ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
6959 HOUSE JUDICIARY

CLEAN AIR FOR ALASKA
Proposed Amendments to HB 377
from the Clean Air Coalition
February 19, 1992

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The Clean Air Act Amendments of 1990 require the State of Alaska to revise our statutes to meet new Federal requirements, and H.B. 377 begins that process. The Clean Air Coalition offers three programs as amendments to H.B. 377 in order to tailor the bill to Alaska's unique northern climate, shorter daylight hours, and calm wintertime air that traps pollution around communities of all sizes.

THE NEED FOR ADDITIONAL PROTECTION

Unfortunately, our air is used as a free dump site. We allow substances into the air we no longer consider spilling on the ground or into the water.

Known air pollution in Anchorage and Fairbanks comes mostly from transportation. 90 percent of carbon monoxide comes from autos and monitored particle pollution comes from road dust. In smaller communities, sources are likely to include woodstoves, diesel generators, boats, and an occasional industrial facility.

Visibility is diminishing in Anchorage and Fairbanks, as urban haze increases, obscuring views of water and mountains, creating noxious odors, and causing respiratory problems in sensitive individuals. Visible air pollution damages Alaska's image as a clean wilderness destination for tourists.

Neighborhoods are concerned about hydrocarbon pollution from industrial sources which may increase cancer risk and cause headaches, dizziness and difficulties in breathing.

STATE LAW NEEDS TO BE CHANGED

At this time, Alaska has an unwritten policy to allow increases in numerous air pollutants so long as the pollutant does not violate a federal ambient (outdoor air) standard. There are ambient standards for only a few substances, and none for hydrocarbons or visibility. Evidence is growing that existing standards are not protecting the public's health.

Energy conservation could help reduce air pollution with incentives to burn less fuel, but Alaska has no comprehensive policy of conserving energy through direct programs or by increasing its cost.

Only a few pollutants are routinely measured in Alaska's cities; we can only guess about the levels of hazardous substances in our air.

The Clean Air Coalition proposes adding the following three programs to H.B. 377 to improve Alaska's air quality.

I. REDUCE AIR POLLUTION THROUGH ENERGY CONSERVATION

A. The State is committed to reducing air pollution in Alaska and will assist communities in maintaining clear visibility and clean air.

B. To reduce total emissions in the air, communities now violating a federal air quality standard will develop energy conservation plans and programs consistent with their comprehensive development plans. Cities will make concerted efforts to reduce travel by single occupant autos, will encourage shared travel by transit, trail, rail, and carpool, and will consider land use policies and trip reduction programs. Cities will also consider methods of reducing total emissions from woodstoves, home furnaces and municipal power plants.

C. All air pollution reduction programs shall have a public education component to inform citizens of the hazards of the pollution and measures they can take to clear the air.

II. CLEAR SKIES FOR ALASKAN CITIES

A. ESTABLISH STANDARDS FOR VISIBILITY

The State is committed to and supports development of visibility standards in both rural and urban areas. The State will work with communities to define citizen based visibility standards where requested by the local government.

B. MEASURE HAZE IN THE AIR

In order to reduce haze and demonstrate progress towards clean air, the State must continually measure haze.

C. IDENTIFY POLLUTANTS IN HAZE AND THEIR SOURCES

In order to solve the problems of haze and pollution, the State must identify the pollutants which make up the haze. The State shall study nitrogen oxides and nitrates, sulfur oxides and sulfates, soots from woodsmoke and diesel exhaust, automobile emissions and geological dust in addition to any other pollutants likely to contribute to the haze.

The State will determine the sources of haze, and the relative contribution each source makes to the haze.

D. DEVELOP PROGRAMS TO PREVENT HAZE POLLUTION

After determining the sources of haze pollution, the State must develop programs to reduce pollution and improve visibility.

The State will use air pollution models to predict increases in air pollution. Programs will be implemented to offset the impact of new sources and not allow emission increases. These sources may be stationary (power plants or factories) or mobile (cars, trucks, ships, or airplanes). Emission increases will not be allowed.

The haze prevention program will include a public education and public evaluation component.

III. MAKE AIR SAFE FROM HYDROCARBON POLLUTION

A. HEALTH BASED STANDARDS

While the State moves forward with Maximum Available Control Technology standards to control hydrocarbon pollution it will also develop health based standards for hydrocarbon levels in ambient (outdoor) air.

B. MONITOR HYDROCARBON LEVELS

The State shall determine the health hazards from hydrocarbons, both in neighborhoods near industrial sites, and at intersections with high traffic levels. A comprehensive monitoring system shall be implemented.

C. DEVELOP PROGRAMS TO REDUCE HYDROCARBONS

After determining the sources of hydrocarbon pollution, the State shall develop programs to reduce hydrocarbon levels.

The State shall model potential increases in hydrocarbon pollution. If a new source is likely to increase emissions, a program will be implemented to offset the impact of the new source and not allow emission increases. These sources may be stationary (tank farms, or factories) or mobile (cars, trucks, ships, or airplanes).

The hydrocarbon reduction program will have a public education and

evaluation component.

D. CONTINUED MONITORING FOR COMPLIANCE

To demonstrate progress in cleaning our air, the State shall maintain the hydrocarbon monitoring system, develop target pollution reductions, and make monitoring results available to the public.

Anchorage air quality in the '90's

Air pollution problems

Pollutants in Anchorage air have exceeded safe levels since they were first measured in 1973. Carbon monoxide and small particulates (dust and soo. continue to exceed federal standards, and on calm days the mountains around Anchorage are obscured by haze.

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Inversions

Anchorage is in a "bowl" at the base of the Chugach Mountains along the upper reaches of Cook Inlet. These mountains can shelter us from winds which would clean out our urban air. Periodic winter "inversions" of warm air trap colder, more polluted air close to the ground, sometimes within 50 feet of ground level. By comparison, famous Los Angeles inversions are at about 1,500 feet[7].

When an inversion exists during periods of heavy traffic, carbon monoxide levels can exceed federal ambient air quality standards. When inversions remain stable over several days, pollution builds within the limited volume of air trapped near the ground. Inversions can push polluted air closer to the ground as the temperatures drop, and carbon monoxide levels at midnight have exceeded levels at rush hour as the lowering height of the inversion compacts the polluted air. Municipal studies demonstrate that carbon monoxide levels are elevated in neighborhoods, not just on roadways during air pollution episodes[4].

Anchorage shares an airshed with the Kenai Borough to the south and the Matanuska Susitna Borough to the north. During summer months wood smoke from land clearing or habitat enhancement outside the city has been dispersed from Talkeetna to Homer.

