http://www.reason.com
http://www.reason.com/news/show/30368.html

reasononline
FREE MINDS AND FREE MARKETS

Polluted Science

New air pollution regulations based on questionable science and creative economic analysis could cost billions and change the way Americans mow their lawns, heat their homes, clean their clothes, and barbecue their burgers. Can Congress stop this regulato

Michael Fumento | August/September 1997 Print Edition

The town of Salmon, Idaho (population 3,100) is being done in by two medium-sized fish and one huge federal agency. Ironically, the fish are the town's namesakes. The presence of two endangered species of salmon in nearby waters forced the town's only real industry, a sawmill, to close two years ago. Now, says Mayor Stanley Davis, "We're the third endangered Salmon."

But it gets worse. Current EPA air pollution regulations have forced the now-impoverished town to convert one of its school's sawdust-burning heaters to propane, at a cost of a quarter million dollars. The other heater will cost almost a half million dollars to convert--if the town can find the money.

And it gets worse yet. Idaho has informed the town that Salmon will not be in compliance with proposed *new* EPA air pollution regulations, which could require the conversion of every home's heater. Salmon's population density, incidentally, is close to nothing--one resident per 500 acres. Its air pollution "problem" comes not from smokestacks but from dirt roads and the occasional forest fire on surrounding federal lands. "It's usually about as pristine as you can get," says Davis. "It's as if the EPA regulations are designed for us not to be here. We just can't comply." If it's any solace, Salmon will have a lot of company: Much of the nation won't be able to comply.

Call it the November Surprise. Three weeks after Bill Clinton was safely re-elected, the EPA unveiled proposals for what *Industry Week* has called the most "explosive" and perhaps most costly regulations the EPA has ever promulgated. The agency and its boss, Carol Browner, claim the new restrictions, purportedly based on the best information science has to offer, will prevent 15,000 premature deaths annually, head off 500,000 respiratory illnesses annually, and improve air quality for 130 million Americans. And not only will this cost us essentially nothing, it will boost the economy!

Sorry, but you know what they say about things that sound too good to be true. In fact, the proposed standards will cost localities that try to comply a fortune. The EPA's bureaucratic tentacles will be extended into new areas--personal and geographic--that a few years ago would have been unthinkable. The effects of the proposals may cause some of us physical harm. And as

far as the science is concerned, the EPA's position is so meritless that one of the nation's leading air pollution experts has called it the equivalent of "witchcraft."

The proposed standards, which the EPA intends to impose in final form in July and start enforcing in 2002, would become part of the National Ambient Air Quality Standards of the Clean Air Act. They are aimed at reducing two types of pollution.

The first is particles in the air, called particulates. Particulate matter, abbreviated as PM, can be solid or liquid. It can be emitted directly, or it can be formed when gaseous pollutants (called "precursors") react. One common way of categorizing PM is by size. Thus "PM10" includes particles 10 microns wide or smaller. (A micron is a millionth of a meter, or one-hundredth the width of a human hair.) While the EPA now regulates only PM10, the new standards would also specifically regulate "fine particles," 2.5 microns wide or less, called PM2.5. Most PM2.5 comes from the precursors sulfur dioxide (largely from power plants and factories) and nitrogen oxide (mostly from power plants, factories, and vehicles). When these chemicals combine with oxygen, they are transformed into fine particulates.

The second type of pollution is ground-level ozone, better known as "photochemical smog." Ozone is formed when two different precursor gases, nitrogen oxide and volatile organic compounds, or VOCs (mostly from vehicles but also from paints, barbecues, and industrial processes such as baking and dry cleaning), mix together and are "cooked" by sunlight.

The EPA readily admits, and has published data that clearly show, that the levels of all these pollutants are already dropping, as you can see from Table 1. The agency's annual report, released in December, showed that all six of its target pollutants, including ozone and particles, have been declining steadily for 10 years. Overall, the measured pollutants have decreased nationally by almost 30 percent, even as population has increased by 28 percent, and vehicle miles by 116 percent.

So why the new action? Because the American Lung Association sued the EPA on the grounds that the 1970 Clean Air Act says the administration must review its criteria every five years, and the EPA had not done so for particulates. The ALA won, but all it earned was a review. Nobody ordered the EPA to set a new, tighter standard; that was the EPA's own decision.

The agency also decided to propose a stricter ozone standard because, it said, there are factors common to both ozone and particulates emissions. But the same could be said of many other types of emissions, as Jack Gibbons of the White House Office of Science and Technology Policy has pointed out in urging that the ozone standard be delayed. Gibbons is one of many people, from scientists to administration officials to prominent liberal congressmen, who are only a little less outraged and befuddled than Mayor Stanley Davis and his Idaho neighbors. This time, maybe--just maybe--the EPA might not get its way.

Something in the Air

The current standard for ozone is no more than 0.12 parts per million (ppm) during the highest-level hour each day. An area may exceed this standard only three times over three years. In its new

proposal, the EPA recommends a maximum of 0.08 ppm, averaged over eight hours. Under this new standard, the agency would take the third highest eight-hour concentration each year from each monitor, and average it with the third highest from that same monitor for the past two years. If that average is over 0.08 ppm at any monitor, the area would be out of attainment and must take action. If that confuses you, don't worry. It's not a big point of contention. In fact, even most EPA critics say that this is one part of the new proposal that makes sense, since an area is less likely to be tipped out of compliance due to unusual weather.

For most people, ozone becomes unhealthy--causing coughing, shortness of breath, chest pain, and so forth--well above the current EPA standard. These effects are usually temporary, and may always be so. Except for those exercising strenuously, few people notice their own reaction to ozone. But a small portion of the populace experiences significant loss of lung function at relatively low ozone concentrations. These people are called "responders," and it's quite possible that for some of them ozone causes problems all the way down to the so-called background level: No matter where you set the standard, some responders will suffer. But there aren't many of them. According to EPA estimates, in a city of 1 million, there might be three added summertime hospital admissions per day if the ozone level tripled from a background concentration of around 0.05 ppm to 0.15 ppm.

Even so, the new standard is so tough that according to the agency, it would more than double the counties out of compliance, from 105 to 228, and there could be many more. In at least some areas it would require eliminating essentially *all* man-made ozone precursors, and maybe even some natural ones: A significant amount of VOCs can come from green plants. Canada's version of the EPA, Environment Canada, commissioned a report in 1989 finding that the vast majority of the VOCs in that country's air come from plants, especially trees.

Lower ozone may benefit some people but harm others, because ground-level ozone is a shield from ultraviolet light, just as is stratospheric ozone. Among the possible results, according to the Department of Energy, are increased melanoma (with 25 to 50 fatalities) and nonmelanoma skin cancer rates, and more cataract cases. But the Clean Air Act doesn't require the EPA to take such effects into account, so it didn't.

For particulates, the current PM10 standard allows an annual average concentration of 50 micrograms per cubic meter of air, and a maximum of 150 such micrograms in a 24-hour period. But concern has grown that the worst particles are PM2.5. "The scientific evidence indicates that very small particles pose the greatest risk to human health and are most likely to lead to respiratory complications, including death," Carol Browner said in announcing the standards in November. (On another occasion, the EPA administrator said, "The smaller particles that penetrate farther into the human lung present the greatest risk." But that wasn't Browner. It was William Ruckelshaus, proposing the current *PM10* standard in 1984.)

Anyway, PM2.5 particles are the most likely to lodge deeply in the lungs, though they are eventually expelled or dissolved. The new standard would allow no more than a yearly average of 15 micrograms of PM2.5 per cubic meter of air, with a maximum 24-hour average of 50 micrograms.

By regulating PM10, the EPA already regulates PM2.5, because it's a subset--just as regulations concerning all cars are regulations on small cars. Indeed, roughly speaking, if you collected a pound of PM10, about eight ounces of that would be PM2.5, though this varies from region to region. But specifically regulating PM2.5 would put more focus on both monitoring and eliminating those particles. The relevant numbers are in the table on page 31.

