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Clean Air Act Announcement 6/8/89 [OA 6264] [5]

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01a. Report	"Toxic Air Pollution Control." (12 pp.)	05/12/89	P-5	

Collection:

Record Group: Bush Presidential Records
Office: Speechwriting, White House Office of
Series: Speech File, Backup
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File Location: Clean Air Act Announcement 6/8/89 [5]

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By SN (NLGB) on 4/5/2005

Date Closed: 9/30/2004	**OA/ID Number:** 06264
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MR Disposition:	**Appeal Disposition:**
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RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advise between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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(b)(9) Release would disclose geological or geophysical information

May 12, 1989

Toxic Air Pollution Control

Background

Since 1974, EPA has been required to set health-based emission standards for hazardous air pollutants. Section 112 of the Clean Air Act requires EPA to protect public health and the environment "with an ample margin of safety" to ensure protection of the most vulnerable class of individuals (e.g., elderly, children) or species.

Estimates submitted to EPA show that 2.7 billion pounds of toxic chemicals are emitted annually. Approximately 280 toxic compounds were identified that are emitted in quantities that pose some risks. About 45 are carcinogens and are estimated to cause between 1500 and 3000 additional cancer deaths per year, of which 25 percent are caused by large stationary sources, 25 percent by small area wide sources and 50 percent by mobile sources. Non-cancer effects have not been quantified but would include reproductive and birth defects and neurotoxicity. High quality data exists for only 60-80 chemicals which would most likely be the basis for an initial regulatory program under revised legislation.

A majority of the **number** of identified carcinogens is emitted by about 30 industrial categories, including steel mills (coke ovens), rubber, pulp and paper, chromium electroplating, electric utility cooling towers, and solvent users. Illustrative lists of chemicals, emitting sources, and their cancer incidences are Attachments A - C. However, almost 75 percent of the total **pounds** of toxic pollution emitted are volatile organic compounds (VOCs) which are principally emitted from automobiles and smaller area sources such as gasoline stations and dry cleaners.

The desirability of an international convention to control VOC emissions is currently under consideration in the Economic Commission for Europe, in which the U.S. is an active participant. An Administration policy on air toxics would provide a sound basis for a U.S. position on VOC controls in any future negotiations.

Current Legislative Status

Two proposed bills to control stationary sources have been introduced by this Congress. H.R. 4 (Dingell) reintroduces a bill drafted by EPA last year. It did not represent the Reagan Administration position. S. 816 (Baucus) is far more stringent than the regulatory scheme in H.R. 4. But both bills are conceptually based on regulating a specific list of chemicals with regulatory priority based on toxicity, volume and the number of chemicals emitted by an industrial category. Both

bills also require the regulation of specific industrial categories through deployment of technology-based standards, requiring maximum controls subject to economic and technical feasibility. Future follow-up actions would be required if the technologies prescribed do not reduce risk sufficiently within the allowed time frames. Exceptions to (or less stringent) regulations can be promulgated or permitted on an individual basis if the industrial sources can demonstrate negligible risk. Additional details of the above elements are in Attachment D and a comparison of the House and Senate bills is Attachment E.

The Current Program Will Not Work

The current law is unwieldy, fraught with contradictions, and provides such little regulatory discretion that it is impossible to administer. The statutory requirement to "protect the public health with an ample margin of safety" is inherently unworkable for carcinogens. There simply is **no** identifiable threshold at which carcinogens pose no health risk. Yet a zero emission requirement is tantamount to shutting down many of the largest and most vital U.S. industries.

As a result, over the past 15 years since enactment of Section 112 of the Act, EPA has promulgated only **seven** regulations controlling toxic air pollutants. Further, attempts by EPA to balance risk reductions with economic and even technical feasibility were undermined by a recent (1987) D.C. Appeals Court decision. The Court ruled that a safe level must be met **without** regard to costs or technical feasibility of the controls required. Meeting the test would obviously shut down or severely disrupt many industries. Under current law, plants must comply within 90 days of promulgation and can receive a one-time extension for only two years if it is technically (as opposed to economically) infeasible to comply.

Maximizing regulatory control under other Clean Air Act sections and other applicable statutes instead of regulation under Section 112 is also not viable -- even though a significant percentage of the problem (VOC's) is being addressed under other statutory authorities. Many toxic pollutants and sources would remain uncontrolled, since not all toxic pollutants can be addressed by other authorities. Second, EPA has already been subject to suits by NRDC to push forward under Section 112. Ultimately, without an active EPA program, the courts will only substitute their regulatory policies for that of the Executive Branch. Last, but not least, EPA would be in the impossible situation of justifying why it chose not to pursue controls over identified carcinogens.

In summary, the zero tolerance level mandated under current law is suboptimal and if continued would be extremely costly, politically difficult and would threaten the shut-down of many plants in several industries from court mandates.

Reductions of health risk occurring under **other** current programs and proposed legislation

There are several control measures already in existence and several others which could be accelerated, strengthened or initiated under current laws that would greatly reduce the health threat from toxic pollutants. Furthermore, much of the VOC emission problem will be addressed as part of the ozone non-attainment program -- at least in those areas that are in non-attainment. Nearly 50 percent of VOC emissions occur in non-attainment areas which will be subject to additional controls through the Administration's proposed legislation.

Of particular importance is the control of mobile sources, which will, alone, reduce 700 cancer deaths per year by 1995.

(1) Control of diesel particulates - EPA estimates that particulate emissions from diesel engines are responsible for 520 cancers per year. By 1995, these standards already in place will reduce air toxics risks from diesel bus and truck emissions by 185 cancers per year and by roughly 400 cancers per year by 2005.

(2) Control of hydrocarbon emissions - EPA estimates that emissions from gasoline-fueled vehicles are responsible for 700 deaths per year. By 1995, the replacement of older (1970 or earlier) cars in the fleet with new cars meeting the current tailpipe standards will reduce air toxics risks by 214 cancers per year. In addition, options to require oxygenated fuels and a neat fuels program to address non-attainment problems could yield a further reduction of 75 cancers per year.

Attachment F shows that toxic emissions from major stationary sources rank in the third tier of overall risks facing Americans today. Emissions from cars and trucks pose a far greater risk, and implementation of those programs will result in the greatest risk reduction.

Another group of control measures that can be implemented (in addition to options presented below) are those controllable under other current authorities, e.g., RCRA controls for hazardous waste treatment, storage, and disposal facilities. EPA estimates that its current rulemaking to limit air toxic emissions from these hazardous waste facilities would reduce the risks by 120 cancer deaths per year.

A listing of other EPA authorities, and the reduced health threat associated with their implementation, is Attachment G.

LEGISLATIVE REFORM PROPOSALS:

The remaining health risk that cannot be addressed under current laws or proposed legislation to control ozone is concentrated in large, stationary sources and a large number of small "area-wide" emitters. In developing new legislation to address these sources, there are five principal objectives that have guided the development of options.

Legislative Principles

1. To achieve reductions in toxic pollutants as soon as possible. As a nation we have reduced pollutants posing far less risk to a far greater extent. The **early** reduction of these **significant** risks should be a top priority.

2. To provide sufficient flexibility that risk reduction can be balanced against economic and technical feasibility considerations. Flexibility should also be maintained to ensure that neither over- or under-control is the ultimate result of the regulatory strategy adopted.

3. To set in place a comprehensive long-term strategy that could lead to additional reductions in risks as new pollutant compounds are identified, or technical and economic feasibilities are improved sufficiently to reduce existing risk further.

4. Encourage industries to make reductions on their own by crediting early non-mandated reductions against total reductions subsequently required in Federal regulation.

Program Reform Options

Adherence to the above principles presents a general framework for legislation. The short-term and long-term control objectives can be met by having two phases -- an initial phase that will lead to early but not complete reductions in risk and a second phase to deal with the admittedly far more difficult "residual risk" that could not be captured in the initial round of reductions.

Phase I

For the major industrial dischargers of toxic air pollution, early reduction and flexibility in control strategies can be achieved through one of three basic regulatory strategies.

Alternative 1: Shift the basis for regulation from solely health-based to an "unreasonable risk" standard. Factors to be considered in establishing the unreasonable risk level for industrial sources would include risks (e.g., aggregate health effects), costs and availability of substitutes. The unreasonable risk test would explicitly balance the benefits of regulation against the cost of regulation and free the Agency from the rigidity of a zero risk test under current law that has precluded regulation.

Furthermore, the standard could be coupled with a commitment to address a specific list of the industrial sources posing the greatest risk within, for example, the next three or five years and by implementing regulatory activities under other authorities as described on page 3.

Advantages of Alternative 1

- Attachment H shows that, among stationary sources, the major risk is posed by one industry (electroplating), the control of which by itself would reduce 50 percent of all annual cancer deaths resulting from stationary sources.

- The standards established in Federal regulation would target controls at the most significant health effects and avoid "control for control's sake." With a finite amount of financial resources available for this problem it is essential that capital be directed where benefits will be achieved.

- It would minimize unnecessary economic dislocations and allow EPA to balance higher risk against higher costs of control.

Disadvantages to Alternative 1

- This approach has many of the same inherent defects of the current program -- it requires extensive and detailed health and engineering data before decisions can be made. Further, by combining the base technology and residual risk decision, litigation over the admittedly imprecise "choice" will be extensive.

- Experience with the balancing of costs and benefits under other EPA statutes (e.g., Toxic Substance Control Act) has proven that an unreasonable risk basis is slow and cumbersome.

- Without some strategy for the residual risk the legislation would be criticized as not protective of public health.

- The mobile source and RCRA controls included in this alternative can be done under any option.

Alternative 2: Implement a modified version of the the Maximum Available Control Technology (MACT) program provided currently in H.R. 4. Implement Federal regulations through a State permit program modeled after the Clean Water Act program to control toxic water pollutants.

Under this regulatory program, EPA would list about 125 industrial categories for control on schedules requiring controls by dates 5 to 12 years after promulgation. Another 125 would be discretionary for regulation and have compliance dates of 10-12 years from enactment.

For newly constructed sources, MACT would be defined as best achievable technology considering costs and technical feasibility. For existing sources, MACT would be defined as the maximum achievable "in common practice" by the "better performing sources," i.e., the "average of the best technologies." In either instance single national regulations would establish the specific performance standards for all sources within the regulated category.

Specifically, this option would require sources to use maximum available control technology economically achievable on source categories established by EPA, except:

- Exempt sources or categories presenting negligible risk.
- Exempt sources from controls where they have achieved 90 percent emission reduction for VOC's or 95 percent for particulates.
- Area sources may use "generally available" control technology.
- Exempt utility boilers from control until EPA performs a study and reports to Congress.
- Sources emitting less than 10 tons per year of one chemical or 25 tons of a mixture are not included (except when area sources are listed).

Then each State (or EPA if a State does not accept delegation) will issue permits to individual sources. Based on negotiations with the source the States will set actual technology requirements needed to meet the Federal emission limits. Technologies may not be the same as referenced in the EPA regulation, but the emission limits would be met. This allows plants to meet Federal limits in the most cost-effective way, based on the unique production, site location, economic and environmental capabilities of the permittee.

Advantages of Alternative 2

- Information on each community's exposure is now, by law, available in local public libraries. The availability of this information is increasing pressure on State and local governments to reduce community exposure to air toxics. Many of these governments lack resources and expertise to effectively regulate major industrial sources. The standards for industry as a whole should be Federal standards which take into account economic feasibility in defining our expectations of industry.

- The performance requirements under MACT would be patterned very closely after the existing Best Available Control Technology (BACT) program currently in place for controlling non-toxic air pollutants. It is, therefore, familiar to the regulated community.

- Establishes a regulatory framework that provides significant discretion to EPA and yet is consistent with the **national** Federal regulatory structure already in the Clean Air Act.

- Is the most likely to obtain Congressional and state support since it is consistent with H.R. 4.

Disadvantages to Alternative 2

- No early reduction can be achieved prior to the completion of the lengthy (5 to 10 years) and arduous task of promulgating the nearly 125 separate control regulations. It violates one of the principal legislative objectives -- to obtain early reductions.

- Rigid technology-based standards have the highest likelihood of over-control, especially if combined with a percentage reduction requirement in Phase II as proposed by EPA.

- Federal regulation can not address the large number and wide variety of small diffuse sources.

Alternative 3: Alternative II but, get early risk reductions through the State permit program before MACT is issued.

Under the toxic water pollution control program, prior to issuance of Federal regulations, permits were issued by States (or EPA if not delegated) in accordance with "best engineering" judgment. Since the Federal technology-based regulations for toxic pollutants took over a decade after passage of the Act in 1972 to develop), the vast majority of plants operated under these "BEJ" permits. They required, as a general rule, the "best of the average" technologies **readily available** and achieved roughly 75 percent reductions in emissions. When Federal guidelines were finally promulgated State-issued permits for each plant are then adjusted to accommodate the new limits.

Advantages of Alternative 3

- The "BEJ" permit system can be implemented rapidly and can achieve significant (75 percent) reductions in toxic emissions **before** the lengthy, arduous, federal MACT regulatory scheme is promulgated and fought through litigation.

- The permit system is already well established in other State environmental programs, (Water and Hazardous Waste) discharger, and should be easily adapted to air emissions. Industries are familiar with the permitting process and the chemistry of the pollutants being controlled.

- From the start it places the policing power at the State level where it belongs and places in EPA its proper standard setting and oversight responsibility. However, the vast majority of the work would be done by the states and by the industries themselves which would be required to have rigorous monitoring programs and provide emission data to the State on a quarterly basis.

- Can also deal with small diffuse "area-wide" sources in the same manner as in the Clean Water Act -- through the use of area-wide or general permits. These sources are so varied and diffuse that they will not likely be covered by Federal regulations

Disadvantages of Alternative 3

- The water permit program had considerable difficulty in getting started, with large backlogs in the mid-1980's. Industry will be very concerned about a repeat of this process.

- Due to its earlier inception, will increase State costs in the short run. States will demand additional Federal grant support or will refuse delegation, requiring additional EPA permit staff instead. This is only for the near term reductions, since after MACT regulations are issued, a permit program is envisioned.

Phase II

With the majority of risk reduced by Phase I controls the issue now shifts to the longer run control of emissions where the "residual risk" is still unacceptable. By definition, the costs of control to address the residual risk will increase dramatically and the technology will be far more sophisticated to install and operate. EPA estimates, however, that only a small percentage of major sources will have residual risks of concern. Therefore, the legislative framework that EPA must use to establish additional controls is as important as the level of control. Without flexibility, EPA runs the greatest risk of over-controlling sources.

Alternative 1. Evaluate the residual risk after controls are implemented and make legislative recommendations at that time.

Advantages of Alternative 1

- Experience in other control programs has shown that well-operated technologies will often exceed the engineering estimates of performance and that industries often build in extra reduction capacity to ensure against violations. Therefore, actual remaining risk may well be less than the models predict.

- Because EPA uses a very conservative risk model in estimating health effects of toxic air pollutants, establishing rigid deadlines or minimum further reductions to deal with residual risk now will most likely lead to over-controls. Given the cost of further controls, decisions should be based to the greatest extent possible on actual risk levels, not models.

- Postponing mandatory action also allows sufficient time for needed research and development efforts by industry to develop new control methods or lower emitting production techniques.

Disadvantages of Alternative 1

- Precludes EPA from acting on residual risks even where subsequent analysis demonstrates a need or subsequent controls become available.

- Provides no incentive for industry to develop new or innovative control technologies.

Alternative 2: Require an average of 90 percent reductions of current emissions for pollutants that the Administration determines would continue to present a serious or widespread risk of adverse effects to health.

Determinations of the need for further reductions would be made based on post-MACT compliance. A five-year deadline for implementation of additional controls would be set. The strict 90 percent rule in H.R. 4 would be tempered by EPA's proposal to allow extensions of the deadlines for implementation if "reasonable further progress" is demonstrated. The definition of further progress would include appropriate private investment in controls and research and development leading to new controls.

