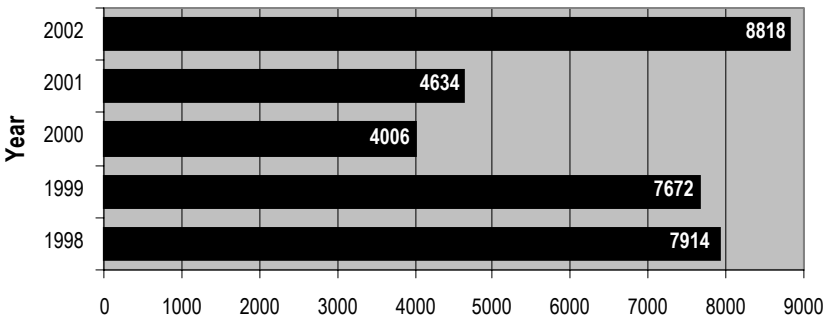
Table 9, continued

Rank	State	Date	Monitoring Location	County	8-Hour Reading (ppm)
36	Connecticut	8/13/02	E. Hartford	Hartford	0.126
36	Connecticut	7/9/02	Middletown	Middlesex	0.126
36	Maryland	7/8/02	Fair Hill	Cecil	0.126
36	Massachusetts	8/14/02	Newbury	Essex	0.126
36	Massachusetts	8/13/02	Boston/Long Island	Suffolk	0.126
36	Virginia	8/13/02	Widewater	Stafford	0.126
45	California	8/14/02	Merced-S Coffee Avenue	Merced	0.125
45	California	7/31/02	Crestline	San Bernardino	0.125
45	Georgia	6/12/02	Conyers	Rockdale	0.125
45	New Jersey	7/8/02	Clarksboro	Gloucester	0.125
45	New Jersey	7/9/02	Monmouth University	Monmouth	0.125
45	New Jersey	7/2/02	Colliers Mills	Ocean	0.125
45	New Jersey	8/13/02	Colliers Mills	Ocean	0.125
45	Texas	8/9/02	Keller	Tarrant	0.125
45	Virginia	8/13/02	Henrico	Henrico	0.125
45	Virginia	8/13/02	Mount Vernon	Fairfax	0.125
45	Virginia	7/2/02	Franconia	Fairfax	0.125

COMPARISON TO PREVIOUS OZONE SEASONS

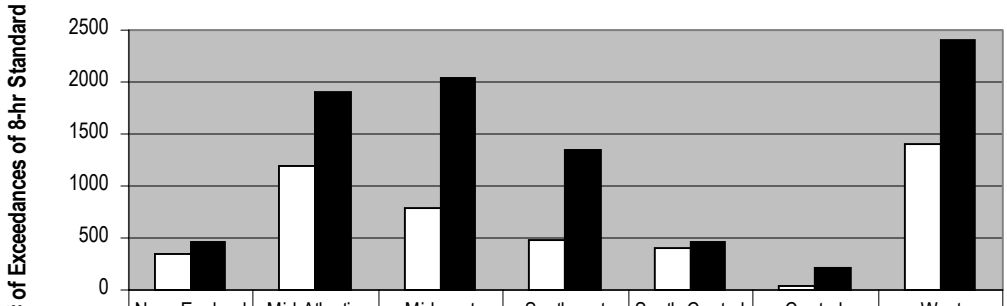
2002 was the worst ozone season for which we have data (1998-present; see Figure 5).[25] While ozone exceedances dropped from 1998–1999 levels in 2000–2001, they were back up—and higher than in previous years—in 2002.

Figure 5. Exceedances of 8-Hour Standard, 1998-2002



Compared with 2001, there was a 90 percent increase in 8-hour exceedances in 2002. Every region of the country exceeded the standard more often in 2002 than 2001 (see Figure 6). The largest increases were in the Midwest, Southeast, and Central states, which exceeded the ozone standard 2.6, 2.8, and 5.6 times more frequently than the previous year, respectively. Note that the number of ozone monitors remained relatively flat between 2001 and 2002, with the addition of just six monitors nationwide, less than a one percent increase.[26] Table 10 compares 8-hour exceedances and 1-hour exceedances in 2002 and 2001 by state and region.