Once you've learned these numbers, you can forget them, so long as you keep this in mind: By everybody's estimation, the requirements of the proposed EPA standard are going to be a lot harder to meet. Most primary PM2.5 is from dust, soil, and wood burning, leading some opponents of the EPA's proposal to state erroneously that these are the greatest contributors to PM2.5 in the air. When you take into account the precursors, the major source of PM2.5 is really the burning of fossil fuels, especially coal. To get fewer such fine particles means burning less such fuel, or burning it more cleanly.

The EPA considers 41 counties out of compliance now; if we switch to the new standard, that will more than quadruple, to 167. For each such county, the EPA can threaten to withhold highway or other funds, forcing local authorities to implement controls on businesses and citizens. "The EPA is more like the Don, making local governments the hit men," says Bonner Cohen, the editor of the newsletter *EPA Watch*. These hit men, in turn, make local citizens offers they can't refuse. Businesses can be ordered to change practices; car owners can be made to add equipment; building permits can be denied. In Southern California, such regulations (not as strict as the new ones) have had a devastating effect on industry, forcing many companies to flee the state or go south of the border to Mexico.

The EPA and its allies would have you think there isn't the least doubt that particulates at current levels are a cause of illness. They speak loftily of a "fairly consistent and robust relationship," in the words of one national health official, between particles and health problems ranging from coughing to death. Browner is not only on the side of the angels, she says; she is on the side of solid science. In her February testimony before Congress, she said the EPA's Clean Air Scientific Advisory Committee (CASAC) had reviewed "86 studies...indicating that our current air standards are not adequately protecting the public's health." It's a number she repeats as if it were a protective mantra.

In fact, most of the major studies were conducted by a tiny number of researchers, none of whom have medical degrees. Moreover, a large number of legitimate, highly respected scientists question the whole PM2.5--and even PM10--paradigm. They've published their doubts in major, peer-reviewed medical and scientific journals, but since these are the "wrong" conclusions, the EPA has ignored them. Consider the shootout in Utah Valley, where the controversy began.

How Grim Was My Valley?

On a clear day in Utah Valley, you can see, well, pretty darned far. But when there's an air inversion caused by the trapping effects of the Wasatch Mountains to the west, a yellowish-brown haze covers much of the sky "as if somebody put a lid above the top of a trash can fire," in the words of one former resident. If air pollution at current levels were killing Americans, you'd expect it to be happening here. And you'd find it relatively easy to detect, because you wouldn't have to

worry much about smokers (the populace is overwhelmingly nonsmoking Mormons), who can cloud statistics about pollution health effects. Sure enough, an enterprising economist from Brigham Young University looked for a correlation between pollution and illness here, and he found one.

C. Arden Pope made a splash in 1989 with an article in *The American Journal of Public Health*. He'd studied health effects from a shutdown (due to a strike) of the Geneva Steel Mill, which, according to Pope, contributed anywhere from half to 80 percent of all the particulate pollution in the valley's air. Pope's conclusion: "PM10 levels were strongly correlated with hospital admissions." Indeed, reported Pope, "children's admissions were two to three times higher" when the mill was open than when it was closed.

Pope's work is the bedrock of the EPA/environmentalist position. But Pope's findings have nothing to do with particulates; rather, they are explained by contagious disease. "Every other year the Utah Valley has an epidemic of viral bronchiolitis, an infection of the tiniest tubes in the lungs," explains Joseph Lyon, an M.D. and a professor of epidemiology at the University of Utah. "It raises hospitalization rates dramatically. The year when the steel mill was closed was a low year for this disease." Data he and others presented in the January 1996 *Journal of Pediatrics* show exactly that. During the epidemic years, children's hospitalization rates for respiratory problems increased 250 percent over odd-numbered years. This correlates exactly with Pope's findings. Sure enough, the plant happened to have been closed during a nonepidemic year.

Three years later, Pope, along with another researcher at Brigham Young and Joel Schwartz, a former EPA researcher who now works at Harvard, looked for a correlation between high PM10 levels in Utah Valley and higher death rates. They said they found one. Although in sheer numbers the increases were small--on average only two or three people die in Utah County (where Utah Valley is) each day--the highest particulate jumps, they said, led to a 16 percent increase in deaths.

Examining these results, Lyon and his colleagues at the University of Utah Medical Center used Utah County data for six consecutive years and found that in four of them, there was indeed an association between high PM10 levels and more deaths and hospitalizations for respiratory diseases. But for two of those years, there was no correlation. Why would PM10 kill and injure in four years, but not the other two?

In another study, published in the journal *Inhalation Toxicology*, Lyon and colleagues found no significant increase in deaths following increased levels of PM10 in the air for any of eight years studied. They did find such an increase in two of the eight years for cardiovascular disease, but not the other six.

Then Lyon and his colleagues compared Utah County with Salt Lake County. The adjacent counties suffer the same air inversions, and while Utah County has the steel plant, Salt Lake County has a copper smelting plant that puts out more particulates. In any case, says Lyon, "There is a substantial air mixing between the two counties." What did he find? "We essentially found no association in Salt Lake County to PM10," says Lyon. "There was simply no effect."

Lyon says that "if the relationship is causal" between particulates and hospitalizations, "you'd expect it to be pretty consistent. Yet we have found an association that in some years isn't present, and is inconsistent when comparing two counties that share the same air. So just how causal can this thing be?" Others have come to the same conclusion, among them Patricia Styer and others at the National Institute of Statistical Sciences (NISS), who studied both Salt Lake County and Cook County, Illinois, in 1995 and concluded in *Environmental Health Perspectives* that "[t]he reported effects of particulates on mortality are unconfirmed."

But to the EPA, environmental groups, and the media, Pope remains infallible. Along with Schwartz and another Harvard researcher, Douglas Dockery, Pope has become one of the Particle Hunter Triumvirate. Indeed, when you look at all the American studies that find particles causing health associations, these three names keep popping up as the authors.

Little Things Mean a Lot

In Birmingham, Alabama, Schwartz found that deaths went up when PM10 went up. In a separate paper, he showed that increases in PM10 and hospital admissions among the elderly were linked. Jonathan Samet of Johns Hopkins University (who, unlike Schwartz, has medical credentials) did an evaluation of these studies for the Health Effects Institute and confirmed Schwartz's findings. Thus, there are three different papers showing that PM10 levels in present-day Birmingham are high enough to cause harm, even death. Case closed? Not quite.

Because swings in temperature can hospitalize and kill, good particulate studies take temperature into account. The Birmingham studies did this. But what they didn't account for is one of Birmingham's most distinctive features--summer humidity that wraps you up in a hot, sticky blanket of moist air. Researchers at NISS in North Carolina, an area known for its own humidity, did account for it when they did a follow-up study of Birmingham. In an as-yet-unpublished report funded by the EPA, NISS factored in humidity changes and found that both for illness and death "the PM10 effect is not statistically significant."

It may be surprising that a factor like humidity can invalidate the results of such a study. But it's less so if you understand that one of the most consistent features of particulate studies is that they are anything but "robust." When researchers do find an increase in deaths or illness, it's always a tiny one. "The relative increase in total mortality and morbidity associated with a 50 percent increase in air particulates is not large," admitted CASAC member and University of North Carolina epidemiologist Carl Shy in his congressional testimony backing the EPA's proposed standard, "being on the order of 5 to 10 percent above [that] on days with the lowest concentrations." But he added that because this was spread across such a large population, you could be talking about a lot of sick and dying people. That misses the point, which is that when you have just a tiny increase, any little mistake in your methodology could account for it.

In other contexts, the public health community argues that such increases are meaningless. After one study suggested that women who had undergone induced abortions had a 50 percent higher breast cancer risk, an editorial in the *Journal of the National Cancer Institute* warned that such a difference "is small in epidemiologic terms and severely challenges our ability to distinguish if it

reflects cause and effect or if it simply reflects bias." It was a typical reaction to that study and, though politically biased, correct.