Advantages to Alternative 2

- Would have the greatest chance of obtaining Congressional support since it follows the model established in H.R. 4.
- The 90 percent reduction in 5 years in H.R. 4 was arbitrarily selected and should be tempered by allowing more time for needed controls to be put in place.
- Ensures that residual health risks are addressed nationally in a moderate, cost-effective way.

Disadvantages of Alternative 2

- Leads to the greatest likelihood of either under- or over-control for the sake of regulatory convenience.
- Any percentage requirement is arbitrary and can't reflect the purpose of the legislation, which is to achieve health-based goals.
- The baseline data from which reductions take place is seriously flawed including incomplete data from some industries and no information from nearly 20 percent of the sources.
- Places a tremendous burden on industry to demonstrate that arbitrarily set reductions are wrong or that risks are negligible. Further, waivers and exemptions will be litigated extensively, especially if the Federal EPA administers the program.

Alternative 3: Establish a risk threshold of between 10-4 and 10-6 (i.e., between one cancer death in 10,000 and one cancer death in a million individuals at risk). This concept would require emission reductions beyond MACT to **whatever** extent was needed to achieve the tolerable risk level. This may be more or less than the 90 percent requirement of Alternative 2. A range of 10-4 to 10-6 is selected because it is often used as a benchmark in other risk-based decisions in EPA, FDA and OSHA. EPA has recently extended the range to 10-7 (one in 10 million) for some Superfund and RCRA decisions but the 10-4 to 10-6 range remains the most common.

It is assumed that either MACT or the risk range threshold would apply **whichever is the more stringent.** This concept is consistent with other EPA technology-based regulatory programs. If the risk-based threshold could be achieved through the employment of less than MACT, plants nevertheless would be required to put MACT in place subject to the normal costs and technical feasibility tests. Therefore the health-based standard applies only to the residual risk and not the overall level of risk posed by the discharge.

Advantages of Alternative 3

- Requires only as much additional reduction as needed to meet the health-based objectives. On the other hand, this may require more than the 90 percent reduction in Alternative 2. It prevents over-controls in the much more expensive second phase and yet ensures that the **health** objectives are met.

- It can tailor deadlines for compliance to remaining risk levels allowing the Nation's finite resources to be concentrated on the most serious risk remaining and leaving lesser residual risks to be dealt with later.

- Could incorporate the same flexibility for deadline extension system as in Alternative 2, based on a demonstration of reasonable further progress.

Disadvantages to Alternative 3

- Unlike Option 1, which is based on actual risk, places entirely too much weight on risk assessment methodologies and entirely too much power in the hands of modelers.

- Could just as easily require **greater** reduction than the admittedly arbitrary 90 percent required in Option 2 and therefore result in higher costs for some plants.

- A **range** of 10-4 to 10-6 will likely end up at 10-5, which could be technically infeasible. **Interim** additional measures need to be added to this option.

Costs of Controls

Total industry costs and economic effects can not be estimated with any accuracy. Such estimates would require knowledge of which industries would be regulated, and which control options would be available for each industry. The costs of different control options would then be evaluated against the economic and financial viability of the industry before one is selected and promulgated.

Phase I

In the clear absence of that knowledge several estimates have been generated with significant estimating error. These range from $0.7 to $2.6 billion per year. It is generally agreed that $2 billion per year estimate is a reasonable point estimate for the Phase I program. Furthermore, the water pollution control program, which regulated the same industries and pollutants, and after which the toxic air control program is modeled, is costing $1.5 - $2.0 billion per year in 1988 dollars.

There will likely be no difference in costs between Alternative 2 and 3, since the issue is one of timing. A BEJ permit process will achieve much of the reductions sooner whereas Alternative 2 would postpone costs until Federal regulations are in place. Except for the time-cost of money, total costs can be assumed to be equal.

Alternative 1 would be less expensive because a reasonable risk strategy would certainly require no greater than MACT technology and may avoid regulating several industries entirely.

Phase II

There are even fewer estimates for Phase II, which would be far more difficult to predict. CMA estimates range from $1 billion per year to as high as $14 billion per year. An "order of magnitude" estimate of an additonal $2.0 billion per year over Phase I controls would represent restrictive health-based standard for a small percentage of those sources regulated under Phase I. The principal industrial emitter subject to Phase II controls would be coke ovens.

A summary of the costs and benefits of these options follow.

Costs of Controls

Base Program Legislative Options	Annual Cost ($ 1989)	Benefits (Cancer Deaths Avoided)
Base Program	-	700-1200
Phase I		
All Options	$0.7 to 2.6B	700-1500
Phase II		
Dowd 1/	$1.4 billion	100-300
EPA	$0.5 billion	0-50
CMA 1/	$1-14 billion	100-300

what we will control

1/ Assumes that risk reduction to 10-6 (one in a million).

Decisions

Phase I

- ☐ Alternative 1. National standards of unreasonable risk.
- ☐ Alternative 2. National standards of Maximum Available Control Technology (MACT).
- ☐ Alternative 3. Early reductions through permits, then MACT,

Phase II

- ☐ Alternative 1. Seek phase II legislation after evaluation of implemented controls.
- ☐ Alternative 2. 90 percent reduction from uncontrolled level where risk is serious.
- ☐ Alternative 3. Reduce to risk range threshold.

1987 Air Toxics Inventory
Top 25 Toxic Pollutants By Pounds Emitted Per Year

		Pollutant	M Lbs./Yr Emitted	Percent of Total	Cumulative Percent
*	1.	Toluene	236	9.8%	9.8%
	2.	Ammonia	233	9.7%	19.6%
	3.	Acetone	186	7.8%	27.3%
	4.	Methanol	183	7.6%	35.0%
	5.	Carbon Disulfide	137	5.7%	40.7%
	6.	Trichloroethane	131	5.5%	46.1%
	7.	Methyl Ethyl Ketone	125	5.2%	51.4%
*	8.	Xylene	120	5.0%	56.4%
**	9.	Dichloromethane	112	4.7%	61.0%
	10.	Chlorine	103	4.3%	65.3%
	11.	Aluminum Oxide	73	3.0%	68.4%
	12.	Ethylene	54	2.3%	70.6%
	13.	Hydrochloric Acid	50	2.1%	72.7%
	14.	Freon 113	49	2.0%	74.8%
*	15.	Trichloroethylene	47	2.0%	76.7%
	16.	Propylene	37	1.5%	78.3%
	17.	Glycol Ethers	32	1.3%	79.6%
	18.	Tetrachloroethylene	28	1.2%	80.8%
	19.	M-Butyl Alcohol	27	1.1%	81.9%
	20.	Methyl Isobutyl Keto	25	1.0%	82.9%
**	21.	Benzene	25	1.0%	84.0%
	22.	Styrene	25	1.0%	85.0%
**	23.	Chloroform	24	1.0%	86.0%
	24.	Chloromethane	21	0.9%	86.9%
	25.	Carbonyl Sulfide	20	0.8%	87.7%

* Denotes known neurotoxin.

** Denotes known carcinogen.

NESHAPS STUDY: PRELIMINARY APPROXIMATION OF ANNUAL INCIDENCE AND MAXIMUM LIFETIME RISK

Pollutants Having Some Evidence of Carcinogenicity*	Preliminary Estimate of Maximum Individual Individual Lifetime Risk**	Preliminary Estimate of Annual Incidence**
Acrylamide	7.4x10-5	0.01
Acrylonitrile	3.8x10-3	0.42
Allylchloride	1.3x10-6	<0.01
Arsenic	6.5x10-3	4.70
Benzene	8.0x10-3	32.30
Benzylchloride	3.0x10-5	<0.01
Beryllium	1.0x10-4	1.20
1,3 Butadiene	9.7x10-6	0.01
Cadmium	7.5x10-4	16.30
Carbon Tetrachloride	5.8x10-4	14.00
Chloroform	3.0x10-3	0.27
Chromium	1.6x10-1	330.0
Coke Oven Emissions	2.0x10-2	8.60
Diethanolazine	2.0x10-7	<0.01
Dioctyl phthalate	9.8x10-6	<0.01
Epichlorohydrin	1.9x10-6	<0.01
Ethyl acrylate	4.7x10-5	<0.01
Ethylene dibromide	1.6x10-4	26.70
Ethylene dichloride	2.9x10-4	44.00
Ethylene oxide	6.8x10-3	47.80
Formaldehyde	6.1x10-4	1.60
Methyl chloride	1.2x10-5	<0.01
Methylene chloride	9.0x10-6	1.0
4,4 Methylene dianiline	1.5x10-3	0.02
Nickel	1.6x10-3	80.00
Nitrobenzene	1.2x10-6	<0.01
Nitrosomorpholine	6.0x10-9	<0.01
Pentachlorophenol	1.7x10-5	0.12
Perchloroethylene	4.6x10-4	2.90
PCBs	3.0x10-4	0.21
Propylene dichloride	2.1x10-6	<0.01
Propylene oxide	3.0x10-2	0.97
Styrene	3.3x10-5	<0.01
Terephthalic acid	1.5x10-5	<0.01
Trichloroethylene	1.0x10-4	9.70
Vinyl chloride	3.8x10-3	11.70
Vinylidene chloride	4.2x10-3	0.04
Total		634.7

- The weight of evidence of carcinogenicity for the compounds listed varies greatly, from very limited to very substantial. Further, the extent of evaluation and health review performed varies considerably among compounds. However, for the purposes of this report, a conservative scenario (i.e., that all compounds examined could be human carcinogens) has been assumed.

- Because of the uncertainties in the data used to make these estimates, they should be regarded as rough approximations of total incidence and maximum lifetime individual risk. Estimates of incidence for individual compounds are much less certain. These incidence and maximum risk estimates have been performed to provide a rough idea of the possible total magnitude of the air toxics problem, and will be used only for priority-setting and to provide policy guidance.

- Risk estimates assume that all species of chromium and nickel are carcinogenic, although only certain species have evidence of carcinogenicity. Current data do not allow differentiation among species.

Regulatory Activities To Be Undertaken in the Short Term Under a Modified Section 112

Polluntant/Source Category	Baseline Cancer Incidence
Benzene	
Coke By-Products	3
13-Butadiene	
S-B Rubber	10
Chloroform	
Pulp and Paper	2
Chromium	
Chrome Elecuroplating	120
Cooling Towers	55
Coke Oven Emissions	
Coke Ovens	7
Ethvlene Oxide	
Sterilization	4
Methvlene Chloride	
Solvent Use	4
Perchlorethviene	
Dry Cleaning	3
Solvent Use	5
Trichloroethviene	
Solvent Use	6
Multi-Pollutant Source Category (HON)	
Sources of 13-Butadiene, Carbon Tetrachloride Chioroform, Ethylene Dichloride, Ethylene Oxide, Methylene chioride, Perchloroethylene, and Trichloroethylene	21

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01b. Report	Attachment D, re: "Elements." (1 pp.)	n.d.	P-5	

Collection:

Record Group: Bush Presidential Records
Office: Speechwriting, White House Office of
Series: Speech File, Backup
Subseries:
WHORM Cat.:
File Location: Clean Air Act Announcement 6/8/89 [5]

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Date Closed: 9/30/2004	**OA/ID Number:** 06264
FOIA/SYS Case #:	
Re-review Case #: 2004-2265-S	
P-2/P-5 Review Case #:	
MR Case #:	**Appeal Case #:**
MR Disposition:	**Appeal Disposition:**
Disposition Date:	**Disposition Date:**

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

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P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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P-5 Release would disclose confidential advise between the President and his advisors, or between such advisors [a)(5) of the PRA]
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(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Elements

1. Chemical list
2. Source Categories List
3. Technology-based standard
4. Residual Risk follow-up
5. Negligible-risk variance and other correction factors
6. Permit system/permit fees

1. Chemical List

- Used to identify and prioritize source categories for regulation; not for chemical-by-chemical regulation.
- Cover credible amount of toxic air releases reported under Toxic Release Inventory (SARA 313).

2. Source Categories List

- Identified as sources of chemicals on list.
- Prioritized: Sources of most toxic chemicals released in largest amounts in urban areas are ranked at the top of the scale.

3. Technology-based standards

- Based on cost and feasibility.
- Apply to major sources (emit 10 tons per year of one listed chemical, or 25 tons of a mixture).
- Achieve a good level of control for toxics emissions generally.
- Findings not risk-based, corrections for high-risk under-control or low-risk, over-controls are separately applied.

4. Residual Risk follow-up

- Check risk after technology-based controls are in place.
- Further regulate as needed.

5. Negligible-risk variances and other corrections

- Sources demonstrate negligible risk to obtain variance from regulation.
- EPA discretion to drop source categories causing negligible risk.

6. Permits System/Permit Fees

Withdrawal/Redaction Sheet
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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01c. Report	"Comparison of H.R. 4 and S. 816." (3 pp.)	n.d.	P-5	

Collection:

Record Group: Bush Presidential Records
Office: Speechwriting, White House Office of
Series: Speech File, Backup
Subseries:
WHORM Cat.:
File Location: Clean Air Act Announcement 6/8/89 [5]

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Attachment E

Comparison of H.R. 4 and S. 816

Number of Categories Regulated

H.R. 4 (EPA)

- o First 50% of initial list to be regulated.
- o Second 50% of initial list to be discretionary with EPA.
- o EPA may drop any category presenting negligible risk.

Senate bill

- o 100% of initial list to be regulated.

Technology Standard

H.R. 4 (EPA)

- o Maximum achievable reduction considering cost and feasibility.
- o New sources: Most stringent achieved in practice by a source in the category or subcategory, considering cost and feasibility.
- o Existing Sources: may be less stringently controlled than new sources.
- o Variance from compliance when source presents negligible risk.
- o Enforced under operating permit.

Additional

EPA recommendations:

- o Variance for source achieving voluntary 90% reduction in emissions of listed pollutants in previous 5 years. (Particulates control credit may be based more appropriately on a different percent).
- o Modified sources should be under existing-source standards not new source standards.

This will limit new source stringency to those sources that are newly built (or more than half rebuilt) where industry says it designs state-of-the-art for business reasons.

Most of the industry concerns about the new source provision have had to do with modified, not newly-built sources. This would allay those concerns.

Senate bill

- o Maximum achievable reduction considering cost and feasibility.
- o New sources more stringently controlled than existing sources as under H.R. 4, but existing source benchmark of expected reduction is 90% reduction from uncontrolled emissions.
- o No variance for negligible risk.
- o Enforcement under operating permit.

Alternative

- o EPA would provide informational guidance on Best Practicable Control Technology (BPCT). BPCT would describe control technologies, their costs and what emission reductions they yield. The states would use BPCT information in writing permits for sources.

Residual Risk

H.R. 4 (EPA)

- o After-control "significant risk of serious or widespread adverse effects on health" would prompt further control (A high risk threshold).
- o Added control - up to 90% further reduction in emissions -- whatever percent protects from significant risk of serious or widespread effects.
- o Compliance period is 5 years.

Senate Bill

- o After-control risk of 10^{-4} or above prompts further control.
- o Added control to get below 10^{-4}.

- Immediate compliance, but may obtain "extraordinary economic hardship" extension up to 5 years.

Alternative

- EPA guidance on assessing residual risk.
- States conduct source by assessment and decide on further control.
  (Neighborhood epidemiology studies are not feasible)

Variances

H.R. 4 (EPA)

- Variance from any added control for sources at negligible risk.
- Grace period of 5 years from time any controls are installed for purposes of other Clean Air Act programs.

EPA recommended

- Variance from relevant MACT requirements for sources achieving 90% reduction in emissions of listed pollutants in the 5 years.

