

THE 1990 CLEAN AIR ACT AMENDMENTS: SILK PURSE OR SOW'S EAR?

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Although the federal Clean Air Act was drafted in 1954, the modern law dates from the landmark 1970 amendments which, for the first time, directly involved the US government in the regulation of air pollution. Mid-course corrections to the 1970 law were enacted in 1977, and one minor amendment dealing with the steel industry became law in 1981. In 1990, however, the Congress passed a sweeping, 328-page set of amendments that affected virtually every major provision of the 1970 law.

The 1990 Clean Air Act Amendments ("the 1990 amendments") establish radically new propositions as a matter of federal law and repeal old, fundamental and successful provisions. The amendments hold out the promise of achieving a great deal — healthful air by certain times, local environments free from the threat of toxic compounds, lakes and forests shielded from acid rain, and automotive tailpipes with still more pollution wrung from them by the force of federal law. What the amendments deliver is vastly less, and markedly different, from what they promise.

Tension between protection of the environment and public health on the one hand and considerations of cost and convenience on the other are common in environmental decision-making. The 1970 Clean Air Act Amendments ("the Act")¹ resolved that tension in favor of protection of health and the environment, forcing changes in technology and behavior where necessary. The principal author of the 1970 amendments, Sen.

Edward S. Muskie, said as the Senate began consideration of the proposals:

The first responsibility of Congress is not the making of technological or economic judgments — or even to be limited by what is or appears to be technologically or economically feasible. Our responsibility is to establish what the public interest requires to protect the health of persons. This may mean that people and industries will be asked to do what seems to be impossible at the present time. But if health is to be protected, these challenges must be met. I am convinced they can be met.²

In contrast, the 1990 amendments resolve the tension between protection and costs and convenience in favor of the latter, with the result that alleged limits of technology constrain the level of protection.

Thus, the law as altered by the 1990 amendments is a significantly different creature from the 1970 Act. After amendment, protection of human health has all but ceased to be the basis of the law; deadlines for achieving air quality goals have been set well into the next century (and even then will be automatically extended with minimal penalty), and technology-forcing provisions have been repealed or forsaken. Yet these changes are

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apparent only upon a close reading of the law, for rarely are they accomplished in an obvious way.

This article does not attempt a comprehensive analysis of the 1990 amendments. Rather, it examines a limited number of the most far-reaching changes to illustrate the radically new direction in which the Congress has embarked.

THE 1970 CLEAN AIR ACT

Sen. Muskie, who chaired the US Senate Subcommittee on Air and Water Pollution, described the Act as one that was shaped by "three fundamental principles":

- Protection of public health;
- Application of the best technology available for the abatement of air pollution; and
- Deadlines for the attainment of health-related air quality levels.³

"The success or failure of the program would be determined by measurement against these criteria," he later said.⁴ As the 101st Congress began the process of drafting amendments in 1989, it seemed clear to some that if the nation's air pollution program were measured against Muskie's criteria, it likely would be judged an incomplete success.

A. Health Standards

According to 1983-85 data (the most recent available in early 1989), seventy-six areas were in violation of the health-based ozone standard.⁵ About 130 million Americans lived in these areas.⁶ Although critics of the Clean Air Act were fond of discounting the effects of ozone and other air pollutants by referring to them as mere "irritants," a steadily mounting body of evidence suggested

that the damages were serious and long-lasting.

Repeated statistical analyses of air pollution data correlated pollutant concentrations with excess mortality and morbidity. The annual death toll attributable to air pollution was estimated to be between two and five percent of all mortalities per year.⁷ In other tests where healthy, non-smoking adults were exposed to air pollution concentrations comparable to those encountered in the ambient air while exercising, they experienced short-term changes in lung function and increased respiratory symptoms. These ranged from pain when breathing to shortness of breath.⁸ In other laboratory studies, animals forced to breathe ozone-polluted air over long periods of time contracted a variety of biochemical and structural injuries to the lungs. These included decreased elasticity, increased numbers of airway lesions, and loss of cilia as well as other changes in ciliated cells.⁹

Despite this accumulating burden of evidence, the Environmental Protection Agency ("EPA") failed to promulgate newer, more stringent ambient standards for either ozone or the other pollutants incriminated by the studies.

B. Technology

By 1988, federally imposed pollution control standards, which supposedly reflected state-of-the-art controls, lagged far behind what was commercially available with respect to both stationary sources (e.g., power plants) and mobile sources (e.g., cars and trucks). For example, power plants operating in other nations such as Germany are subject to — and achieve in practice — pollution limits much more stringent than those presently required under U.S. law.¹⁰

C. Deadlines

The deadline for meeting the federal

law's health-based standards was December 31, 1982, although extensions to December 31, 1987 had been allowed for some areas. To qualify, areas burdened by severe auto pollution problems were required to adopt stringent and focused control programs such as inspection and maintenance ("I&M") for vehicles.¹¹ The vast majority of non-attainment areas had sought and received such extensions but still failed to attain the standards by the 1987 deadline. By 1989, it was widely conceded that most areas would require several additional years to meet the standards and some, such as Southern California, might need another quarter-century to meet health-based standards.

Still, viewed from the perspective of 1970, there had been vast improvements by 1988, especially with respect to the control of automotive emissions. By 1988, Americans were driving nearly one trillion more miles per year than in 1970.¹² Despite this massive increase in vehicle miles travelled — and notwithstanding the fact that a large number of cities still violated the ozone standard — the quality of the air in American urban areas had improved. Violations of the health-based standards had declined markedly in frequency and severity.¹³ New power plants were regularly equipped with pollution control devices capable of eliminating ninety percent or more of the sulfur dioxide and other pollutants.¹⁴ Consumption of leaded gasoline had declined sharply and, with it, the levels of lead found in the blood of Americans.¹⁵

It was in this context of incomplete success that the Congress, with the active involvement of the President, undertook amending the Clean Air Act. When the process finally concluded two years later, the result was widely hailed as landmark legislation, "one of the most comprehensive and sweeping environmental laws that Congress has

passed this century."¹⁶

THE 1990 AMENDMENTS

At 328 pages, the 1990 amendments to the Clean Air Act surpass in complexity and detail all previous environmental enactments. The amendments are widely thought to have strengthened the law substantially, especially with respect to the control of acid deposition and precursor pollutants. However, closer examination suggests that the amendments are a far-reaching and fundamental retrenchment from the stringency of the 1970 law, both in particular provisions and in the aggregate.

As mentioned, Muskie's three yardsticks for measuring the success of the 1970 amendments were protection of public health, technology-forcing provisions, and deadlines for the attainment of health-related air quality levels. Another requirement allowed extensions of deadlines or other significant changes to be granted only by the Congress because it was the only branch of government politically accountable. The 1990 amendments retreated from, and arguably abandoned, all of those fundamental principles.

One change, perhaps above all others, illustrates the attitude taken by the 101st Congress toward the protection of human health and environment. Twenty years earlier, environmental threats had been both less menacing and less imminent. Ozone destruction was not an issue. Global warming was a distant and speculative danger, if that. The air pollution toll in terms of human sickness and death had been qualitatively established, but poorly quantified. Thus, it was perhaps unsurprising that Congress failed to act on proposals that would have established a right to a healthy and safe environment.¹⁷

But by 1990, the damages were neither speculative nor distant. Congress began the process of amending the Clean Air Act at a time of intense public alarm over stratospheric ozone depletion, global warming, urban smog, acid deposition and a seemingly endless list of threats to humanity's survival — most of them posed by air pollution.¹⁸ Smog levels were the worst in a decade,¹⁹ average global temperatures were the highest ever recorded,²⁰ and even the chemical industry was conceding that the cause of an ozone "hole" as large as North America and as high as Mt. Everest was pollution, namely, a family of chemicals known as chlorofluorocarbons or CFCs.²¹ George Bush had been elected president at least in part because of his self-declared position as an "environmentalist,"²² and Democrats — widely perceived to be the political party most committed to protection of the environment — controlled both houses of Congress.

In short, never had the circumstances seemed more likely to support a political consensus in favor of enactment of a right to be free of pollution. And, indeed, Congress did enact a right. But it was not a right for victims. It was instead a right for polluters — a right, quite literally, to pollute.²³

It will be left to the courts to define the nature and extent of this new right. Perhaps it will prove to be an individual liberty, joining in the ranks of freedom of speech and press. Or it may be a property right protected from regulatory takings without compensation and due process. Or, although it seems unlikely, it may prove to be merely an empty word that conveys nothing of real value to polluters. Whatever the right is, however, it is clear that there is one thing that it is not: additional protection for the public.

I. TITLE I: NONATTAINMENT AREAS

A. "Deadlines" and Sanctions

1. "Deadlines"

The 1970 Act required areas to meet the health-based standards by specified dates.²⁴ Penalties, which were imposed both for failure to attain²⁵ and failure to try, provided an incentive for areas to actually meet the standards by the prescribed dates. Thus, under the 1970 Act, deadlines²⁶ and sanctions were tightly coupled tools focused on protecting human health.

The deadlines of the 1970 Act and the 1977 amendments were unambiguous: national ambient air quality standards ("NAAQS") were to be met by December 31, 1982. Areas which adopted control programs, such as an I&M system for motor vehicles, could be granted an extension to December 31, 1987, for attainment of the ozone and carbon monoxide standards.²⁷ The sanctions — focused on *attainment* — ranged from a loss of federal highway funding²⁸ to bans on the construction of new sources.²⁹

The 1990 amendments *appear* to have merely extended the attainment dates for areas as outlined in Table I.³⁰ In reality there is no longer any fixed date by which the standards must be met because the 1990 amendments create a series of self-extending attainment dates. The mechanism is rather complex but quite ingenious.

The attainment date set by section 172(a)(2) is "the date by which attainment can be achieved as expeditiously as practicable, but no later than five years from the date such area was designated nonattainment under section 107(d), except that the Administrator may extend the attainment date . . . for a period no greater than ten years . . ."³¹ Thus, the law appears to

establish a firm deadline. This impression is confirmed by Congressional statements to that effect. For example, the Senate Committee described the program as follows:

Depending on the severity of the pollution problem, nonattainment areas for any of the pollutants *must attain the health standard* within (the specified number of years) for ozone.³²

However, an area failing to attain the standard by the applicable date is subject to section 179(d), "Consequences for Failure to Attain." Paragraph (1) of that section requires a revision of the area's nonattainment plan to reflect the reality of continued nonattainment. One of the "consequences" is described in paragraph (3), which provides that:

(3) The attainment date applicable to the revision required under paragraph (1) shall be the same as provided in the provisions of section 172(a)(2), except that in applying such provisions the phrase "from the date of the notice under section 179(c)(2)" shall be substituted for the phrase "from the date such area was designated nonattainment under section 107(d)" and for the phrase "from the date of designation as nonattainment."³³

Thus, for areas failing to meet their deadlines, section 172(a)(2), with the substitutions required by section 179(d)(3), reads as follows:

(2) Attainment dates for nonattainment areas

(A) The attainment date for an area designated nonattainment with respect to a national primary ambient air quality standard shall be the date by which attainment can be achieved as expeditiously as practicable, but no later than five years *from the date of the*

notice under section 179(c)(2), except that the Administrator may extend the attainment date to the extent the Administrator determines appropriate, for a period of no greater than ten years *from the date of the notice under section 179(c)(2)*, considering the severity of nonattainment and the availability and feasibility of pollution control measures.³⁴

Because the number of such automatic extensions is unlimited, there is never a fixed date by which the public can be assured the air will meet the health-based standards. Moreover, because the attainment date is based on the "availability and feasibility of pollution control measures," it will always follow, rather than lead, technology. So, there is little hope that the "deadlines" will encourage the development or adoption of new control systems comparable to catalytic converters or "scrubbers."³⁵

After reviewing the self-extension provisions, one reaches a harsh but inescapable conclusion: deadlines — defined by the *Oxford English Dictionary* as "a line that does not move" — for attainment have now ceased to exist.