But with particulates, a mere 5 percent to 10 percent apparent increase in risk is enough to justify foisting new regulations costing hundreds of billions of dollars on the public. The only federal agency that has ever used such a tiny apparent increase as a basis for regulations was, in fact, the same EPA. That was when the agency decided that a 19 percent increased risk was solid enough to institute sweeping regulations against secondhand cigarette smoke.

Indeed, the particulate studies provide a textbook example of *why* small increases in risk may mean nothing. Merely focusing on different periods of time can completely alter a study's results. Neil Roth of Roth Associates in Rockville, Maryland, looked for a pollution health hazard in Birmingham using later data than Schwartz did. "Ours went from the late '80s into the early '90s, while his were from 1985 through 1988," says Roth. "We did thousands of different analyses on both the hospital admissions and the mortality data," he says, and "found the overwhelming majority of results were not statistically significant. Of those that were, half were positive but the other half were negative. So, in short, we found no evidence of health hazards from particulates in Birmingham."

This happens repeatedly. Schwartz gave Stanford statisticians his data showing a significant association between hospital admissions and particulate pollution in Detroit. When the statisticians analyzed them the same way he did, they found the same thing. But when they incorporated the potential influence of the day of the week into the model (because people tend to go to hospitals on certain days), particulate matter was no longer a significant factor. Similarly, when Dr. Suresh Moolgavkar, of the Fred Hutchinson Cancer Research Center in Seattle, and other researchers looked at Schwartz and Dockery's work correlating deaths with particulates in Steubenville, Ohio--one of America's most polluted cities--they found no such connection. When Schwartz looked at Minneapolis-St. Paul, he found that particle increases caused more old people to go to hospitals. When Moolgavkar and associates looked, they found the strongest association with ozone.

A Tale of Six Cities

The so-called Harvard Six Cities Study, in which Dockery, Pope, and others compared air pollution and premature deaths in six American cities, is one of the most important weapons in the EPA's PM2.5 advocacy arsenal. Published in the December 9, 1993, *New England Journal of Medicine*, the study found that Steubenville, with the most air pollution and most particulate pollution of the cities, had a 26 percent higher mortality rate than Portage, Wisconsin, the cleanest city.

But what the researchers also found--and what none of the particle pursuers ever talk about--was that among nonsmokers there was no statistically significant difference in deaths between these two cities. Moreover, there was none if you excluded persons with occupational exposures to "gases, fumes, or dust." It was only when including smokers, former smokers, and persons with occupational exposures that the researchers were able to get significant findings. You can see this in the study's own Table 3.

But in the text, Dockery and his associates state, "Although cigarette smoking and other risk factors were associated with mortality, our estimates of pollution-related mortality were not significantly affected by the inclusion or exclusion of these variables in the models." How do they figure that? In the study's Table 4, they abandon the "nonsmokers" category, replacing it with a new one that blurs the distinctions between the "nonsmoker," "current smoker," and "former smoker" categories. Voilà! They have now converted the entire Six Cities Study from negative to positive. Do that in your doctoral dissertation, and you could be in serious trouble. Do it in a medical journal, and you're the hero of the EPA.

But even if the authors had found what they claimed, it would be a very weak study. Comparing one city to another may seem a useful idea, but it can cause serious comparison problems: You have to adjust for every health-related difference between them.

Critics note that Dockery and Pope clearly didn't make adjustments. They didn't control for humidity, they didn't control for temperature, they didn't even consider income differences.

Such factors could throw off the whole study: Steubenville is considerably poorer than Portage. "Poor persons tend to die more quickly during extreme weather conditions than wealthier ones," says Roger McClellan, a former CASAC chairman and president of the Chemical Industry Institute of Toxicology in Research Triangle Park, North Carolina. As part of the National Health Survey, a 1996 study found that persons living below the poverty line, for a variety of reasons including unhealthier lifestyles and less screening, are far more likely to become sick than wealthier persons. Persons covered by Medicaid were four to five times more likely to have emphysema, chronic bronchitis, and congestive heart failure than those whose incomes were above the Medicaid qualification level. Fred Lipfert of the Brookhaven National Laboratory in Upton, New York, has also found a correlation between a sedentary lifestyle and premature death in five of the six cities.

"It's anybody's guess as to why residents of Steubenville have a higher risk of dying than Portage," says Moolgavkar. It may be some form of air pollution, he says. "A lot of indices of pollution were higher in Steubenville. Still, I don't think that's enough to say pollution caused the mortality, much less to say it was fine particles."

Pollution by Proxy

Philadelphia, the City of Brotherly Love, has also proven a lovely place for particulate studies. Schwartz and Dockery found that as particulates went up there, so did deaths. Three years later, in 1995, Neil Roth and his colleague Yuanzhanh Li did a follow-up study and found no connection between particulate increases and deaths. Neither did Moolgavkar and associates, who also concluded in 1995 that "no specific pollutant can be singled out as being responsible for the association between air pollution and mortality." Instead, they wrote in the journal *Epidemiology*, "The particulate component of air pollution appears to have become the villain because it is a ubiquitous component of air pollution and thus serves as a proxy measure of pollution." (Jonathan Samet, in an accompanying editorial, agreed this could well be the case.)

Yet Browner speaks of the "consistency and coherence" of the studies on particulates. If there's any consistency at all, it appears to be that the Particle Hunter Triumvirate consistently finds that

particles are unhealthy, while other researchers consistently fail to find these same effects when they look at the same cities.

When Moolgavkar refers to particulates as a proxy, he is making a point made regularly by skeptics of the particulate paradigm. When particulate levels rise or fall, the levels of other types of pollution tend to rise and fall, too. This is because these changes are generally weather-related. If a city suffers an inversion and stagnant air, particles will go up, but so will lots of other things, such as pollen. Some of those things can be and are independently measured. Others aren't even looked for or can't be looked for because of a lack of monitors. The result is that particles may just be a proxy, or surrogate, for something else in the air. "If one person who dropped dead had consumed sugar laced with strychnine," says Moolgavkar, "and another who also dropped dead had consumed sugar laced with potassium cyanide, would we blame the sugar?"

Many skeptics believe that particulate research is self-fulfilling. In a paper in *The Journal of the Air & Waste Management Association*, Brookhaven's Fred Lipfert and Ronald Wyzga, senior manager of air quality risk and health assessment at the industry-funded Electric Power Research Institute in Palo Alto, found that focusing on sulfur dioxide or nitrogen dioxide instead of particulates resulted in the same findings for daily deaths. A focus on carbon monoxide showed somewhat *larger* effects. Are all these pollutants causing health problems? Maybe, but probably not. A possible answer is that all these substances are proxies for weather-related effects.

While air pollution epidemiological studies often control for aspects of weather, air movement is seldom taken into account. Yet this is "the main cause in day-to-day changes in ambient concentrations of pollution," notes Fred Rueter, vice president at the Consad public policy research group in Pittsburgh and an adjunct professor at Carnegie Mellon. Utility and plant exhaust will be pretty much the same for each day; what *will* change is what happens to those emissions. Will they blow away or build up? Whatever they do, they'll do it together.

Thus levels of particulates (and emissions) are markers for stagnant air. And "when particulates rise," notes Rueter, "so does almost everything else, and that includes indoors as well as outdoors." Indeed, it's long been accepted that pollution is normally worse inside most homes than directly outside. As most of us spend about 85 percent to 90 percent of our time indoors, indoor air is actually more important than outdoor air. Moreover, when air becomes stagnant, concentrations in indoor air become more important because wind-aided ventilation is less efficient. That allows indoor pollutants--cooking by-products, cleaning agents, mold spores, pet dander, tobacco smoke, hair spray, insect droppings, etc.--to increase.

"What I think is the most coherent explanation for all the epidemiological evidence associating outdoor particulate levels to illness," says Consad's Rueter, "is that on the days particulates are high, people indoors are being exposed to allergens producing effects ranging from mortality from asthma and other things to simple reductions in lung function, leading to increased complaints and hospitalizations."