Senate bill

- No variance form MACT for negligible risk.
- Source undergoes review, feasible added control(s) and public hearings every 5th year as long as they are causing greater than 1 in a million risk to anyone (10^{-6}).
- Variance from relevant MACT requirements for sources achieving 90% reduction in emissions of listed pollutants between 1987 and 1993.

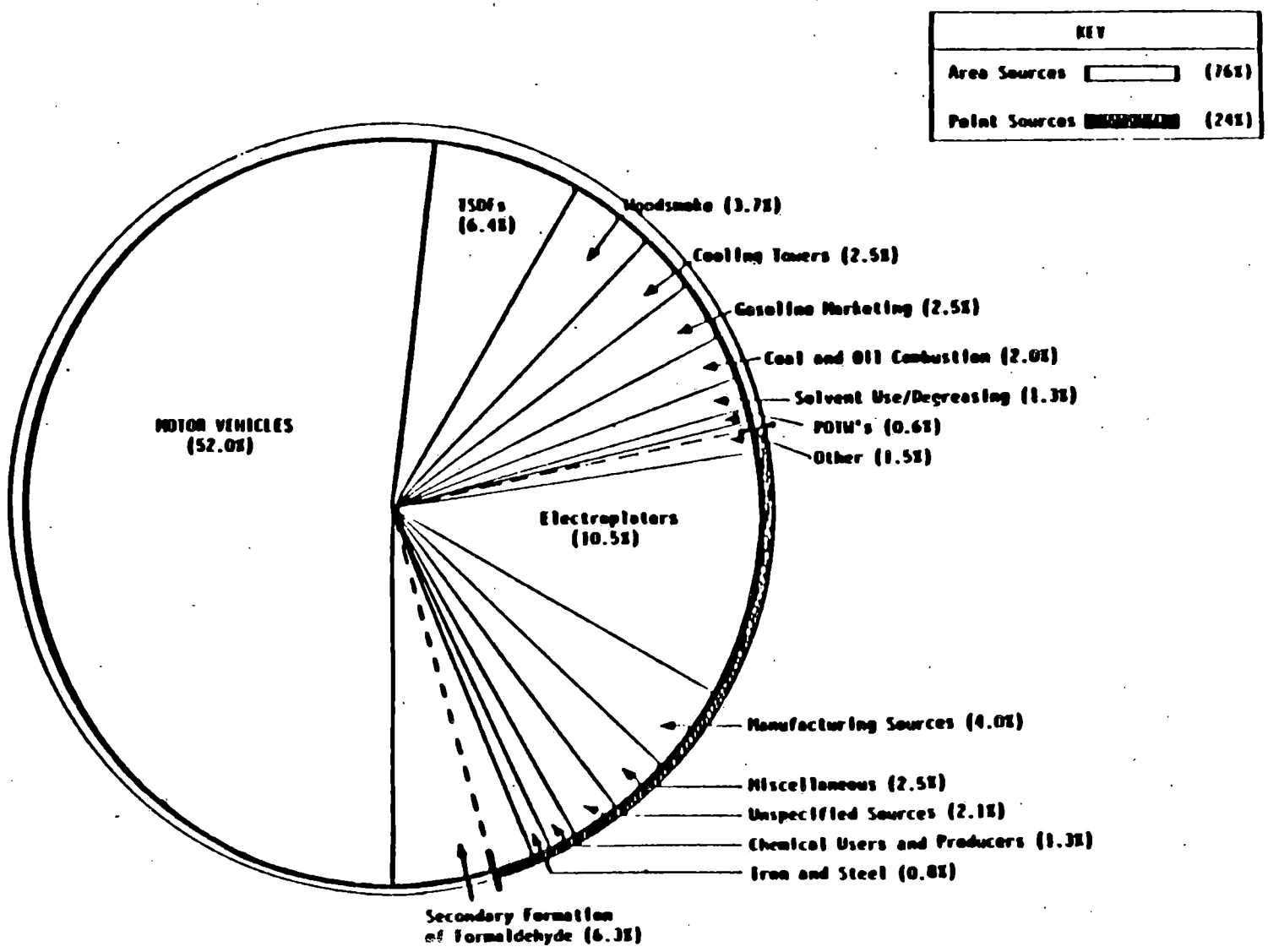
Attachment F

ANNUAL RISK OF DEATH FROM CERTAIN ACTIVITIES AND CAUSES
Actual U.S. Deaths in 1983

Cause	Annual Deaths
Heart Disease	733,235
Malignant Neoplasms (Cancer)	403,395
Smoking	337,000
Cerebrovascular Disease (Stroke)	169,488
Motor Vehicle Accidents	53,524
Drowning	6,872
Fires	5,991
Construction Work	2,100
Agricultural Work	1,800
Emissions from Cars & Trucks	1,220
Boating	1,178
Major Stationary Sources	750
Appendicitis	682
Electrocution	500
Weather (tornadoes, floods, lightning)	440
Hunting	290
Snowmobiling	60
Bee Stings	40
Water Skiing	32
Hang Gliding	13
Football	9
Measles	6
Amusement Park Rides	6
Baseball	5
Ingestion of Toothpicks	1

Air Toxics Regulatory Activities To Be Undertaken Under Other Sections of the Clean Air Act or Other Statutes

Statute/Activity	Baseline Incidence (from existing sources)	Reduction from Control
Clean Air Act		
Motor Vehicles	792 to 1,499	
Diesel Particulate Standards Refueling and On-Board Controls HC Emissions for Light Duty Trucks Methanol Emission Standards		185
Municipal Waste Incinerators NSPA and 111 (d)	2 to 40	1 to 20
Resource Conservation and Recovery Act		
TSDF Rule	140	120
Clean Water Act		
Sewage Sludge Incineraton	12	3-9



Relative Contribution of Source Categories to Total Nationwide Annual Incidence

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OZONE NONATTAINMENT

CARBON MONOXIDE NONATTAINMENT

CLEAN AIR ACT OPTIONS PAPER: OZONE NONATTAINMENT

I. BACKGROUND

The Clean Air Act requires attainment of air quality standards (NAAQS) that protect public health with an adequate margin of safety. The Act assumes that all cities would have attained the ozone and carbon monoxide standards no later than 1987, and gives no guidance on how Federal, State and local governments should respond to post-1987 nonattainment. This has left the Federal Government vulnerable to lawsuits that can force EPA to take over State and local responsibilities by developing Federal implementation plans (FIPS) to attain the standard. Legal actions of this sort are already underway in various parts of the country and more are likely.

Congress has attempted to enact a nonattainment bill for the past several years. All Congressional proposals would have extended attainment deadlines. However, these bills would also have required nonattainment areas to implement a variety of control measures -- some expensive and potentially requiring major lifestyle changes -- in return for extension of the deadlines.

Because of the controversial nature of the control measure requirements, none of the proposals has ever moved close to enactment. Last year's Senate bill (S. 1894), sponsored by Sen. Mitchell, is the most stringent bill. It included tight deadlines, the most stringent control measures, and the largest number of Federally mandated controls. On the House side, the Waxman bill (H.R. 3054) was similar to the Mitchell bill in stringency, but was marginally less costly and less prescriptive. The "Group of Nine" Democrats in the House proposed a still more moderate bill with longer deadlines, lower cost, and fewer Federally mandated control measures than either Mitchell or Waxman.

Formation of ozone

Unlike other NAAQS pollutants, ozone -- the major component of urban smog -- is not emitted directly. Instead, it is formed when volatile organic compounds (VOCs) are mixed with nitrogen oxides (NOx) in the presence of sunlight. Heat speeds up the reaction, and therefore concentrations are usually higher in the summer months. Areas with hotter climates, such as Los Angeles and Houston, are especially susceptible to ozone problems.

EPA's ozone control strategy focuses on VOCs. NOx controls generally reduce ozone but can increase its formation in certain situations. Since

ozone reacts upon contact with surfaces, ozone exposure is not a problem indoors.

Sources of VOCs

The major sources of VOCs are motor vehicles (40%); small "area sources", e.g., bakeries, dry cleaners, and consumer solvents (40%); large point sources, e.g., petroleum refineries (15%); and gasoline refueling (5%). Many large point sources have already been required to reduce emissions by roughly 80% from uncontrolled levels under the Clean Air Act, and tailpipe emissions from new vehicles have been reduced by 90%. The smaller "area" sources are largely uncontrolled.

Trends in emissions and ambient levels

VOC and NOx emissions have decreased nationally since 1978 --VOCs by 17 percent and NOx by 8 percent -- despite growth in population, travel, and industrial activity. As a consequence, the trend in ambient ozone concentrations was actually down by 9 percent from 1979 to 1987. Increases did occur in 1987 and 1988, although it should be noted that those increases occurred in years with abnormally high summer temperatures.

The downward trend in VOC emissions is largely due to growth in the share of newer, more stringently controlled vehicles in the vehicle fleet. These "fleet turnover" reductions have been achieved despite a 25% growth in vehicle miles travelled (VMT). Over the next decade, however, both EPA and the Federal Highway Administration estimate that VMT will begin to outpace fleet turnover and that VOC emissions will increase after 2000. EPA projects a 60 percent increase in VMT by 2005, although the Federal Highway Administration expects a lesser 40% increase.

Effects

The current ozone standard is 0.12 parts per million (ppm) over a one-hour period. The health-based standard is designed to protect healthy exercising individuals from acute respiratory symptoms (coughing, chest pain, shortness of breath) that are usually temporary and reversible. Ozone is also suspected of playing a role in the long-term development of chronic lung diseases, permanent lung structure damage, and in initiating asthma attacks. EPA's Clean Air Science Advisory Committee is currently debating whether the standard should be *tightened* to create a more appropriate margin of safety, based on chronic effects. The Committee is unanimous that the standard should not be relaxed.

In addition to health effects, ozone has "welfare" effects on vegetation, including crops such as soybeans, wheat, and corn; is damaging forests in southern California; and is suspected as a contributing agent in damage to forests in the Southeastern U.S.

Nonattainment

An area is classified as being in nonattainment if the 0.12 ppm standard is exceeded at the highest reading monitor more than three hours on separate days over a consecutive three-year period. The so-called "design value" is the fourth-highest reading over a running three-year period. The design value reading is frequently used as a proxy for the severity of the ozone problem in an area. It is also the primary basis for categorizing areas according to severity in Congressional bills.

Based on 1988 data, 81 cities, with an aggregate population of 100 million people, are in nonattainment for ozone. While individuals usually are exposed to levels that exceed the standard only a small percentage of the time, over 30 cities exceeded the standard 10 or more days in the hot summer of 1988.

The degree to which urban areas do not attain the standard varies dramatically, from Los Angeles with readings 200 percent above the standard and exceedances 140 days of the year, to Kansas City which exceeded the standard four times in a two-year period. Los Angeles is a special case -- it has four times the number of exceedances of any other city in America. Appendix A shows the 1987 design values and the number of exceedances for nonattainment areas.

Chart 1 shows the number of cities that will remain out of attainment (absent additional State control measures) for different levels of VOC reductions beyond the current program.

Chart 1

Number of Non-Attainment Areas Remaining After Applying Additional Control Measures

	1995	2000	2005
Current Program	58	58	72
+15%	32	33	51
+20%	26	26	32
+25%	14	18	26
+30%	9	10	14
+35%	4	4	9
+40%	2	2	4

NOTE: Projections are very sensitive to vehicle miles travel (VMT) projections, which vary widely.

Benefits of VOC reductions

EPA has evaluated health benefit categories for which it could value the effects in the Northeast. These categories include primarily short-term respiratory effects. They do not include the more serious categories such as potential long-term chronic effects and structural changes in lung function. This evaluation indicates that the value of these limited categories ranges up to $2600/ton with a "best guess" point estimate of $480 per ton. This does not include additional benefits that would be gained by reductions in air toxics from mobile sources, which are estimated to range up to $750/ton. Recent estimates are that the economic consequences of ozone effects on crops approach $2 billion per year. This does include damage to forests or materials.

Costs of VOC reductions

EPA's current vehicle tailpipe standards, along with State vehicle inspection/maintenance programs and other State control measures, will reduce VOC emissions by about 9% in 2005, net of growth. One analysis done for EPA estimates that these measures will add about $7 billion in annual costs to the economy by the year 2000.

EPA estimates that requiring certain Federal control measures that together achieve a 29% reduction in VOC emissions (38% including current gasoline volatility controls) beyond the base program would cost about $3-4 billion per year beginning in the early 1990s. According to EPA, reductions beyond this amount -- which the Agency proposes to achieve through a requirement for 3% annual VOC reductions -- would cost an additional $5-9 billion per year beginning in the late 1990s, resulting in a total additional cost above the current program of $8 to $13 billion annually in order to bring all cities into attainment. Estimates by other sources of the cost of achieving attainment are even higher. This is due to higher estimates of the cost of specific control measures and to the assumption of higher costs for additional, unidentified controls that States would have to develop and implement to reach attainment.

Current program

Federally mandated ozone control measures already in place include: vehicle tailpipe emission controls; gasoline volatility restrictions (Phase I); vehicle inspection & maintenance programs for certain nonattainment areas; emission limits for various VOC source categories; and State controls on existing stationary sources for which EPA has issued "Control Technology Guidelines" (CTGs).

State Implementation Plans (SIPs) also already include additional controls measures developed and implemented by the States in order to demonstrate attainment. For example, areas with relatively severe ozone problems may include controls on stationary sources of VOCs not covered by Control Technology Guidelines.

EPA also has several regulations under development that will further reduce VOC emissions: vehicle evaporative emission controls; light duty truck emission standards; hazardous waste facility air emissions regulations; vehicle refueling controls and additional gasoline volatility restrictions (Phase II).

Additional measures

Based on EPA's estimates of VOC emissions, VMT growth, and stationary source growth, the current and proposed measures discussed above will not be sufficient to bring all areas into attainment by 2005. Together, these measures are expected to achieve a percentage reduction in VOC emissions of about 29 percent (above and beyond the 18 percent reduction from base programs already underway or planned under current law). Eighteen of the areas will need percentage reductions beyond the base program of more than 29 percent to achieve attainment in 2005 and the four areas with the worst ozone problems will need to achieve reductions of 50% or greater.

Potential measures for achieving attainment in those areas needing controls beyond current and proposed measures can be divided into three categories: 1) nationwide controls Federally mandated, 2) nonattainment area controls Federally mandated, and 3) nonattainment area controls developed by the States through SIPs.

While one way to achieve attainment might be to simply extend attainment deadlines and let States develop and implement all additional controls measures, this approach has several drawbacks. First, many States have failed thus far to implement the measures committed to in SIPs because of their cost and/or disruption of lifestyles. Second, several control measures with the potential to achieve large, relatively cost-effective reductions are more appropriately implemented at the national level.

Some also argue that additional controls should include Federally mandated requirements specifically for nonattainment areas. While controls in this category would limit State discretion in designing control measures and would risk over-control for some nonattainment areas, such controls would provide a better guarantee (recognizing previous experience) of progress toward attainment. To correct for the problems inherent in mandating State action, some have suggested that States be allowed to "opt out" of Federally mandated measures if they can demonstrate that a substitute measure would achieve at least the same VOC reduction.

Finally, even if every control measure discussed within the working group were included as part of the Administration proposal, the percentage reduction achieved would still not be sufficient to bring all areas into attainment. Those nonattainment areas requiring over 29 percent reductions in VOCs by 2005 beyond the base program would still need to develop and implement additional control measures. Such

measures might include restrictions beyond Federal emission limits on new sources, tighter restrictions on existing stationary sources, tighter enforcement of existing regulations, transportation control measures designed to reduce VMT and market based strategies.

Nationwide control measures

Nationwide control measures would affect both areas in and out of attainment. If a neat fuels program is included in serious and severe nonattainment areas, the percentage reductions achieved in these areas by the other mobile source measures on the list will decrease, and vice versa.