Figure 6. Comparison of 8-Hour Ozone Exceedances for 2002 and 2001: By Region



	New England	Mid-Atlantic	Midwest	Southeast	South Central	Central	West
2001	347	1190	779	480	401	38	1399
2002	457	1912	2034	1337	466	213	2399

Table 10. Comparison of 2001 and 2002 Ozone Exceedances by Region*

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
	CT	105	179	70	38	51	34
	MA	125	122	-2	10	22	120
	ME	58	69	19	3	12	300
	NH	23	51	122	3	5	67
	RI	34	29	-15	8	3	-63
	VT	2	7	250	0	1	0
New England		**347**	**457**	**32**	**62**	**94**	**52**

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
	DC	24	44	83	3	9	200
	DE	53	74	40	2	6	200
	MD	214	275	29	22	44	100
	NJ	190	291	53	26	38	46
	NY	143	290	103	10	29	190
	PA	393	594	51	14	26	86
	VA	149	264	77	3	29	867
	WV	24	80	233	0	2	n/a
Mid-Atlantic		**1190**	**1912**	**61**	**80**	**183**	**129**

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
	IL	40	217	443	2	7	250
	IN	104	422	306	2	24	1100
	KY	54	225	317	1	3	200
	MI	159	221	39	5	6	20
	MN	3	2	-33	1	0	-100
	OH	250	800	220	2	22	1000
	WI	169	147	-13	8	15	88
Midwest		**779**	**2034**	**161**	**21**	**77**	**267**

Table 10, continued

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
	AL	31	57	84	3	1	-67
	FL	60	3	-95	2	0	-100
	GA	64	166	159	4	14	250
	NC	182	602	231	6	19	217
	SC	48	189	294	0	0	n/a
	TN	95	320	237	1	1	0
Southeast		**480**	**1337**	**179**	**16**	**35**	**119**

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
	AR	14	24	71	1	2	100
	LA	41	10	-76	1	5	400
	MS	10	15	50	0	1	n/a
	NM	2	0	-100	0	0	n/a
	OK	24	20	-17	1	0	-100
	TX	310	397	28	108	83	-23
South Central		**401**	**466**	**16**	**111**	**91**	**-18**

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
Plains	IA	1	7	600	0	0	n/a
	KS	5	5	0	0	0	n/a
	MO	14	174	1143	1	5	400
Rocky Mountain West	CO	3	8	167	0	0	n/a
	UT	15	19	27	1	0	-100
Central		**38**	**213**	**461**	**2**	**5**	**150**

	State	8-Hour Exceedances, 2001	8-Hour Exceedances, 2002	Percent Change	1-Hour Exceedances, 2001	1-Hour Exceedances, 2002	Percent Change
Pacific Northwest	ID	1	1	0	0	0	n/a
	OR	0	1	n/a	0	0	n/a
	WA	1	0	-100	0	0	n/a
Southwest	AZ	27	68	152	0	0	n/a
	CA	1359	2306	70	241	326	35
	NV	11	23	109	0	0	n/a
West Total		**1399**	**2399**	**71**	**241**	**326**	**35**
National Totals		**4634**	**8818**	**90**	**533**	**811**	**52**

* Seven states, including Alaska, Hawaii, Montana, Nebraska, North Dakota, South Dakota, and Wyoming, did not exceed the ozone standard in either year.

PRELIMINARY 2003 OZONE DATA

This report also includes preliminary data from 21 states and the District of Columbia for 2003, which has been a relatively mild and wet summer. With fewer hot and sunny days, ozone levels appear to have declined in many areas but still are unacceptably high and will rise again as soon as the heat returns, unless we successfully reduce emission levels.