Moolgavkar and his associates wrote that while some have "argued that the association of particulates with mortality is remarkably consistent from city to city, in the presence or absence of other pollutants, and under varying conditions of weather," they have "been unable to identify a

single study in which other pollution variables have been adequately controlled." That was in 1995. Does he still feel the same way? Yes, he says. "When you look at the studies, you generally see that only one pollutant is observed at a time. They don't look at the complex mixture; they just focus on particulates. Often times they have the data available, but they just don't use it."

Show Me the Numbers

Given both the controversy and the stakes, Schwartz and Dockery's data should be made public, rather than simply disseminated to persons they select. Yet for years they refused to do this--even to the EPA, though the federal government paid for their research. In early 1994, CASAC wrote to Browner asking that she get "crucial data sets linking exposure to particulate matter and health responses." Several groups filed Freedom of Information Act requests with the EPA to get the Six Cities data. The EPA responded that it didn't have the information.

Finally, the Harvard researchers announced they were going to give the pollution data to the Health Effects Institute (HEI), while withholding the health data. Later, under continuing pressure, Schwartz and Dockery said they would turn over the health data as well, albeit under certain stringent conditions. HEI President Dan Greenbaum says it will take two to three years to complete an evaluation.

But the EPA has hardly been persistent about trying to get the data. One agency official wrote to Commerce Committee Chairman Thomas Bliley (R-Va.) saying there was no need "for EPA to obtain the underlying data" since the studies were published in peer-reviewed journals. Browner later told Congress the same thing. But that's not what peer review is about. You can't review what you can't see; all you can do is ensure that what is in front of you is correct. If an author is selectively presenting data that fit his hypothesis, there's little a medical journal or peer reviewer can do.

HEI's Greenbaum sympathizes with Schwartz and Dockery's recalcitrance. "It's a complex database," he says, "and you need procedures to make sure only qualified investigators can look at this stuff. Some people tend to be analysts for hire." And indeed, Schwartz has told *The Wall Street Journal* that he doesn't want to provide the information to "industry thugs," by which he means scientists who receive industry money.

But those who have been able to review his data have raised questions. "Going back through Schwartz's results, we found he didn't report everything, only positive results" linking pollution to health problems, says Roth, adding that "[h]e always uses a different analysis in different cities." For example? "Well, one factor is how many days of weather you're going to count before the day of death or hospital admission--the previous five days, the previous six days, or whatever. What he does is when he goes to different cities, he uses a different lag." Roth adds, "Had he been consistent, he would have found insignificant results in some of his cities."

Moolgavkar says he also sees such problems in Schwartz's work. But it's not just Schwartz who does this, he says. "If you look at various PM studies, some will use a lag of two days, some one day or some even three or four days. To me that's not consistency. To me, it means you have to go through contortions to get a specific result."

Death and Witchcraft

Such contortions are not a challenge for the EPA. The agency has ostensibly compiled all of the relevant data on PM into what is called the Criteria Document. If you want a copy, bring a forklift: It runs to some 2,400 pages. But this poundage masks a vital little fact: Only a handful of Browner's 86 studies contain direct measurements of fine particles. The rest estimate fine particles as a percentage of the total or don't discuss fine particles at all. Harvard's Dockery kindly sent REASON a list of other studies with direct PM2.5 measurements. With the addition of a subsequent study, the total stands at a baker's dozen.

Of the four studies looking for premature deaths, two shared the same database, and only one unequivocally found a significant association between such particles and premature death among nonsmokers and persons without occupation exposure: A 1995 study with Pope as lead author that relied on American Cancer Society health data and is known as ACS II. Among the most important of the PM studies, it appeared in *The American Journal of Respiratory and Critical Care Medicine*, published by the American Thoracic Society, a unit of the ALA.

Though it failed to adjust for weather (not even temperature), the biggest problem with ACS II is that the PM2.5 data were collected from 1979 to 1981, but the death data covered the years 1983 through 1989. "Did the PM2.5 level change after this?" asks Utah's Lyon. "Did they clean up the air? Arden [Pope] doesn't know, and nobody else knows."

The study assumes that either the PM2.5 level remained the same in all the cities, or that if it changed, it changed equally in all the cities. Neither assumption could possibly have been true. Indeed, Brookhaven's Lipfert himself noted in a 1995 paper that during this period the dirtiest cities could have been expected to be cleaning up their air at a much quicker pace than cities already in compliance with federal law.

Of the four premature death PM2.5 studies, only one besides ACS II showed increased deaths among nonsmokers. It found statistically significant associations between particle increases and increases in death in three cities, and no associations in the three others it looked at. One of the negative cities, Steubenville, also had the largest increase in fine particles. But because the data set from one of the significant cities (Boston) was so large, this made the association in all the cities combined statistically significant.

How about symptom studies? According to last year's "Gambling with Health II," an ALA report complaining that the EPA was too soft on particulates, "A number of studies have linked fine particle pollution (PM2.5) with increased prevalence of coughs and bronchitis, with especially severe effects on children with asthma." Really? Of the nine PM2.5 symptoms studies, four showed *no* association between fine particles and hospitalizations or *any* symptoms measured. Five showed an association between fine particles and *some* of the symptoms measured.

"We've just arbitrarily decided PM2.5 is the villain," says Lyon. "This comes as close to witchcraft as anything I've seen. This isn't science. This is a firmly held warm and fuzzy belief: `I know these things because I feel them.'"

Lipfert and EPRI's Wyzga reviewed 30 published studies in the December 1995 *Journal of the Air & Waste Management Association*, all they could find by that date, examining associations between deaths and particle pollution. Some used PM10 as the measure, others PM2.5. They then compared the two sets of studies. Their conclusion was that, if anything, *PM10* was associated with a slightly higher risk, though there couldn't be a determination of statistical significance since not enough studies were involved.

The EPA's own Criteria Document summarizes the results of the Harvard Six Cities Study, including a table comparing the relative risks for increased death in adults. For PM10 or PM15, it is a mean increase of 42 percent. For PM2.5, it is 31 percent. A mean increase is a comparison between zero pollution and the actual amount, as opposed to, say, comparing one polluted city with another. In other words, if you got rid of all the pollution, health would not change much.

"In a subsequent analysis," says Lipfert, "we have found that PM10 exhibits a higher mean effect [than PM2.5] for hospitalization and lung function as well." Similarly, a recent study of Phoenix found an association between deaths and PM10, but not PM2.5. The chief author is a scientist with the EPA. Although the study has been widely circulated in samizdat, the EPA has refused to release it as of this writing.

If you want a real sense of witchcraft at work, consider the EPA's public misrepresentation of these studies. In her February 12 testimony before the Senate Environment and Public Works Committee, Carol Browner exhibited a poster titled "Soot/Particulate Matter: The Science Calls for Action." It listed details of five PM2.5 studies, along with the approximate number of persons involved, the alleged adverse health effect, and average annual particulate matter concentration.

Of these studies, only one flatly supports the EPA's "adverse health effect": ACS II. But ACS II looked only at fine particles, so it couldn't tell if other pollutants or larger particles might have been responsible. Another is the study in which three of the cities showed associations and three did not. Browner's chart mentioned the three with positive associations; the other cities were left off the chart. Of the remaining three studies on the poster, none showed a statistically significant association with the claimed "adverse health effect."

Thus, the chart Browner displayed not only failed to show the range of the PM2.5 literature, making use of only five of 13 studies, but of those studies it did mention it misrepresented the conclusions four out of five times. When questioned at a later hearing, Browner said that she had not read any of these studies.

The Grill Cops Meet the Air Taxers

Browner's innocence of the science, however, has not prevented her from forming opinions about the effects of her proposals on your life. She and her activist allies brush aside arguments that the proposed standards could have a negative impact. The proposed standards are "not about outdoor barbecues and lawn mowers," she told Congress during her February appearance, repeating the statement in her May testimony. Smearing industry claims that these would be affected as "junk science," she said elsewhere, "These are scare tactics. They are fake. They are wrong. They are manipulative." The Environmental Working Group's Richard Wiles says, "No one is proposing to

regulate barbecue grills." Talk about barbecues and lawn mowers is "crazed propaganda," says Frank O'Donnell, executive director of the Clean Air Trust.