2. Sanctions

The 1990 amendments not only eliminated enforceable deadlines for achieving healthy air, but they also repealed the 1970 sanctions. Although new sanctions were provided, they are discretionary and focused on *planning* for attainment, not attainment itself.

For example, section 176 of the 1970 Act mandated the imposition of a moratorium on federal funding for highways as well as for state and local air pollution control programs.³⁶ The 1990 amendments, however, repealed the ban on air grants altogether, and the

ban on highway funding became subject to the discretion not only of the EPA Administrator, but also the Secretary of Transportation as well.³⁷

The new amendments do provide a limited number of sanctions, but they are of doubtful utility. Sources of volatile organic compounds ("VOCs") in "severe" or "extreme" nonattainment areas,³⁸ for example, are subject to a potential fee of \$5,000 per ton for excess emissions. However, calculating the fee is complex and thus susceptible to evasion. Also, the fee is most likely a deductible business expense since it is not a penalty. Most importantly, \$5,000 per ton is substantially less than the cost of pollution controls, which can already range up to \$39,100 per ton in areas such as Los Angeles.³⁹ Thus, from the perspective of some companies, non-attainment may be a cost-effective business strategy.

In summary, the 1990 amendments repealed both deadlines and sanctions as they existed in the 1970 Act, replacing them with a succession of "attainment dates" that lie in the distant future, uncertain of achievement even then.

II. TITLE II: MOTOR VEHICLE EMISSIONS

It is in the regulation of emissions from mobile sources — principally cars — that the 1970 amendments to the Clean Air Act most clearly and unequivocally embraced the concept of forcing technological development in order to protect human health. It is in the 1990 amendments to these same provisions that the Congress most clearly abandoned those same principles.

A. The 1970 Act

In 1970, the opponents of the mobile source provisions contended that the proposed standards were impossible to meet with the technologies then available. In a letter to Sen. Muskie, the

president of General Motors said:

General Motors does not at this time know how to get production vehicles down to the emission levels that your bill would require for 1975 models. Accomplishment of these goals, as far as we know, simply is not technologically possible within the time frame required.⁴⁰

This refrain was repeated by one of the chief defenders of the auto industry, Sen. Robert Griffin (R-MI), who contended during a Senate debate that, "[t]he technology for achieving the standards set in legislative concrete by this bill are (sic) not available."⁴¹

One of the reasons for Griffin's ire was that the 1970 amendments were themselves a radical departure from previous law. Pre-1970 federal requirements — like those of 1990 and beyond — followed technological developments rather than forcing them.⁴² By 1970, however, it was clear that such an approach was failing to yield the pollution reductions necessary to protect public health. Nor did it seem likely that the technologies then available to the auto industry would lead to healthful air at any time in the near future. Thus, Muskie and his colleagues were forced to choose between protecting public health — and requiring standards that the industry contended were impossible to meet — or maintaining the status quo. They rejected continued reliance on an approach that based emissions standards on their supposed technological feasibility, choosing instead to protect health:

[W]e have learned that tests of economic and technological feasibility applied to those [emissions] standards compromise the health of our people and lead to inadequate standards.⁴³

Ultimately, although the Congress later

relaxed the deadline and one of the three emission limits contained in the 1970 Act, the auto industry did in fact meet the standards mandated by the 1970 law.⁴⁴ Since then, tailpipe programs have been adopted by virtually all of the world's industrialized nations. Still by 1985, roughly thirty-three percent of US emissions of oxides of nitrogen ("NO_x") and forty to forty-five percent of VOCs, the two principal precursors of ozone, came from motor vehicles.⁴⁵ Moreover, roughly half of all Americans lived in areas that had failed to attain the health-based standards mandated by the 1970 amendments. Thus, in 1989-90, the Congress was faced with essentially the same choice as in 1970: protecting public health — by requiring standards that the industry contended were impossible to meet — or maintaining the status quo. This time, the Congress opted for the latter.

No doubt the 101st Congress yielded to industry complaints partially because of the pessimistic view of some analysts who suggested that air pollution in the United States was such an intractable problem that anything short of draconian measures would fail to yield immediate progress. For example, the Office of Technology Assessment concluded that,

[I]n the worst areas, even the most costly and stringent of available measures will not lower emission levels sufficiently to meet the standard. Achieving that goal is a long-range project, well beyond the 5- and 10-year horizons of existing law. It will require both new technologies and lifestyle changes⁴⁶

Still, there was widespread agreement that the 1970 strategy had indeed succeeded in forcing the development of pollution control technology, with the House Energy and Commerce Committee Report in 1990 declaring that "[t]he theory worked."⁴⁷ Yet the Committee,

and ultimately the Congress and President, adopted a program that abandoned the strategy.

B. The 1990 Amendments

The 1990 Amendments take a two-tiered approach to conventional auto and light truck emission standards. In formulating Tier I, Congress essentially adopted the program then in place in California, albeit on a delayed schedule: phasing in vehicle certification⁴⁸ requirements between model years 1994 and 1996; establishing a less stringent "interim" certification standard by extending the certification period to 100,000 miles; and phasing out the interim standard between 1996 and 1998, while limiting recall testing to 75,000 miles.

These Tier I provisions radically alter the approach of the 1970 Act. First, by following the California standards, the federal law abandons the "technology forcing" concept. Second, by establishing a differential standard for certification and in-use requirements, the 1990 law delays even the application of existing technology, thus eroding the concept that the standards are based on public health protection. Third, the 1990 Act establishes a legal precedent that vehicles in use need not meet new-car certification standards.

Although Tier I delivers a debilitating blow, it is Tier II of the 1990 amendments that inflicts the greater damage to the concepts that animated the 1970 law. Although in Tier II "pending" emission standards for light duty vehicles are supposedly set at fifty percent of the Tier I level, there is, once again, less to the new law than meets the eye.

The term "pending emission standards,"⁴⁹ used to refer to the Tier II limits, suggests that they might go into

effect at any time. This impression seems to be confirmed by the Statement of Managers, implying a certain inevitability to the Tier II standards:

An additional reduction in auto emissions — a 50 percent cut below the standards required in the mid-1990's — would be required after 2003 unless EPA finds that this new standard is not necessary, technologically feasible, or cost effective.⁶⁰

But little is inevitable about the Tier II standards. While some observers may attach a certain symbolic importance to their inclusion in the amendments, the only circumstance under which they would necessarily go into effect is if the Administrator of EPA failed to act.⁶¹ Thus, the sole legal role of the Tier II standards is as a "hammer"; it is to be imposed if — and only if — the Administrator fails to take certain prescribed actions.

The presence of the Tier II standards in the statutory language has been cited by some as evidence of Congressional commitment to future tightening of automotive emission limits. To some degree this is true, yet the Tier II numbers are merely one of a potentially infinite variety of standards that are more stringent than Tier I. The law requires that these other options be examined; the Administrator must "consider other standards . . . which are more stringent or less stringent . . ." ⁶² It is possible that the Administrator could opt to promulgate the Tier II standards, but not because of their presence in the law. Indeed, the amendments expressly bar any preference in favor of the Tier II standards:

Nothing in this paragraph shall be construed by the Administrator or by a court as a presumption that any standards (or useful life period) set forth in Table 3 shall be promulgated in

the rule-making required under this paragraph.⁶³

The question that then arises is whether, and under what circumstances, emission limits more stringent than those under Tier I might be imposed. Under the 1970 Act, the answer to this question was clear: the Administrator was authorized under section 202(a)(1) to promulgate tighter emission standards if they were required to protect the public health or welfare.⁶⁴

New section 203 appears to leave 202(a)(1) intact; in fact, however, it turns the old law on its head. Tighter standards — which could have been issued under the old law solely on the basis of protection of human health — are now flatly forbidden prior to the year 2003. Even in 2003 and beyond, before tighter standards can be promulgated, the Administrator must affirmatively satisfy several legal requirements, as follows:

If the Administrator determines . . . that . . . there is no need [or that] . . . the technology . . . will not be available [or that] . . . further reductions will not be needed or cost effective . . . the Administrator *shall not promulgate* more stringent standards. . . .⁶⁵

Thus, what was an affirmative grant of power for protection of human health under the 1970 Act has been remolded by the 1990 amendments into a constraint on further controls — even if human health suffers because of it.

If states such as California can reduce emissions adequately through adoption of their own tailpipe standards using the section 209 waiver provisions, then tightened federal emission limits are prohibited.⁶⁶ Alternatively, if the technology for meeting tighter standards is unavailable, then tighter federal standards are prohibited. Furthermore, "availability" is not just a function of technological achievability, but also "the

lead time and safety and energy impacts of meeting more stringent emission standards.⁶⁷ Finally, if alternative means of attaining or maintaining the ambient standards — more stringent requirements on consumer products or stationary sources, for example — are available and cost effective, then federal standards tighter than Tier I are affirmatively prohibited.⁶⁸

If the emission limits enacted by the 1970 Act had been measured against these litmus tests of the 1990 amendments, they would never have been adopted.⁶⁹ Nor would the Tier I requirements contained in the 1990 amendments have been adopted.⁶⁹ Inconvenience for a single industry and incremental cost increases on an already expensive product are but two of many competing considerations in deciding the best societal method of curbing air pollution. Yet under the 1990 amendments, a statutory citadel is erected around the auto industry. To scale it will require lengthy, complex and expensive studies and rule-makings. Tailpipes arguably become the control of last resort.

Given the substantial emissions reductions that have already been achieved on a per-vehicle-mile basis since 1970, a legitimate argument can be made that stationary sources and fuels should share more of the responsibility for curbing air pollution. But to implement such a policy would require an affirmative, aggressive program to reduce emissions from stationary sources. Unfortunately, such a program does not exist.

When Congress began serious discussion of strengthening amendments to the Clean Air Act in 1987, a menu of additional federal controls was identified, ranging from emission limits on bakeries to mandated ride-sharing.⁶¹ Yet, one after another, each of the proposals fell

by the legislative wayside — as did statutory Tier II emission limits.

Conventional cars are now, as they were in 1970, collectively the largest single source of air pollution in the United States. That was the reason they were singled out for explicit, detailed treatment by the 1970 Act. The 1990 amendments reversed that priority, shifting the burden away from autos and toward every other source — or, given the elimination of deadlines and meaningful sanctions, onto the shoulders of innocent victims whose sole connection with air pollution is that they are forced to breathe it.

From this discussion, one might assume that vehicle emission control technology is pushed to its limits by the Tier I standards, and that achieving standards as stringent as Tier II is highly speculative and fraught with great technical challenge. To the contrary, the Tier I standards are at best a modest — and delayed — improvement. Indeed, even Tier II standards may be laughably outdated by 2006.⁶²

By comparison, the California Air Resources Board adopted a regulation that requires every auto manufacturer wishing to operate in California to offer for sale at least two percent Zero Emission Vehicles ("ZEV") in 1998, and ten percent in 2003. This has proved a powerful incentive for manufacturers; literally dozens of ZEV development programs are under way worldwide.

III. OTHER TITLE II PROVISIONS

Several other Title II provisions that arguably diminish the requirements or philosophy of the 1970 Act are worthy of mention.