As of the beginning of August, 20 of the 21 states and the District of Columbia exceeded the national health standard for ozone 1,148 times compared with a total of 3,961 times in those states during the entire 2002 ozone season, making for a less smoggy season overall. Exceedances are substantially lower in New Hampshire, South Carolina, and Illinois in particular. On the other hand, Colorado is having its worst smog season in recent years, and Florida and Louisiana already have exceeded the national health standard for ozone more frequently than in all of 2002. Table 11 details the preliminary data for 2003.

Table 11. Preliminary 2003 Ozone Data from 21 States and the District of Columbia

State	Preliminary No. of 8-Hour Exceedances, 2003	2003 Data as of	No. of 8-Hour Exceedances, 2002	No. of 8-Hour Exceedances, 2001
Texas	293	8/14/03	397	310
Pennsylvania	150	8/9/03	594	393
New York	102	8/9/03	290	143
North Carolina	93	8/9/03	602	182
New Jersey	71	8/9/03	291	190
Virginia	67	8/9/03	264	149
Maryland	55	8/9/03	275	214
Louisiana	53	8/3/03	10	41
Connecticut	40	8/11/03	179	105
Florida	33	8/14/03	3	60
Colorado	30	8/14/03	8	3
Georgia	28	7/31/03	166	64
Massachusetts	27	8/11/03	122	125
Illinois	22	7/31/03	217	40
Delaware	20	8/9/03	74	53
West Virginia	18	8/9/03	80	24
Maine	17	8/11/03	69	58
Rhode Island	11	8/11/03	29	34
South Carolina	9	8/13/03	189	48
District of Columbia	8	8/9/03	44	24
New Hampshire	1	8/11/03	51	23
Vermont	0	8/11/03	7	2
TOTAL	**1148**		**3961**	**2285**

LONG-AWAITED PROPOSAL TO IMPLEMENT 8-HOUR OZONE STANDARD FALLS SHORT

Although EPA revised the national ambient air quality standard for ozone in 1997, the agency has yet to actually implement it. Shortly after EPA adopted the standard, three states and dozens of industries, led by the American Trucking Association, challenged it; the U.S. Supreme Court unanimously rejected industry's arguments in 2001.[27]

After a six-year delay, in June 2003 EPA proposed "options" for implementing the 8-hour ozone standard that would actually weaken protections against smog.[28] EPA proposed giving polluted metropolitan areas more time and more loopholes to avoid taking steps needed to protect public health. In essence, the proposal would create more problems than it would solve. For instance:

- EPA is proposing to offer more "flexibility" in meeting ozone standards, even in the smoggiest areas of the country, a move that would leave people in these areas breathing dirty air for years to come. For example, New York City, which has failed to meet the 1-hour standard by the deadline required in the Clean Air Act, would receive a new 8-hour classification and yet another extension of time to cleanup its air. The old deadline for compliance under the 1-hour standard would disappear entirely, along with already-adopted pollution control limits on transportation emissions, opening the door to indiscriminant road-building.

- EPA's proposal would allow some of the smoggiest areas in the country to avoid additional protective New Source Review requirements based on the 8-hour standard, letting power plants and other stationary pollution sources off the hook. Far from saving money, this proposal would simply shift the cost of dirty air from industrial facilities to other sources by limiting the scope of cleanup requirements for industrial sources.

- EPA's proposal would allow even the smoggiest areas in the country to receive lower 8-hour classifications—and therefore less stringent control requirements—based only on predictions that the areas will meet the 8-hour standard within three years. Under this "incentive feature," EPA would allow an area with air dirty enough to receive a "serious" classification to be downgraded to the next highest (moderate) classification, thereby avoiding more protective planning and pollution control requirements.

- Under EPA's proposal, areas with average ozone concentrations high enough to warrant "moderate" or greater 8-hour ozone classifications, but not currently violating the less protective 1-hour standard, would be able to avoid congressionally-mandated controls altogether. In addition, some areas with air quality at levels just violating the new standard would be given an additional three-year pass, setting up the potential to avoid having to meet the standard until 2019.

EPA should reject these approaches and implement the 8-hour standard so as to best protect public health from the harmful effects of ozone.