The table below provides estimates of the cost-effectiveness and percentage reductions achieved by potential nationwide measures. Some of the percentage reductions would be smaller if a neat fuels program is included. *Those proposals which sparked considerable discussion in the working group are marked by asterisks. Separate discussion papers on these subjects follow.*

	% VOC Reduction	2005 Cost Effectiveness $/Ton	Nationwide Annual Costs ($M)
1.* Onboard Controls	2.6	0 - 2,500	0 - 1,500
2.* Extended Useful Life	1.0	525	130
3. Light Duty Truck Emissions	0.2	650	33
4. Commercial/consumer Products	2.5	0 -2,000	640
5. Automotive Tailpipe Controls	0.4	1,200	114

Would require automobile manufacturers to put canisters on every vehicle to prevent refueling emissions. The same refueling emissions could also be captured by Stage II controls installed at service stations only in nonattainment areas. (See next page.)

EPA would promulgate regulations extending the design life of emission control devices from 50,000 to 100,000 miles. State/local governments in-use testing/inspection of vehicles for compliance would cease after 75,000 miles and the manufacturer's warranty would continue for 50,000 miles as currently required.

Requires light duty trucks (e.g., pickups, mini-vans) to meet the same 0.41 grams per mile (gpm) standard currently being met by automobiles. Heavier trucks would have to meet a 0.50 gpm standard. Although small reductions are obtained, the growth in small trucks as a substitute for automobiles is expected to continue and on equity grounds alone similar emission standards should be met.

EPA would be authorized to regulate VOC emissions from a variety of smaller sources such as consumer solvents, paints, barge loading and municipal landfills. This would be a new Clean Air Act authority for EPA.

EPA would promulgate a regulation to tighten the VOC emission standard to the level currently required on all California vehicles (from .41 to .25 grams per mile). This represents a 98% reduction from uncontrolled levels, and a 2% reduction beyond current tailpipe standards.

Federally Mandated Control Measures for Nonattainment Areas Only

Below is a list of Federal mandates which States could be required to implement unless they could demonstrate alternative local measures with commensurate VOC reductions.

	% VOC Reduction	2005 Cost Effectiveness $/Ton	Nationwide Annual Costs ($M)
1.* Neat Fuels Programs	7.4 *(2005)*	390 - 11,000	244
EPA Proposal - 50%	12.4 *(2010)*	390 - 11,000	N/A
With Other Measures	1.7 *(2005)*	1,200 - 11,000	244
	4.2 *(2010)*	1,200 - 11,000	N/A

One option would require that, beginning in 1995, 50% of all vehicles in severe and serious nonattainment areas use neat fuels (methanol, ethanol, compressed natural gas) and that service stations provide neat fuels in these areas at prices competitive with gasoline. Another option would require neat fuels only for urban buses and centrally fuelled fleets of 10 or more vehicles. The figures above are for the former option.

2.* Stage II Controls	1.5	450 - 1,000	60 - 135

Would require service stations in nonattainment areas to install special nozzles to prevent refueling emissions. The same refueling emissions could also be captured by onboard controls imposed on vehicles nationwide.

3. Control Technology Guidelines (CTGs)	3.5	0 - 2,000	430

EPA would issue, subject to the normal regulatory review process, stationary source guidelines for states to use in controlling existing major emitters in nonattainment areas. EPA would issue the most cost-effective CTG's first so that states will always be assured that least-cost control strategies are being implemented.

4.* Enhanced I/M	1.2	1,200	90

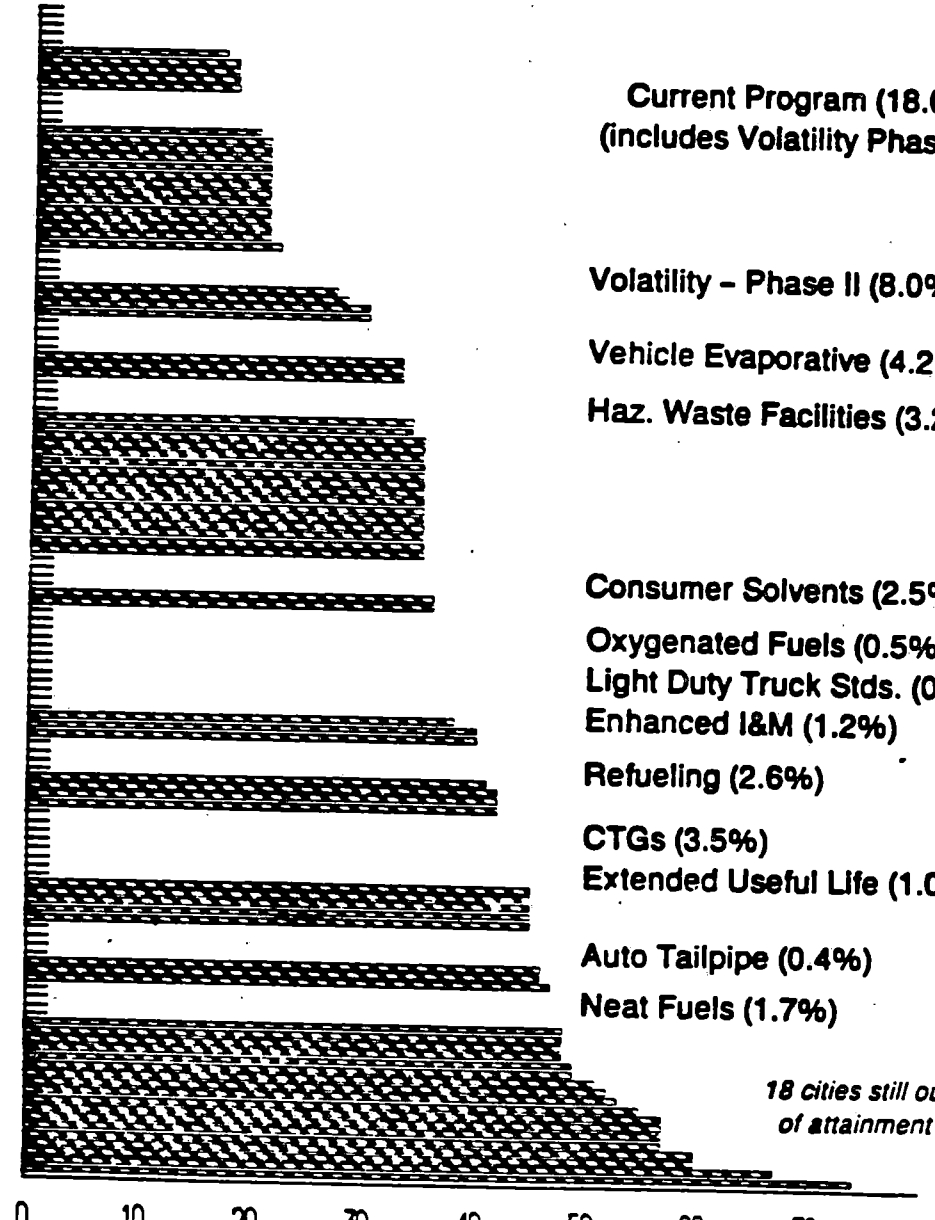
EPA would mandate that states improve and expand their inspection programs in non-attainment areas. This would include increasing the stringency of inspections and requiring added tampering and fuel switching checks to existing programs.

Graph 1 (below) shows the number of cities brought into attainment by individual control measures.

Graph 1

EFFECT OF VOC CONTROL MEASURES ON # OF CITIES BROUGHT INTO ATTAINMENT IN 2005

This chart shows how many cities will be brought into attainment by achieving incremental reductions of VOCs; the reductions could be achieved by the kinds of measures listed.



	Cum. VOC % Reduction	Cities Remaining Out of Attainment
Current Program (18.0%) (includes Volatility Phase I)	(18.0)	72
	Cum. Reductions Beyond Current Program	
Volatility - Phase II (8.0%)	8.0	58
Vehicle Evaporative (4.2%)	12.2	54
Haz. Waste Facilities (3.2%)	15.4	51
Consumer Solvents (2.5%)	17.9	35
Oxygenated Fuels (0.5%)	18.4	33
Light Duty Truck Stds. (0.2%)	18.6	33
Enhanced I&M (1.2%)	19.8	33
Refueling (2.6%)	22.4	30
CTGs (3.5%)	25.9	26
Extended Useful Life (1.0%)	26.9	26
Auto Tailpipe (0.4%)	27.3	21
Neat Fuels (1.7%)	29.0	18

II: ISSUES ON CONTROL OPTIONS

Issue 1. Should the Administration propose a program to encourage and/or require the use of "neat fuels" in buses, fleets, and private automobiles.

Options:

1. Require "neat fuels" in all urban buses and fleets of 10 cars or more.

2. Require that 50% of the fleet in "serious" and "severe" nonattainment areas be neat-fueled vehicles.

3. Let States "opt out" of the 50% requirement if they can demonstrate commensurate reductions in the nonattainment areas through other measures.

Discussion: The President has long been an advocate of removing barriers to market entry for alternative fuels and of promoting their use. During the campaign, he stated:

> *"One of my priorities as Vice President has been to lead the search for alternative fuels -- so-called 'clean fuels' such as methanol made from remote natural gas and ethanol made from grain -- and to promote their use."*
>
> (Speech at Scripps Institution, San Diego, CA, October 14, 1988).

Current automobiles are capable of using blends of gasoline and alternative fuels such as methanol and ethanol. While these blends can achieve major CO reductions, achieving major VOC reductions from mobile sources would require "neat fuels", such as compressed natural gas (CNG), and pure ethanol or methanol. The use of these alternative fuels would also reduce aromatic emissions from gasoline, especially benzene, a know carcinogen. HHS has argued that the most important issue from a public-health perspective is to reduce potentially harmful vehicle aromatic emissions. Aromatics currently constitute over 25 percent of hydrocarbon emissions from gasoline-powered vehicles (3 percent benzene, 22 percent other aromatics).

Neat-fueled buses are now operating in several cities and prototype neat-fueled passenger cars have been successfully demonstrated. However, for neat-fueled vehicles to come into widespread use, neat fuels must be priced competitively with gasoline. At present, neat fuels generally are not competitive, but this is due in part to economies of scale currently achieved by the gasoline production and distribution system.

In addition, according to one industry estimate, it would require the construction of 90 world scale methanol plants to provide enough methanol to meet the motor vehicle needs of California alone. There are currently 16 world scale methanol plants in the non-Communist world.

Neat fuels proponents argue that the environmental benefits of neat fuels outweigh the costs of ensuring their availability at competitive prices through Federal mandate and that these costs will diminish over time as neat fuel vehicle and fuel systems begin to achieve economies of scale. Skeptics contend, however, that ensuring the availability of neat fuels would be much more costly than proponents assume and would inappropriately require extensive intervention into both the fuel and vehicle markets.

Because of the disagreement over the desirability and feasibility of a neat fuels program, the option of letting States with ozone nonattainment areas "opt out" of a mandatory Federal program and the option of requiring a program limited to buses and centrally fueled fleets of ten or more are also presented.

Option 1: Require the use of neat fuels in all new urban transit buses and all urban fleets of 10 cars or more in 25 severe and serious nonattainment cities beginning in 1992.

Advantages of Option 1

- Follows up on the President's promise to enhance the use of neat fuels. Dirty buses and black soot they emit are a symbol of urban pollution; clean buses would be a highly visible start of a neat fuels program.

- Bus fleets are centrally fueled so that fuel availability is not a major problem.

- Allows for gradual introduction of neat fuel vehicles to help resolve outstanding concerns (e.g., safety) and demonstrate benefits of these vehicles.

Disadvantages of Option 1

- Would not be cost-effective since only 0.6% VOC reductions would be achieved and cost would be about $10,000 per ton. A larger program is needed to be both cost-effective and environmentally effective.

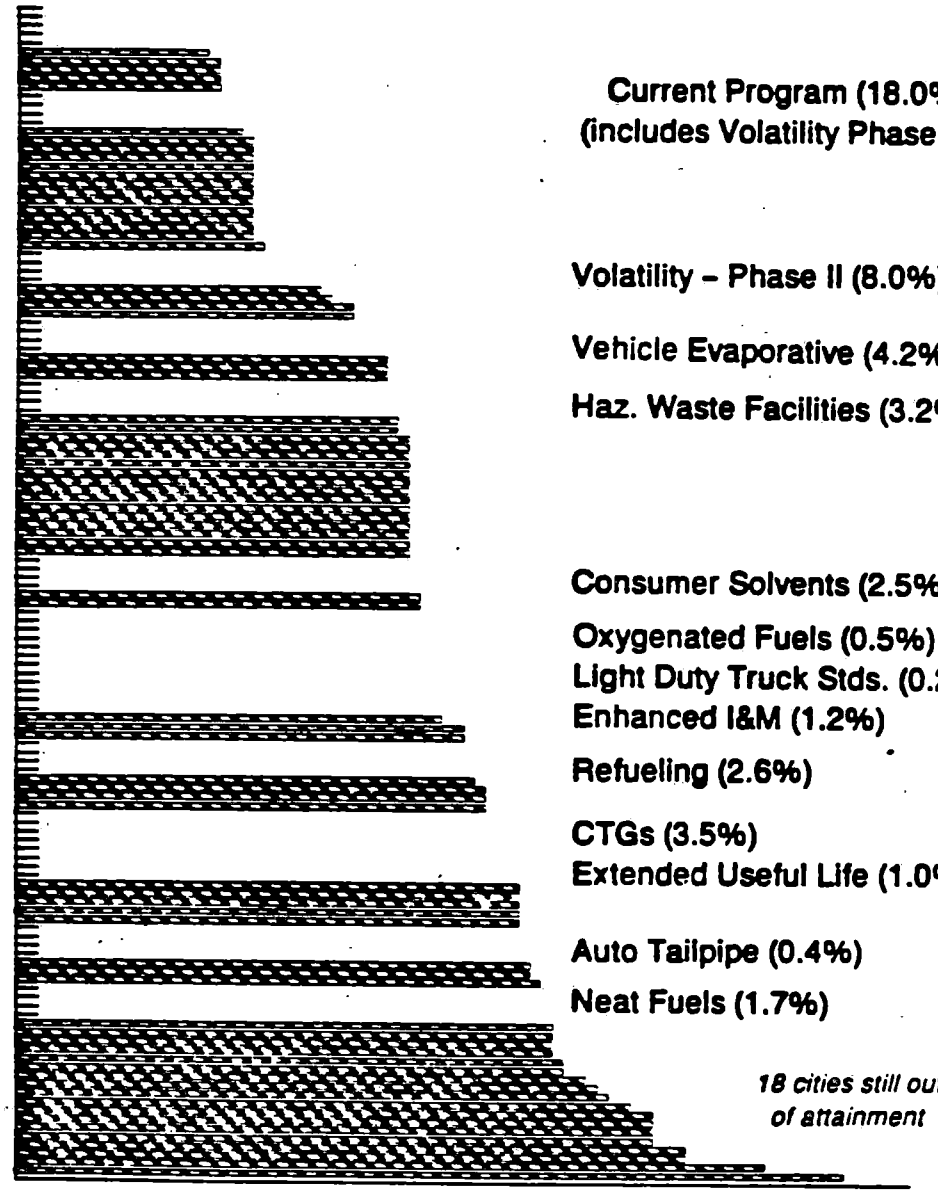
- Would substantially increase the cost of acquiring buses and other fleet vehicles.

- Would not help neat fuels overcome the formidable barriers to entry since Federal mandate would create a de minimis market.

Graph 1

EFFECT OF VOC CONTROL MEASURES ON # OF CITIES BROUGHT INTO ATTAINMENT IN 2005

This chart shows how many cities will be brought into attainment by achieving incremental reductions of VOCs; the reductions could be achieved by the kinds of measures listed.