A. Non-Road Engines

The 1990 amendments repeal existing

law and limit California regulation of so-called "non-road" engines. These engines, which are currently regulated by neither state nor federal governments, are put to a variety of uses ranging from generating electric power to operating compressors. Because they have no pollution controls, a single non-road engine can produce 100 times the pollution of a comparable car or truck engine. Section 222(b) of the 1990 amendments adds a new section 213 and modifies section 209 to preempt state regulation of engines smaller than 175 horsepower and confer exclusive control on the federal government. The EPA Administrator is granted the authority, but not the duty, to regulate these engines following a study. California may regulate larger engines upon EPA's approval.

B. Evaporative Emissions

The Administrator is given a "mandate" without a deadline to control evaporative emissions; the provision requires the greatest level of control "reasonably available" considering cost, energy and safety factors.

C. Consumer Warranty

Auto manufacturers must warrant that cars will pass inspection and maintenance requirements for five years or 50,000 miles if they are properly maintained. Prior to the 1990 amendments, emission control parts that failed within the period were replaced free of charge. The 1990 amendments roll back to two years/24,000 miles the consumer warranty for parts other than the on-board computer and catalytic converter. The amendments require an eight-year/80,000 mile warranty for the latter parts.

D. Motor Vehicle Air Toxics

By mid-1995, the Administrator is to promulgate "reasonable" requirements,

considering cost, availability, noise, energy, safety factors and lead time.

E. Clean Fuels

The House rationalized repeal of the technology forcing program for passenger cars by pointing to an expanded "Clean Fuel Fleet Vehicle" program and the "California Pilot Program," which mandate the sale of clean fuel vehicles in Los Angeles. The pilot program would become effective as a matter of federal law only if California fails to adopt its own program within four years. The clean fuel fleet program standards and enforcement provisions are subject to modification to conform them to California's standards. The program is limited to nine cities and to certain types of fleets and would not begin to be phased in until 1998. In short, these provisions, too, are written to force the federal program to follow California's.

Even with its limitations, if the program fulfills the expectations of its proponents, it will positively affect air quality for a large portion of the population exposed to violations of the health-based standards. Moreover, the program is directed at improving air quality in the region where it is the worst: Southern California. Finally, it focuses federal attention on a significant source of air pollution — motor vehicle fuels — that had been largely unregulated.

F. Conclusion

There are some provisions in the 1990 amendments that require emissions limits more stringent than those achievable with the technology available in 1990.⁶³ Nevertheless, the amendments on balance embrace the approach that had failed twenty years earlier: namely, the setting of emissions standards on the basis of technological and economic considerations rather than on the basis of protection of health. This action was all the more inexplicable because the

program adopted in 1970 had been a manifest, widely admired, and emulated success. Ironically, California's requirement that manufacturers offer for sale cars that emit zero tailpipe pollution has spurred a torrent of technological innovation.⁶⁴

IV. TITLE III: HAZARDOUS AIR POLLUTANTS

The fifty-five pages of amendments dealing with toxic or "hazardous" air pollutants are among the most complex set of changes contained in the 1990 Clean Air Act Amendments. Yet their ultimate effect is quite simple: the program contained in the 1970 law — which many saw as so zealously protective of human health that it was roundly condemned for nearly twenty years as being inflexible and unworkable — has been replaced by one which establishes standards based on cost to industry.

The new law retains the mandate of the old law: to set standards at a level that provides "an ample margin of safety to protect human health." This language appears to retain administrative discretion to set standards at a level deemed protective of health. The difference is that under the old law, this language was widely viewed as requiring zero emissions of some chemicals, even if that meant shutting down a plant. When studies provided inconclusive results, the Administrator was to err on the side of caution. Moreover, the new statute must be seen through the lens of three Reagan-Bush Executive Orders that predate the 1990 amendments and effectively compel the EPA Administrator to err on the side most favorable to industry, regardless of the risks to human health. Under the amendments, that same language now clearly allows pollution-caused risks of death so high that they rival the threats posed by dying in a car crash or a household accident.

The transformation of a law that was regarded as inflexible in the extreme into one that is more nearly the opposite — without any change whatsoever in the language of the health standard — is one of the more complex tales associated with the 1990 amendments.

A. The 1970 Act

Under section 112 of the 1970 Act, the Administrator was required to list hazardous air pollutants, defined as those "to which no ambient air quality standard is applicable and which in the judgment of the Administrator may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness."⁶⁵

Within 180 days of listing a pollutant, the Administrator was to publish proposed emission standards for sources emitting the pollutant and provide for a public hearing within thirty days. Within another 180 days, final regulations were to be promulgated, unless, based on the hearing, the Administrator determined that the pollutant was not hazardous.⁶⁶ The standard was to be set at a level that provided "an ample margin of safety to protect public health."⁶⁷

For pollutants for which there is no known threshold, or safe level, it was widely believed that the language of section 112 might require an emissions limit of zero. This, in turn, might require some plants to shut down because it would be impossible to continue operating without producing any emissions whatsoever.⁶⁸

Implementation of the provisions of section 112 proved thoroughly unsatisfactory to virtually all concerned. Public interest groups complained that during twenty years only eight pollutants had been regulated as hazardous.⁶⁹ EPA officials, however, blamed the law, saying the Agency had been "severely

constrained by an unsatisfactory statute." The Administrator called for a program of "best technology standards" for the regulation of hazardous air pollutants.⁷⁰ In 1990 Congress obliged.

B. The 1990 Amendments

Title III of the 1990 amendments consists of six sections. The first, section 301, replaces section 112 and consists of new subsections (a) through (r) addressing a wide variety of subjects, ranging from the basic regulatory mechanisms to the prevention of accidental releases.⁷¹

The heart of Title III, however, is the new regulatory program of section 301. It requires the establishment of industry-by-industry standards based on existing technology.⁷² It also establishes a "residual risk" program, supposedly designed to protect human health when technology-based standards do not.

1. Technology Based Standards

The 1990 amendments have been widely billed as requiring "maximum achievable control technology"⁷³ ("MACT"). Yet the technology required is not, in fact, that which will achieve the "maximum achievable" reduction, but rather a technology that

take[s] into consideration *the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements . . .*⁷⁴

The new technology-based regulatory system is modelled after section 307 of the Clean Water Act, which requires sources of specifically enumerated toxic water pollutants to install the "best available technology ("BAT") economically achievable for the applicable category or class of point sources."⁷⁵ Although the Clean Water Act's BAT program was held out as a

model for the 1990 amendments to the Clean Air Act, section 307 has been an incomplete success itself. As of early 1992, one-half of the industrial categories subject to section 307 were not covered by standards.⁷⁶

Because they require that a standard be set on the basis of existing technologies, the 1990 amendments cannot force the development of new ones. The question, then, is just how lax the technology-based standards will be. To reduce the chance of basing a standard on the lowest common denominator,⁷⁷ the new law requires MACT to be based on "the best performing twelve percent of the existing sources." But even this gesture towards technology-forcing is undercut by "excluding those sources" from the averaging process which are the newest and cleanest.⁷⁸

2. Residual Risk Protection

Those fearful that such lax technology requirements might lead to minimal regulation of carcinogens, neurotoxins, and other hazardous air pollutants might be assured by section 112(f), "Standard to Protect Health and the Environment." By its very words, this section seems to require regulatory "standards . . . to provide an ample margin of safety to protect public health . . ."⁷⁹ Once again, the amendments deliver less than they seem to promise. This is due in part to the confusion created by the decision of the DC Court of Appeals in *Natural Resources Defense Council v Environmental Protection Agency*, often referred to as the *Vinyl Chloride* decision.⁸⁰

Section 112 of the 1970 Act required EPA to set standards for hazardous air pollutants at the level that provides "an ample margin of safety to protect public health." This language seems on its face to preclude the consideration of factors other than protection of human health in

the setting of a standard. EPA, however, disagreed⁸¹ and in proposing regulation of vinyl chloride — a potent cancer-causing chemical — declined to require installation of the best available control technology. The NRDC filed suit, bringing the issue before the DC Court of Appeals.

The court sitting *en banc* rendered a decision that effectively endorsed EPA's view that section 112 was not a zero-risk law (even though the *Vinyl Chloride* decision itself was remanded). The court held that in setting standards for pollutants that have no known threshold for adverse effect (e.g., carcinogens), the agency was required to follow a two-step process. The first step was to determine a "safe" level of emissions, while the second was to calculate a margin of safety.

"Safe," however, did not mean risk-free. On the contrary, said the court, a "safe" level was based on "what risks are acceptable in the world in which we live."⁸² The court's view is a far cry from that expressed seventeen years earlier by Sen. Muskie.

Having determined an "acceptable" risk, the Administrator was then required to establish a margin of safety. In establishing the margin of safety, said the court, the Administrator "may, and perhaps must take into account the inherent limitations of risk assessment and the limited scientific knowledge . . . and may therefore, decide to set the level below that previously determined to be safe."⁸³

The court's decision was clearly at odds with the widespread, long-held view that section 112 mandated zero or something close to it. True, it was possible after the decision to argue that the law still required protection of public health. But to many observers, the meaning of that term was much different

from the one assigned by the court.

We will never know whether the DC Circuit's construction of the law would have been upheld by the Supreme Court. Similarly, we will never know whether this construction would have been mandated by an administration that took a different view of the law — a view that might have been accorded some deference pursuant to the accepted rules of statutory construction. It appears that Congress adopted the construction of the DC Court of Appeals and affirmatively enacted it.⁸⁴

To appreciate the consequences of *Vinyl Chloride*, however, it is necessary to review three Reagan-Bush executive orders, because they effectively dictate many of the decisions which must be made at EPA. Implementation of the 1990 amendments, and all other federal regulatory statutes must be read with the overlay of these three Executive Orders, EO 12291,⁸⁵ EO 12498,⁸⁶ and EO 12630.⁸⁷ Taken together, these Orders compel the executive branch officials, including the Administrator of EPA, to consider minimizing costs to the polluter when promulgating standards.

3. Executive Order 12291

EO 12291, which President Ronald Reagan issued one month after taking office, requires every federal agency to forward all proposed and final regulations to the White House's Office of Management and Budget ("OMB") for review. The agency may not issue the final regulations until it responds to OMB's comments. "Major" rules — that is, those with an economic impact greater than \$100 million — must be accompanied by a detailed regulatory impact analysis.

For its part, OMB is required to assure that each regulation maximizes "aggregate net benefits to society." In

the case of laws, such as the former section 112 of the Clean Air Act, which required that standards be based solely on protection of human health, OMB could exercise only limited powers. However, the repeal of the old standards, coupled with enactment of a new section 112 by the 1990 amendments, now assures that future regulations will, like virtually all others, be subject to OMB review and revision.

4. Executive Order 12498

EO 12498, which President Reagan issued as he was about to begin his second term in office, requires that all agency decisions be "consistent with the Administration's regulatory principles." Proposed rules must be submitted to the Office of Management and Budget, where they are "reviewed . . . for consistency."