WEAKENING RULES FOR INDUSTRIAL SOURCES OF AIR POLLUTION

'CLEAR SKIES INITIATIVE'

The Bush administration first unveiled its principles for reducing pollution from the electricity sector in February 2002. The crux of the administration's "Clear Skies" plan is to replace current Clean Air Act programs with national caps on electric sector emissions of nitrogen oxides, sulfur dioxide, and mercury, allowing sources to meet these obligations either by reducing emissions or purchasing "credits" from other sources that reduce emissions by more than required. The plan would:

- Delay and dilute cuts in sulfur, nitrogen, and mercury emissions from power plants compared with the timely enforcement of current law.

- Repeal Clean Air Act safeguards that require new power plants to install state-of-the-art pollution controls and other "grandfathered" plants to install modern pollution controls when rebuilt or expanded in ways that increase their pollution output.

- Effectively repeal the right of "downwind" states to force power plants in "upwind" states to reduce their power plant pollution until 2012. The plan would increase the burden of proof after 2012, making it nearly impossible to prove that upwind power plants are causing downwind pollution.

- Allow power plants to increase their emissions of carbon dioxide, relying on voluntary approaches to carbon dioxide emissions reductions, an approach long proven ineffective.

Table 12 compares power plant pollution under the Administration's "Clear Skies" plan versus implementation of current Clean Air Act protections.

Table 12. Comparison of 'Clear Skies' Plan with Enforcement of Existing Clean Air Act Protections

	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Mercury (Hg)
CLEAN AIR ACT (implementation of existing law)[29]	2 million ton cap by 2012[30]	1.25 million ton cap by 2010[31]	5 tons per year by 2008[32]
Bush Administration 'Clear Skies' Air Pollution Plan	*1st Step* 4.5 million ton cap by 2010 *2nd Step* 3 million ton cap by 2018	*1st Step* 2.1 million ton cap by 2008 *2nd Step* 1.7 million ton cap by 2018	*1st Step* 26 tons per year by 2010 *2nd Step* 15 tons per year by 2018
Increase Allowed by Bush Plan over Clean Air Act Existing Programs	*2010-2018* 2.5 million tons/yr more SO_2 *After 2018* 1 million tons/yr more SO_2	*2010-2018* 850,000 tons/yr more NO_x *After 2018* 450,000 tons/yr more NOx	*2010-2018* 21 tons/yr more mercury *After 2018* 10 tons/yr more mercury
Percent Increase Allowed by Bush Plan over Clean Air Act Existing Programs	*2010-2018* 225% as much SO_2 *After 2018* 150% as much SO_2	*2010-2018* 168% as much NO_x *After 2018* 136% as much NOx	*2010-2018* 520% as much mercury *After 2018* 300% as much mercury
Delay Allowed by Bush Plan over Clean Air Act Existing Programs	Up to 6 year delay	Up to 8 year delay	Up to 10 year delay

NEW SOURCE REVIEW

The Clean Air Act's New Source Review (NSR) program requires industrial facilities that make modifications that increase emissions to install modern pollution control technology. Without such provisions, the nation's industrial base would be forever "grandfathered," or excused, from having to contribute to efforts to clean the nation's air. On December 31, 2002, however, EPA finalized the first phase of the Bush administration's rollback of the NSR program.[33] The changes will allow more than 17,000 industrial facilities across the nation to actually increase emissions.[34]

The final rules:

- Allow power plants to avoid modern emissions control requirements by setting a baseline for future emissions based on their most polluting 24-month period in the last five years. Other industrial facilities, such as refineries and chemical plants, can base their emissions cap on any 24-month period in the past ten years. These caps are not required to decline over time. This allows old dirty units to continue operating and would allow increases in pollutants above current levels from some units.

- Allow sources that have installed pollution control technology in the past ten years to escape NSR for ten years after that installation, even if the source makes major changes that significantly increase emissions. This provision will remove the regulatory incentive to improve the "state of the art" in pollution control and essentially freeze progress for more than a decade, in effect creating a new "grandfathering" status.

- Allow non-utility sources of pollution to use a more lenient method of calculating whether a significant emissions increase has occurred as a result of a major modification, and therefore whether pollution controls are required.