Haze

A brown haze cloaks Anchorage on calm winter days, and pale haze bleaches the horizon in the dryer months. Views of nearby mountains are obscured. While road dust has been documented as a pollutant and dust is a likely source for much of the pale haze, Anchorage has not yet identified the composition of its brown haze. Other northern cities have found their brown haze is made up of small particles from transportation, wood burning, other combustion sources, and dust.

Health effects of air pollution

Health effects of air pollutants depend on a combination of many factors — including age, health status, smoking habits, occupation, lifestyle, and the amount and length of exposure. But, in general we know these things about the major pollutants in Anchorage air:

Carbon monoxide is a colorless, tasteless, odorless, deadly poison. When breathed, it joins with red blood cells and deprives the body of needed oxygen. Individuals with heart and lung diseases are particularly vulnerable to elevated carbon monoxide levels in the air. Pregnant women and their babies are at risk for low birth weight and increased infant death. Symptoms of carbon monoxide poisoning usually develop in this order: headache, giddiness, nausea, weakness, occasional vomiting, loss of mental alertness, collapse and coma, finally death.

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Particles can interfere with the body's immune system and irritate the eyes, nose, and throat, narrowing the upper airways during a pollution episode.They increase bronchitis, upper respiratory illnesses, and mortality from cardiac and respiratory disease. Small particulates (less than 10 microns or PM 10's), join with pollutants and carry carcinogens and other pollutants such as carbon monoxide, lead, and pesticides, directly into the lungs where they are deposited in body tissues[3]. PM 10's themselves also cause scarring of lung tissue.

People are concerned about healthy air. Nationally, 73% of adults responded in 1988 that they were "very concerned" about air pollution. In Anchorage, 96% of respondents to a 1983 survey wanted air pollution reduced. The Anchorage Clean Air Coalition is an association of individuals, and health and environmental organizations advocating for healthful air quality. The coalition emphasizes public education, lobbying to maintain strong air quality standards, policies, and programs to reduce pollution.

To reduce carbon monoxide to safe levels, Anchorage can reduce auto trips while driving vehicles with cleaner operating engines. Oxygenated fuels and engines manufactured to burn fuel more efficiently in cold temperatures are expected to reduce carbon monoxide pollution in future years. But it will be difficult to accommodate anticipated population growth and peoples 'increased reliance on the automobile, and still meet air quality standards in the future. In addition, there is growing concern over global warming, and transportation contributes thirty percent of the nation's carbon dioxide production.

Since vehicles produce most of the identified air pollutants, the coalition advocates programs to give people transportation choices beyond the automobile including improved rail, transit, shared rides, and safe bicycle and pedestrian facilities. Employers can sponsor trip reduction programs including rideshare, and can provide financial incentives for transit. Land use policies can contribute to more energy efficient transportation through greater residential and commercial density along roads designated as "transit corridors". Commercial development can be transit friendly w 'h bus pullouts and shelters, and improved pedestrian access.

A national, state or local transportation fund can finance a comprehensive public transportation system with revenues from motor vehicle registration fees and fuel taxes. Only two states levy a gas tax lower than Alaska's. It is appropriate for the source of the pollution to pay for its clean-up, and in this case, vehicle user fees can finance a more energy efficient transportation system to transport people, goods and raw materials.

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To reduce particles in Anchorage air, we first need to identify the sources of the particulates. Strategies for reducing pollution will probably include paving roads, prompt springtime cleanup of winter sanding materials, vegetation of cleared lands, reducing combustion, and more efficient burning of fuels. State and local governments can cooperate to develop strict open burning policies and we can encourage greater use of catalytic or secondary combustion wood stoves. Cold start standards for engines will help reduce some particulate pollution; diesels can also meet stricter standards.

Several questions for Anchorage remain unanswered in 1990

A. What are carbon monoxide levels in roadside schools, homes and commercial buildings during winter inversions and carbon monoxide exceedences?

B. What pollutants make up the dirty brown haze along the Chugach Mountains in the winter when snow covers the soils?

C. How many vehicles can Anchorage accommodate on the road during inversion without exceeding healthy carbon monoxide standards?

D. What level of transit service (frequency, distance from home\work place, comfort level) would attract enough drivers from their autos to maintain healthy air?

E. How much would the highest level of transit service cost compared to the costs of constructing and operating additional lanes of roadway?

National and worldwide air pollution problems

Global warming may have begun. The six warmest years in the last 100 were 1988, 1987, 1983, 1981, 1980, and 1986. Greenhouse gases build in the earth's atmosphere and trap the sun's energy. Half of these gases are estimated to come from combustion of fossil fuels, and the remaining half from chloroflurocarbons, agricultural practices and deforestation. We may see a dramatic warming of the earth in our lifetime with innumerable environmental changes such as melting of polar ice caps, rise of ocean levels, erosion of existing shorelines, shifts in weather patterns, and encroachments of deserts[4].

Arctic haze is a long, thin opaque cloud observed during high altitude inversions from northernmost Alaska as far south as Montana. Observed since the mid-1970's, arctic haze is industrial pollution from western USSR, central Europe and perhaps the northeastern USA, which moves along inversions one to two kilometers above the earth in the troposphere. Its effects on the environment are not clearly understood, but will probably include changes in the amounts of solar radiation received underneath the cloud, and increased acidity levels of soils where the cloud is precipitated from the sky[10]

Toxic pollutants from accidental discharges are a constant threat, especially as Anchorage is a hub of ocean, air, railroad and truck transport of commodities, chemicals, materials, fuels, and pesticides. In 1986, formaldehyde escaped from an improperly heated railroad tanker in Anchorage. Disaster was averted by removal of the tank car to the less populated locale of Crown Point, sixty miles south of Anchorage where winds were to disperse the gas. Crown Point was evacuated, and homes there remain unlivable.

Acid rain results from smoke stack industries producing sulfur dioxides and nitrogen oxides which combine with water to fall out of the sky as acid rain. This is a significant problem in the northeast United States and Canada, and parts of Europe where plant and waterlife is being destroyed. Oil and gas facilities on the North Slope of Alaska emit as much nitrogen oxides as Washington, D.C. each year. The effects of these emissions on soils, water, plants, or animals is not known, and the EPA has raised concerns that acidification of the tundra may result even if ambient air quality standards are being met [8].

Indoor air pollution is perhaps the most life threatening air pollution in Alaska, especially when outdoor air pollution levels are high and combine with indoor pollutants to reach unhealthy levels. Some of our homes and buildings are not adequately ventilated, and we do not have standards to limit the levels of formaldehyde, gases from synthetic building materials, carbon monoxide, nitrogen oxides, sulfur oxides, cigarette smoke, microorganisms, allergens, or other pollutants.