Although the expressed purpose of the EO is for "planning," proposed rules clearly are subjected to substantive review, and those that are inconsistent with Administration policy may not be published. For example, in its first submission to OMB under EO 12498, EPA listed eighty-five rules or regulations.⁸⁸ Several of these related to the development or promulgation of NAAQS. According to law, NAAQS are to be based solely on protection of human health and, therefore, should be in principle immune from review for "consistency" with any policy other than protection of health.⁸⁹ Because OMB is not subject to most of the "sunshine" disclosure requirements of federal laws, what happens to proposed rules and regulations once they get to OMB is unclear. All we know is that they are never issued; no new primary NAAQS have been promulgated since the PM 10 standard in 1986. A statement made by former Chief of Staff John Daniels sheds some light on OMB's methodology. He stated that during the consideration of one NAAQS revision, OMB "kept urging

upon us consideration of the costs through certain types of analyses that really were not permitted in terms of making the ultimate decision under the statute."⁹⁰

5. Executive Order 12630

President Reagan signed EO 12630, entitled "Government Actions and Interference With Constitutionally Protected Property Rights," during his last year in office. Its stated purpose is to assure that federal agencies act with "due regard for the constitutional protection [of private property] provided by the Fifth Amendment."⁹¹ In cases where the Executive Order is applicable, agencies are instructed:

Actions to which this order applies are asserted to be for the protection of public health and safety, therefore, should be undertaken only in response to real and substantial threats to public health and safety, be designed to advance significantly the health and safety purpose, and be no greater than is necessary to achieve the health and safety purpose.⁹²

Perhaps no single one of these three orders would, on its face, impede timely implementation of section 112 as a program based solely on protection of human health. In the aggregate, however, the three orders have, at the very least, a chilling effect on attempts to implement the new law as a health-based-only statute. Regardless of their theoretical effects, the practical consequence of these regulations, especially when read with the Statement of Managers, is to eliminate protection of human health as the sole predicate of section 112.

6. Other Provisions Contained in the 1990 Amendments

Subsection (a) of section 112 defines a number of terms used

throughout the hazardous air pollutant provisions. Some of the definitions, such as that of a "major source," are central to the operation of the entire title.⁹³ Other definitions, however, are predicates for special interest provisions. For example, the section contains a definition of "electric utility steam generating unit"⁹⁴ for the purpose of exempting these facilities from regulation, even though they are known to emit significant quantities of toxic compounds ranging from cadmium to mercury.⁹⁵ The title focuses on two different sources of poisonous compounds: large, fixed installations such as refineries, printing plants and smelters, which are termed "major source," and numerous, smaller shops such as dry cleaners and auto body shops, which are termed "area sources."

Section 112(b) currently lists 189 "hazardous" air pollutants.⁹⁶ The list contains some anomalies. For example, the oldest known and most ubiquitous of toxic compounds, lead, is excluded from the list and its addition is affirmatively barred by the new law. Section 112(b)(7) states that "[t]he Administrator may not list elemental lead as a hazardous air pollutant under this subsection."⁹⁷ Additionally, during the course of considering the legislation, Congress removed two chemicals, ammonia and hydrogen sulfide, that were included on the original list.⁹⁸ Ammonia is used extensively in the fertilizer industry, while hydrogen sulfide is a byproduct of oil and gas drilling operations as well as pulp and paper mills.

By removing — or, in the case of lead, barring — these substances from the list, the Congress assured that the public would be inadequately protected from these toxic materials. Emissions from secondary lead smelters operating in the Los Angeles Basin of Southern California, for example, are reportedly causing the

region to exceed the NAAQS. To regulate lead emissions, local officials must now rely on the relatively cumbersome processes contained in the non-attainment provisions of federal law or on their own state laws.

V. TITLE IV: ACID DEPOSITION CONTROLS

The area in which Congress is most widely perceived as having strengthened the underlying Clean Air Act through the 1990 amendments is in the provisions addressing acid deposition. Yet, as in so many other areas, the Title IV amendments eliminated provisions that had been widely regarded as key elements of the 1970 Act, substituting troubling new concepts. Several examples are worthy of note. First, air pollution was characterized — and was arguably established — as a "right" for the first time. These provisions are contained in Title I, but were included there as predicates for the operation of the trading scheme established in Title IV.⁹⁹ (Although the establishment of pollution as a right was justified as a predicate for the trading scheme of the acid deposition title, one of the first proposed applications of trading has been in the context of ozone nonattainment in the nation's most polluted region, Los Angeles. The South Coast Air Quality Management District's Regional Clean Air Incentives Market ("RECLAIM") program announced in early 1992 is described as a "bold departure from traditional command and control regulations," allowing trades of reactive organic gases and oxides of nitrogen.)

Second, the groundwork was laid for the administrative repeal of the so-called *WEPCO* decision, which created an uproar in the utility industry when it was announced.¹⁰⁰ *WEPCO* was a decision by the EPA Administrator that required electric power plants being repowered to comply with the Act's performance

standards for new sources. Had the *WEPCO* decision been allowed to remain in effect, the reductions in emissions of sulfur dioxide would likely have reached 14 million tons — considerably more than the 10 million ton reduction the 1990 amendments supposedly will achieve.¹⁰¹

Third, western and other so-called "clean" states with emission rates below the national average were allowed to *increase* their total emissions.¹⁰² And fourth, the "percentage reduction" requirement, which mandated the installation of a technological system of control without regard to the sulfur content of the coal being burned, was repealed.

A. Background

Acid deposition was the only major subject of the 1990 amendments that had not been explicitly addressed by pre-existing law. However, Senate floor amendments dealing with acid deposition had been offered as early as 1980, and full-blown control programs had been proposed in the early 1980s.¹⁰³

Atmospheric acids are created when certain pollutants, especially sulphur dioxide and oxides of nitrogen, are oxidized in the air to form sulfates, nitrates and acidic compounds. These can fall to earth in either dry or wet forms and, if wet, as either fog, rain or snow.¹⁰⁴ Acid deposition was widely believed to be the cause of acidified lakes and streams, forest dieback and death, and a variety of other environmental damage.¹⁰⁵

Although acid deposition was not specifically addressed by the 1970 Act or its 1977 amendments, there were several provisions of pre-existing law that could have been invoked to curb the emissions that cause it.¹⁰⁶ Indeed, an argument can be made that the primary reasons Congress found it necessary to address acid deposition directly (or, for that

matter, nonattainment, hazardous air pollutants, tighter tailpipe standards and the vast majority of other matters that were subjects of the 1990 amendments)¹⁰⁷ were the malfeasance, misfeasance and nonfeasance of Reagan-Bush agency appointees.

B. The 1990 Amendments

The primary objective of the acid deposition title is described as achieving a 10 million ton reduction in emissions of sulfur dioxide from 1980 levels. These reductions are to be achieved in two phases. The first phase, which is expected to achieve an annual reduction of about 5 million tons of sulfur dioxide from 1980 levels, is the equivalent of an average emissions rate of 2.5 pounds of SO₂ per million BTU of energy input.¹⁰⁸

The second phase, expected to achieve an additional 5 million ton reduction by January 1, 2000, requires the equivalent of a 1.2 average emissions rate.¹⁰⁹ To maximize the economic efficiency with which these reductions are achieved, the 1990 amendments rely on a novel mechanism. Emissions of sulfur dioxide are allocated among the states and their sources, which are then allowed to trade them, essentially at will, like stocks and bonds.¹¹⁰ Rather than relying on the technology-forcing approach of the 1970 law, the 1990 amendments allow sources to achieve assigned reductions however they wish: by switching to lower-sulfur fuels, installing pollution control devices, or replacing existing combustion systems with intrinsically less-polluting mechanisms. However, each of the overall averages could be met exclusively through the use of low-sulfur coals without resort to more highly efficient or less polluting technologies.¹¹¹

To provide for the adoption of new technologies, the acid deposition title allows two benefits for a source that is "repowering" (that is, replacing existing

coal-fired boilers with a new technology such as pressurized fluidized bed combustion):¹¹² (1) an extension of the final compliance date from January 1, 2000, to December 31, 2003,¹¹³ thus creating the possibility that the acid deposition control program will actually require a total of fourteen years for full implementation rather than ten; and (2) an exemption from the law's new source performance standards.¹¹⁴

1. New Source Standards and Review

By exempting repowered sources from compliance with the New Source Performance Standards ("NSPS"), the amendments effectively preclude the possibility that emissions limits (or overall efficiency) of the source will be improved by regulation. Thus, these technologies will improve at a pace dictated by the industries, and will not be forced by external regulation. In addition to removing the NSPS as a way to force technology, the Congress tacitly agreed to allow a rescission of the decision by the Environmental Protection Agency in the *WEPCO* case.¹¹⁵

2. WEPCO

The Wisconsin Electric Power Company ("WEPCO") decided to upgrade several coal-fired units it operated in Port Washington, Wisconsin.¹¹⁶ Under prior EPA rules, such upgrades would trigger new source review under the Clean Air Act only if there were a total actual emissions increase or if the capital cost of replacing component parts totaled more than fifty percent of the cost of a new plant. However, even though the WEPCO repowering violated neither of these criteria, EPA held that since its capacity — and hence its hourly emissions — would increase after the repowering, the reconstruction would nevertheless be subject to new source standards and review. The effect of *WEPCO* was to trigger a panoply of Clean

Air Act requirements ranging from the NSPS to Prevention of Significant Deterioration (PSD) review.¹¹⁷

The *WEPCO* decision sent shudders through the power industry because the bulk of US power plant units would soon be in the same position as those in dispute at *WEPCO*. According to a 1987 report of the US Department of Energy, "the average system age is approaching 25 years. Typically, 30 to 40 years is the usual retirement age for power plants."¹¹⁸ Thus, the effect of *WEPCO* was to subject virtually all power plants to new source review — and emission limits — within roughly the same time frame as that covered by Title IV of the 1990 amendments. Triggering new source standards, however, would reduce annual emissions of sulfur dioxide by 12 million tons or more, compared to the 10 million ton decrease of the 1990 amendments.¹¹⁹

In addition, since power plants would be subject to review for emissions of other pollutants, e.g., NO_x, reductions in these pollutants could be expected as well. For example, when Germany upgraded all of its power plants in the five year period 1983-88, the result was an efficiency increase of about twelve percent, with a corresponding reduction in emissions of carbon dioxide.¹²⁰

3. Repeal of "Percent Reduction"

Section 111(a)(1)(A), which was added by the 1977 amendments, required fossil-fuel fired stationary sources, which are primarily power plants and industrial boilers, to achieve a "percentage reduction in the emissions from such category of sources from the emissions which would have resulted from the use of fuels which are not subject to treatment prior to combustion."¹²¹ This provision had been widely criticized as a special interest amendment, added to protect high-sulfur

coal producers and miners.¹²² No doubt it had such an effect. However, it also effectively required that such large power stations rely on more than fuel-switching alone to reduce emissions. Because a "percentage reduction" was required, without regard to the quality of the fuel, technological deployment was an inevitable and unavoidable consequence of this provision,¹²³ which explains its wide support by environmental organizations.

Thus, regardless of the motives of the authors of the percentage reduction requirement, its effect was to spur the development of a wide variety of pollution control technologies, ranging from scrubbers to coal cleaning, and including new methods of combustion that are inherently more efficient and less polluting.¹²⁴ Percentage reduction was repealed at the behest of western senators for the express purpose of encouraging the use of the so-called "clean" (that is, lower-sulfur) coals¹²⁵ that are found throughout that region. Because lower-sulfur coals can meet the 2.5 and 1.2 pound per million BTU requirements of the 1990 amendments¹²⁶ without pre- or post-treatment technologies or combustion modifications, the demand for these coals is expected to be stimulated by the acid rain control program.

Parochial considerations of this sort run throughout Title IV. There are special provisions for narrowly described units,¹²⁷ alternative allowance allocations,¹²⁸ and "bonus" pollution allowances.¹²⁹

VI. OTHER TITLES

The 1990 amendments contain seven other titles,¹³⁰ most of which deserve more extensive treatment than space here allows. Especially noteworthy, however, are the following,

A. Stratospheric Ozone Depletion

Title VI of the 1990 amendments establishes a detailed and comprehensive program to regulate production and use of chemicals that destroy stratospheric ozone. It exceeds in stringency the major international agreement on the subject, the Montreal Protocol,¹³¹ and appears to place the United States on a path to rapidly reduce levels of chemicals that destroy the ozone shield. Yet again, the amendments fall short of their promise.