- Allow a source to avoid cleaning up to modern standards for all pollutants if the source has installed pollution controls for only one pollutant. This means that a source that installs controls to cleanup nitrogen oxide emissions can make changes that increase emissions of sulfur dioxide, particulate matter, or benzene without modernizing controls for those pollutants.

In an April 2003 report to Congress and EPA, a panel of the National Academy of Public Administration, the first independent body to evaluate the NSR program and EPA's new rules, affirmed the program's fundamental role in reducing air pollution and protecting public health and strongly criticized EPA's changes.[35] The panel stated that the changes "will only broaden the loopholes and aggravate the administrative problems identified by the Panel that have allowed many older high-emitting facilities to avoid the [NSR] requirements for installing modern equipment."[36]

A July 2003 study of the impact of the new rules in 12 states by the Environmental Integrity Project and the Council of State Governments' Eastern Regional Conference found that the NSR changes would allow industrial facilities in the states to emit nearly 1.6 million additional tons of air pollution.[37]

Moreover, the Bush administration simultaneously proposed a second set of rollbacks to NSR rules in December 2002, which strike at the heart of the program.[38] The proposed rules would exempt from NSR requirements facility modifications classified as "routine maintenance, repair, and replacement," if the modifications fall below a yet-to-be-defined cost threshold. The exemption is intended to permit life extension projects at major older facilities without requiring additional pollution controls.

POSITIVE PROPOSAL TO CURB DIESEL POLLUTION

In sharp contrast to the rest of the Bush administration's air pollution record, in May 2003 EPA proposed a promising rule to sharply curb diesel pollution.[39]

The proposal covers the fuel and engines used to power diesel construction, farm, surface mining, and industrial equipment, a massive and long-overlooked source of air pollution. For three decades, the nation has worked to clean up cars and trucks but has all but ignored this other category of vehicles, which also includes locomotives and marine vessels. As a result, "non-road" diesel engines produce a disproportionate amount of pollution, including 3.7 million tons of smog-forming nitrogen oxides in 1999, or 29 percent of nitrogen oxide emissions from mobile sources.[40]

By requiring cleaner fuel and pollution controls similar to the catalytic converters used on cars for decades, EPA's proposed rules would reduce pollution from new diesel equipment by more than 90 percent—a plan EPA says would eventually prevent more than 9,600 premature deaths each year.[41] The proposal mirrors earlier clean air rules for diesel trucks and buses.

However, the standards would not be fully phased in for more than a decade, and the proposed rules do not cover trains, boats, and ships, which produce almost one-third of the pollution from non-road diesel engines.[42] Also, the proposal includes an "alternative" cost-benefit analyses that reduces the value attached to the lives of seniors and other Americans, which could erode the case for future public health and environmental regulations. In addition, the oil industry is lobbying EPA to weaken the enforcement mechanisms in the proposal, and diesel engine manufacturers are pressing for loopholes, exemptions, and further delay.

The Bush administration should speed up the diesel cleanup, extend the standards to trains and ships, drop the specious "alternative analysis," and reject industry's attempts to weaken the enforcement mechanisms and create loopholes in the rules.

CONCLUSION

Since 1998, air quality monitors in the 50 states and the District of Columbia have exceeded the national health standard for ozone more than 33,000 times. While the nation has made progress reducing air pollution in the last three decades, we are far from the very simple goal of ensuring that the air we breathe does not make us sick.

Although our findings point to the need for aggressive action to reduce air pollution, the Bush administration is working to weaken existing law on several fronts, which would leave Americans even more vulnerable to the health effects of air pollution.