High altitude ozone is a protective form of oxygen which shields us from the sun's ultraviolet radiation. Chloroflurocarbons from aerosol cans, freezers, and air conditioners destroy this protective layer above the earth. A "hole" or thin spot in the earth's ozone is documented at the south pole of the earth. Ultraviolet radiation reaching populated areas could increase by five to twenty percent early in the 21st century, causing destruction of plankton, and dramatic increases in skin cancer. Even if the manufacturing of chloroflurocarbons ceased today, the upper atmosphere's ozone depletion will continue for another century as existing chlorine molecules rise slowly from the earth and remain in the stratosphere to destroy ozone [6].

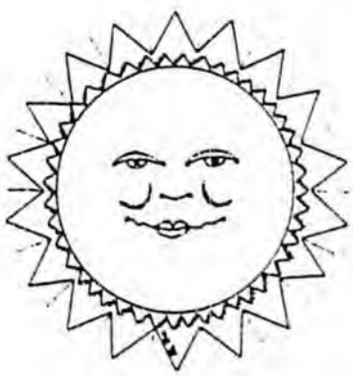
Ground level ozone is a pollutant created by auto exhaust (nitrogen oxide and hydrocarbons) reacting in sunlight to create "smog". Communities with sunshine, warm temperatures, and high volume traffic create ozone which seriously irritates the eyes, mucous membranes, and the respiratory system.

Nitrogen dioxide is a byproduct of combustion from automobiles, power plants, and furnaces. It is a reddish brown gas formed by the reaction of nitrogen oxide with sunlight and is corrosive and toxic to man. Unpolluted air has a relative high ratio of nitrogen oxide to nitrogen dioxide; that ratio reverses as sunlight and converts the nitrogen oxide into nitrogen dioxide in the middle of the day [5].

Sulfur dioxide is a byproduct of oil and coal combustion from industrial or utility plant stacks. Sulfur dioxide and coexisting particulate pollutants have been repeatedly associated with increased respiratory disease and death rates.

We may see a dramatic warming of the earth in our lifetime...

Oil and gas facilities on the North Slope...emit as much nitrogen oxides as Washington, D.C. each year.



Clean Air Act

The Clean Air Act sets national ambient air quality standards in all areas of the United States for six primary pollutants. First enacted in 1970, it has been amended seven times, and major revisions are being currently being considered by Congress.

The Environmental Protection Agency (EPA) enforces the Clean Air Act. State Implementation Plans (SIP's) are developed in areas which violate air quality standards. Within Alaska's 1982 SIP, Anchorage committed to reducing carbon monoxide by implementing four strategies: an auto inspection/maintenance program; a 300% increase in transit service; a car pool program; and traffic flow improvements such as signal synchronization.

Three of the four strategies were implemented, and the auto inspection/maintenance program is a recognized success, but transit service has been reduced by 40% since 1982, with proportionate declines in ridership.

Having leveled off in the late 1980's after auto inspection/maintenance was implemented, Anchorage carbon monoxide levels climbed again to a five year high of 155% over federal health standards in the winter of 1989. Anchorage is currently revising its air quality plan following an EPA order that the plan be revised to meet the carbon monoxide standard.

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Do you need further information?

Here are agencies and organizations which work to improve air quality in Anchorage:

Alaska Health Project: provides the statewide "INDOOR AIRLINE" answering questions about indoor air quality, also informs and advises on occupational and environmental health issues. 431 W. 7th Avenue, Suite 101, Anchorage, AK 99501, phone 276-2864.

American Lung Association of Alaska: a voluntary non-profit health promotion organization working for clean air and against lung diseases, active against smoking. 605 Barrow Street, Anchorage, AK 99501, phone 276-5864.

Anchorage Clean Air Coalition: a citizen's group advocating for air quality sponsored by the American Lung Association of Alaska. 605 Barrow Street, Anchorage, AK 99501, phone 276-5864.

Anchorage Ridesharing, Municipality of Anchorage: Provides free carpool matching service for commuters from Anchorage and the Matanuska Susitna Valley. P.O. Box 196650, Anchorage, AK 99519-6650, phone 562-7665.

Municipality of Anchorage, Air Pollution Control Agency: monitors air for carbon monoxide and particulate levels, issues permits for local sources. P.O. Box 19-6650, Anchorage, AK 99519-6650, phone 343-4200.

State of Alaska, Department of Environmental Conservation: inspects permitted facilities, enforces state regulations, coordinates Anchorage and Fairbanks auto inspection maintenance programs, develops plans and procedures to reduce air pollution. 3601 C Street, Suite 1350, Anchorage, AK 99503, phone 563-6529.

U.S. Environmental Protection Agency: administers federal Clean Air Act provisions in Alaska, supervises air quality contracts of state and municipal governments. 701 C Street, Anchorage, AK 99501, phone 276-5083.

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Produced by the Anchorage Clean Air Coalition, 1990.

Written by Cheryl Richardson, designed by Margye Ann Gibson, Shooting Star Artworks, with funding from the Alaska Conservation Foundation. Printed with assistance of Alyeska Pipeline Service Company and the State of Alaska Department of Environmental Conservation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 21 1991

MAY 28 1991
AIR & RADIATION BRANCH
OFFICE OF AIR AND RADIATION

SUBJECT: Guidance to States on Authority Necessary to Implement the Operating Permits Program in Title V of the Clean Air Act Amendments of 1990

FROM: William G. Rosenberg, Assistant Administrator for Air and Radiation

TO: Regional Administrators, Regions I - X

Attached is guidance EPA has prepared to help states determine the authority they must have to implement the new operating permit program mandated by Title V of the Clean Air Act Amendments of 1990. On April 23, 1991, EPA signed the proposal of its regulations specifying the details of an approvable Title V operating permit program. 56 Fed. Reg. 21712 (May 5, 1991). The attached guidance is designed to give the states a briefer overview of the Title V program requirements, and to serve as an initial "checklist" to focus states in their review of existing permitting authority. States should use this guidance in conjunction with EPA's proposal, and, ultimately, the final operating permit regulations due in November 1991.

Please circulate this guidance to your states and program offices. If you or your staffs have any questions concerning the guidance, please call Michael Trutna at FTS 629-5345 or (919) 541-5345 or Timothy Williamson at FTS 475-7499 or (202) 475-7499.