Title VI repeals sections 151 through 159 of the pre-existing law, which included an unusually broad grant of authority to the Administrator:

If . . . in the Administrator's judgment, any substance, practice, process or activity may reasonably be anticipated to affect the stratosphere, especially ozone in the stratosphere, and such affect may reasonably be anticipated to endanger public health or welfare, the Administrator shall promptly promulgate regulations respecting the control of such substance, practice, process or activity¹³²

In explaining this language, Sen. Muskie, chairman of the Senate conferees, said, "[t]his section assures that there is adequate federal authority to prevent all actual or potential risks to the stratosphere." The Administrator of the EPA, said Muskie, "should take any necessary steps within his authority to reduce or eliminate such risk."¹³³

The sweeping grant of power contained in the 1977 amendments was reenacted verbatim by the 1990 amendments. In addition, the title establishes phaseouts for certain classes of ozone destroying chemicals such as the chlorine-based CFCs. Ozone destroyers with the longest atmospheric lifetimes are grouped in "Class I" while those with shorter lives are grouped into "Class II." Production of most Class I substances must cease by January 1, 2000.¹³⁴ A phaseout of Class II

substances begins in the year 2015, when production is limited to the level of a baseline year to be selected by the Administrator, and concludes in the year 2030.¹³⁶ The Administrator is authorized to accelerate these timetables if a more stringent schedule (a) is necessary to protect human health and the environment, (b) is practicable, based on the availability of substitutes, or (c) is required by a revision of the Montreal Protocol.¹³⁸

Several observations should be made regarding this timetable. First, there is widespread agreement within the scientific community that so-called "heterogenous chemistry," which is characterized by extraordinarily rapid change and is thus difficult to predict with current knowledge, is responsible for the Antarctic ozone hole. Substantial evidence exists now, as it did at the time of the enactment of the 1990 amendments, that heterogenous chemistry accounts for comparable "holes" in Arctic regions, as well as substantial wintertime losses in the Earth's northern latitudes. Because heterogenous chemistry is incompletely understood, scientists are unable to define any "safe" level of ozone-destroying compounds in the atmosphere.

Second, although Class II substances, which are often referred to as "HCFCs" because they contain a hydrogen atom, have shorter atmospheric lifetimes than CFCs (which contain no hydrogen), they nevertheless destroy large quantities of ozone while they are still "alive." Measured over a time frame of 150 years, a particular HCFC may have only 1/20th the ozone-destroying potential of a CFC; however, measured over the first twenty years, the ozone-destruction potential of a given HCFC may be half that of a CFC. Thus, if the object is to sharply reduce total chlorine loading of the atmosphere over the next twenty

years — rather than in the twenty-second and twenty-third centuries — prompt reductions in the use of HCFCs is essential. The 1990 amendments, however, not only place no limit on the production of HCFCs, but implicitly encourage expanded production and use, perhaps for as long as a quarter-century. Thus, at least in theory, near-term concentrations of chlorine — and resulting ozone destruction — might actually *increase* rather than decrease.¹³⁷

However imprudent a forty-year phaseout of HCFCs might be in terms of the global environment, it is the time frame that was sought by the chemical industry¹³⁸ and granted by Congress.

B. Pollution Pork Barrel: Serving Narrow or Special Interests

Sprinkled liberally throughout the 1990 amendments are provisions according special treatment to particular industries or areas.

- Section 184(b)(1)(A) requires improved vehicular I&M programs in states that are included in the eleven-state Ozone Transport Region. Metropolitan statistical areas or parts thereof with a population of less than 100,000 are exempted. Among the areas covered by this provision is Queen Anne County, Maryland, which was represented on the Senate Committee from 1987-88 by Senator Barbara Mikulski (D-MD). One adjoining state, Virginia, is excluded from the Region (except for those portions included in the Consolidated Metropolitan Statistical Area of the District of Columbia), even though its three largest metropolitan areas were all nonattainment for ozone.¹³⁹ Virginia's senior Senator, John Warner (R-VA), was also a member of the Senate Committee.

- Several western states, including North Dakota, Montana and Wyoming, were authorized by section 406 to increase emissions of air pollutants "as an attempt to recognize past efforts" on their part.¹⁴⁰ The three states were represented on the Senate Committee by Senators Quentin Burdick (D-ND), Max Baucus (D-MT), and Alan Simpson (R-WY), respectively.

- The allowance system established by the acid deposition title creates pollution rights that will presumably be worth a great deal of money. Under section 405(a)(2), some plants are awarded "bonus" pollution allowances.¹⁴¹ In addition, plants located in Illinois, Indiana, Ohio, Georgia, Alabama, Missouri, Pennsylvania, West Virginia, Kentucky and Tennessee are granted pro rata shares of another 50,000 tons of sulfur dioxide emissions by section 405(a)(3).¹⁴² Other than Missouri, Kentucky and West Virginia, each state was represented on the House Committee on Energy and Commerce.

- Other special benefits are granted by the 1990 amendments on the basis of the activity, rather than location. Under section 410(h), for example, small diesel refineries are to receive pollution allowances.¹⁴³

- Oil wells are another special interest. Although other sources of toxic pollution are subject to regulation under Title III, oil and gas wells cannot be listed as an area source category unless they are located in a metropolitan area with a population in excess of one million. Nor can these wells, their pipelines, compressors or pumping stations be aggregated to form a major source, and thus become subject to regulation.¹⁴⁴

- So-called "stripper wells" — that is, oil and gas wells that utilize techniques

such as steam injection to enhance their productivity — are exempted by section 819 from a variety of the changes made by the 1990 amendments.¹⁴⁵

- Section 301(q)(2) prohibits regulation under the 1990 amendments of radionuclide emissions from elemental phosphorous plants, grate calcination elemental phosphorous plants, phosphogypsum stacks, and any subcategory of the foregoing.¹⁴⁶ Instead, emissions from these facilities are to be regulated as they were under the previous law. And under section 301(c)(8), separate standards must be established for emissions of hazardous air pollutants from boat manufacturing operations.¹⁴⁷

Other provisions of the amendments are mysteries: anomalous exceptions or special treatment that cannot be readily explained.¹⁴⁸

CONCLUSIONS

No doubt, the vast majority of the individuals involved in the enactment of the 1990 amendments genuinely believe that they represent sound, responsible public policy. Time may prove that judgment to be correct.

However, time had already proven the 1970 Act to be a workable and effective mechanism for reducing air pollution. Most of the Act's perceived failures could be tied directly to the fundamental hostility of the Reagan and Bush Administrations, as well as a few powerful members of Congress, to environmental protection. Instead of exposing and confronting that hostility and its consequences, the Congress chose to repeal the very provisions of law that Reagan and Bush appointees had repeatedly refused to implement.

Given the current nature of the

Congress and the pivotal positions occupied by individuals such as Representative John Dingell (R-MI), chairman of the House Committee on Energy and Commerce, and other opponents of environmental protection, this decision is understandable. Doubtless, whatever their failings, the 1990 amendments were the best law that could be enacted under the circumstances of 1989-90. That does not, however, justify misrepresentation of the amendments. Representative Dingell and his allies, including President Bush, deserve the credit for their legislative successes, and the American people deserve the truth.

If the establishment of pollution as a right for polluters, the repeal of deadlines for achieving healthy air and the continued production of ozone-destroying chemicals ultimately produce an environment and economy that are sounder, then those who proposed these changes deserve the accolades they no doubt would receive. However, if these changes have the opposite effect and escalate the toll in terms of the human suffering and environmental injury inflicted by air pollutants, those who advocated these changes deserve the opprobrium that would certainly greet them. Only time, and honesty, will tell that tale.

1. Clean Air Act Amendments of 1970, Pub L No 91-604, 84 Stat 1676 (1970), codified at 42 USC § 7401 et seq (1988).

2. *Legislative History of the Clean Air Act of 1970* at 227 (1974) (prepared by Envir Policy Div, Legis Research Service, Library of Cong) ("1970 Legislative History").

3. Edmund S. Muskie, *The Clean Air Act: A Commitment to Public Health*, 7 Envir Forum 13, 14 (Jan-Feb 1990).

4. *Id.*

5. See Urban Ozone and the Clean Air Act: Problems and Proposals for Change (April 1988) (prepared by Oceans & Envir Program, Ofc of Technology Assessment, US Cong).

6. *Id.*

7. Clean Air Act Amendments of 1987, Hearings before the Subcommittee on Envir Protection of the Senate Committee on Envir & Public Works, 100th Cong, 1st Sess 488-89 & 565 (1987) (statement of Haluk Ozkaynak, Ph.D, Energy & Envir Policy Center, Harvard U) ("1987 Amendment-Hearings").

8. See *Catching Our Breath: Next Steps for Reducing Ozone 3* (July 1989) (prepared by Ofc of Technology Assessment, US Cong).

9. T. Schneider, et al, eds, *Atmospheric Ozone Research and Its Policy Implications: Proceedings of the Third US-Dutch International Symposium* 523-24 (Elsevier, 1989).

10. See World Resources Institute, *World Resources 1990-91* at 201-16 (Oxford, 1990).

11. Clean Air Act Amendments of 1977 at § 172(a)(1), Pub L No 95-95, 91 Stat 685, 746 (1977), codified at 42 USC § 7502(a) (1988).

12. Motor Vehicle Facts and Figures: 1989 at 52 (1990) (prepared by Motor Vehicle Manufacturers Association) (total number of miles driven rose from 1,109,724 in 1970 to 1,991,073 in 1988).

13. See Letter from Lee M. Thomas, EPA Administrator, to members of Congress (Feb 17, 1988) (on file with Duke Envir L & Policy Forum).

14. See, for example, State of Science and State of Technology: Summary Compendium Document at T25-1 to T25-13 (1990) (prepared by Natl Acid Precipitation Assessment Program).

15. Lead Contamination, Hearings before the Subcommittee on Health & the Envir of the House Committee on Energy & Commerce, 100th Cong, 2d Sess 503 (1988) (statement of Ellen Sibergeld, Ph.D, Director of Toxic

Chemicals Program, EDF).

16. *The Clean Air Act Amendments: BNA's Comprehensive Analysis of the New Law 1 & 29* (BNA, 1991).

17. See Lynton K. Caldwell, *The Case for an Amendment to the Constitution of the United States for Protection of the Environment*, 1 Duke Envir L & Policy Forum 1 (1991).

18. See, for example, Michael D. Lemonick, *The Heat is On: Chemical Wastes Spewed Into the Air Threaten the Earth's Climate*, Time 58 (Oct 19, 1987). See also Thomas A. Sancton, *What on EARTH Are We Doing?*, Time 24 (Jan 2, 1989); William Allman, *Rediscovering Planet Earth*, US News & World Rep 56 (Oct 31, 1988); Jerry Adler & Mary Hager, *Stretched to the Limit*, Newsweek 23 (July 11, 1988).

19. During the 1986-1988 period, the number of urban areas failing to meet the federal health-based standard for ozone increased from 64 to 101. This was at least partially explained by the fact that the summer of 1988 was the third hottest in the United States since 1931. Such hot dry conditions are conducive to the formation of ozone. *EPA Lists Places Failing to Meet Ozone or Carbon Monoxide Standards*, Envir News 1-2 (July 27, 1989) (EPA news release).