Yet back in 1994, the EPA had already announced plans to regulate lawn mowers. "The small gasoline engines that Americans use in yard and garden work are a significant source of air pollution," Browner said at the time. Last year, the EPA did promulgate emissions standards for lawn mowers, though they were fairly mild as a result of "the antiregulatory climate in Washington and GOP efforts," as *The Christian Science Monitor* put it. Also under Browner, the EPA has begun the process of regulating power boats. The administrator forgets such things, just as she forgot to read the particulate studies.

California already regulates barbecue grills, along with leaf blowers and paint. Denver severely restricts when wood-burning fireplaces may be used and has outlawed the installation of such fireplaces in new homes. Burn a log, go to jail. (Or at least pay a fine.) Regulators in San Francisco have even urged residents to refrain from using aerosol deodorants and alcohol-based perfumes in order to reduce ozone-creating gases.

When confronted with some of this, Browner insisted to Congress that blaming the EPA would be wrong, because these decisions are made by local authorities. This infuriated several congressmen. In any case, Browner stated in practically the same breath, "I do not believe lifestyle issues will be involved." But even the administration's own assistant secretary of transportation, Frank Kruesi, expressed concern in a memo that the new pollution standards may "require lifestyle changes by a significant part of the population."

Jerry Martin, a spokesman for the California Air Resources Board, stated the obvious when he told the *Los Angeles Times*, "As we have gotten the biggies under control, the smaller sources of pollution become more important." This will mean more mom-and-pop places like bakeries and dry cleaners, and it will mean households: barbecues, recreation, gardening, and lawn maintenance. It will hit our personal lives because there's no place else to go.

Actually, there is one more place: your wallet. While the Clean Air Act forbids the EPA to take economic costs into account in *setting* health standards, an executive order by President Clinton requires it to make a cost-benefit analysis anyway. Cost-benefit analysis--seeing what we save with a given regulation versus what it will cost to implement it--is a tool developed by anti-regulatory forces. The idea is that while it's often easy to see the benefits of any given new rule, there is usually a financial downside that should be taken into account.

Though this notion originally caught regulators and their allies off guard, they soon developed a shield against it: All that was necessary was to find that the regulations could *always* more than pay for themselves. So it goes with the EPA's cost-benefit analysis of the proposed PM standard. The agency estimates the annual costs of partial attainment at $6.3 billion, with benefits of $58 billion to $119 billion (based on saving 20,000 lives, a figure now revised to 15,000). It values each life saved at $4.8 million, to which you can add the costs of illnesses and damage to trees and structures prevented. Thus, the cleaner we make the air, the more we boost the economy. Could anybody argue with that?

They sure could. We've seen this kind of EPA clean-air hocus-pocus before. In 1990, researchers Michael Hazilla and Raymond Kopp of the think tank Resources for the Future determined that environmental policies had reduced the GNP almost 6 percent by that year. They calculated that this translated into over a million lost jobs. An honest response would be that there are nonfinancial benefits from environmental regulations, that a better environment is something you have to buy, like a better house or car.

But the EPA didn't go that route. Putting its calculators into overdrive, it discovered that the total benefits from clean air rules, regarded as the most onerous of the regulations, had actually reaped the nation a $1.3 trillion windfall by 1990--almost a quarter of the entire GNP! In comparison, the miracle of the loaves and fishes was practically a circus trick.

Still, there's nothing inherently wrong with the assertion that environmental regulations can actually save money. Let's look at the claims. On the benefits side, the EPA assigns $4.8 million for each premature death avoided. Yet the Department of Transportation uses a considerably lower figure, $2.7 million. Further, DOT is concerned with accidental deaths; for its calculation, it assumes a person in good health dying suddenly at age 40. (Such calculations are usually based on the value individuals implicitly place on their own lives when they trade safety for higher pay or lower costs.)

In stark contrast, the premature deaths suggested by the particulate studies are among "vulnerable individuals, primarily the elderly and individuals with preexisting respiratory disease," as the EPA staff paper on particulates puts it. Thus, it continues, "some of the mortality associated with short-term pollution is occurring in the weakest individuals who might have died within days even without PM exposure." Rather morbidly, it calls this the "harvesting effect." Numerous researchers say they believe that the epidemiological studies probably do show a harvesting effect.

Even Schwartz has admitted that "[t]he people being affected [by fine particles] are those with either chronic or acute lung disease, and possibly those with chronic heart disease." Browner herself told a congressional committee in May that the average shortening of life was from one to two years. It makes no sense to value a slight extension of an elderly, suffering person's life at millions of dollars. (It also reveals the fallacy of comparing deaths from particulates to deaths from vehicle accidents or AIDS, as activists and newspapers have done.)

As for the cost side of the PM2.5 proposal, the EPA says we're talking about $6.3 billion a year, in addition to what is already being spent for PM10 reduction. Not exactly chump change, but hardly the most onerous regulation in this country. Remember, though, this is for "partial attainment." The way regulations work is that each new bit of cleanliness costs more than the bit before. Reducing the first ton of emissions may cost just $50 per day, but the 10th ton is $200 and the 20th ton is $500. Full attainment doesn't cost twice as much as half attainment; it could ultimately cost hundreds of times more.

The EPA estimates that full attainment would require removing an additional 13 micrograms of PM2.5 per cubic meter of air nationally, at an annual cost of far more than $1 billion per microgram removed. It doesn't say how much more, but one EPA-commissioned study using data from Philadelphia pegged it at over $4 billion just for that city, and this still didn't allow full

attainment. Using the Philadelphia numbers, reports from both the Center for the Study of American Business and George Mason's Center for the Study of Public Choice estimated that the new PM2.5 regulations would cost the nation $55 billion or more each year. In May, the Reason Public Policy Institute put it between $70 billion and $150 billion a year. (RPPI's parent organization, the Reason Foundation, is also the parent of REASON.)

For ozone reduction, the agency oddly provides two estimates, neither for the proposed standard. One is for a stricter standard, the other for a looser one. The tougher one shows partial attainment costs of $2.5 billion per year, with benefits of $100 million to $1.5 billion. The looser one has costs of $600 million a year and benefits ranging from zero to $500 million. Thus with ozone, the EPA doesn't even pretend that the regulations will pay for themselves.

But other calculations show that the EPA is still grossly understating the problem. Again, on the benefit side the agency makes assumptions that strain credulity. Among them is that preventing a single case of nonfatal bronchitis is worth a stunning $587,500. The Treasury Department's Office of Economic Policy, in a December memo to the EPA, expressed disbelief at this figure. On the cost side, the EPA again keeps expenses down in its model by assuming that regions in nonattainment will eventually just give up. But what if such areas--wanting to avoid federal punishment and micromanagement--keep spending to comply?

Alicia Munnell, a member of the president's Council of Economic Advisers, made this point in a mid-December memo to the EPA, a memo that finally became public in March. Munnell said the EPA's use of partial cost analyses "understates the true costs of stricter standards by orders of magnitude." According to Munnell, "CEA estimates indicate that the cost of full attainment could be up to $60 billion," which would show negative net benefits of almost $60 billion a year, since the ozone standard would provide virtually no savings.

Using data from three cities, the CEA also challenged the EPA's assertion that additional ozone-causing pollutants can be removed at a cost of $3,000 to $10,000 a ton; it said the actual cost would probably be $30,000 to $80,000 a ton. Other analyses have also shown that the price of meeting the new ozone standard would be exorbitant: RPPI estimates full attainment at between $20 billion and $60 billion a year, while George Mason's Center for the Study of Public Choice places it somewhere between $54 billion and $328 billion.

First Do No Harm

Fundamental to the position of the EPA and others advocating PM2.5 regulation is that, while PM2.5 per se may or may not be a direct cause of health problems, the association appears to be strong enough that directly controlling PM2.5 is still warranted. That way you'll reduce what's causing harm, even if you don't know exactly what that something is.