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	Cum. Reductions Beyond Current Program	
Volatility – Phase II (8.0%)	8.0	58
Vehicle Evaporative (4.2%)	12.2	54
Haz. Waste Facilities (3.2%)	15.4	51
Consumer Solvents (2.5%)	17.9	35
Oxygenated Fuels (0.5%)	18.4	33
Light Duty Truck Stds. (0.2%)	18.6	33
Enhanced I&M (1.2%)	19.8	33
Refueling (2.6%)	22.4	30
CTGs (3.5%)	25.9	26
Extended Useful Life (1.0%)	26.9	26
Auto Tailpipe (0.4%)	27.3	21
Neat Fuels (1.7%)	29.0	18

II. ISSUES ON CONTROL OPTIONS

Issue 1. Should the Administration propose a program to encourage and/or require the use of "neat fuels" in buses, fleets, and private automobiles.

Options:

1. Require "neat fuels" in all urban buses and fleets of 10 cars or more.

2. Require that 50% of the fleet in "serious" and "severe" nonattainment areas be neat-fueled vehicles.

3. Let States "opt out" of the 50% requirement if they can demonstrate commensurate reductions in the nonattainment areas through other measures.

Discussion: The President has long been an advocate of removing barriers to market entry for alternative fuels and of promoting their use. During the campaign, he stated:

> *"One of my priorities as Vice President has been to lead the search for alternative fuels -- so-called 'clean fuels' such as methanol made from remote natural gas and ethanol made from grain -- and to promote their use."*
>
> (Speech at Scripps Institution, San Diego, CA, October 14, 1988).

Current automobiles are capable of using blends of gasoline and alternative fuels such as methanol and ethanol. While these blends can achieve major CO reductions, achieving major VOC reductions from mobile sources would require "neat fuels", such as compressed natural gas (CNG), and pure ethanol or methanol. The use of these alternative fuels would also reduce aromatic emissions from gasoline, especially benzene, a know carcinogen. HHS has argued that the most important issue from a public-health perspective is to reduce potentially harmful vehicle aromatic emissions. Aromatics currently constitute over 25 percent of hydrocarbon emissions from gasoline-powered vehicles (3 percent benzene, 22 percent other aromatics).

Neat-fueled buses are now operating in several cities and prototype neat-fueled passenger cars have been successfully demonstrated. However, for neat-fueled vehicles to come into widespread use, neat fuels must be priced competitively with gasoline. At present, neat fuels generally are not competitive, but this is due in part to economies of scale currently achieved by the gasoline production and distribution system.

In addition, according to one industry estimate, it would require the construction of 90 world scale methanol plants to provide enough methanol to meet the motor vehicle needs of California alone. There are currently 16 world scale methanol plants in the non-Communist world.

Neat fuels proponents argue that the environmental benefits of neat fuels outweigh the costs of ensuring their availability at competitive prices through Federal mandate and that these costs will diminish over time as neat fuel vehicle and fuel systems begin to achieve economies of scale. Skeptics contend, however, that ensuring the availability of neat fuels would be much more costly than proponents assume and would inappropriately require extensive intervention into both the fuel and vehicle markets.

Because of the disagreement over the desirability and feasibility of a neat fuels program, the option of letting States with ozone nonattainment areas "opt out" of a mandatory Federal program and the option of requiring a program limited to buses and centrally fueled fleets of ten or more are also presented.

Option 1: Require the use of neat fuels in all new urban transit buses and all urban fleets of 10 cars or more in 25 severe and serious nonattainment cities beginning in 1992.

Advantages of Option 1

- Follows up on the President's promise to enhance the use of neat fuels. Dirty buses and black soot they emit are a symbol of urban pollution; clean buses would be a highly visible start of a neat fuels program.
- Bus fleets are centrally fueled so that fuel availability is not a major problem.
- Allows for gradual introduction of neat fuel vehicles to help resolve outstanding concerns (e.g., safety) and demonstrate benefits of these vehicles.

Disadvantages of Option 1

- Would not be cost-effective since only 0.6% VOC reductions would be achieved and cost would be about $10,000 per ton. A larger program is needed to be both cost-effective and environmentally effective.
- Would substantially increase the cost of acquiring buses and other fleet vehicles.
- Would not help neat fuels overcome the formidable barriers to entry since Federal mandate would create a de minimis market.

Option 2: In addition to Alternative 1, require beginning in 1995 that 50 percent of all new vehicles, including passenger cars, buses, and commercial cars and truck fleets in 25 of the worst ozone areas have the capability of using neat fuels. In addition, require fuel wholesalers and retailers in these areas to make neat fuels available at prices competitive with gasoline.

Advantages of Option 2

- Creates a broad market for neat fuels and neat-fueled vehicles while still allowing the marketplace to choose the type of neat fuel that best suits local economic and environmental circumstances.

- Could be a major component of the President's toxic air pollution control strategy. It provides substantial reduction in urban air toxic emissions such as benzene, 1-3 butadiene, polycyclic organic matter and diesel particulate. While direct formaldehyde emissions increase somewhat, indirect formaldehyde decreases even more due to the lower reactivity of methanol emissions.

- Represents the largest and most dramatic control measure for automobiles, thus obviating the need for other more costly automobile controls.

Disadvantages of Option 2

- If other motor vehicle control measures are adopted, provides only small VOC reductions (1.7% by 2005).

- Requires the Federal Government to impose new extensive, regulation on vehicle manufacturers and refineries in order to artificially create new markets. In the short term, most methanol would have to be imported from the Mideast, the Caribbean, and perhaps some Pacific nations.

- May not be workable. Issues of how to induce consumers to purchase neat fueled vehicles and to assure that neat fuels will be sold at prices competitive with gasoline remain unresolved. The imposition of gasoline prices controls by local governments may be required. Moreover, many technological issues regarding the development of neat fueled vehicles remain unresolved.

- Methanol is not economically competitive with gasoline, costing 30% or more at current prices, and may not be so in the next ten years. OTA (April 1988) estimated a cost-effectiveness of $38,000/ton based on a projected 50% price differential.

Option 3. Same as Alternative 2 but allow individual States to "opt out" of the alternative fuel mandate in exchange for other ozone controls (not otherwise required by law) that result in equal or greater air quality improvements than alternative fuels in these nonattainment areas.

Advantages of Option 3

- Both opponents and proponents argue that this option will prove their case.
- All of the benefits of Options 2 and more cost-effective, because States could substitute other ozone control measures if they are cheaper than the alternative fuels option.
- Allows some "targeting" of alternative fuels to the cities that would benefit most.
- Allows at least partial local decision-making, and thereby avoids imposition of Federal mandates with no flexibility.

Disadvantages of Option 3

- Reduces economies of scale and size of the Federally established market.
- Adds considerable uncertainty concerning the size and scope of the program, which will delay implementation and raise concerns over long-term commitment to a serious shift to these fuels.
- If other Federally mandated mobile source control measures are not required by legislation, it is very unlikely that many states can make the necessary showing that other ozone controls resulting in equal or greater reductions are available.

Note: If a neat fuels program is included in severe and serious nonattainment areas, the percentage reductions achieved in those areas by the other mobile source measures on the list will decrease, and vice versa. Therefore, the reduction achieved by each mobile source measure is presented in Chart 2 in two ways: first, assuming that neat fuels measures are not adopted; second, assuming that all measures, including neat fuels are adopted.

Chart 2

COMPARISON OF VOC REDUCTIONS ACHIEVED BY VARIOUS MOBILE SOURCE CONTROL MEASURES

VOC Reductions by Year 2005

Neat Alternative Fuels (Methanol or Compressed Natural Gas)	With Baseline 1/ Controls but Without Other Federal Mobile Source Measures	With (or After) 1/ Baseline Controls & Other Federal Mobile Source Measures
1. 50 percent mandate in 25 serious and and severe non-attainment cities with local opt-out (2005)	7.4	1.7
2. Same mandate in 2010	12.4 (2010)	4.2 (2010)
3. Gas Volatility (Phase II) (RVP from 10.5 to 9.0)	8.0	5.2
4. Stage II Vapor Recovery	1.5	1.1
5. Enhanced Inspection and Maintenance	1.2	0.8
6. Extending Useful Life of Catalysts	1.0	0.7
7. Hydrocarbon Tailpipe	0.4	0.3

1/ Note: These reductions are relative to the year 2005. The neat fuel reductions would be higher if based on 2010.

Issue 2. To what extent should the Act allow States to opt out of a neat fuels program by implementing other control activities instead?

Option 1. States opting out would impose alternative controls based on their own (rather than EPA) baseline projections and estimates of reductions achievable from such controls. States would be required to notify EPA within 18 months if they plan to "opt out," and must adopt an alternative program (including any necessary enabling authority) within 12 months after notification to EPA. An alternative program must achieve the same resulting emissions levels as would be obtained through the implementation of a mandatory neat fuels program using EPA baseline projections. EPA would retain authority to rebut and overturn a State alternative plan through a rule-making action. Any State whose alternative control plan was overturned by EPA would then automatically become subject to the mandatory neat fuel requirements.

Option 2. States may opt out of a neat fuels program if EPA approves replacement controls that provide equal or greater long-term environmental benefits (including toxic air emissions) than those achieved by neat fuels. Alternatives must be over and above those required by the Act and must be approved by EPA within 18 months of adoption of Clean Air Act amendments.

Discussion: While all members of the working group believe that States should have flexibility to substitute alternatives, such as local transportation plans or additional stationary source controls, in lieu of a neat fuels program, the amount of flexibility is a significant issue.

Advantages of Option 1

- Provides States with more flexibility than Option 2 to pursue less costly alternative control measures, but would still achieve the same emissions levels as the mandatory neat fuels program.
- EPA's mobile source estimates are based on questionable assumptions. This alternative gives States the flexibility to make revisions to the estimates.
- States would be fully responsible for defending VOC estimates and alternative measures, relieving the Federal Government of any legal risk or responsibility if States impose unpopular measures.

Disadvantages of Option 1

- o EPA will be in the undesirable position of initiating a rule-making action if there are unresolved disagreements with a State.
- o If some States' estimates are found to be faulty, then those States would be forced to adopt a neat fuel program at an accelerated pace.
- o These provisions would radically deviate from the current Clean Air Act which requires that EPA approve all reduction estimates made by States to achieve ambient health standards.

Advantages of Option 2

- o Provides ample flexibility consistent with the current statutory requirement that EPA either approves a proposed State action or implements a Federal program necessary to achieve the health standard.
- o Avoids the obvious tendency to seek short-term non-controversial measures that avoid exceedances but do not result in long-term reductions.
- o The 18 month rule forces States to declare their intentions early so that the fuels industry will know the extent of neat fuels requirements nationwide and can begin to establish refining and distribution networks.

Disadvantages of Option 2

- o Requiring that alternative controls be subject to EPA approval will preclude their implementation. EPA assumptions clearly favor a neat fuels program.
- o Continues the overly inflexible and intrusive Federal intervention in State/local government affairs that exists throughout the Clean Air Act.
- o It is unfair to require air toxics reductions as a condition of an opt out that would not be required in areas not subject to the neat fuels program.

Issue 3. Require that all serious and severe ozone and CO nonattainment areas implement enhanced vehicle Inspection and Maintenance (I/M) programs.

National Cost: $90M; Cost/ton: $1,200/ton; %VOC Reduction: 1.2%

Discussion: Essentially all areas that would be required to have enhanced I/M already have basic I/M programs. Enhanced I/M would require a more thorough check of the car, i.e., tampering and fuel switching checks in addition to the existing exhaust check.

Advantages:

- With many of the administrative overhead and consumer inconvenience costs already in place, enhancements via a more thorough inspection and repair can be made cost-effectively.
- The option avoids confrontation on the issues that are most sensitive with state legislatures (new programs and expanded coverage area), and allows states to make local decisions on those points.

Disadvantages:

- Inspection and maintenance programs have been enormously controversial and have met with stiff consumer resistance. Even the suggestion of more rigorous inspections would be controversial.
- At $1200 per ton removed, this is one of the least cost-effective measures under consideration.
- Technology improvements in future vehicles will make I/M less effective. For example, vehicles that can self-diagnose problems, alert the driver and direct a mechanic to properly repair the problem will go a long way to alleviating the very problems that I/M programs catch. Also, the disappearance of leaded gas at many service stations will reduce mis-fueling.

Issue 4. Extend the statutory definition of "useful life" for passenger cars from 5 years/50,000 miles to 10 years/100,000 miles.

National Cost: $130M; Cost/ton: $525/ton; %VOC Reduction: 1.0%

Discussion: The current law restricts the useful life of cars to 5 years or 50,000 miles, whichever comes first. This provision effectively limits the auto manufacturers' liability to design and produce emission control systems that are durable only for this length of time. Of course, cars are operated for much longer periods of time.

The useful life definition for passenger cars would be 10 years/100,000 miles as it applies to the certification and in-use (recall) requirements; however, recall test vehicles would be limited to 75,000 miles. The warranty requirements, which are the most politically contentious because of the strong opposition of the aftermarket service industry to any extension, would remain at 5 years/50,000 miles.

Advantages:

- Provides one of the more cost effective reductions, affecting all passenger car tailpipe and evaporative pollutants by requiring more durable emission control equipment; affected pollutants are tailpipe hydrocarbons, carbon monoxide, oxides of nitrogen, and evaporative gasoline vapors, and mobile source toxics.

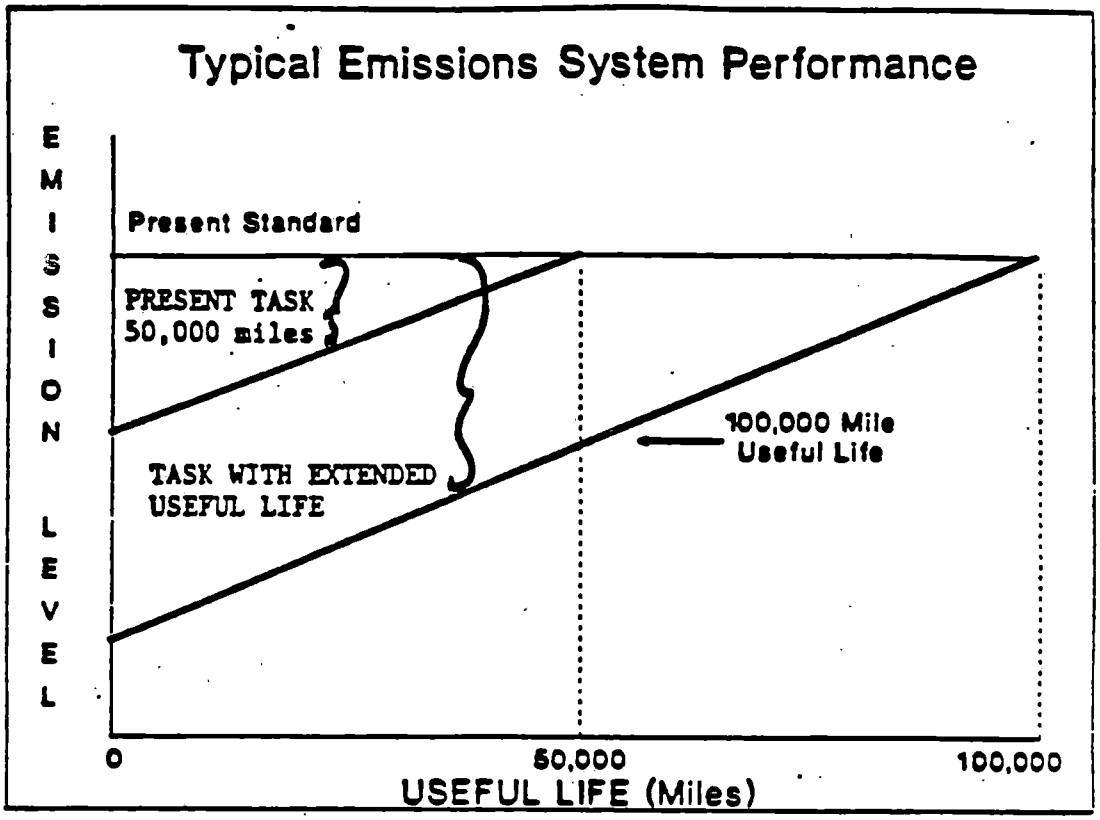
- An extended useful life for cars is clearly not a technical problem. For other vehicle classes EPA has the authority to set the appropriate useful life. Vehicle manufacturers since 1984 have had to build light trucks to comply with standards for 120,000 miles. Heavy trucks and buses have useful lives, depending on weight classification, that extend up to 290,000 miles. Only for automobiles does the Clean Air Act restrict the useful life to 50,000 miles.