20. Michael Specter, *Record Hot Readings in 1980s Boost Global-Warming Theory*, Wash Post A2 (Jan 13, 1990).

21. See Implications of the Findings of the Expedition to Investigate the Ozone Hole Over the Antarctic, Hearings Before the Subcommittee on Envir Protection, Hazardous Wastes, & Toxic Substances of the Senate Committee on Envir & Public Works, 100th Cong, 1st Sess 15 (1987) (statement of Mack McFarland on behalf of the Chemical Manufacturers Association) ("Clearly, it also appears that chemistry contributes to ozone decreases . . .").

22. "I am an environmentalist: always have been, from my earliest days as a Congressman . . . [a]nd I always will be." Vice President George Bush, Remarks at Erie Metropark, MI (Aug 31, 1988) (transcript

available from the Republican Natl Committee).

23. Each implementation plan submitted by a state "shall —

(A) include enforceable emission limitations and other control measures, means or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights)"

Clean Air Act Amendments of 1990 at § 110(a)(2)(A), Pub L No 101-549, 104 Stat 2399, 2404 (1990), codified at 42 USCA § 7410(a)(2)(A) (West Supp 1991).

Similar language is included in sections 172(c)(6) (dealing with nonattainment plans) and 183(e)(4) (dealing with federal ozone measures). Id at §§ 172(c)(6) & 183(e)(4), 104 Stat at 2414 & 2446, 42 USCA §§ 7502(c)(6) & 7511b(e)(4).

This language was apparently included to establish the predicate for the market-based trading programs created by the new law in the acid deposition title. Section 403(f) does state that an allowance created by Title IV "does not constitute a property right," adding that "[n]othing in this title or in any other provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization." This merely means that where the provisions seemingly conflict, the courts will attempt to reconcile them so as to preserve both. Moreover, the language of section 403(f) attempts to bar treatment of the Title IV authorizations as rights but is silent as to licenses, permits, or other authorities in Titles I, II, III and V (e.g., CFC production quotas). Id at § 403(f), 104 Stat at 2591-92, 42 USCA § 7651b(f).

24. Clean Air Act Amendments of 1977 at § 172(a)(1), 91 Stat at 746, 42 USC § 7502(a)(1).

25. Id.

26. It is useful in understanding the difference between the 1970 law and the 1990 Amendments to bear in mind the origin of the word "deadline," a term commonly used to describe the "attainment dates." A deadline was a line drawn around the inside perimeter of a prison. Those who crossed it

were shot. A deadline is "a line that does not move." *Compact Edition of the Oxford English Dictionary* 653 (Oxford, 1971).

27. Clean Air Act Amendments of 1977 at § 172(a), 91 Stat at 746, 42 USC § 7502(a).

28. *Id* at § 176, 91 Stat at 749, 42 USC § 7506.

29. *Id* at § 172(a)(1), 91 Stat at 746, 42 USC § 7502(a)(1). It should be noted that these non-compliance provisions amounted to a crude emissions control program and were not merely penalties. Indeed, the word "sanction" does not appear in the 1970 Act.

30. Clean Air Act Amendments of 1990 at §§ 181(a) & 186(a)(1), 104 Stat at 2423 & 2452, 42 USCA §§ 7511(a)(1) & 7512(a)(1) (see Table 1).

31. *Id* at § 172(a)(2), 104 Stat at 2413, 42 USCA § 7502(a)(2).

32. Summary of Senate Passed Clean Air Act Amendments 1 (Apr 3, 1990) (press release by Senate Committee on Envir & Public Works) (emphasis added) (on file with Duke Envir L & Policy Forum).

33. Clean Air Act Amendments of 1990 at § 179(d)(3), 104 Stat at 2422, 42 USCA § 7509(d)(3).

34. *Id* at § 172(a)(2), 104 Stat at 2413, 42 USCA § 7502(a)(2) (emphasis added to show substituted language).

35. Scrubbers are devices that remove sulfur dioxide from the flue gas of coal power plants. They can remove up to 90% of the sulfur dioxide from power plant emissions.

36. "The Administrator shall not approve any projects or award any grants authorized by this Act and the Secretary of Transportation shall not approve any projects or award any grants" Clean Air Act Amendments of 1977 at § 176(a), 91 Stat at 749, 42 USC § 7506(a), repealed by Clean Air Act Amendments of 1990 at § 110(4), 104 Stat at 2470.

37. "The Administrator *may* impose a

prohibition, applicable to a nonattainment area on the approval of the Secretary of Transportation of any projects or the awarding by the Secretary of any grants" Clean Air Act Amendments of 1990 at § 179(b)(1)(A), 104 Stat at 2421, 42 USCA § 7509(b)(1)(A) (emphasis added).

38. *Id* at § 181(a), 104 Stat at 2423, 42 USCA § 7511(a)(1) (see Table 1).

39. See South Coast Air Quality Management Dist 1991 Air Quality Management Plan 6-14 (draft) (1991).

40. Letter from Edward N. Cole, President of General Motors, to Sen. Muskie (D-ME) (Sept 17, 1970), in *1970 Legislative History* at 358-59 (cited in note 2).

41. *1970 Legislative History* at 304 (cited in note 2).

42. "The existing [pre-1970] law requires the Secretary to establish standards on the basis of economic and technological feasibility. The proposed bill would require the Secretary to make a judgment on the contribution of moving sources to deterioration of air quality and establish emission standards which would provide the required degree of control . . . [S]tandards should be a function of the degree of control required, not the degree of technology available today." National Air Quality Standards Act of 1970, S Rep No 91-1196, 91st Cong, 2d Sess 24 (1970) ("NAQSA Report").

43. *1970 Legislative History* at 226 (cited in note 2).

44. Indeed, this is one of the respects where the 1970 Act differs markedly from the 1990 Amendments. In the 1970 Act, delays — whether in achieving the ambient standards themselves or in complying with specific provisions such as the tailpipe emission limits — could be granted only by the Congress. Delay required an act of law. Under the 1990 Amendments, delays are granted more or less automatically; what requires an act of Congress are shortened timetables or stronger standards. In 1970, Congress maintained tight control to assure progress. In 1990,

- Congress abandoned control, encouraging delay.
45. *Catching Our Breath* at 12 & 18 (cited in note 8).
46. *Id* at 5.
47. Clean Air Act Amendments of 1990, HR Rep No 101-490, 101st Cong, 2d Sess 280 (1990).
48. Certification is the process by which the government tests representative car models to assure that they comply with the law's emissions, durability and other requirements.
49. Clean Air Act Amendments of 1990 at § 202(i)(1), 104 Stat at 2476, 42 USCA § 7521(i)(1).
50. Clean Air Act Amendments of 1990, HR Rep No 101-952, 101st Cong, 2d Sess 337 (1990) ("Conference Report").
51. Section 203(i)(3)(E) triggers the Tier II limits as follows: "Unless [the Administrator takes certain specified actions] . . . effective [in] model years commencing after January 1, 2003, . . . emissions may not exceed the [Tier II] emission levels . . ." Clean Air Act Amendments of 1990 at § 203(i)(3)(E), 104 Stat at 2478, 42 USCA § 7521(i)(3)(E).
52. *Id* at § 203(i)(1), 104 Stat at 2476, 42 USCA § 7521(i)(1).
53. *Id* at § 203(i)(3)(D), 104 Stat at 2478, 42 USCA § 7521(i)(3)(D).
54. Section 202(a)(1) allows the Administrator to prescribe standards applicable to "any air pollutant from any class of or classes of new motor vehicles or new motor vehicle engines (causing) air pollution which may reasonably be anticipated to endanger public health or welfare." Clean Air Act Amendments of 1970 at § 202(a)(1), 84 Stat at 1690, 42 USC § 7521(a)(1).
55. Clean Air Act Amendments of 1990 at § 203(i)(3)(B), 104 Stat at 2477, 42 USCA § 7521(i)(3)(B) (emphasis added).
56. The 1990 Amendments require the Administrator to "examine the need for further reductions . . . taking into consideration the waiver provisions of 209(b)." *Id* at § 203(i)(2)(A), 104 Stat at 2476, 42 USCA § 7521(i)(2)(A).
57. *Id* at § 203(i)(2)(A)(i), 104 Stat at 2476, 42 USCA § 7521(i)(2)(A)(i).
58. *Id* at § 203(i)(3)(B)(iii), 104 Stat at 2477, 42 USCA § 7521(i)(3)(B)(iii).
59. The industry asserted, and the proponents of tailpipe emission limits conceded, that the technology for meeting the standards did not exist. The technology followed enactment of the law, rather than vice versa. NAQSA Report at 24 (cited in note 42).
60. The Office of Technology Assessment estimated that the cost per ton of pollution removed through the adoption of tighter emission standards was substantially higher than the cost of various alternatives. *Catching Our Breath* at 139-45 & 163-65 (cited in note 8).
61. 1987 Amendment Hearings at 15-49 (cited in note 7).
62. The California Air Resources Board expects industry to be well on its way to eliminating tailpipe emissions by then, and has adopted an ambitious regulatory program designed to give the industry a push in that direction (see Table II).
63. See, for example, the cold start emission limits established by section 202. Clean Air Act Amendments of 1990 at § 202(j), 104 Stat at 2479, 42 USCA § 7521(j).
64. See, for example, Stuart F. Brown, *The Tokyo Motor Show: The Theme is Green*, Popular Science, 50, 52 (Feb 1992) (describing wide range of zero emission cars). Interestingly, it is not at all clear that the sale of such vehicles in the states outside California could be federally mandated under the restrictions imposed by the 1990 Amendments.
65. Clean Air Act Amendments of 1970 at § 112(a)(1), 84 Stat at 1685, 42 USC § 7412(a)(1).

66. *Id.* at § 112(b)(1)(B), 84 Stat at 1685, 42 USC § 7412(b)(1)(B).

67. *Id.*

68. However, as early as 1979 it was the view of the EPA that section 112 did not mandate zero emissions. The National Commission on Air Quality, a select commission established by the Congress to review air pollution regulation in the United States and recommend changes, explained the Agency's reasoning as follows:

. . . [T]he agency stated that a requirement for zero risk from atmospheric carcinogenic emissions would produce massive social dislocations, given the pervasiveness of at least minimal levels of carcinogenic emissions from American industries, including coal-burning and nuclear utilities, steel, synthetic organic chemical manufacturing, and petroleum refining.

The agency analysis, which concludes that Congress did not intend a zero emissions requirement, argues that Congress in writing Section 112 made an underlying assumption of thresholds for effects from pollutants. The agency contends that the drastic consequences of applying a strict reading of the statute to carcinogens, for which there is no known threshold, was not contemplated by Congress. It maintains there is no reason to believe Congress intended to make air pollution "practically the sole facet of American life" from which the government would attempt to eliminate risk entirely

Natl Commission on Air Quality, *To Breathe Clean Air* 3.1-20 (1981).

69. Clean Air Act Amendments of 1990, Hearings on HR 2585 before the Subcommittee on Health & the Envir of the Committee on Energy & Commerce, 101st Cong, 2d Sess 295 (1990) (statement of David Doniger, NRDC) ("1990 Amendment Hearings"). The eight regulated pollutants were arsenic, asbestos, benzene, beryllium, mercury, radionuclides, radon-222, and vinyl chloride.

70. *Id.* at 580 (statement of William K. Reilly, EPA Administrator).