Browner is apparently ignorant of this. During hearings in May, Rep. Tom Sawyer (D-Ohio) asked her if there were chemical differences among PM2.5 particles. "I'm not sure I understand the question of chemical differences," she replied. An EPA associate at the witness table had to answer for her: "All PM2.5 is not the same." But Browner continued to step on her tongue. "Are you

telling me there's no difference regardless of what kind of stuff it is?" Sawyer asked. "Right," said Browner. "It is the fine particle that causes the problem....It is the size."

Au contraire, says the EPA's own staff paper, along with the very scientists whose work Browner cites as supporting her. Pope himself says, "I'm not pretending I know precisely what it is in these particles that causes the damage." Thus, aside from the confused Browner, what the advocates of PM2.5 regulation are saying is: Control the PM2.5 and you'll control the real culprit. Ignoring for the moment that so many of the PM2.5 studies don't show an association with illness, much less a causal relationship, it is not a wholly illogical proposition. People have made decisions based on such associations throughout history. The Romans, for example, blamed malaria on "bad air" coming up from swamps. By avoiding low-lying areas in the summer, they avoided the real culprit: the mosquitoes. On the other hand, during the Plague of London in 1666, the citizenry blamed the spread of disease on animals. Good thinking. Then they killed all their cats. Bad thinking. The disease was spread by the lice of rats, which the now-dead cats could no longer kill.

There are three possible outcomes if you're using PM2.5 as a surrogate for an unknown something else. The first is that it's a proper surrogate. Reduce the PM2.5 and you reduce the harmful stuff, too. The second is that you have no effect on the bad stuff. The third is that you could be making things worse.

There are several reasons why the new standards could have sinister side effects. One is that, when it comes to environmental policy, it is the rule that often blazes the path for the science. If there's anything in air pollution that's causing harm and it's not PM2.5, the new regulations could delay discovering what it is for years.

We've seen this happen with PM10. The EPA's regulation led to scores of PM10 studies but only a handful that looked at PM2.5. "We'll have pre-ordained what we have data on," Lipfert says. "The EPA will have mandated monitoring of PM2.5, and that means you'll be able to evaluate the PM2.5 hypothesis but not any other."

Another reason is that by enforcing PM2.5 rules, we could actually be pushing polluters toward creating particles that are *more* dangerous. According to Robert Phalen, director of the Air Pollution Health Effects Laboratory at the University of California at Irvine, "If it's the ultrafine particles which are highly toxic,"--he means those smaller than PM1.0--"the [PM2.5] regulation could lead to more deaths than lives saved." Diesel engines, he notes, emit particles in the PM2.5 range. In the late 1980s, at the urging of the EPA, new ones were designed that put out smaller particles. "They put out less mass, but they put out 30 to 60 times more particles by number. If the studies indicating that ultrafine particles are the real hazard are correct, changes such as these would make the air more hazardous," says Phalen.

The proposed standards could even kill some of us. Economists have piled up evidence showing that those with more money live longer. "Wealth equals health," goes the saying. Harvard University economist W. Kip Viscusi has calculated that "every $50 million spent on regulation induces one statistical death to the income-mortality connection." In its suppressed memo, the president's Council of Economic Advisers estimated that the cost of full attainment on ozone could be up to $60 billion a year. If so, by Viscusi's calculation it will cost 1,200 lives. A Reason Public

Policy Institute report by Kenneth Green, RPPI's director of environmental studies, and University of Southern California systems management professor Ralph Keeney calculated a higher toll: 2,201 Americans for each additional $10 billion spent.

Industry "can talk all they want about costs," one Sierra Club official told the *Utility Environment Report*."We're going to crush them." Them, their employees, and their customers.

Time Out

Here, in a nutshell, is what science appears to show about particulates:

* Particulates are often associated with increased death and hospitalizations, but often they are not. The same goes for numerous other pollutants.

* To the extent that there is an association with deaths and hospitalizations, it is a consistently weak one--so weak that epidemiologists would generally treat it as having no meaning.

* To the extent that there is an association, few conclusions can be drawn. Ambient particle levels may be a surrogate for adverse weather or other health threats, such as indoor allergens. The cause may be a specific chemical or something else that, in the stampede to regulate PM2.5, will be overlooked.

* Even if one were to conclude that particulates were causing premature death and hospitalizations, it is far from clear that PM2.5 is more closely associated with sickness and mortality than PM10, which is already stringently regulated.

Here, in a smaller nutshell, is what the science appears to show about ozone:

* Although in rare circumstances it may trigger potentially fatal asthma attacks, at the levels found in the United States it is highly unlikely to be killing anyone.

* It does cause a decrease in lung function, to the extent that susceptible individuals in extreme conditions may suffer enough discomfort to go to the hospital.

* Even if there were no man-made ozone at all, naturally present ozone would probably still cause these problems in a certain portion of the population.

There are far fewer particulates of all sizes in the air than there were 10 years ago, far fewer still than 10 years before that, and perhaps one-fiftieth the level London had when it suffered its great

1950s killer "fogs." Without a single new rule, a single new sentence uttered by Carol Browner, or a single new alarming news story, less PM10 and hence less of the PM2.5 subset will be emitted or breathed. All of this is also true for the gases that form ozone. The best that can be hoped for from the new proposed standards is that trends already in place might be accelerated.

Given all this, the case for burdening Americans with tens, maybe hundreds, of billions in costs each year for new regulations seems absurd. Indeed, the very lack of new regulation gives scientists more leeway in choosing what pollutants to research. The fiscal 1998 EPA budget allocates $26.4 million specifically for particulate studies. "Let's take a big time out," says CASAC's McClellan. "[W]e really run a risk of prematurely identifying a new target absent of understanding what that target should be."

A reasonable solution is to go ahead and step up the PM2.5 monitoring system, including more measurements of the chemical composition of the PM2.5 particles, not just the size. Since enforcement of the EPA's proposed standards wouldn't begin until 2002 anyway, this wouldn't necessarily put us much behind schedule.

What Is to Be Done?

In February, Carol Browner told a Senate panel, "This has been the most extensive scientific process ever conducted by EPA for public health standards." Browner is actually quite ignorant of the science, but as we have seen, the scientific process played almost no part in the EPA's decision. Its actions are a far better illustration of public choice theory: Regulators regulate, and enforcing old regulations isn't nearly as fulfilling as proposing new ones. The EPA's actions are thus quite predictable. Indeed, this case may be the single best example of a powerful federal agency imposing a crushing regulatory burden sheerly for the sake of regulating.

For the first time the EPA is promulgating standards that its own cost-benefit analyses seem to concede cannot be met. The arrogance that Browner and the EPA have shown on this issue reflects an agency accustomed to almost completely free rein. Until recently, what the EPA promulgated became law. No fuss, no muss, no messy papers for presidents to sign. That has changed. The Congressional Review Act of 1996 gives Congress the power to "veto" agency regulations. It will have 60 days after the EPA's final promulgation to do so.

Two other provisions allow for court remedies. One is the Unfunded Mandates Reform Act, passed in 1995, which states that any regulation not dealing with national security and costing the private sector more than $100 million in any year must have congressional approval. The other is the 1996 Small Business Regulatory Enforcement Fairness Act, which requires the EPA to convene a small business advocacy review panel. The agency arrogantly refused to follow the law's procedures, claiming that the proposed standards will not have "a significant economic impact on a substantial number of small entities" and, in any case, it won't be the EPA making the regulations, just the EPA forcing others to make them.

Among the groups that seem to think that position is absurd, and who are opposing current implementation of the standards, are the National Federation of Independent Businesses, National Small Business United, the National Black Chamber of Commerce, the National Indian Business

Association, and the National Association of Neighborhoods. It may be the fate of the EPA standards to be tied up in the courts until the next century.