Disadvantages:

- Greatly increases performance requirements on the automobile industry, which is already being hit hard by other proposed control measures.

- Will cost $25 per vehicle for a total cost of about $250 million per year.

- Most excess emissions above 50,000 miles may be maintenance related. A longer useful life will only slightly help that problem.



Source: Ford Motor Company

EPA Note: The above theoretical chart, provided by the auto companies, conflicts with emissions data from those same companies. Since, 1984, light trucks have had a full (120,000 mile) useful life requirement. The data submitted to EPA by vehicle manufacturers when certifying light trucks indicate a deterioriation curve which flattens out (not continues to increase) after 50,000 miles. This shows it is technically feasible to improve emission control system durability while not having to lower the "zero-mile emissions level.

Issue 5. Form of Refueling Requirement

Refueling Options:

1. Require "Stage II" devices on gasoline pumps at service stations in ozone non-attainment areas only.

2. Require onboard controls on all future gasoline-powered vehicles nationwide.

Gasoline vapors escape during vehicle refueling. These VOC vapors can be controlled by either ensuring that gas pump nozzles fit tightly over gas intake tubes or installing onboard canisters to capture vapors that would otherwise escape during vehicle refueling.

An EPA regulation known as Stage I required that many non-attainment cities install controls on gasoline storage tanks at service stations during in the late 1970s and early 1980s. The debate over further control of refueling emissions, if any, has been raging ever since that time. Hence, the term "Stage II." In the absence of new legislation, environmental groups have filed successful suits against large non-attainment cities to require Stage II controls. California, St. Louis, New York, New Jersey and Washington, D.C., have or will put Stage II controls in place. Others such as Massachusetts and Connecticut are awaiting the outcome of the legislative debate, but may be forced by the courts to implement these controls anyway.

The automobile and petroleum industries are naturally divided on this issue. In addition, non-industry estimates also vary widely and are contradictory. Therefore, high and low estimates for each are presented below.

Control Technique	%reduction VOC	Cost Effectiveness $/Ton	Annual Costs Nationwide $M
1. Onboard	2.6	Credit - 2,500	
Proponents		Credit	720
Opponents		2,500	900
2. Stage II	1.5	450-1,000	
Proponents		450	170
Opponents		1,000	870

Advantages of *Stage II* devices at gasoline pumps (Refueling Option 1)

- o Stage II can be targeted to non-attainment areas. Thus, Stage II provides a limited, regional control program in areas where the benefits of controlling gasoline vapors are high.

- o A Stage II system will achieve major VOC reductions much earlier than on-board devices within two or three years. On the other hand, less than 60 percent of the vehicle fleet will have on-board systems in place by the year 2000.

- o Reduces toxic air-related cancer deaths in non-attainment areas by the same degree and sooner than onboard option. VOCs are toxic pollutants with direct local exposure to individuals. This option is far more consistent with principle of early reduction under the Administration's toxic air pollution legislative strategy than on-board canisters.

- o An analysis for the Office of Technology Assessment concluded that Stage II was substantially more cost-effective than on-board ($548 per ton v. $2,425 per ton.)

- o No safety concerns are associated with Stage II devices. The safety of an on-board control system has been questioned by critics. Last October, the National Highway Traffic Safety Administration (NHTSA) reported unresolved safety concerns.

- o Several major cities already have Stage II in place and more will have them soon, thus reducing the benefits of on-board controls.

Advantages of *"on-board" canisters* in all automobiles:

- o Onboard canisters are more convenient than the Stage II devices and would improve fuel economy, thereby offsetting vehicle hardware costs.

- o Reduces benzene and other "air toxics" nationwide, thus providing health benefits in these areas not provided by Stage II. Given the significant toxic benefits to people refueling their cars, it makes no sense not to protect motorists nationally.

- o Would relieve States from the responsibility of having to implement a difficult to operate, controversial system (Stage II), that has been the source of great consumer dissatisfaction.

- o Without onboard canisters, the major burden of national non-attainment controls will have to be borne by the petroleum industry. The auto industry should bear their fair share of the burden.

- o On-board will relieve State and local enforcement.

Issue 6: Require states that will remain in nonattainment after implementing Federal measures achieve 3 percent annual progress towards meeting environmental goals.

Discussion: Even if all measures discussed on previous pages are adopted, some areas will remain out of attainment of the ozone standard. The question then becomes whether further progress should be mandated without specifying specific actions and if so, what annual rate of "progress" is appropriate. EPA would provide an exemption to the 3% requirement if an area can demonstrate attainment with lesser reductions, show that a three percent reduction is infeasible, or show that equivalent NOx control would be more cost-effective. If an annual reduction option is rejected, the normal State implementation planning program would remain in effect as the mechanism for ultimately achieving compliance with the ozone standard.

Advantages

- A requirement for steady further progress will make other less stringent provisions (compared to Congressional bills) in the Administration's bill more acceptable. In particular the ability to obtain an extension of attainment deadlines will be politically tied to a strategy for reductions beyond Federal measures.

- Provides a escape valve for States if a reduction requirement turns out to be unnecessary. Reductions attributable to measures such as CTGS, hazardous waste rules and I/M would count toward 3% and may be enough in many areas. Adds flexibility to include NOx controls if these prove to be more cost-effective.

- States have been unwilling to implement tough, politically sensitive controls without a strong Federal mandate.

Disadvantages

- Additional State controls could add $5 - 9 billion per year to cost of the bill. The 3% per year approach is the more costly way to achieve additional reductions because the approach is less flexible and achieves reductions sooner.

- Automatic 3% reduction would force the States to adopt draconian measures based on inaccurate speculative models. NOx controls, controls over smaller sources, transportation controls or other contentious controls may be required before the effects of various other Federal and State control actions are known.

- The current SIP process will allow for long term more cost-effective solutions rather than the constant search for the next 3% to get by one more year.

III. ALTERNATIVES FOR OZONE CONTROL

From the lengthy and vigorous debate within the DPC working group, there emerged a consensus on several principles that have subsequently framed the selection of control alternatives.

1. The goal is to make a major effort toward bringing non-attainment areas into attainment with health standards. Federal leadership in the form of some national measures will be needed to address and resolve problems that transcend State boundaries or to achieve more efficient or cost-effective solutions nationally.

2. Control measures to achieve progress toward attainment of the standards should be selected on the basis of the extent to which they achieve the greatest reductions at the least cost.

3. The Clean Air Act's principle of Federalism should be retained where possible and economically appropriate. Cities and States should have maximum flexibility to tailor and fashion individual control strategies. States should have the option where possible of substituting local measures not required in the Act for Federally-mandated local measures as long as commensurate reductions can be achieved.

4. States should be given reasonable time to implement controls.

5. The selection of control measures should reflect consideration of their ability to reduce emissions of toxic air pollutants.

Range of Alternatives

Four alternatives are presented on the following pages that include a package of controls for addressing the ozone problems. Table 1 provides a summary of the controls included in each option. There are four consensus control measures agreed to by all members of the working group. These measures are:

- o Volatility Phase II (8.0% VOC Reduction; $390 per ton)
- o Vehicle Evaporative Controls (2.9% VOC Reduction; $140 per ton)
- o Hazardous Waste Facility Controls (3.2% VOC Reduction; $900 per ton)
- o Commercial/Consumer Product Controls new authority (2.5% VOC Reduction; $2,000 per ton)

Reductions and costs for these measures will be included in each alternative but not mentioned further in the text. The cost of the

additional State controls cannot be estimated for most alternatives. The cost of a 3% annual reduction after all identifiable controls are applied (29% VOC reduction beyond current program) is $5 - 9 billion per year.

Table 1: Summary Comparison of Alternatives

Consensus Controls	1	2	3	4
Volatility Phase II	X	X	X	X
Vehicle Evaporative	X	X	X	X
Hazardous Waste Facilities.....	X	X	X	X
Commercial/Consumer Products.....	X	X	X	X
Additional Measures				
Neat Fuels				
a. Buses.....	X			
b. Fleets and Buses....		X		
c. 50% with opt-out....			X	X
d. 50% with opt-out and fuel pooling....	X			
Refueling Controls				
a. Stage II.....	X	X		
b. Onboard.....				X
Vehicle Emission Trading.....	X	X		
Light Duty Trucks.....		X	X	X
Extended Useful Life...		X	X	X
Auto Tailpipe Stds.....				X
Enhanced I&M.....		X		X
CTGs.....		X	X	X
Results of Alt's:	**1**	**2**	**3**	**4**
% VOC Red. 2005	21	25	27	29
Ann. Cost ($ B)	2.4*	3.2-3.3*	3.0-3.1*	3.1-4.6*
Remaining Nonattainment Areas in 2005	34	26	25	23
DECISION:	—	—	—	—
Additional State Controls				
a. Current SIP Process.	X	X		
b. 3% Progress Mandate..			X	X
c. Neat Fuels for Other Areas.....	X			
DECISION:	—	—	—	—

* *Cost estimates do not include the cost of the neat fuels program.*

Alternative 1

Description

o Neat Alternative Fuels program

- Mandate alternative fuels for metropolitan buses.
- Require the 25 most serious non-attainment areas with a total population of 80 million to reduce emissions by an amount equivalent to a 50% implementation of alternative fuel vehicles in the year 2005. Areas would either be required to use such vehicles or demonstrate that equivalent reductions could be achieved through reductions of emissions from any other sources.
- Set average standards for fuel cleanliness and allow refineries the flexibility to "fuel pool" (i.e. meet the standards by selecting the least cost mix of very clean alternative fuels and cleaner refined oil products).

o Mobile Source Controls - Allow complete vehicle emissions trading for all new vehicles sold in the United States within one year after enactment of the Act. Such trading would allow automobile manufacturers flexibility to meet new emissions standards on average), rather than for every vehicle or class of vehicle.

o Additional State Controls - Require a neat fuels program for other cities that require additional controls to come into attainment, even after imposing the consensus controls.

Cost and Percent VOC Reduction for Identifiable Controls

VOC Reduction 1995: 12%; 2000: 17%; 2005: 21%
Annual Cost: $2.4 billion. Does not include cost of neat fuels.

Advantages

- Fulfills the President's commitment to neat fuels by creating a broad market for clean alternative fuels and vehicles capable of using those fuels. Allows the marketplace to choose the mix of clean fuels that best suits local circumstances.

- The local opt-out allows States to substitute cheaper ozone control measures if they obtain greater VOC reductions, thereby targeting neat fuels to the cities that benefit most and allowing at least partial local decision-making.

- Represents the largest and most dramatic reduction of automobile VOC emissions, obviating the need for other more costly automobile controls.

- ***Fuel pooling***, California's innovative measure to reduce aromatic levels of gasoline, directly addresses the most serious health risks (benzene and other aromatic emissions) while obtaining low-cost, flexibly-achieved reductions in ozone reactive hydrocarbon emissions.

Disadvantages

- Failure to include any control measures for gasoline vehicles will be viewed as a serious weakness by environmentalist and many members of Congress.

- The neat fuels program may not be workable as a sole Federal vehicle control measure and EPA cannot verify that fuel pooling is feasible. A 50 percent share will be difficult to guarantee and the issue of how to induce consumers to purchase neat fueled vehicles remains unresolved.

- Neat fuels are not economically.competitive with gasoline. Opponents claim that neat fuels cost 30% more than regular gasoline at current neat-fuels prices, and are not likely to be economically competitive in the next ten years. (The differential is less for premium gasoline.)

Alternative 2

Description

- o Neat Alternative Fuels for Buses and Fleets - Beginning in 1992, require the use of neat fuels in severe and serious non-attainment areas for new buses and centrally fueled fleets of 10 cars or more.

- o Refueling Controls - require Stage II controls at service stations in non-attainment areas only.

- o Mobile Source Controls - Require Light Duty Truck Standards to be equivalent to current auto standards, Extend Useful Life of automobile catalysts, and require Enhanced Inspection and Maintenance for non-attainment areas.

- o Stationary Sources Controls - Require EPA to publish a schedule within 6 months promulgating Control Technology Guidelines, but do not mandate a specific number.

- o Additional State Controls - Developed through existing SIP process. States would be given 4 years to develop new SIPs including 2 years to develop revised emissions inventories. EPA would retain the current array of sanctions for failure to plan or implement a plan, but all sanctions would be discretionary.

- o Other - The National Research Council would be required to undertake a study of exposure rates to ozone and to quantify health improvements for VOC reductions at levels near the standard.

Cost and Percent VOC Reduction for Identifiable Controls

VOC Reduction 1995: 19%;	2000: 23%; 2005: 25%
Annual Cost: $3.2 - 3.3B.	Does not include the extra cost of neat fuels.

Advantages

- Fulfills the President's pledge to encourage the use of neat fuels, but proposes a limited program designed to build public acceptance and provide further information on costs and benefits.

- Avoids major implementation problems of the 50 percent requirement which may not work and may be extremely costly (OTA has estimated $38,000/ton VOC removed) depending on the price of methanol.

- Using the current SIP process will allow more cost-effective solutions than the constant search for the next 3% reduction

Disadvantages

- The current SIP process is not sufficient to achieve additional reductions. States have already proven that they are not willing to implement tough, politically sensitive controls without a strong Federal mandate.

- A failure to include vehicle tailpipe standards will be viewed as a serious weakness by environmentalists and many members of Congress.

- Misses the opportunity to take a bold stand to promote acceptance of alternative fuels. A bus and fleet program will not develop the infrastructure needed for general use of neat fuels.

Alternative 3

Description

- o Neat Alternative Fuels with State "Opt-Out" - Beginning in 1995, require 50 percent of all vehicles in non-attainment areas including passenger cars, buses and commercial car and truck fleets use clean fuels and require that service stations provide neat fuels in these areas. States would have the ability to "opt out" of the requirement if they can demonstrate commensurate reductions in the non-attainment areas through other measures.

- o Refueling Controls - Require Stage II controls at service stations in nonattainment areas only.

- o Mobile Source Controls - Require Light Duty Truck Standards to be equivalent to current auto standards and Extend Useful Life of automobile catalysts.

- o Stationary Source Controls - Issue additional Control Technology Guidelines to use in controlling existing major emitters in non-attainment areas.

- o Additional State Controls - Mandate 3 percent per year reduction in all except marginal nonattainment areas. The percent requirement will be averaged over a 5 year period. Serious and severe areas would have to continue this reduction for a longer time but could seek a waiver if additional reductions were unnecessary or infeasible. Federal measures except for volatility and current vehicle emissions standards could count against this target.

Cost and Percent VOC Reduction for Identifiable Controls

VOC Reduction 1995: 18%;	2000: 23% 2005: 27%
Annual Cost: $3.0 - 3.1B.	Does not include the extra cost of neat fuels.

Advantages

- Provides almost the same level of control as Alternative 4 except for the two controls (auto tailpipe standards and enhanced I&M) that are the least cost-effective.
- Fulfills the President's commitment to neat fuels by creating a broad market for clean alternative fuels and vehicles capable of using those fuels. Allows the marketplace to choose the mix of clean fuels that best suits local circumstances.
- The local opt-out allows States to substitute the cheaper ozone control measures if they obtain greater VOC reductions thereby targeting these fuels to the cities that benefit and allows least partial local decision-making.