71. The remaining five sections deal with --

- Conforming amendments. Clean Air Act Amendments of 1990 at § 302, 104 Stat at 2574, 42 USCA § 7411;

- A Risk Assessment and Management Commission which is to study that subject and report to the President and the Congress within 48 months after enactment. *Id.* at § 303, 104 Stat at 2574, 42 USCA § 7412;

- Requirements that the Secretary of Labor act under the Occupational Health and Safety Act to protect workers from accidental releases of chemicals. Occupational Health and Safety Act § 304, 29 USCA § 655 note 95 (1988);

- The establishment of new and explicit standards for emissions for municipal solid waste combustors. Clean Air Act Amendments of 1990 at § 305, 104 Stat at 2578, 42 USCA § 7429;

- A two-year ban on the regulation of ash generated by the burning of municipal solid waste. *Id.*

72. The amendments focus on two different sources of toxic compounds: (1) large, fixed installations such as refineries, printing plants and smelters, which are termed "major sources"; and (2) numerous, smaller shops such as dry cleaners and auto body shops, which are termed "area sources."

"Major sources" are those that *after controls* either emit 10 or more tons (20,000 pounds) per year of any single hazardous air pollutant or 25 or more tons per year (50,000 pounds) of 2 or more such chemicals. Clean Air Act Amendments of 1990 at § 112(a)(1), 104 Stat at 2531, 42 USCA § 7412(a)(1).

"Area sources" include everything else that emits hazardous pollutants and does not move. *Id.* at § 112(a)(2), 104 Stat at 2531, 42 USCA § 7412(a)(2) ("any stationary source of hazardous air pollutants that is not a major source").

The technology standard for area sources is even more lenient than that for major sources: for them, the Administrator may "provide for

the use of generally available control technologies or management practices" Id at § 112(d)(5), 104 Stat at 2540, 42 USCA § 7412(d)(5).

73. 1990 Amendment Hearings at 580 (statement of William K. Reilly, EPA Administrator) (cited in note 69).

74. Clean Air Act Amendments of 1990 at § 112(d)(2), 104 Stat at 2539, 42 USCA § 7412(d)(2) (emphasis added).

75. 33 USC § 1317(a)(2) (1988).

76. Michael Weisskopf, *EPA to Put Federal Controls On 16 State-Covered Industries*, Wash Post A2 (Feb 1, 1992).

77. An illustration of the level of risk that might be allowed absent such a precaution was provided by proposed standards for coke ovens. In its 1987 report accompanying proposed amendments to section 112, the Senate Committee said the coke oven proposals —

. . . are "lowest common denominator" regulations requiring no more control technology than is affordable by the least economically viable facility and allowing risks even after regulation in the 1-in-100 range.

Clean Air Standards Attainment Act of 1987, S Rep No 100-231, 100th Cong, 1st Sess 240 (1987).

78. Clean Air Act Amendments of 1990 at § 112(d)(3)(A), 104 Stat at 2543, 42 USCA § 7412(d)(3)(A). This program contrasts sharply with the technology-based programs of some other nations. In Germany, for example, the standards for both new and existing sources are based on what the government terms a "dynamic state-of-the-art" which requires a level of emissions for all sources once it has been achieved by even one facility.

79. Id at § 112(f)(2)(A), 104 Stat at 2543, 42 USCA § 7412(f)(2)(A).

80. *NRDC v EPA*, 824 F2d 1146, 1154-55 (DC Cir 1987).

81. *To Breathe Clean Air* at 3.1-20 (cited in note 68).

82. *Vinyl Chloride*, 824 F2d at 1164-65.

83. Id at 1165.

84. The Statement of Managers explains that establishing a standard based on protecting human health is a two-step process:

In the first step of this analysis, the Administrator must determine a safe or acceptable level of risk considering only health factors. In the second step, the Administrator may consider cost, feasibility and other relevant factors in addition to health in order to set a standard to provide an "ample margin of safety.

Conference Report at 337 (cited in note 50).

This approach is required under the *Vinyl Chloride* decision. It seems prudent to reserve the question of exactly what action the Congress took for possible later resolution by a court. The Conference Report avoids a direct statement adopting the holding of *Vinyl Chloride*, saying instead that a two-step approach "is required under the decision of the U.S. Court of Appeals." Id. Presumably, if *Vinyl Chloride* were judicially revisited, there would be room to construe the statutory language differently — both old and new.

85. 3 CFR Comp 127 (1981), in 5 USC § 601 (1988) (EO signed on Feb 17, 1981). See also Erik D. Olsen, *The Quiet Shift of Power*, 4 Va J Nat Res L 1 (1984).

86. 3 CFR 323 (1986), in 5 USC § 601 (1988). For a summary of EOs 12498 & 12291, see Staff of Subcommittee on Toxic Substances & Envir Oversight of the Senate Committee on Envir & Public Works, *Office of Management & Budget Influence on Agency Regulations*, 99th Cong, 2d Sess (1986) (Comm Print No 99-156) ("OMB Influence").

87. 3 CFR 554 (1988), in 5 USC § 601 (1988).

88. Letter from Lee M. Thomas, EPA Administrator, to Sen. Lloyd Bentsen (D-TX) (Apr 26, 1985).

89. *Id.*

90. OMB influence at 30 (cited in note 86). For a discussion of the application of "sunshine" requirements to OMB, see *id.* at 13-18. See also Curtis Moore, *Watchdog on a Choke Chain*, TDC Magazine 16 (Sept 1991).

91. See also Roger J. Marzulla, *The New Takings Executive Order and Environmental Regulation: Collision or Cooperation?*, 18 ELR 10254 (1988); James M. McElfish, *The Takings Executive Order: Constitutional Jurisprudence or Political Philosophy?*, 18 ELR 10474 (1988).

92. EO No 12630, in 3 CFR 554 (cited in note 87).

93. See note 72 for these central definitions.

94. Clean Air Act Amendments of 1990 at § 112(a)(8), 104 Stat at 2532, 42 USCA § 7412(a)(8).

95. See, for example, Controlling Airborne Particles 38-60 (1980) (prepared by Committee on Particulate Control Technology, Envir Studies Bd, Commission on Natural Resources, Natl Research Council, Natl Academy of Sciences).

The treatment of powerplant emissions by the 1990 Amendments exemplifies the manner in which the new law holds out regulatory hopes which may ultimately prove to be false.

The Report of the Senate Committee on Environment and Public Works, which accompanied its version of the 1990 Amendments, cited the failure of EPA to regulate powerplant mercury emissions as an example of the inadequacy of the old law and, presumably, an evil which would be cured by the 1990 amendments:

In the 18 years of administering section 112, EPA has listed only 8 pollutants: mercury, beryllium, asbestos, vinyl chloride, benzene, radionuclides, inorganic arsenic, and coke oven emissions. No standard has been promulgated for coke oven emissions and for many of the other pollutants[;] only a few of the source

categories emitting the substance are actually regulated. *For instance, mercury is a listed substance, but mercury emissions from powerplant boilers (exempt from standards) are contributing to high mercury levels in the flesh of fish taken in the Great Lakes region.*

Clean Air Act Amendments of 1989, S Rep No 101-228, 101st Cong, 1st Sess 131 (1989) (emphasis added).

However, under the 1990 Amendments, mercury emissions from powerplants can be regulated under the new law only after the completion of a study required by § 112(n). The study must be completed within 3 years of the date of enactment, after which "[t]he Administrator shall regulate electric utility steam generating units under this section, if the Administrator finds such regulation is appropriate and necessary after considering the results of the study required by this subparagraph." Clean Air Act Amendments of 1990 at § 112(n), 104 Stat at 2558-59, 42 USCA § 7412(n)(3).

Under prior law, standards established by regulations under section 112 would have been issued solely on the basis of protection of human health and would not have taken into account the size of the source. Under the new law, however, standards must, under section 112(d)(2), be set taking into account "the cost of achieving such emission reduction and any nonair quality health and environmental impacts and energy requirements." Also, no individual powerplant is likely to qualify as a "major source." Therefore, powerplants will likely be treated as "area sources," which under section 112(c)(3) are to be regulated with priority given to those sources "that present the greatest threat to public health in the largest number of urban areas." Finally, any such regulations must comply with EOs 12291, 12498 and 12630.

Thus, although regulation of mercury emissions from powerplants was one of the cited justifications for repeal of section 112 of the prior law, the 1990 Amendments explicitly prohibit such controls until completion of a study as well as the issuance of findings based on it. Implicitly, any regulations must be based on a cost-benefit analysis and otherwise be consistent with the

Administration's regulatory objectives. Regulation of mercury emissions from powerplants is by no means a certainty. Should standards be promulgated, they must take into account not only cost, but technological achievability as well. Protection of human health, the predicate of prior law, plays a vague role in the standard-setting process, if any.

96. The list is based on a list of 191 chemicals compiled by the Environmental Protection Agency and contained in the proposals submitted by the Bush Administration. Pollutants may be added if they "present, or may present, through inhalation or other routes of exposure, a threat of adverse human health effects (including, but not limited to, substances which are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic) or adverse environmental effects . . ." Clean Air Act Amendments of 1990 at § 112(b)(2), 104 Stat at 2535, 42 USCA § 7412(b)(2). Substances may also be removed from the list by the Administrator. Id at § 112(b)(3), 104 Stat at 2536, 42 USCA § 7412(b)(3).

97. Id at § 112(b)(7), 104 Stat at 2537, 42 USCA § 7412(b)(7). Lead, associated with the decline and fall of the Roman Empire, has been described by one scholar as follows:

"[T]he mining and smelting of lead and dispersal of manufactured leaded products within the human environment is actually a monumental crime committed by humanity against humanity itself."

Clair C. Patterson, *An Alternative Perspective: Lead Pollution in the Human Environment — Origin, Extent and Significance*, in *Lead in the Human Environment* (1980) (report of the Committee on Lead in the Human Environment, Envir Studies Bd, Commission on Natural Resources, Natl Research Council, Natl Academy of Sciences).

98. Interestingly, although the Conferees reached agreement to delete ammonia and hydrogen sulfide, and the Conference Report reflects this accord, because of an error the enrolled bill — which is the actual statute —

still included hydrogen sulfide. Clean Air Act Amendments of 1990 at § 112(b)(1), 104 Stat at 2534, 42 USCA § 7412(b)(1).

99. Id at § 403(f), 104 Stat at 2591-92, 42 USCA § 7651b(f).

100. *Wisconsin Electric Power Co v EPA*, 893 F2d 901 (7th Cir 1990).

101. See *Curbing Acid Rain: Cost, Budget and Coal-Market Effects* (1986) (prepared by Cong Budget Ofc).

102. Clean Air Act Amendments of 1990 at § 406(a), 104 Stat at 2613, 42 USCA § 7651e(a).

103. Acid Deposition, Hearings on S 1706, S 1709, & S 1718 before the Senate Committee on Envir & Public Works, 97th Cong, 1st Sess 763-87 (1982).

104. Acid Rain and Transported Pollutants: Implications for Public Policy 274 (June 1984) (prepared by Ofc of Technology Assessment, US Cong) (OTA No OTA-O-204) ("Transported Pollutants").

105. See, for example, Robert H. Boyle, *An American Tragedy*, Sports Illus 68, 70 (Sept 21, 1981).

106. Provisions of pre-existing law which could have been more fully implemented to address acid rain included:

- The transboundary provisions of sections 115 and 126, which could have been implemented to allow states and other nations adversely impacted by acid rain to obtain redress from emitting jurisdictions. Clean Air Act Amendments of 1977 at §§ 115(b) & 126, 91 Stat at 710 & 724, 42 USC §§ 7415(b) & 7426;

- The primary ambient standards established pursuant to section 109(b)(1), which could have been revised to establish national health-based ambient standards for fine particulate matter, sulfates or acidity. Clean Air Act Amendments of 1970 at § 109(b)(1), 84 Stat at 1680, 42 USC § 7409(b)(1);

- The secondary standards established

pursuant to section 109(b)(2), which could have been revised to establish national secondary standards protective of welfare and the environment. *Id.* at § 109(b)(2), 84 Stat at 1680, 42 USC § 7409(b)(2).