Attachment

cc: Air Division Directors, Regions I - X
Regional Counsels, Regions I - X
E. Donald Elliott, General Counsel
Raymond L. Ludwiszewski, Assistant Administrator, Office of Enforcement
STAPPA/ALAPCO
National Governors Association
National Association of State Legislatures

AUTHORITY NECESSARY TO IMPLEMENT THE OPERATING PERMITS PROGRAM IN TITLE V OF THE CLEAN AIR ACT AMENDMENTS OF 1990

The operating permits program in title V of the Clean Air Act Amendments of 1990 poses a major challenge to State and local permitting authorities. By November 15, 1993, each State must submit to EPA for approval an operating permit program that meets the requirements of title V and of EPA's implementing regulations. EPA signed the proposal of those regulations on April 23, 1991, and must finalize the regulations by November 15, 1991. To accommodate States wishing to submit an approvable program as soon as possible, EPA is providing the following guidance to the States concerning the elements of a permitting program the States must have authority to implement.

Where the provisions of title V are unclear, the following guidance cannot necessarily predict how EPA will interpret the statute in its final regulations, and this guidance will take no position on potentially vague provisions. Moreover, this guidance in no way binds or constrains EPA in its subsequent rulemaking actions to implement title V. This guidance will present EPA's current understanding of the main requirements of title V for which the States must provide authority in support of their operating permit programs. For a complete discussion of EPA's proposal concerning the state's obligations, please refer to EPA's proposed regulation signed April 23, 1991, 56 Fed. Reg. 21712 (May 5, 1991). Nothing in this guidance supercedes or restricts that proposal.

This guidance lists the elements of a state program required in title V. It is not meant to dictate to a state or permitting authority how the state must authorize each element as a matter of state law. Some states may have the flexibility to implement many of these elements with administrative regulations without changing their applicable statutory authority; other states may need substantially revised statutory authority. In any case, the Governor must submit a legal opinion from the attorney general, attorney for those state air pollution control agencies with independent legal counsel, or the chief legal officer of an interstate compact, stating that the laws of the state, locality, or compact provide adequate authority to carry out the program. Sec. 502(d)(1).

A. Program Coverage

Under section 502(a), fully approvable permitting programs must have authority to cover the following sources.

1. Acid Rain: Affected sources under the acid deposition provisions of Title IV;

2. Major sources: Defined as a stationary source or group

of stationary sources that are any of the following (see sec. 501(2)):

a. For air toxics sources under sec. 112, sources with the potential to emit 10 tons per year ("TPY") of any hazardous air pollutant or 25 TPY of any combination of hazardous air pollutants (see sec. 112(a)(1));

b. For all major stationary sources as defined in section 302 of the Act, which are sources with the potential to emit 100 TPY of any pollutant (see sec. 302(j)); and

c. For sources subject to the nonattainment area provisions of Title I, part D, sources in the following type of nonattainment area with the potential to emit the following amount of pollutants:

Ozone (VOC and NOx) (see secs. 182(c)-(e) and 184(b)(2))

	TPY
Serious	50
Severe	25
Extreme	10
Transport (for VOC)	50

Carbon Monoxide (see sec. 187(c)(1))

Serious (due to stationary sources)	50

PM-10 (see sec. 189(b)(3))

Serious	70

3. NESHAP: Any other source, including an area source, subject to an hazardous air pollutant standard under sec. 112;

4. NSPS: Any source subject to new source performance standards under sec. 111;

5. PSD/NSR: Any source required to have a preconstruction review permit pursuant to the requirements of the prevention of significant deterioration program under Title I, part C or the nonattainment area new source review program under Title I, part D; and

6. Any other stationary source in a category EPA

designates in whole or in part by regulation, after notice and comment.

EPA has proposed that states may defer all sources, except major sources and affected sources under the acid rain program, from the Title V program for a period not to exceed five years after approval of the operating permit program in the state.

B. Permit Program Content

All approvable programs must have authority for each of the following provisions.

1. Applications and Completeness: Requirements for permit applications, including standard applications forms and criteria for determining the completeness of applications (sec. 502(b)(1)).

2. Monitoring: Monitoring and reporting requirements (sec. 502(b)(2)).

3. Fees: A permit fee system (sec. 502(b)(3); see discussion below for more detail).

4. Program Support: Provisions for adequate personnel and funding to administer the program (sec. 502(b)(4)).

5. Permit Issuance: Authority to issue permits and assure that each permitted source complies with applicable requirements under the Act (sec. 502(b)(5)(A)). Note that sources must be permitted whether or not they are in compliance with the applicable requirements of the Act or state law.

6. Reopening Permits: Authority to terminate, modify, or revoke and reissue permits "for cause," which is not further defined (sec. 502(b)(5)(D)), and a requirement to reopen permits in certain circumstances (see discussion below for more detail on permit reopening).

7. Enforcement: Authority to enforce permits, permit fees, and the requirement to obtain a permit, including:

   a. Civil penalty authority in a maximum amount of not less than $10,000 per day; and

   b. "appropriate criminal penalties"

   Sec. 502(b)(5)(E).

8. EPA Veto: Authority to assure that no permit will issue if EPA timely objects to its issuance (sec. 502(b)(5)(F)).

9. Public Participation: Procedures for processing applications and public notice, including offering an opportunity for public comment, a hearing on applications (sec. 502(b)(6); see also the discussion on the permit issuance process, below).

10. Judicial Review: Opportunity for the applicant or anyone who participated in the public comment process on a permit to obtain judicial review in state court of the permit action (Sec. 502(b)(6)).

11. Suits for Delay: Authority and procedures to provide that the permitting authority's failure to act on a permit or renewal application within the deadlines specified in the Act (see sec. 503 and the deadlines for permitting under acid deposition provisions in Title IV) shall be treated as a final permit action solely to allow judicial review by the applicant or anyone who participated in the public comment process to compel action on the application (sec. 502(b)(7)). States with provisions requiring a permit based on the application to issue "by default" as a result of the permitting authority's failure to act on the permit application must determine whether their procedures comply with all the requirements of title V, including public participation, permit review, and permit content. "Default" issuance is impermissible under title V.

12. Public Access to Information: Authority and procedures to make available to the public any permit application, compliance plan, permit, emissions or monitoring report, and compliance report or certification, subject to the confidentiality provisions of sec. 114(c) of the Act (sec. 502(b)(8)).

13. Access to Permit: The contents of the permit itself are not entitled to confidentiality protection (sec. 503(e)).

14. Operational Flexibility: Provisions to allow operational flexibility at the permitted facility (sec. 502(b)(10); see discussion below on operational flexibility).