Disadvantages

- Neat fuels currently are not economically competitive with gasoline and a 50% share will be difficult to guarantee. Further, the program will cause a substantial disruption of the economy for only an additional 1.7% VOC reduction in 2005.
- The 3 percent requirement provides less flexibility than the SIP process to implement more cost-effective long term control options, which could unnecessarily drive up costs due to the search for the next 3 percent.
- Failure to include tailpipe standards will be viewed as a serious weakness by environmentalists and many members of Congress.

Alternative 4

Description

- o Neat Alternative Fuels Program - same as Alternative 3 (i.e. 50 percent of new vehicles purchased after 1995 in serious ozone attainment areas required to use neat fuels) except the "opt out" provision would be somewhat more restrictive.

- o Refueling Controls - require Onboard Canisters nationwide on every vehicle to prevent refueling emissions.

- o Mobile Source Controls - Require all mobile source controls under consideration including: 1) tighter Light Duty Truck Standards; 2) Extended Useful Life of automobile catalysts; 3) tighter automobile tailpipe standards; and 4) Enhanced Inspection and Maintenance in non-attainment areas.

- o Stationary Source Controls - Issue additional Control Technology Guidelines as in Alternative 3.

- o Additional State Controls - same as Alternative 3. Mandate 3 percent per year reduction in all except marginal nonattainment areas. The percent requirement will be averaged over a 5 year period. Serious and severe areas would have to continue this reduction for a longer time but could seek a waiver if additional reductions were unnecessary or infeasible. Federal measures except for volatility and current vehicle emissions standards could count against this target.

Cost and Percent VOC Reduction for Identifiable Controls

VOC Reduction	1995: 18%; 2000: 24%; 2005: 29%	
Annual Cost: $3.1 - 4.6 B.	Does **not** include the extra cost of neat fuels.	

Advantages

- o Obtains the greatest degree of reductions and a better guarantee than the current SIP process that all areas will achieve attainment by the revised deadlines.

- o Balances state and Federal roles. National controls will address mobile sources, which cannot be regulated on a State by State basis. States would retain authority for designing control plans and selecting specific additional controls.

- o Fulfills the President's commitment to neat fuels by creating a broad market for clean alternative fuels and vehicles capable of using those fuels. Allows the marketplace to choose the mix of clean fuels that best suits local circumstances.

Disadvantages

- o Neat fuels currently are not economically competitive with gasoline and a 50% share will be difficult to guarantee. Further, the program will cause a substantial disruption of the economy for only an additional 1.7% VOC reduction in 2005.

- o Most costly option. Tailpipe controls, in particular, are not very cost-effective particularly since they would apply and impose costs in areas that need no controls.

- o Provides the least flexibility to states and, therefore, is the least consistent with the Federalism objective. Further, the 3 percent requirement could unnecessarily drive up costs due to the search for the next 3 percent.

Appendix A

Ozone

Areas with 1985-87 ozone expected exceedances greater than 1.0

EPA Region	Metropolitan Area (CMSA/MSA)	1985-87 Design Value	1985-87 Avg. Est. Exc	1987 2nd Daily Max One-Hr	1987 Est. Exc
I	Boston, MA (CMSA)	0.16	2.2	0.16	4.3
I	Conn./Mass., CT-MA (Note #4)	0.17	5.8	0.17	11.6
I	*Hancock County, ME	0.13	1.3	0.12	1.1
I	*Kennebec County, ME	0.12	1.2	0.09	0
I	*Knox County, ME	0.15	4.4	0.13	6.5
I	*Lincoln County, ME	0.13	2.4	---NO DATA--	
I	New Bedford, MA	0.14	2.4	0.12	1.0
I	Portland, ME	0.14	3.4	0.14	4.0
I	Portsmouth-Dover, NH-ME	0.13	3.2	0.13	3.2
I	Providence, RI-MA (CMSA)	0.16	6.5	0.16	7.8
I	Worcester, MA	0.13	2.1	0.11	0
I	*York County, ME	0.15	4.2	0.14	4.9
II	Atlantic City, NJ	0.14	3.4	0.14	4.0
II	*Jefferson County, NY	0.13	4.7	0.13	4.7
II	New York, NY-NJ-CT (CMSA)	0.19	7.5	0.19	19.2
III	Allentown-Bethlehem, PA-NJ	0.13	1.4	0.13	3.2
III	Baltimore, MD	0.17	7.9	0.17	11.1
III	Huntington, WV-KY-OH	0.14	3.8	0.14	5.2
III	*Kent County, DE	0.13	1.8	0.15	3.2
III	Norfolk, VA	0.13	2.0	0.13	2.0
III	Parkersburg, WV-OH	0.13	1.5	0.15	3.5
III	Philadelphia, PA-NJ-DE (CMSA)	0.16	13.6	0.18	23.2
III	Pittsburgh, PA (CMSA)	0.13	1.7	0.14	4.1
III	Richmond, VA	0.13	1.3	0.14	3.0
III	Washington, DC-MD-VA	0.15	6.2	0.16	10.5
IV	Atlanta, GA	0.17	13.5	0.17	15.0
IV	Birmingham, AL	0.15	3.2	0.14	3.1
IV	Charlotte, NC-SC	0.13	3.0	0.14	4.0
IV	Jacksonville, FL	0.16	2.1	0.12	1.1
IV	Lexington, KY	0.13	1.6	0.11	1.1
IV	Louisville, KY	0.16	4.0	0.13	2.0
IV	Memphis, TN-AR-MS	0.13	2.0	0.13	2.0
IV	Miami-Hialeah, FL (CMSA)	0.15	2.1	0.15	3.1
IV	Montgomery, AL	0.14	2.2	0.14	4.3
IV	Nashville, TN	0.14	3.2	0.14	3.2
IV	Raleigh-Durham, NC	0.13	1.4	0.13	3.2
IV	Tampa, FL	0.13	2.1	0.16	4.2
V	Chicago, IL-IN-WI (CMSA)	0.17	7.4	0.18	12.8
V	Cincinnati, OH-KY-IN	0.14	1.6	0.15	2.1
V	Cleveland, OH	0.13	1.8	0.13	2.2
V	Detroit, MI (CMSA)	0.13	2.0	0.13	2.1
V	Grand Rapids, MI	0.13	1.3	0.14	3.0
V	Indianapolis, IN	0.13	1.3	0.12	1.1
V	*Kewaunee County, WI	0.13	1.9	0.14	5.8
V	Milwaukee, WI (& Sheboygan,WI)	0.17	3.7	0.20	12.9
V	Muskegon, MI	0.17	6.0	0.18	11.0
VI	Baton Rouge, LA	0.14	3.0	0.16	5.1
VI	Beaumont-Port Arthur, TX	0.13	2.1	0.13	3.2
VI	Dallas-Fort Worth, TX (CMSA)	0.16	6.1	0.14	5.2
VI	El Paso, TX	0.16	9.0	0.17	11.1
VI	Houston, TX (CMSA)	0.20	19.1	0.18	20.8
VI	*Iberville Parish, LA	0.13	2.4	0.13	2.1
VI	Tulsa, OK	0.12	1.1	0.12	1
VII	St. Louis, MO-IL	0.16	5.4	0.17	8.0
VIII	Salt Lake City, UT	0.15	3.8	0.11	1.0
IX	Bakersfield, CA (Note #5)	0.16	35.1	0.16	47.6
IX	Fresno, CA	0.17	30.5	0.17	42.6
IX	*Kings County, CA	0.13	5.6	0.13	5.6
IX	Los Angeles, CA (CMSA)	0.35	143.5	0.32	141.2
IX	Modesto, CA	0.15	16.2	0.15	20.8
IX	Phoenix, AZ (Note #5)	0.14	2.4	0.11	0
IX	Sacramento, CA (Note #5)	0.17	9.7	0.17	14.6
IX	San Diego, CA	0.18	12.5	0.18	26.8
IX	San Francisco, CA (CMSA)	0.14	3.4	0.15	4.1
IX	Santa Barbara, CA	0.14	1.7	0.13	3.4
IX	Stockton, CA (Note #5)	0.14	8.1	0.12	(inc.)
IX	Visalia, CA (Note #5)	0.15	11.9	0.15	21.6
X	Portland, OR-WA (CMSA)	0.15	1.8	0.11	1.2

*Not a metropolitan statistical area.

SOURCE: U.S. EPA, "Environmental News," press release, May 1, 1988

Explanation: This table shows the average number of days each area was out of attainment in 1985-1987.

Note: In 1988 more areas were out of attainment and other areas had greater exceedances.

CLEAN AIR ACT OPTIONS PAPER: CARBON MONOXIDE NONATTAINMENT

CARBON MONOXIDE

I. BACKGROUND

The second major air quality "non-attainment" issue is carbon monoxide (CO).

There are currently 52 areas out of attainment with the EPA's carbon monoxide standard. The CO non-attainment situation, however, is much less intractable than the ozone non-attainment situation since ongoing EPA programs under the Clean Air Act will help reduce CO emissions over the next decade.

Carbon monoxide is a colorless, odorless gas that tends to reduce the oxygen carrying capacity of the blood. It is a particularly serious health threat to individuals who suffer from cardiovascular disease, especially those with angina or heart disease. There is limited information, derived from animal studies, suggesting that CO may adversely affect development of the fetus.

Unlike VOC emissions which come from a wide range of sources, two-thirds of CO emissions come from mobile sources. Other major sources of CO are industrial processes and wood stoves.

The carbon monoxide standard is nine ppm measured over an eight-hour period, based on the second maximum eight-hour period in one year. If an area exceeds the standard for two or more eight-hour periods, it is classified non-attainment. Fifteen of the 50 carbon monoxide non-attainment areas are moderately out of attainment. An additional six are seriously out of attainment.

Carbon monoxide ambient levels decreased 32 percent from 1978 to 1987 and the number of eight-hour exceedances decreased by 91 percent during that same period.

Emissions of carbon monoxide decreased 25 percent from 1978 to 1987 largely due to reductions in mobile sources emissions, despite a 24 percent increase in vehicle miles traveled in the last 10 years. Some improvement from controls on automobiles will continue, due to fleet turn-over. For example, cars purchased before 1981 amount to only 38 percent of the vehicles miles traveled (VMT), but they account for over 86 percent of CO emissions.

This improvement is expected to level off in the 1990s, however, because EPA projects continuing sharp increases in VMT. EPA estimates that VMT nationwide will grow 51 percent by the year 2000.

Initial EPA estimates project an additional 24 percent reduction in total CO emissions by the year 2005 due to fleet turnover under the current program after taking increased VMT into account. EPA estimates that this will bring 24 of the 51 non-attainment areas into attainment with the CO standard.

In addition, several of the provisions being contemplated in the ozone non-attainment section of the bill will also help reduce CO. A description of these, plus other envisioned controls on mobile sources, follows:

- **Light duty truck CO standards**

  Within 12 months, EPA will issue regulations under existing law requiring lower-weight light trucks to meet a 3.4 grams per mile standard in the 1992 model year. This will reduce CO emissions by about two percent.

- **Auto cold temperature CO standards**

  Within 12 months, EPA will issue regulations under existing law for a cold temperature standard and test procedures. This will reduce CO emissions by 7 to 12 percent.

- **Extended definition of "useful life"**

  Auto manufacturers currently must certify that emissions control devices for passenger cars will meet the CO standard at 5 years or 50,000 miles. EPA would amend the Clean Air Act to change this to ten years/100,000 miles for certification at time of production. However, EPA would not require a change in vehicle warranties and would limit recall testing to 75,000 miles. This will reduce CO by up to 10 percent.

- **Enhanced inspection and maintenance**

  An enhanced inspection and maintenance (I&M) program would allow some State flexibility in design, but generally would include: (1) tightening of definitions for vehicles exempt from current I&M programs; (2) tightening pass/fail limitations; and (3) increased sophistication of the emissions test. Programs would be required for CO non-attainment areas with population over 200,000 and

CO design values of 17 ppm or higher. This would reduce CO emissions by four to five percent.

In total, according to EPA, the current program plus these measures will reduce CO emissions by 45.6 percent by the year 2005. This will still leave six cities out of attainment without additional measures. Moreover, because some national measures targeted at automobiles will take some years to implement fully, EPA estimates that as many as 10 cities could remain out of attainment in the year 1995.

In order to bring these areas into attainment, EPA is proposing a major new initiative in oxygenated fuels.

II. ALTERNATIVES FOR CONTROLLING CARBON MONOXIDE

Issue: Should an oxygenated fuels program be mandated to control carbon monoxide.

Option 1: No Federally mandated oxygenated fuels program.

Option 2: Require serious CO nonattainment areas to use oxygenated fuels of their choice (with no specific oxygen requirement) on a seasonal basis as needed, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

Option 3: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

Option 4: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, as well as in other CO nonattainment areas with serious and severe ozone problems. Allow no "opt out".

Discussion: Oxygenated fuels are blends of gasoline and ethanol, methanol, MTBE, or ETBE. Current technology vehicles can use oxygenated fuels of up to about 3 % oxygen content without engine modifications. Oxygenated fuels accounted for about 30 percent of total U.S. gasoline sales in 1988.

According to EPA estimates, a broad oxygenated fuels program (Options 3 and 4) would reduce CO emissions by 18% in 2005. Oxygenated fuels can also help reduce emissions of benezene, a proven carcinogen. On the other hand, they can produce higher NOx emissions that contribute to ozone formation.

The cost of a broad oxygenated fuels program depends on assumptions as to Federal ethanol subsidies. If the current 60 cents per gallon subsidy were repealed, it is probable that MTBE (a blend of gasoline, methanol and ether) would be used exclusively to meet a Federal mandate for oxygenated fuels. This would result in a cost-effectiveness figure of $235 per ton in 1992.

It is not likely, however, that the Federal ethanol subsidy will be repealed. Under this assumption, ethanol would probably be cost-competitive with MTBE and could account for about 50 percent or more of the blends used to meet a Federal oxygenated fuel mandate.

This would result in a cost-effectiveness figure of $390 per ton in 1992 and $800 per ton in 2005.

Cost Estimates:	$235/ton in 1992 (no gasohol tax exemption);
	$390/ton in 1992 and $800/ton by 2005 (with continued gasohol tax exemption).

Option 1:No Federally mandated oxygenated fuels program.

Advantages of Option 1

- Allows nonattainment areas maximum flexibility in selecting control measures for achieving attainment with the CO standard.
- The Federal government would not be picking "winners and losers" among fuels. Commercial development of ETBE and other new oxygenated fuels would not be hindered.
- Recognizes that if enhanced I&M, extended useful life, and light duty truck control measures are selected, there will be less need for a mandatory oxygenated fuels program.

Disadvantages of Option 1:

- Would not provide as much assurance relative to other options that attainment would be achieved.
- Does not support the President's commitment to alternative fuels.
- May forego possible gains in air toxics risk reductions from alternative fuels.

Option 2: Require serious CO nonattainment areas to use oxygenated fuels of their choice (with no specific oxygen requirement) on a seasonal basis as needed, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

Advantages of Option 2:

- Compared to Option 1, this Option allows nonattainment areas almost as much flexibility in selecting control measures for achieving attainment with the CO standard.
- Allowing oxygen percentages less than 2.7 would expand consumer fuel choice. A 2.7 percent requirment would preclude the use of ETBE and would severely curtail the use of MTBE without further EPA waivers. Allowing a seasonal strategy (such as Denver's) would reduce costs and lower the risk of exacerbating the ozone problem.
- Provides some support for the President's commitment to alternative fuels.

Disadvantages of Option 2:

- Would not provide as much assurance relative to Options 3 and 4 that attainment would be achieved.
- May not be sufficient to make good on the President's commitment to the farm (ethanol) constituency.
- May forego possible gains in air toxics risk reductions from alternative fuels.