107. For a thorough review of the possibilities from an appointee's perspective, see Briefing Document for the Administrator (1983) (prepared by the EPA's Acid Deposition Task Force). According to this 1983 analysis prepared for William D. Ruckelshaus, existing Clean Air Act provisions "capable of securing significant additional reductions" to cope with acid deposition included sections 109, 114 and 115. Clean Air Act Amendments of 1984, S Rep No 98-426, 98th Cong, 2d Sess 22, 39 (1984) ("1984 Amendments Report"). These sections could have sustained actions ranging from tightened ambient standards to shortened averaging times. None of these options was ever implemented.

108. Clean Air Act Amendments of 1990 at § 404(a)(2)(B), 104 Stat at 2593, 42 USCA § 7651c(a)(2)(B).

109. *Id.* at § 405(a)(2), 104 Stat at 2605, 42 USCA § 7651d(a)(2).

110. *Id.* at § 403(b), 104 Stat at 2590, 42 USCA § 7651b(b).

111. See *Curbing Acid Rain* (cited in note 101). See also *Transported Pollutants* (cited in note 104).

112. Clean Air Act Amendments of 1990 at § 402(12), 104 Stat at 2587, 42 USCA § 7651a(12).

113. *Id.* at §§ 409(a)-(c), 104 Stat at 2619-20, 42 USCA §§ 7651h(a)-(c).

114. *Id.* at § 409(d), 104 Stat at 2621, 42 USCA § 7651h(d). In order to qualify for the exemption, the source may not "increase actual *hourly* emissions" of a regulated pollutant. *Id.* (emphasis added). Note that such a facility may increase its total emissions while not exceeding the old hourly rate. This is because each of the repowering technologies listed in § 402(12) routinely achieves lower emission rates of SO₂, NO_x, and other regulated pollutants than

conventional pulverized coal boilers. However, the units being replaced often are operated at one-half capacity and, when repowered, will be placed into service full time. Thus, *total* emissions may increase, even though hourly emissions do not. This was the case with the WEPCO plant. *WEPCO*, 893 F2d at 910.

115. The Statement of Managers accompanying the Conference Report for the 1990 Amendments said that "[t]he deletion of most provisions relating to the *WEPCO* decision is not intended to affect or prejudice in any way the issues or resolution of the *WEPCO* matter." Conference Report at 344 (cited in note 50). However, an override of *WEPCO* was anticipated unless the Congress acted affirmatively to ratify the Agency decision. See Michael Weisskopf, *Rule-Making Process Could Soften Clean Air Act*, Wash Post A1 (Sept 21, 1991) (report of imminent reversal of *WEPCO* by the OMB's Council on Competitiveness).

116. For a description of the *WEPCO* circumstances and decision, see Michael Levin, et al, *Expanding "Reconstruction": EPA's "WEPCO" Decisions Change Course on Plant Repairs* (1989) (prepared for the 82d Annual Meeting of the Air Pollution Control Association (now the Air & Waste Management Association), held in Anaheim, CA).

117. Clean Air Act Amendments of 1970 at § 111, 84 Stat at 1683, 42 USC § 7411 ("NSPS"); Clean Air Act Amendments of 1977 at §§ 160-169, 91 Stat at 731-42, 42 USC §§ 7470-7479 note ("PSD").

118. *The Role of Repowering in America's Power Generation Future* (1987) (prepared by Ofc of Fossil Energy, Natl Technical Information Service, US Dept of Energy).

119. See *Curbing Acid Rain* at 127-28 (cited in note 101).

120. See *World Resources 1990-91* (cited in note 10).

121. Clean Air Act Amendments of 1977 at § 111(a)(1)(A), 91 Stat at 700, 42 USC § 7411(a)(1)(A).

122. See Bruce Ackerman & William Hassler, *Clean Coal/Dirty Air* (Yale, 1981).
123. *Id.*
124. See INFORM, Inc., *The Scrubber Strategy: The How and Why of Flue Gas Desulfurization* (Ballinger, 1982); INFORM, Inc., *Cleaning Up Coal: A Study of Coal Cleaning and the Use of Cleaned Coal* (Ballinger, 1982).
125. It is important to note that these fuels are not, in reality, clean. True, they contain smaller amounts of one pollutant, sulfur, than some of the competing coals found principally in the midwest and east. However, they still contain much more sulfur than either oil or gas. Also, when burned without pollution controls, these "clean" coals will produce more sulfur dioxide than even very high sulfur coals which are burned in inherently less-polluting combustion systems such as pressurized fluidized bed combustion, or with pre- or post-combustion treatments. Finally, these "clean" coals produce just as much — and sometimes more — particulate oxides of nitrogen, carbon dioxide, and other pollutants.
126. Clean Air Act Amendments of 1990 at § 415(b)(3), 104 Stat at 2626, 42 USCA § 7651n(b)(3).
127. *Id.* at § 404(e)(1), 104 Stat at 2596-97, 42 USCA § 7651c(e)(1).
128. *Id.* at § 404(h), 104 Stat at 2604-05, 42 USCA § 7651c(h).
129. *Id.* at § 405(a)(2), 104 Stat at 2605, 42 USCA § 7651d(a)(2).
130. Title V: Permits, *id.* at §§ 501-507, 104 Stat at 2635-48; Title VI: Stratospheric Ozone Protection, *id.* at §§ 601-618, 104 Stat at 2649-72; Title VII: Provisions Relating to Enforcement, *id.* at §§ 701-711, 104 Stat at 2672-85; Title VIII: Miscellaneous Provisions, *id.* at §§ 801-822, 104 Stat at 2685-99; Title IX: Clean Air Research, *id.* at § 901, 104 Stat at 2700-07; Title X: Disadvantaged Business Concerns, *id.* at §§ 1001-1002, 104 Stat at 2708-09; Title XI: Clean Air Employment Transition Assistance, *id.* at § 1101, 104 Stat at 2709-12.
131. Draft UNEP Integrated Report: Montreal Protocol on Substances that Deplete the Ozone Layer (July 25, 1989) (drafted by the UN Environment Programme).
132. Clean Air Act Amendments of 1977 at § 157(a), 91 Stat at 729, 42 USC § 7457(a), repealed by Clean Air Act Amendments of 1990 at § 601, 104 Stat at 2648.
133. Staff Senate Committee on Envir & Public Works, *3 A Legislative History of the Clean Air Act Amendments of 1977: A Continuation of the Clean Air Act Amendments of 1970*, 95th Cong, 2d Sess 364-65 (1979) (Comm Print No 95-16).
134. Clean Air Act Amendments of 1990 at § 604(b), 104 Stat at 2655-56, 42 USCA § 7671c(b).
135. *Id.* at §§ 605(a)-(b), 104 Stat at 2658-59, 42 USCA §§ 7671d(a)-(b).
136. *Id.* at § 606(a), 104 Stat at 2660, 42 USCA § 7671e(a).
137. Industry has carefully skirted the near-term implications of expanded reliance on HCFCs, relying on artfully crafted phrases to ease concerns. For example, the Alliance for a Responsible Chlorofluorocarbon Policy, which is the trade association that represents the manufacturers and users of CFCs, has assured the public that HCFCs "can be used well into the next century with no additional impact on peak chlorine levels" Stratospheric Ozone Depletion, Hearings before the Subcommittee on Health & the Envir of the House Committee on Energy & Commerce, 101st Cong, 2d Sess 375 (1990) (statement of Peter Likes, Chairman, Alliance for a Responsible Chlorofluorocarbon Policy).
138. John D. Holusha, *Ozone Issue: Economics of a Ban*, NY Times D1 (Jan 11, 1990).
139. EPA Lists Places Failing to Meet Ozone or Carbon Monoxide Standards, Table 1, Envir News (July 27, 1989) (EPA news release).
140. 1984 Amendments Report at 331 (cited in note 107).

141. Clean Air Act Amendments of 1990 at § 405(a)(2), 104 Stat at 2605, 42 USCA § 7651d(a)(2).

142. *Id* at § 405(a)(3), 104 Stat at 2605-06, 42 USCA § 7651d(a)(3).

143. *Id* at § 410(h), 104 Stat at 2622, 42 USCA § 7651i(h).

144. *Id* at § 112(c)(3), 104 Stat at 2537, 42 USCA § 7412(c)(3).

145. Section 819 exempts stripper wells for oil and for natural gas from sections 103, 104, 105, & 106 of the 1990 Amendments. *Id* at § 819, 104 Stat at 2698-99, 42 USCA § 7511 note.

146. *Id* at § 301(q)(2), 104 Stat at 2563, 42 USCA § 7412(q)(2).

147. *Id* at § 301(c)(8), 104 Stat at 2538, 42 USCA § 7412(c)(8).

148. See, for example, *id* at §§ 405(c)(2)-(3), 104 Stat at 2607, 42 USCA §§ 7651d(c)(2)-(3).

TABLE I

OZONE SMOG REQUIREMENTS*

The amendments set six deadline categories for ozone nonattainment areas, based on air quality, expressed as the EPA "design value" (essentially the fourth most unhealthy ozone day in the previous three years):

	Design value (parts per million)	Attainment Deadlines (from enactment)
Marginal	0.121 to 0.138	3 years
Moderate	1.138 to 0.160	6 years
Serious	0.160 to 0.180	9 years
Severe	0.180 to 0.280	15 years
Extreme	0.280 and above	20 years

* Clean Air Act Amendments of 1990 at § 181(a), 104 Stat at 2423, 42 USCA § 7511(a)(1).

CARBON MONOXIDE REQUIREMENTS*

The nation's 41 carbon monoxide nonattainment areas (as of 1989) are divided into two categories, based on the severity of the problem, according to the following table.

	Design Value (parts per million)	Attainment Deadline (from enactment)
Moderate	9.1 to 16.4	December 31, 1995
Serious	16.5 and above	December 31, 2000

* Clean Air Act Amendments of 1990 at § 186(a)(1), 104 Stat at 2452, 42 USCA § 7512(a)(1).

TABLE II
TIER I FEDERAL LIGHT DUTY STANDARDS
VERSUS THE CURRENT CALIFORNIA PROGRAM

	Total HC**	Carbon Monoxide	Nitrogen Oxides
Current Federal (50,000 mi, certification and in-use)	0.41	3.4	1.0
	NMHC**		
Tier I 1994-8*			
50,000 mi:	0.25**	3.4	0.4
100,000 mi:	0.31	4.2	0.5
Tier II "Pending"	0.125	1.7	0.2
California 1993	0.25	3.4	0.4
TLEV*** (1994)	0.125	3.4	0.4
LEV (1997)	0.075	3.4	0.2
ULEV (1997)	0.04	1.7	0.2
ZEV (1998)	Zero Tailpipe		

* Certification only phased in 1994-6; phased in for purposes of in-use compliance between 1996 and 1998, with no recall testing allowed past 75,000 miles.

** Standards are expressed as "nonmethane hydrocarbons." Expressed as a "total hydrocarbon" standard, the figures would be approximately 0.31 and 0.39.

*** TLEV = Transitional Low Emission Vehicle
 LEV = Low Emission Vehicle
 ULEV = Ultra Low Emission Vehicle
 ZEV = Zero Tailpipe Emissions Vehicle

The standards are phased in, beginning in 1994 for TLEV; 1997 for LEV and ULEV; and 1998 for ZEV. CARB estimates that by 2000, every car sold in California will meet the LEV standard or better. By 2003 — when the Tier II standards first become a possibility at the federal level — new car sales in California are expected to be seventy-five percent LEV, fifteen percent ULEV, and ten percent ZEV.