C. Required Permit Provisions

Within each program, each permit must contain certain provisions, as follows:

1. Permit Term: A fixed term, not to exceed five years (sec. 502(b)(5)(B)). Permits for acid rain sources must have terms of five years, no more and no less (sec. 408(a)). Permits for solid waste incineration units shall have a term of up to 12 years, and shall be reviewed every 5 years after issuance. (sec. 129(e))

2. Applicable Requirements: Limits and conditions to assure compliance with all applicable requirements under the Act, including requirements of the applicable implementation plan and the sulfur dioxide allowance system under the acid rain program (sec. 504(a) and 408(a) and 408(d)). Note that the applicable implementation plan includes any applicable federal implementation plan.

3. Schedule of Compliance: A schedule of compliance, which is defined as a schedule of remedial measures, including an enforceable sequence of actions or operations, leading to compliance with applicable requirements under the Act (sec. 504(a) and 501(3)). EPA has proposed to limit this requirement to permits for sources violating an applicable requirement under the Act.

4. Compliance Determination: Inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions, consistent with any monitoring and certification regulations EPA is authorized to promulgate under sections 504(b) and 114(a)(3) (sec. 504(c)).

D. Permit Fees

Any fee which title V requires a permitting authority to collect must be used solely to support the permit program. Sec. 502(b)(3)(C)(iii). The permit program must collect adequate permit fees to meet one of the following tests.

1. Program Support

An approvable permit program must require permittees to pay an annual fee (or equivalent over some other period) sufficient to cover all "reasonable (direct and indirect) costs" required to develop and administer the permit program. Sec. 502(b)(3)(A).

These fees must cover the costs of the following:

a. Reviewing and acting upon any application;

b. Implementing and enforcing the permit, including any permit issued before enactment of the Amendments, but not any court costs or other costs associated with an enforcement action;

c. Emissions and ambient monitoring;

d. Preparing generally applicable regulations or guidance;

e. Modeling, analyses, and demonstrations; and

f. Preparing inventories and tracking emissions.

Sec. 502(b)(3)(A)(i)-(vi). The fees should be sufficient to cover not only the salaries for the state and local personnel responsible for carrying out the activities listed above, but other indirect costs such as training, equipment, data management systems, and facilities.

2. Cost per Ton

The program must also collect an amount from all sources equal to at least $25 per ton of each regulated pollutant (not including carbon monoxide), unless the state can demonstrate that a lesser amount will support the direct and indirect costs of the program. Sec. 502(b)(3)(B)(i), (ii), and (iv).

The state is not required to count emissions of any pollutant from any one source in excess of 4,000 tons per year. Sec. 502(b)(3)(B)(iii).

This amount is to be increased each year according the Consumer Price Index. Sec. 502(b)(3)(B)(v).

E. Application and Permitting Process

An approvable program must provide for an application and permitting process containing the following provisions.

1. Application Submission and Due Date

Covered sources must submit an application within twelve months after the date EPA approves or promulgates a program applicable to that source. The permitting authority may designate an earlier date. Sec. 504(c).

The application must include a compliance plan as necessary and be signed by a responsible official, who must certify the accuracy of the information submitted. Sec. 503(c).

2. State Action on Initial Applications

For the initial round of permit applications, the permitting authority must establish a phased schedule for acting on permit applications submitted within the first full year after program approval. This schedule must assure that the permitting authority will act on at least one-third of the permits each year over a period not to exceed three years after approval or promulgation of the program. Sec. 503(c).

3. State Action on Subsequent Applications

After acting on the initial applications, the permitting authority must act on a completed application and issue or deny a permit within 18 months after receiving the complete application. Sec. 503(c).

4. Priority for New Construction Permits

The permitting authority is required to have reasonable procedures to grant priority to acting on permits for new construction or modifications. Sec. 503(c).

5. Neighboring State Review of Permits

The permitting authority is required to notify all states whose air quality may be affected and that are contiguous to the state permitting the facility of each permit application or proposed permit submitted to EPA for review. See next paragraph for EPA review. The authority must also notify each state within 50 miles of the applicant source. Sec. 505(a)(2).

The permitting authority must give all such states an opportunity to submit written recommendations for the permit. If the authority refuses to accept those recommendations, it must provide written notice of its reasons to the state that submitted the recommendation and EPA. Sec. 505(a)(2).

6. EPA Review and State Response

The permitting authority must submit to EPA a copy of the following:

a. The application for any permit, renewal, or modification, including the compliance plan as necessary, or any portion EPA determines it needs to review the application and permit effectively; and

b. Each permit proposed to be issued and issued as a final permit.

Sec. 505(a)(1).

If EPA objects within 45 days after receiving either the proposed permit or the notice that the permitting authority has refused to adopt a neighboring state's recommendations for the permit, the permitting authority must respond in writing. Sec. 505(b)(1).

The permitting authority may not issue the permit if EPA objects, unless it revises the permit to meet EPA's objections. If the authority has already issued the permit, EPA must modify, terminate, or revoke the permit, and the permitting authority must reissue it to meet EPA's objection. Sec. 505(b)(3). The permitting authority has 90 days after EPA's objection to revise the permit. If the permitting authority fails to do so, EPA must issue or deny the permit. Sec. 505(c).

7. Permit Reopening

a. Automatic Reopening

Any approvable program must require that the permitting authority will revise all permits for major sources with terms of three or more years to incorporate applicable requirements under the Act that are promulgated after issuance of the permit. EPA proposes to interpret this term as the remaining term in a permit with an initial term greater than three years. Such revisions must be made using the notice and comment procedures for permit issuance, and must be made within 18 months after the promulgation of the new requirement. No revision is required if the effective date of the requirement is after the expiration of the permit term. Sec. 502(b)(9).

b. Reopening for Cause

Any approvable program must require that the permitting authority may terminate, modify, or revoke permits for cause. Sec. 502(b)(5)(D).

8. Operational Flexibility

An approvable program must provide for changes within a permitted facility without requiring a permit revision. The changes may not be modifications under Title I of the Act and they may not exceed the total emissions or emission rates allowable under the permit. The facility must provide EPA and the permitting authority with written notification at least 7 days before the change, or a shorter time for emergencies. Sec. 502(b)(10).

E. Additional Elements of an Approvable Program

The following provisions are not mandatory for any approvable program, but are opportunities for flexibility in an approvable program, which a state may wish to accommodate in its program.

1. Single Permit: A permitting authority may issue one permit for a facility with multiple sources. Sec 502(c).

2. Temporary Sources: The authority may also issue one permit authorizing emissions from similar operations at multiple temporary locations. The permit must assure that the emissions from each location will comply with the Act, and require notice from the source owner or operator before each change in location. Sec. 504(e).