Instead, policymakers and regulators should work to clear the smog from our skies by reducing emissions from smokestacks and tailpipes, the largest sources of smog-forming pollutants. The U.S. EPA, state environmental agencies, and other policymakers should:

- Reject the Bush administration's "Clear Skies" plan, which would allow more than one and a half times more smog-forming nitrogen oxides in our air from 2010 to 2018 compared with the timely enforcement of current law.
- Adopt a comprehensive new program to reduce emissions of sulfur dioxide, nitrogen oxides, carbon dioxide, and mercury from power plants.
- Abandon regulatory efforts designed to weaken the application of New Source Review, a critical clean air enforcement program that requires industrial facilities to install modern pollution controls when they make other major modifications that increase emissions.
- Ensure timely designation of 8-hour ozone nonattainment areas.
- Oppose efforts to delay or weaken Clean Air Act requirements that apply to ozone nonattainment areas.
- Adopt fuel and emission standards for "non-road" diesel construction, farming, and industrial equipment, as well as trains and ships, to reduce emissions from these vehicles and engines by at least 90 percent.

Modern pollution controls could reduce emissions of smog-forming pollutants from power plants and other industrial facilities, cars, trucks, and heavy equipment by upwards of 75 percent. Moreover, a shift from fossil fuels to energy efficiency and clean, renewable energy sources would result in clearer skies and improved public health for generations to come.

APPENDIX A. DATA SOURCES

Number of Ozone Monitors by State: U.S. EPA's AirData website, Monitor Count, accessed at http://www.epa.gov/air/data/geosel.html, 13 August 2003.

Alabama: Personal communication with Alabama Department of Environmental Management, 11 August 2003.

Arizona: Personal communication with Arizona Department of Environmental Quality, 5 August 2003.

Arkansas: Personal communication with Arkansas Department of Environmental Quality, 6 August 2003.

California: Personal communication with California Air Resources Board, Air Quality Data Section, 11 August 2003.

Colorado: *For 2002 and 2003 8-hour data*: Colorado Department of Public Health and Environment's Air Quality Index Reporting System, accessed at http://apcd.state.co.us/psi/, 11 August 2003. *For 1-hour data*: Personal communication with the Colorado Department of Public Health and Environment, 10 June 2003.

Connecticut: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

Delaware: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

District of Columbia: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

Florida: Florida Department of Environmental Protection, accessed at http://www.dep.state.fl.us/air/ozone/SelectReport.asp, 12 August 2003.

Georgia: *For 2002 data*: Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, accessed at http://www.air.dnr.state.ga.us/tmp/02exceedances/index.php, 12 August 2003. *For 2003 data*: Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, accessed at http://www.air.dnr.state.ga.us/tmp/03exceedances/index.php, 14 August 2003.

Idaho: Personal communication with Idaho Department of Environmental Quality, 4 August 2003.

Illinois: Illinois Environmental Protection Agency, accessed at http://www.epa.state.il.us/air/ozone/exceedances.html, and personal communication with the agency, 4 August 2003.

Indiana: Indiana Department of Environmental Management, accessed at http://www.in.gov/idem/air/amb/ambient/summary/reports/OZONE%20VALUES%20FOR%202002.xls, 13 August 2003.

Iowa: Iowa Department of Natural Resources, accessed at http://www.state.ia.us/epd/air/current/files/new2002.pdf, 12 August 2003.

Kansas: Personal communication with Kansas Department of Health and Environment, 6 August 2003.

Kentucky: Personal communication with Kentucky Division for Air Quality, 5 August 2003.

Louisiana: Personal communication with Louisiana Department of Environmental Quality, 6 August 2003.

Maine: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

Maryland: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

Massachusetts: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

Michigan: *For 8-hour data*: Michigan Department of Environmental Quality, accessed at http://www.deq.state.mi.us/aqi/content/mi_2002_ozone.pdf, 12 August 2003. *For 1-hour data*: Michigan Department of Environmental Quality, accessed at http://www.deq.state.mi.us/aqi/content/Ozone1hr.shtm, 12 August 2003.

Minnesota: Personal communication with Minnesota Pollution Control Agency, 7 August 2003.

Mississippi: Personal communication with Mississippi Department of Environmental Quality, 4 August 2003.

Missouri: Personal communication with Missouri Department of Natural Resources, 4 August 2003.

Nevada: Clark County Department of Air Quality's 2002 air quality report, accessed at http://www.ccairquality.org/report/report.html, and personal communication with Clark County Department of Air Quality, August 2003.