Whether Congress will invoke its "veto" cannot be predicted, but two letters sent to President Clinton offer hope. The first, from Rep. John Dingell (D.-Mich.) and 41 other Democrats, doesn't oppose the proposed standards per se but expresses concern that they "will create such controversial and impractical targets that they will undermine support for the [Clean Air] Act, even amongst its friends." The letter calls for a meeting with the president and Vice President Al Gore. The second letter goes further. Written by Rep. Rick Boucher (R-Va.) and signed by 35 Democrats and 78 Republicans, it declares, "the significant uncertainty surrounding the health benefits, costs and effects of the proposed ozone and fine particulate standards requires that the imposition of the regulations be deferred."

At stake in this encounter involving the EPA, its activist allies, and its scientific and political critics is the issue of what constitutes "pollution." The effort by dogmatists to convince us that any man-made emissions anywhere, whether or not they harm anyone or anything, must be dealt with at any price has failed. The percentage of Americans willing to pay for more environmental regulation fell from 71 percent in 1990 to 40 percent in 1994.

Most Americans are now convinced that nonharmful emissions are not pollution. The only strategy to counter this is to make us believe that *all* emissions cause harm, not just to trees or animals but to human--especially kids'--health. Thus, anything that man puts out is a pollutant. Rules that would effectively bring pollution levels down to the natural background rate in some geographic areas--as would both the EPA's proposed particulate and ozone standards--would be a final affirmation of this approach.

One scientist compared the EPA's use of science to witchcraft. Given that witchcraft's practitioners worshipped nature, his metaphor fits.

Michael Fumento is a resident fellow at the American Enterprise Institute in Washington, D.C. His book The Fat of the Land *will be published by Viking in September. He researched this article while he was* REASON *'s science correspondent under a grant from the William H. Donner Foundation.*

SIDEBAR ONE:

A Revolting Administration

Industry doesn't like the proposed EPA regulations? What's new? Many scientists think they're unsubstantiated? So what? But the EPA's proposals are so absurd that even members of the Clinton administration are objecting.

Last November, before issuing its proposals, the EPA solicited comments from other branches of the administration. In March, via a leak, many of these comments came to light. What they showed was that the EPA had gone forward with its proposed standards even though many parts of the executive branch had expressed sometimes strong disagreement with them. To quote the

Associated Press, these concerns were "only slightly less intense than the criticism from industry groups, members of Congress and state officials." Among the critics were members of the president's Council of Economic Advisers, the White House science adviser, the Commerce, Transportation, Treasury, and Agriculture departments, and the Small Business Administration. Only the Interior Department completely approved the EPA proposal.

Assistant Secretary of Transportation Frank Kruesi wrote that it was "incomprehensible that the Administration would commit to a new set of standards and new efforts to meet such standards without much greater understanding of the problem and its solutions." He also complained that the proposals would "bring a significantly larger proportion of the population and more jurisdictions under Federal oversight and procedural burdens."

The EPA claims that its proposals will have no significant impact on small businesses, but the SBA is convinced this position is absurd. "We urge the agency to rethink its position," wrote the SBA's chief counsel for advocacy, Jere Glover, who noted that it "would be a startling proposition to the small business community." The "EPA's own analysis" showed the new standards "will unquestionably fall on tens of thousands, if not hundreds of thousands, of small businesses." He wrote that at least 10 and as many as 54 different types of industries whose businesses typically have fewer than 100 employees "would face costs in excess of 10 percent of sales" due to the proposed ozone standard alone. Glover added, in bold type, "**Thus, this regulation is certainly one of the most expensive regulations, if not the most expensive regulation, faced by small businesses in ten or more years.**"

Meanwhile, a memo from the secretary of agriculture said, "We share the concerns of the Small Business Administration regarding the potential impacts of these proposals on small businesses. Can EPA address these concerns before the final rule is issued?" It could have; it didn't.

Some objectors said not enough scientific work has been done. "I find it hard to believe that we would suffer more than we would gain by taking more time for further interagency review, consensus building and additional analysis," then-White House science adviser John Gibbons wrote. Others said the science simply didn't support the EPA position. "Current data do not support clear associations of [premature mortality] effects with either fine particles (PM2.5), inhalable particles PM10 or PM15, [or] sulfate, so that causality for the observed mortality and morbidity effects cannot be established," wrote Rosina Beirbaum, acting associate director of the White House Office of Science and Technology Policy, in a memorandum. She added, "The database for actual levels of PM2.5 is also very poor, and only a handful of studies have actually studied PM2.5 effects, per se."

The rebellion didn't end with the November memoranda, nor did the EPA's efforts to squelch it. Last December, House Commerce Committee Chairman Thomas Bliley asked the Office of Information and Regulatory Affairs (OIRA), a section of the Office of Management and Budget, for a reading on the EPA's handling of the air pollution proposal. OIRA is supposed to review economic analyses that agencies are required to prepare indicating that they have regulated in the most cost-effective manner. To help this procedure along, OIRA has prepared a "best practices" document to identify procedures that will provide the best analysis of the impact of a regulation. On January 15 the committee received a document from OIRA that was generally supportive of the

EPA. But this was a revised draft. The earlier two drafts, both drawn up in early January, had horrified EPA officials.

The key sentence of the original 27-page document was, "While these analyses produce much useful information, there were several areas in which they did *not fully conform* to the principles discussed in the Best Practices document." (Emphasis added.) After reviewing the draft, an EPA deputy director within the Office of Air and Radiation, John Beale, wrote to the OMB economist in charge of the project, Art Fraas, complaining that the response placed too much emphasis on differences between the agencies and "could be very damaging" to the proposed rule change. He also repeatedly telephoned Mary Nichols, his direct boss. Prior to becoming the top air pollution official at the EPA, Nichols headed up the Natural Resources Defense Council office in Los Angeles. He urged her to pressure OIRA administrator Sally Katzen, and Nichols did so. Now under pressure from Beale and Katzen directly and Nichols indirectly, Fraas gave in.

The final draft of the report was snipped down to 12 pages. More important, the key sentence had been changed so that it now read, "While these analyses *were consistent with* the Best Practices document and produced much useful information, there were several areas where additional work would have been productive." (Emphasis added.)

That wasn't the only favor OMB was to do for the EPA. The November memoranda were not formal responses to the EPA; the formal responses required by the Administrative Procedure Act were to be submitted in March. Yet the deadline came and went, and the comments weren't turned in. "The comment period for the proposals closed Wednesday, March 12, 1997. No Executive Branch Departments or Agencies, including USDA, submitted written comments to the docket," an undated Agriculture Department memo later stated. In fact, a few agencies had made submissions, including the USDA itself. Among the official comments that squeezed through were the Pentagon's, which said the DOD "believes that the establishment of a PM2.5 [standard] as proposed would critically impact its ability to properly train military personnel" and that already current EPA ozone regulations could "limit military aircraft operations."

But most comments did not get submitted. Why not? Because the OMB stopped them. An e-mail message from Jean Vernet of the Department of Energy to other people within the department dated March 11 stated: "Based on reports from a meeting this morning with Sally Katzen, at which Dan Reicher and Kyle Simpson represented the Department, Federal agencies will not [REPEAT NOT] be transmitting comments on the EPA O3/PM [ozone and fine particle] proposals. To what extent agency comments will be entertained during a yet undefined interagency review effort is unclear." (Emphasis in original.)

"All the [department] secretary-level comments came into OMB, and there was so much discord and problems with the proposed new standards they're proposing that they didn't want to show the administration was so fractured," one USDA official told me on condition of anonymity. According to him, Katzen "said we're not going to show these fractured efforts within the administration." He adds, "Instead of handing in written documents, they've established some kind of interagency working committees to iron out problems. But they will be behind closed doors."

His view is supported by notes I obtained from a November 11, 1996, interagency briefing on the proposed standards, written on the White House Office of Science and Technology Policy's letterhead. "NO meetings with outsiders on this matter!! If someone asks for a meeting, refer them to Sally Katzen. No one who talks to their constituents about these matters will be invited back to future meetings--this MUST be run right [as] it is a `poster child' for reg reform." (Emphasis in original.) Katzen declined to be interviewed for this article.