3. General Permits: The authority may, after notice and opportunity for a public hearing, issue a general permit covering numerous similar sources. General permits do not necessarily relieve source of the obligation to file permit applications. Sec. 504(d).

4. Permit Shield: If a source complies with its permit, the permit may provide that the source is deemed to comply with other applicable provisions of the Act if: 1. the permit includes the applicable requirements of the Act; or 2. the permitting authority made an explicit determination referred to in the permit that other provisions are not applicable to the source. EPA may limit the scope of this permit compliance protection by rule. Sec. 504(f).

5. Application Protection: A source which files a timely and complete application for a permit or a renewal will not be liable under title V for failure to have a permit if the permitting authority delays in issuing or reissuing the permit, provided the delay in issuing the permit was not due to the applicant's failure to submit required or requested information. Sec. 503(d). States may choose to adopt similar application protection as a matter of state law.

F. Miscellaneous Provisions

1. Saving Clause

Permitting authorities are specifically authorized to

establish "additional permitting requirements not inconsistent with the Act." Sec. 506(a). There is a statement of the Conference Committee attempting to clarify this provision, explaining that a state may establish more stringent permitting requirements as long as they are not inconsistent with the national permitting requirements of the Act.

2. Acid Rain Permits

The permitting provisions of Title V shall apply to permits implementing the acid deposition provisions of Title IV, except as modified by Title IV. Sec. 506(b).

3. Hazardous Air Pollutant Permits

a. Permitting authorities will be required to determine maximum achievable control technology (MACT) and to incorporate it into a new source permit. Sec. 112(g).

b. Permitting authorities must also be able to determine MACT and impose it in a permit if EPA fails to promulgate a MACT standard. Sec 112(j).

4. Small Business Assistance

Section 507 of the Act requires the states to submit a Small Business Stationary Source Technical and Environmental Compliance Assistance Program as a state implementation plan revision within two years after enactment. This small business program is not a required element of a Title V permit program. The small business program is required, however, to offer certain assistance to qualified small businesses in obtaining permits. Therefore, states may wish to coordinate the development of the two programs

Mr. BAUCUS. Mr. President, I will ask unanimous consent that cost estimates of the National Clean Air Coalition, and the National Clean Air Fund be included in the RECORD.

Mr. President, the National Clean Air Coalition and the National Clean Air Fund recently released a report evaluating the costs and economic effects of the conference agreements of the Clean Air Act amendments.

The bill's original cost estimates have been reduced as a result of the conference agreements. Using the administration's cost estimate as a baseline, the total cost of titles I, II, and III will be $7.5 billion rather than $11.9 billion in 1995, and total costs are reduced by $4.5 billion in 2005 from earlier estimates.

Mr. President, I ask unanimous consent that a copy of the draft report entitled "Clean Air Act Amendment Costs and Economic Effects: A Review of Published Studies" be printed in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

CLEAN AIR ACT AMENDMENT COSTS AND ECONOMIC EFFECTS: A REVIEW OF PUBLISHED STUDIES

(Prepared for National Clean Air Coalition, National Clean Air Fund, Washington, DC)

(Prepared by E.H. Pechan & Associates, Inc., Springfield, VA)

OCTOBER 1990.

EXECUTIVE SUMMARY

This report analyzes a set of industry-sponsored studies of the cost and employment impacts of proposed amendments to the Clean Air Act (CAA). The Administration's cost estimates, as provided by the Environmental Protection Agency (EPA), are also analyzed.

While there is considerable uncertainty about the actual costs of implementing either Senate or House versions of the legislation, the industry-sponsored estimates are so high as to be implausible. The EPA cost estimates are within the range of likely implementation although they incorporate a number of assumptions which make them higher than a true "best estimates."

In many cases, discrepancies between industry-sponsored and EPA studies can be attributed to differences in assumptions. For example, both industry-sponsored and EPA studies assume that no new pollution-control technologies will be developed as a result of the legislation. This assumption results in higher cost estimates than are likely to occur in practice since environmental legislation has typically had a "technology-forcing" effect, inspiring cost-effective pollution-control innovations never anticipated or quantified prior to legislative enactment. The industry-sponsored studies further assumes that a significant share of U.S. manufacturing capacity will close as a result of the proposed amendments. Similar claims were made by industry prior to the passage of other environmental legislation, but passage caused no major impact on the U.S. economy.

The House and Senate versions of the legislation assign considerable discretion to the EPA Administrator. The industry studies essentially assume that the EPA Administrator will take the most extreme interpretations in terms of increasing costs. At the same time, these studies assume that no additional regulatory effort will occur on the part of EAP to improve air quality in the absence of new legislation. These two assumptions are inconsistent and do not reflect the last 20 years of administration of the Act.

EPA has not been aggressive in using its regulatory authority and has been slow to implement new regulations. The 1977 amendments and numerous court cases have forced EPA to more assertively interpret existing regulations. Many CAA amendment provisions are designed to initiate regulatory action in areas already addressed under current legislative authority. It is unlikely that either Senate or House amendments will change the overall approach to environmental regulation which has developed over the past 20 years.

EPA estimates the original Administration bill will cost $19.5 billion. Table ES-1 summarizes EPA's estimates of the Senate and House bill costs, as well as the industry-sponsored "upper bound" estimate which includes the most stringent provisions from both Senate and House bills.[1] This table shows that slightly less than half of the EPA-estimated costs will be incurred by 1995 with the remainder of costs incurred by 2005. The industry-sponsored upper bound is almost two times the EPA estimate for the total cost of both Senate and House provisions added together.

The industry-sponsored estimates suffer from a number of major flaws:

In their analysis of the air toxics provision, the industry-sponsored studies exclude pollution-control technologies currently in place and, in essence, require that they be purchased again.

The industry-sponsored studies do not adjust their estimates to account for controls already required under existing legislation and regulations.

The industry-sponsored studies assume that the EPA Administrator will make every discretionary decision in a fashion adverse to industry interests regardless of cost. Such an approach is not consistent with the 20-year history of Federal clean air legislation.

Table ES-2 compares EPA-estimated costs with total Gross National Product (GNP) and with expenditures for other items on a per-household or per-capita basis. Even in 2005, the cost of the proposed legislation will be less per household than current average expenditures for tobacco products and alcoholic beverages. Table ES-2 also shows that the overall economic impact of the proposed legislation, spread over ten years, is

[1] Separate industry sponsored estimates for the Senate and House bills were not available.

less than the impact of the 30-cent-per-gallon increase in gasoline prices which has occurred over the past two months.