Option 3: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

Advantages of Option 3:

- Provides more assurance, relative to Options 1 and 2, that CO attainment will be achieved.
- Consistent with the President's campaign promise to establish a 3 percent oxygen standard for CO nonattainment areas.
- Promises more air toxics risk reductions than Options 1 or 2.

Disadvantages of Option 3:

- o Would limit fuel choice, especially if an "opt out" is made difficult to obtain.
- o To the extent that ethanol and ETBE are subsidized, the cost to the Treasury (Highway Trust Fund) will increase -- potentially $1.7 billion per year.

Option 4: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, as well as in other CO nonattainment areas with serious and severe ozone problems. Allow no "opt out".

Advantages of Option 4:

- o Provides the greatest CO, air toxic, and VOC reductions of any option.
- o Consistent with the President's campaign pledge to establish a 3 percent oxygen standard in CO nonattainment areas.
- o May be an ineffective environmental strategy in the later years as newer vehicle controls reduce the effectiveness of an oxygenated fuels program.

Disadvantages of Option 4:

- o Provides the least flexibility for nonattainment areas of any Option which will result in unnecessary costs for some areas.
- o Will result in increased NOx emissions and may be an ineffective environmental strategy in the later years as newer vehichle controls reduce the effectiveness of an oxygenated fuels program.
- o Most expensive Option in terms of Federal subsidies.

Oxygenated Fuels Decision:

/ / Option 1: No Federally mandated oxygenated fuels program.

/ / Option 2: Require serious CO nonattainment areas to use oxygenated fuels of their choice (with no specific oxygen requirement) on a seasonal basis as needed, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

/ / Option 3: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, but allow areas to "opt out" if they can demonstrate that other control measures are sufficient to achieve attainment.

/ / Option 4: Require at least 2.7 percent oxygenation of fuels in moderate and serious CO nonattainment areas, as well as in other CO nonattainment areas with serious and severe ozone problems. Allow no "opt out".

US ENVIRONMENTAL PROTECTION AGENCY
TELECOMMUNICATIONS CENTER
WASHINGTON, DC 20460

EPA

FACSIMILE REQUEST AND COVER SHEET

PLEASE PRINT IN BLACK INK ONLY

TO: Mark Lange

OFFICE/PHONE: White House

REGION/LAB: Fax # 456-6218

FROM: Jeff Clark

PHONE: 475-7360

MAIL CODE: OAR-443

OFFICE: OPar

DATE: 5/31/89

NUMBER OF PAGES TO INCLUDE THIS COVER SHEET: 4

Please number all pages

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EPA Form 6040-5 (Rev. 12-83) Replaces EPA Form 6040-5A and the previous edition of EPA Form 6040-5, which are obsolete.

To MARK LANGE - Growth in Vehicle Miles Travelled

U.S. Passenger Cars in Operation

Year	Cars (millions)	VMT by CARS (BILLIONS
1970	80	797
1989	124	1,203
2005	161	1,558
2010	173	1,670

APR 5 '89 9:01 FROM OAQPS, DURHAM, NC TO OAR

Jeff Clarke
PAGE.002

3 copies please
Bauld
Kate
Brenner

WHY CONTROL ACID RAIN?

Introduction

The acid rain problem is frequently mischaracterized as pitting the interests of Northeast US and Canadian "receptor" regions, who are suffering all of the environmental damages, against midwestern "source" regions, who would gain nothing from acid rain controls. This misperception comes from "compartmentalizing" the environmental damages from regional sulfur and nitrogen oxide emissions and focusing only on those related to what is deposited in rainfall. The total environmental effects of concern include the traditional acid rain effects - - destruction or alterations of sensitive aquatic ecosystems, effects on certain terrestrial ecosystems such as high elevation forests, and regional deterioration of stone, metal, paint, and other outdoor structural components - - but also encompass air quality related effects, including destruction of visibility throughout the eastern U.S., increased respiratory illness in children and in respiratory disease related hospital admissions, a significant increase in total mortality, as well as effects on crops, forests, and human health related to elevated

Sources and Transformations: Acid rain and related regional air pollution is derived from emissions of sulfur and nitrogen oxides, largely from coal fired utilities, industrial boilers, and smelters. Photochemical reactions involving nitrogen oxides and volatile organic chemicals play a role in transforming these emissions into acid sulfate particles, which affect health and visibility, as well as nitric acid. The chemical reactions also limit the effectiveness of emission reductions such that a 50% reduction in SOx emissions will probably produce a less than 50% reduction in deposition.

Benefits of a Major Reduction: The benefits of a major (8, 10, or 12 million ton reduction in sulfur oxides) would increase in a manner roughly proportional to the emissions increase. The benefits include:

- Aquatic systems: recovery of hundreds of lakes and thousands of kilometers of streams in the Northeast and mideast US and recovery of thousands of lakes and streams in eastern Canada. A number of lakes and streams in the southeast will be prevented from becoming acidic. Acidic "episodes" that produce short term damages will be substantially reduced by SOx reductions, but more so if accompanied by a reduction in NOx deposition.

- Terrestrial systems: ecological scientists are concerned about long term (25-50 year) changes in many soils in the east. Reductions would reduce markedly reduce the chance of complex ecosystem changes related to such changes. The major damage of present concern is the observed forest declines and death mountainous areas. Major reductions would reduce the acidity of mountain clouds that are suspected of damaging the trees and soils in these areas. NOx reductions could reduce the elevated ozone levels observed in such regions.

- Materials Damage: Major reductions would proportionally reduce the component of materials damages due to regional SOx loadings. Damages include corrosion and tarnishing of metals, erosion of building stone, and erosion, soiling, and cracking of paints. Benefits would accrue throughout the eastern U.S., but be greatest nearer the source regions.

- Health Effects: Controls would reduce the substantial health risks associated with the presence of acid sulfate particles. Based the available data, our science advisors have recommended preparing the documentation and instrumentation needed to decide upon a national ambient air quality standard for acid particles. The Harvard 6 City study has shown a strong relationship between acid sulfates and the presence of bronchitis in school children. A Canadian study found significant associations between respiratory hospital admissions and sulfates, even taking ozone effects into account. Other researchers at Harvard, Brookhaven, Carnegie Mellon, and elsewhere have found a persistent relationship between sulfates and excess mortality, with the suggestion that on the order of 2 to 5% of mortality in areas with high sulfates may be caused by these pollutants. A 50% reduction might cut these risks in half, preventing on the order of 20,000 to 40,000 early deaths each year. Even if the effects are only a fraction of the above (e.g. 0.1 % of mortality), the health benefits - - for those who place dollar value on morbidity and mortality - - are well in excess of the costs of the control program.

- Visibility: Summertime skies in the eastern US are noticeably hazy much of the time. This haze is not, as commonly thought, a natural phenomenon, but is caused

Mark: Don't use this term. does not agree w/ EPA (yet)

eastern visibility would be in the range of 40 to 50 miles, rather than the 10 miles commonly seen today. A major reduction in SOx emissions would increase visibility by up to 30 to 40%, with the larger increases more likely as the emissions reduction increase. Preliminary benefits estimates suggests that the societal value of such improvements would account for a significant fraction of the costs of the control program.

** TOTAL PAGE.003 **

To: Mark Lange

From: Jeff Clark, EPA

3 pgs. to follow

WHY CONTROL ACID RAIN
(10 MM TONS)

tons of SO2 and NOx into the atmosphere. JEFF CLARK @ EPA: 382-5580

- o The U.S. now spends $160 billion per year on electricity. An acid rain control program would add $1-2 billion in the `90's and $3-4 billion after the year 2000. x cents on the dollar — 2 billion / 160 billion = x / 100 — just over a penny (1.75) on the dollar in 90s; and 2½ cents after yr 2000

- o The longer we wait to reduce those emissions the more costs we incur in terms of:

  - materials damage
  - visibility impairment
  - continued acidification of lakes and streams

- o Information from several public health school studies indicates that these emissions are responsible for significant morbidity (emphysema, bronchitis, asthma, etc.) and up to 40,00-80,000 premature deaths per year (i.e., 3 percent "excess mortality").

- o Even if the actual number is only 5,000 premature deaths (three-tenths of one percent excess mortality) that would be more than enough reason to justify our proposal (for those who think you can value lives: the program would reduce those fatalities by half and at any plausible value per life the benefits--v
materials, lakes

MZ -
According to Jeff Clark, your #'s are fine.

exceed the costs

- o Every year that we wait, those costs continue to be incurred.

- o The researchers from Harvard who are conducting on of the public health studies presented their preliminary results to the Congress last year.

- o They will give similar testimony this summer. Given these health concerns, it will be very difficult for the Administration to argue for delaying implementation of controls or for achieving less than a 10 million ton reduction.

WHY CONTROL AIR TOXICS?

- Toxic air emissions are responsible for about 2000 fatal cancers per year plus numerous other adverse health effects including neuro-toxicity, fetal damage, and liver disease.

- About half of these fatal cancers come from motor vehicles and will be reduced as a result of measures aimed at reducing hydrocarbon, NOx and diesel particulate emissions.

- The remainder of these fatal cancers are produced by stationary source emissions. H.R. 4 would address the problem in two stages. In stage one most sources would be required to install available control technology (considering costs). In stage two the remaining risks would be evaluated and, if deemed unacceptable, additional controls would be required. This program would be phased in over a 25 year period.

- o **It is not possible to "do nothing" on air toxics.**

  - **Recent court decisions require the Agency to either place very stringent controls on sources of toxic air emissions (so stringent that many will be forced to shut down within 2 years) or declare them to be "safe" (i.e., determine that annual cancer risks of about one in one-thousand are acceptable). The first of these decisions under the new court requirements will be made this summer.**

06/08 03:57 7304460 #01

ENVIROMENTAL PROTECTION AGENCY

REGION I

JFK FEDERAL BUILDING

BOSTON, MA 02203

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From Connie Olsen

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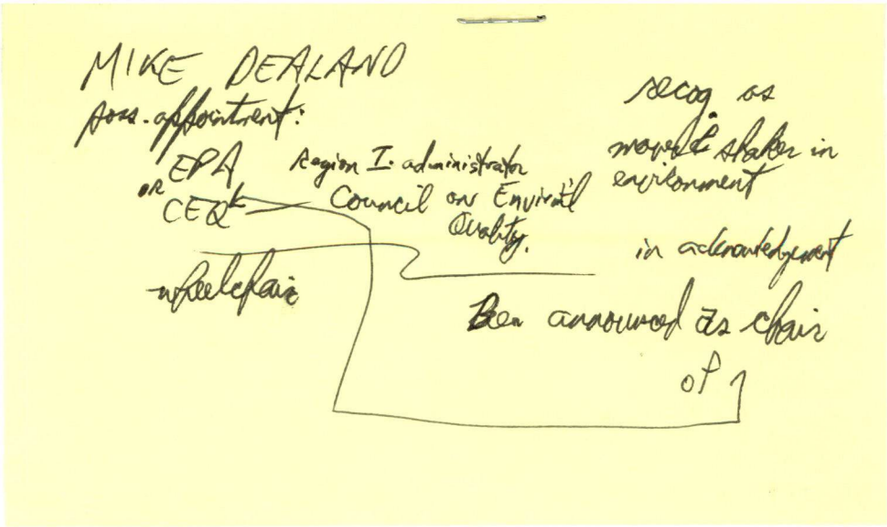

06/08 03:57 7304460 #02 OF 02

MICHAEL R. DELAND
REGIONAL ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BOSTON, MASSACHUSETTS

Michael R. Deland is the New England Regional Administrator of the U.S. Environmental Protection Agency. In this capacity, he oversees and administers the federal government's programs dealing with air and water pollution control, hazardous waste management, drinking water, toxic substances, radiation, and pesticides.

Prior to Mr. Deland's appointment as Regional Administrator in June 1983, he was Counsel at Environmental Research and Technology, Inc., a national firm headquartered in Concord, Massachusetts. From 1973-76, he was the Chief of the EPA Region I's Enforcement Branch in charge of preparing all enforcement actions brought by EPA in New England. From 1972-73, he was the Chief of the Agency's Legal Review Section. Between 1971 and 1972, Mr. Deland worked as one of EPA's first enforcement attorneys in New England.

Mr. Deland received his Bachelor of Arts degree from Harvard College in 1963 and served as an officer in the U.S. Navy before obtaining his law degree from Boston College in 1969. He is a member of the Massachusetts Bar and the American Bar Association and its Natural Resources Committee. Mr. Deland was President of the Business Associates Club (Boston) from 1981-82 and is a former Director of the Environmental Lobby of Massachusetts and the Center for Environmental Intern Programs, a national non-profit organization headquartered in Boston.

Mr. Deland is former Chairman of the Boston Federal Executive Board, a "coordinating group" composed of the heads of all Federal agencies in the Boston area representing 40 departments and independent agencies with a total work force of approximately 34,000 employees.

Mr. Deland has received numerous awards and citations, including the Massachusetts Audubon Society Award for his leadership in cleaning up Boston Harbor and the New England Environment Leadership Award from the New England Environmental Network. In 1987, he was honored as "Environmentalist of the Year" by the Massachusetts Association of Conservation Commissions. In March of 1989 he was awarded the National Wildlife Federation's Special Achievement Award for his role in prompting the clean up of Boston Harbor, for his efforts at protecting valuable fishing areas from off-shore oil drilling, and for his early endorsement of environmentally-based growth controls on Cape Cod. Mr. Deland is also the recipient of "Save the Bay Award" He resides in Wellesley, Massachusetts, with his wife and three children.

DEPARTMENT of the INTERIOR
news release

OFFICE OF THE SECRETARY

For Release June 1, 1989

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INTERIOR SECRETARY LUJAN ANNOUNCES THAT THE UNITED STATES IS CONSIDERING NEW MEASURES TO END ILLEGAL TRADE IN AFRICAN ELEPHANT IVORY

Secretary of the Interior Manuel Lujan, Jr., today announced that the United States is seriously considering additional trade restrictions to halt the importation of African elephant ivory.

"We have already banned ivory imports from more than 70 countries, including Somalia, and are on the verge of extending the import ban pursuant to the Elephant Protection Act," Lujan said. "I am outraged over the illegal poaching of African elephants and the level of ivory imports into certain countries. I urge others to do as the United States is doing in banning importation of ivory from countries that do not have elephant populations. We have reason to believe that some of this ivory is from illegal trading and that the commercial trading is out of control."

Lujan said the Department of the Interior is extending the import ban on specific countries and working with the Departments of Commerce and State to seek international cooperation in an effort to protect the species.

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On May 9, Lujan announced that the United States will support the international ban on commercial trade in African elephant ivory at the October meeting of the 101-member-nation Convention on International Trade in Endangered Species (CITES).

"We are considering all the options for halting illegal ivory trade," Lujan said. "Our concern is that no solution to the elephant problem can be effective without the full participation of the African nations that have elephants. We must also work with other countries interested in bringing to a halt the massive illegal destruction of the African elephant populations. We are reviewing this issue carefully and meeting with representatives of African countries to be sure that any actions taken by the United States are in fact helpful and constructive."

In that regard, Lujan said the Department is providing $15,000 to send African representatives to a July meeting of the CITES Elephant Working Group to assist them in developing elephant conservation plans.

According to current available information, African elephant numbers have declined drastically in the last decade, from an estimated 1.5 million in 1978 to perhaps 700,000 currently. Poaching for the illegal ivory trade is the major cause of the decline.

"If, prior to the October 10 meeting, the Department receives new information to indicate an emergency ban of all commercial imports is appropriate and necessary for the conservation of the African elephant, we will move expeditiously to review that information and determine whether current regulations need to be amended," Lujan said.

This announcement comes on the heels of a May 9, 1989, announcement by Lujan on a finding to accept a petition to reclassify the African elephant as endangered. The Interior's Fish and Wildlife Service is proceeding with a full status review of the species, including an opportunity for public comment.

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