New Hampshire: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

New Jersey: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic

Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

New York: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

North Carolina: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

Ohio: Personal communication with Ohio Environmental Protection Agency, 6 August 2003.

Oklahoma: *For 8-hour data*: Oklahoma Department of Environmental Quality, accessed at http://www.deq.state.ok.us/AQDNew/monitoring/archcharts/oz8hr-02.htm, 12 August 2003. *For 1-hour data*: Oklahoma Department of Environmental Quality, accessed at http://www.deq.state.ok.us/AQDnew/monitoring/archcharts/oz1hr-02.htm, 12 August 2003.

Oregon: Personal communication with Oregon Dept of Environmental Quality, 17 March 2003.

Pennsylvania: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

Rhode Island: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

South Carolina: *For 2002 data:* South Carolina Department of Health and Environment Control, accessed at http://www.scdhec.net/eqc/baq/html/modeling.html, 12 August 2003. *For 2003 data:* South Carolina Department of Health and Environment Control, accessed at http://www.scdhec.net/eqc/baq/pubs/03summry.xls, 14 August 2003.

Tennessee: Tennessee Department of Environment and Conservation, accessed at http://www.state.tn.us/environment/apc/ozone/ozonedata.php and http://www.state.tn.us/environment/apc/ozone/pdf/2002FinalVAOD.pdf, 13 August 2003.

Texas: Texas Natural Resource Conservation Commission, accessed at http://www.tnrcc.state.tx.us/air/monops/ozoneindx.html, 12 August 2003.

Utah: Personal communication with Utah Department of Environmental Quality, 5 August 2003.

Vermont: *For 2002 and 2003 8-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/oms/index.html, 12 August 2003. *For 2002 1-hour data*: U.S. EPA's Region I Air Quality Index website, accessed at http://www.epa.gov/region01/eco/ozone/2002-1hr.pdf, 12 August 2003.

Virginia: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic

Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

West Virginia: *For 2002 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2002/2002.xls, 12 August 2003. *For 2003 data*: Mid-Atlantic Regional Air Management Association website, accessed at http://www.marama.org/ozone/2003/weeklyXL.html, 14 August 2003.

Wisconsin: Personal communication with Wisconsin Department of Natural Resources, 5 August 2003.

APPENDIX B. EXCEEDANCES OF 8-HOUR AND 1-HOUR OZONE STANDARDS IN 2002

NATIONAL

Highest 8-hr Average	0.144
Highest 1-hr Average	0.178
Total 8-hour Exceedances	8818
Total 1-hour Exceedances	811
Total Smog Days	163
Number of Ozone Monitors	1175

For a complete list of exceedances in each state, please visit our website at www.uspirg.org.