Industry-sponsored estimates of job impacts range from 20,000 jobs "almost surely lost" to over 2,000,000 jobs "at risk." Since the industry-sponsored jobs study relied heavily upon the industry-sponsored cost estimates, the jobs study shares the same weaknesses. The jobs analysis excludes potential employment gains likely to result from new legislation. It also ignores any possibility of adaptive behavior by sources affected by the legislation, such as product and/or raw material substitution. In addition, the jobs "at risk" figures represent total employment at all facilities which might be affected. The actual employment likely to be affected, if any, will be a small percentage of this figure. The "at risk" figures do not contribute any factual information to the public policy debate on this important issue.

TABLE ES-1.—CLEAN AIR ACT AMENDMENTS COST SUMMARY

[Billions of dollars per year]

	Senate bill	House bill	Industry "upper bound" [4]
Year—1995 [1]			
Nonattainment [2]	7.0	6.8	13.4
Acid Rain	0.8	0.8	5.2
Air toxics	1.1	1.1	18.2
Oxygenated fuels and reformulated gasoline	2.9	3.2	16.4
Total	11.8	11.9	53.2
Year—2005 [3]			
Nonattainment [2]	14.7	13.0	47.7
Acid Rain	3.9	4.3	8.5
Air toxics	6.7	7.5	34.7
Other	0.1	0.2	N/A
Total	25.4	25.4	90.9

[1] Clean Air Working Group study by Decisy Technical Services
[2] Industry "near term"
[3] Industry "long term"
[4] Reformulated gasoline and oxygenated fuels costs (oxy fuels only for Senate compromise) are included in nonattainment costs. EPA estimates Senate and House fuels provisions costs at $1.8 billion and $2.9 billion respectively in 2005.

TABLE ES-2.—ESTIMATED CAA AMENDMENT AND OTHER EXPENDITURES

Expenditure category	Year	Monthly cost/ household	Monthly cost/ capita	Percent of GNP
CAA amendments	1995	$10	$4	0.19
CAA amendments	2005	28	8	.37
Tobacco products	1990	35	13	.71
Alcoholic beverages	1990	51	20	1.04
Motion pictures	1990	25	10	.50
Other amendments	1990	43	20	.89
Gasoline price increase (August-October)	1990	21	11	.58

I. INTRODUCTION

A. Background

Over the last several years, the United States Congress has considered revisions to the Clean Air Act (CAA or the Act). The Act, originally passed in 1970, was last amended in 1977. These newest revisions are designed to address deficiencies in existing CAA programs and attempt to solve air pollution problems which have arisen since the changes made to the CAA in 1977. Currently, separate versions of the legislation have been passed by the Senate and House. Both versions incorporate provisions which are somewhat different from those originally proposed by the Bush Administration. These three versions—Senate, House, and Administration—are complex and make projections into the future. Studies by EPA and by industry have analyzed the costs, benefits, and other impacts of these amendments.

It is inherently difficult to predict the future. Most attempts are, of necessity, grounded in knowledge of the past. Regulatory programs such as the proposed CAA Amendments, however, are designed to create and encourage discontinuities with the past. For example, technology-forcing provisions can channel research into areas which would not be productive in the absence of regulatory action. Environmental legislation and regulations are required to *internalize* the costs and disbenefits of environmental degradation. Two centuries of industrialization and development under conditions of limited constraints on the use of air, water, and other public goods have taken a noticeable toll on the quality of the environment in the United States. The public has shown an increasing awareness of these issues and a willingness to pay to address them. The costs of environmental pollution related to public health and welfare are difficult to identify and quantify. It is appropriate, particularly in a wealthy society, that the public be protected from the unseen and unknown hazards which can result from exposure to certain air pollutants.

B. Purpose and scope

The purposes of this report is to examine the plausibility and supportability of cost and job impacts made in the analyses of House and Senate proposed CAA Amendments. This report also examines these cost and job impacts as they relate to the overall economy and identifies key issues in CAA design and implementation that have not been discussed in EPA and industry studies.

The industry-sponsored studies generally show much higher costs and greater impacts than studies conducted by the EPA. The reasons for these differences are discussed in this report. We also point out those aspects of EPA cost estimates which may lead to over- or underestimates of costs. This study does not attempt to produce a new comprehensive estimate of costs; results of existing studies can be used to indentify a range within which the actual costs likely lie.

II. CLEAN AIR ACT AMENDMENT COSTS

A. Overview

Table 1 outlines EPA estimates of the costs of the original Administration proposal, the version passed by the Senate, and the version passed by the House. Cost estimates range from $19.5 billion to $25.4 billion per year in 2005. Phase-in provisions of the legislation would result in lowered costs in earlier years.

Industry-sponsored cost estimates (performed under sponsorship of the Clean Air Working Group and the Business Roundtable) have been substantially higher than those estimated by EPA and other researchers. Table 2, for example, compares current EPA estimates with a March 1990 Clean Air Working Group study. Even at this point, industry-sponsored figures are higher than EPA's estimates.

Table 3 documents industry cost estimates of the Administration/Senate compromise (March 1990). Here the industry-sponsored figures skyrocket and diverge dramatically from EPA figures. The latest industry-sponsored estimate (July 1990) is an "upper bound" which combines the most stringent combination of Senate and House provisions. This estimate, also shown in Table 3, is $90.9 billion per year, almost *four times* the EPA estimate for either Senate or House versions and almost two times the sum of both!

The more recent industry studies (July and March) provide little detail on how some major cost figures were obtained. It appears that industry figures significantly exaggerate costs for the following major reasons:

All assumptions made in the industry analysis concerning legislative language and Administrative discretion favor higher cost assumptions. These assumptions fly in the face of twenty years of experience in the implementation of Federal clean air legislation.

In the analysis of air toxics provisions, no credits were given for controls already in place.

Extreme assumptions regarding Maximum Achievable Control Technology (MACT) requirements were made.

Costs of compliance with existing regulations were not subtracted from the totals ascribed to the CAA Amendments.

Several key quantitative factors which will influence the actual costs incurred in implementing the CAA Amendments are discussed below. Where possible, these factors have been quantified, although the complexity of some of the legislative provisions, the requirement to make significant assumptions regarding regulatory implementation, and the paucity of reliable data make it difficult to provide estimates with a high degree of confidence.