--M.F.

SIDEBAR TWO:

Asthma: Gasping at Straws

A panicked father rushes into the hospital gasping, asthmatic child in his arms. "Help!" cries the boy's mother. "He can't breathe!" The ad, sponsored by the Clean Air Trust in affiliation with the American Lung Association, Public Citizen, Defenders of Wildlife, and the Sierra Club, was part of a lobbying effort to support the EPA proposals. So it's not hard to guess what the culprit is.

Taking their cue from President Clinton and his wife, who couch practically all their initiatives in terms of saving endangered children, proponents of the proposed EPA standards have done likewise. "When it comes to protecting our kids, I will not be swayed," EPA's Browner dramatically intoned at a recent conference on children's health.

The child card is repeatedly played: "Hundreds of scientific studies have shown that today's air pollution levels are shortening lives and harming children," claimed the Natural Resources Defense Council in a newspaper commentary. The ALA has young people with asthma testify at press conferences in support of the EPA's proposed standards. The Sierra Club is running radio ads that use little children's voices to push the EPA proposals, saying how stricter regulation will keep them from becoming sick.

Asthma is predominantly a childhood disease. Rates are indeed rising sharply among children. Many environmentalists say this rise is from air pollution and only the white hats at the EPA can stop it. Informing us that "More than 5,000 people die every year from asthma, three times the rate of just 10 years ago," Richard Wiles of the Environmental Working Group adds that "the Clinton administration proposed new health standards for ozone and particulates."

And who are the black hats? Syndicated *New York Times* columnist Bob Herbert asked readers to choose between "the kids with asthma who have a tough time breathing whenever there is a bad air day or the powerful representatives of the oil industry, the Association of International Automobile Manufacturers, the American Bus Association, the Chemical Manufacturers Association, etc."

You can just picture some fat cigar-chomping businessman sitting on the chest of a poor little child gasping for air. The problem with that picture, though, is that as asthma incidence and deaths have been sharply rising, all the measured types of pollution--including particles and ozone--have been sharply dropping.

Further, studies have failed to show a relationship between even high air pollution levels and asthma. A recent comparison between asthma rates in highly polluted Leipzig in what was then East Germany and the far cleaner Munich in West Germany found asthma rates lower in the East. Noting this and similar findings between squeaky-clean Sweden and polluted Poland, two researchers wrote in the January 3, 1997 issue of *Science* that these "suggest that asthma prevalence has increased because of something lacking in the urban environment, rather than through the positive actions of some toxic factor."

Shortly before that, the U.S. Centers for Disease Control and Prevention released an analysis of asthma deaths citing a previous study indicating "no evidence exists that supports the role of outdoor pollution levels as the primary factor driving" the asthma increase. Even Harvard's Douglas Dockery, whose epidemiological work the EPA has so heavily relied upon in promulgating its new standards, admitted (in a co-authored 1996 medical journal article), "There appears to be no evidence that the prevalence of asthma or asthmatic symptoms in children is associated with chronic exposure to particulate, sulfur oxide, or ozone air pollution."

Something else you often don't hear in the popular press and never hear at all from environmentalists is that the increase in asthma is entirely race-related. For white children and young adults, there has been essentially no increase. It's all among blacks, to a point where blacks between the ages of 15 and 24 now have six times the asthma death rate of whites the same age. Although there is evidence that blacks are more likely to live downwind of factories than whites, utility plant and car exhaust are spread evenly. Is air pollution bigoted? Or is the increase in asthma related to lifestyle or housing?

In May of 1997, researchers reported that the major cause of asthma in mainly black inner-city neighborhoods is neither cars nor corporations nor chemical companies, but cockroaches--that insect we all love to hate. Overall, it appears that a quarter of all asthma in these areas (which have twice the asthma rate of non-inner-city areas) is from the horrid little things.

"It's a cruel hoax to lead parents to believe their children will be protected from having asthma if only the EPA clamps down on outdoor air pollution," says biomedical scientist Robert Phalen. And don't hold your breath (as it were) waiting for a government or activist group campaign against cockroaches when groups like the Chemical Manufacturers' Association make nicer, and clearly larger, targets.

--M.F.

SIDEBAR THREE:

All in the Family

While it's well understood that the EPA went beyond what it was required to do by the American Lung Association's successful suit, suggesting that this was a "sweetheart suit," it's less well known that the EPA regularly funnels money to the ALA and other groups that sue it. Journalist John Merline, writing in *Investor's Business Daily*, and basing his figures on the Federal Assistance Awards Data System, noted that from 1990 to 1995, the EPA gave the ALA more than $5 million.

Yet between 1993 and 1996, the group filed five suits against the EPA. According to Merline, the EPA gave the Natural Resources Defense Council over half a million dollars in 1995, even as the NRDC filed no fewer than 34 suits against the agency from 1993 to 1996. Indeed, the EPA even forked over $150,000 to the NRDC to help defray the cost of the group's legal fees for suing the agency.

"If you think the EPA is upset" about these suits, a professor of environmental management at the University of Maryland told Merline, "think again. Truth be known, the EPA wants to be sued, because every time they are sued it expands the reach of the Clean Air Act." And EPA's domain in general. Both the ALA and the NRDC fired off letters to the paper, claiming that the vast majority of their EPA funding was not for suing the agency. But even if the checks weren't marked, "To sue our pants off," a dollar is a dollar. Sending a few million bucks to either group for any purpose allows them to increase funds for other purposes, including lawsuits.

Groups like the NRDC and the Environmental Working Group have been extremist since their conception. But the ALA too appears to have gone the way of many civil rights and women's rights groups. Once they accomplished their original aims, they set newer, ever more radical goals to justify their budgets. And in the last three years, the ALA has taken at least $150,000 from a group called the Association for Responsible Thermal Treatment, which it uses to wage a campaign against cement kilns used to burn hazardous waste. This generous donor is made up of commercial hazardous waste incineration companies: the competitors of the cement kilns. The air about the ALA is dirty indeed.

In addition to handing out taxpayer money to groups that sue it, the EPA greases the palms of groups who lobby for the agency's agenda. For example, the Ozone Transport Assessment Group, which is private but has federal sponsorship, last August announced in a memorandum that the EPA would give members $100,000 to "to support our activities," including "public service" announcements.

But probably the most effective lobbying has come from the ALA and the NRDC, in the form of studies they have presented which, they say, call for much tighter standards than even the EPA has proposed. The ALA's "Gambling with Public Health II," for example, pushes a PM standard of 18 micrograms per cubic meter rather than the EPA's 50. It says that under its own standard, over 178 million persons would live in nonattainment counties, compared to 85 million under the EPA's proposed standard. The report makes almost no effort to argue that these people really are in any danger.

The NRDC, probably the nation's most effective (some would say "rabid") environmental group, says pollution-related health problems are much worse than the EPA thinks. "Approximately 64,000 people may die prematurely from heart and lung disease each year due to particulate air pollution," and all but about 8,000 of these deaths could be prevented by adopting even tighter standards than the EPA has proposed, the NRDC claims.

It's doubtful that either the NRDC or the ALA thinks it can get the EPA to go with the standard it proposes. But is that their aim? "There's terrific pressure on [EPA] regulators because these groups say there will be almost 70,000 extra deaths a year if the EPA does nothing," says U.C.-Irvine's

Robert Phalen. "These activists are saying, `How many bodies do you have to have on the street before you act?' It's very difficult for an agency to make objective judgments under such pressure."

On the other hand, there's every reason to think the EPA's leadership has no desire to withstand the pressure. Reports like the ALA's and the NRDC's certainly bolster the EPA's claim that "[s]ome will contend that we are acting precipitously and others will claim that we are not being protective enough." Thus, the agency can claim to be taking the moderate position. The standards proposed by the ALA and the NRDC also prepare the way for some date in the next century when the EPA can call once again for ratcheting down the amount of pollution allowed.

Try Reason's award-winning print edition today! Your first issue is FREE if you are not completely satisfied.