NOTES

[1] U.S. Environmental Protection Agency (EPA), *Latest Findings on National Air Quality: 2001 Status and Trends*, EPA 454-K-02-001, September 2002.
[2] U.S. EPA, *Air Quality Criteria for Ozone and Related Photochemical Oxidants*, EPA/600/p-93-0004aF, 1996.
[3] American Lung Association (ALA), *State of the Air 2003*, May 2003.
[4] See note 2.
[5] Ibid.
[6] U.S. EPA, *Draft Regulatory Impact Analysis: Control of Emissions from Non-Road Diesel Engines*, EPA 420-R-03-008, April 2003.
[7] Rob McConnell et al, "Asthma in Exercising Children Exposed to Ozone: A Cohort Study," *Lancet*, 359, 386-391, 2 February 2002.
[8] Centers for Disease Control and Prevention, National Center for Environmental Health, *Asthma's Impact on Children and Adolescents*, downloaded from www.cdc.gov/nceh/airpollution/asthma/children.htm, 15 August 2003.
[9] See note 7.
[10] See note 2.
[11] See also, Abt Associates, *Out of Breath: Adverse Health Effects Associated with Ozone in the Eastern United States* (October 1999), that linked ozone to an estimated 159,000 emergency room visits and 69,000 hospital admissions in the eastern half of the U.S. alone during the 1997 smog season.
[12] Richard T. Burnett et al, "Association between Ozone and Hospitalization for Acute Respiratory Diseases in Children Less than 2 Years of Age," *American Journal of Epidemiology*, 153(5), 444-452, 2001.
[13] Beate Ritz et al, "Ambient Air Pollution and Risk of Birth Defects in Southern California," *American Journal of Epidemiology*, 155(1) 17-25, 2002.
[14] Yun-Chul Hong et al, "Effects of Air Pollutants on Acute Stroke Mortality," *Environmental Health Perspectives*, 110(2), 187-191, February 2002; and Yun-Chul Hong et al, "Air Pollution: A New Risk Factor in Ischemic Stroke Mortality, *Stroke*, 33(9), 2165.
[15] Michael S. Friedman et al, "Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma," *JAMA*, 285(7), 897-905, 21 February 2001.
[16] U.S. EPA, *Air Quality Index: A Guide to Air Quality and Your Health*, EPA-454/R-00-005, June 2000.
[17] U.S. EPA, *Guideline for Reporting of Daily Air Quality—Air Quality Index*, EPA-454/R-99-010, July 1999.
[18] See note 1.
[19] See note 3.
[20] See note 1.
[21] Ibid.
[22] National Parks Conservation Association, *Code Red: America's Five Most Polluted National Parks*, September 2000.
[23] See note 1.
[24] National Park Service, Air Web, *List of High Ozone in Park Units—2002 Season*, downloaded from www2.nature.nps.gov/ard/gas/exceed2002.htm, 11 August 2003.
[25] U.S. Public Interest Research Group (PIRG) Education Fund, *Danger in the Air: The 2001 Ozone Season Summary*, August 2002; U.S. PIRG Education Fund, *Danger in the Air: Unhealthy Smog Days in 2000*, January 2001; and U.S. PIRG Education Fund, *Danger in the Air: Unhealthy Smog Days in 1999*, January 2000.
[26] For the number of ozone monitors for each year between 1998 and 2002, refer to EPA's Monitor Count Report, available at http://www.epa.gov/air/data/moncount.html?us~usa~United%20States.
[27] *Whitman v. American Trucking Assoc.*, 531 U.S. 457 (2001).

[28] U.S. EPA, "Proposed Rule to Implement the 8-House Ozone National Ambient Air Quality Standard," 68 *Federal Register* 32802, 2 June 2003.
[29] U.S. EPA, "Discussion of Multi-Pollutant Strategy," Meeting with Edison Electric Institute, 18 September 2001 (see page 10, Comparison of Requirements Under Business-as-Usual and the Straw Proposal), available at cta.policy.net/currentstatus.pdf.
[30] Ibid.
[31] Ibid.
[32] U.S. EPA, 4 December 2001 (supplementary presentation for Edison Electric Institute on mercury), available at cta.policy.net/epamercury.pdf.
[33] U.S. EPA, "Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR); Final Rule and Proposed Rule," 67 *Federal Register* 80185, 31 December 2002.
[34] Savethecleanairact.org, Air Pollution Sources, *Number of Facilities Allowed to Emit More Air Pollution Under EPA's Weakening of New Source Review Rules*, downloaded from www.savethecleanairact.org/public/facilities/, 15 August 2003.
[35] National Academy of Public Administration, *A Breath of Fresh Air: Reviving the New Source Review Program, Summary Report*, April 2003, available at www.napawash.org.
[36] Ibid., 37.
[37] Environmental Integrity Project and the Council of Governments' Eastern Regional Conference, *Reform or Rollback? How EPA's Changes to New Source Review Affect Air Pollution in 12 States*, 28 July 2003.
[38] U.S. EPA, "Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Routine Maintenance, Repair and Replacement," 67 *Federal Register* 80290, 31 December 2002.
[39] U.S. EPA, "Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel; Proposed Rule, 68 *Federal Register* 28327, 23 May 2003.
[40] Union of Concerned Scientists, *Cleaning Up Diesel Pollution: Emissions from Off-Highway Engines by State*, June 2003.
[41] See note 39.
[42] See note 40.