TABLE 1.—EPA CAA AMENDMENT COST ESTIMATES FOR 2005

[Billions of dollars per year]

Category	Administration	Senate	House
Air toxics	5.9	6.7	7.5
Nonattainment	9.5	14.7	13.4
Acid deposition	4.1	3.9	4.3
Other	0.0	0.1	0.2
Totals	19.5	25.4	25.4

TABLE 2.—COMPARISON OF EPA AND INDUSTRY-SPONSORED COST ESTIMATES FOR THE ADMINISTRATION BILL

[Billions of dollars per year]

Cost element	Titles	EPA	CAWG (3/90)
Acid rain	V	4.1	5.3
Nonattainment	I, II	10.0	9.6
Air toxics	III	4.7	7.1
Totals		18.8	22.0

TABLE 3.—CAA AMENDMENT COST ESTIMATES PREPARED FOR THE CLEAN AIR WORKING GROUP

[Billions of dollars per year]

	CAWG 3/90 estimates (residual risk level)			CAWG 7/90
	10,000	100,000	1,000,000	
Air toxics	14.0	16.3	22.3	34.7
Reformulated gasoline	(1)	(1)	(1)	16.4
Nonattainment	14.6	14.6	14.6	28.7
Motor vehicles	9.3	9.3	9.3	10.6
Acid deposition	6.4	6.4	6.4	8.5
Totals	44.3	46.6	52.6	90.9

[1] Included in nonattainment.

B. No amendment baseline

Even in the absence of revised CAA legislation, substantial controls will be required to meet and attain current standards. When considering the cost and other impacts of new legislation, it is necessary to estimate baseline impacts in the absence of new legislative authority. Industry studies have all failed to make these necessary corrections, and these corrections are highly significant for some areas in the bill, such as achievement of ambient ozone standards.

The Business Roundtable study fails to differentiate between costs associated with a CAA Amendment and those required to meet and attain the current National Ambient Air Quality Standards (NAAQS). Because CAA already requires the achievement of the ambient air quality standards, costs to meet these standards are properly assigned to the current law and not to the new bills. As an example, the industry estimated $12 billion required to bring the South Coast Air Basin into attainment with the ozone NAAQS is properly associated with the South Air Quality Management District plan.

On July 31, 1990, EPA proposed a Federal plan to clean the air in the Los Angeles area. EPA's court-mandated plan is designed to build on local and state efforts to reduce air pollutant emissions. As designed, the South Coast Federal Implementation Plan (FIP) "would generally guarantee a constant rate of basinwide reductions from 1996 through 2010 by an incremental rollback of 6 percent per year." Both House and Senate bills require no more than a 3 percent per year reduction in VOC (volatile organic compound) emissions during this time period. Thus, it is very unlikely that CAA Amendments would be more costly in Los Angeles than the probable regulatory path without a new law.

In general, EPA's method of estimating current CAA costs versus CAA Amendment costs probably overstates the latter. Current policy costs include already promulgated New Source Performance Standards, lowest achievable emission rate (LAER) controls applied to new sources expected to be greater than 100-ton-per-year emitters, and non-Control Technique Guidelines (CTG) reasonably achievable control technology (RACT) controls applied to existing sources in ozone nonattainment areas.

Although difficult to perform, it is more reasonable to measure the incremental costs of the CAA Amendments against a baseline that includes measures likely to be adopted were the law not to change. For instance, measures EPA will implement under other legislation include VOC air emission controls for hazardous waste treatment storage and disposal facilities and for municipal landfills. National measures to control the emissions from these two categories account for almost $2 billion of the $10 billion EPA has estimated for VOC control in 2005. Similarly, the second stage of fuel volatility control rules is being proposed by EPA, and Reid vapor pressure (RVP) II is estimated to cost $280 million in 2005. We believe that these rules will proceed whether or not the CAA is amended. Other similar arguments could be made to reduce the cost estimates provided for new CTGs and enhanced inspection and maintenance (I/M) programs. On its own, EPA will probably not propose as many new CTGs as indicated in the House and Senate bills; they will likely promulgate only half of the new CTGs called for in the bills.

Studies have shown that the I/M programs implemented in the late 1970s and early 1980s were not as effective as originally intended. Therefore, it has been suggested that enhancements to these programs are needed. Even without CAA Amendments, some nonattainment areas will make necessary adjustments to their I/M programs. (This is not to say that technology-forcing provisions are not needed; there has always been resistance to I/M in some areas.)

C. Comments on costs as stated by the administration

The Administration's cost estimates of House and Senate CAA Amendments (shown in Table 1) cover direct costs and assume the availability of only current technology. The information released most recently by the Administration compares House and Senate bill costs with the original Administration bill. (The Administration proposal is not currently under Congressional consideration. It is noteworthy, however, because its cost estimate—$19.5 billion—is lower than the cap the President has set for CAA Amendment costs.)

Ninety percent of the cost difference between the Administration proposal and the two bills are motor vehicle hardware or fuels costs, even assuming that the Phase II passenger car standards are never implemented. Fully 60 percent of the cost difference is estimated to result from higher fuel prices associated with reformulated gasoline or oxygenated fuels. Note that on Wednesday, October 3, 1990, the price of the November contract for crude oil increased $3.37 a barrel to $37.32. This one-day increase is equivalent to at least an 8-cent-per-gallon increase at the pump. This compares with the Administration estimate "that the reformulated gasoline and oxygenated fuel provisions in the House and Senate bills would . . . raise gasoline prices by at least 6 to 8 cents per gallon."

D. Limitations of existing cost analyses

1. The Role of Technology Innovation

The assumption that pollution control technology is static is not realistic when analyzing policies which are to become effective in the future. In the absence of regulatory requirements, pollution control technologies will only be developed for economic reasons, such as the recovery of solvents or by-products with substantial economic value. In most cases, however, pollution controls will only be installed when mandated. In such an environment, improvements in pollution control technology *performance* will only occur as a byproduct of efforts to improve *cost-effectiveness*.

Private research, development, and demonstration (RD&D) investments are generally only made for products which have an identified potential market. In the absence of regulation, there is essentially no demand for technology which achieves greater levels of pollution control than are required by law.

Unlike private industry, government-sponsored RD&D of pollution controls can be conducted without market demands. In this era of Federal, State, and local budget constraints, it is difficult to justify development of technologies with no specific applications.

The technology-forcing aspects of environmental standards have been, in general, highly effective in encouraging the development of either innovative control technology or material substitution and/or process change. In some cases, including the examples discussed below, technology forcing has led to reduced production costs and/or more efficient production methods, as well as pollution control benefits.

Technology Innovation in the auto industry

When reviewing cost estimates of new, unproven technologies, it is of interest to compare past estimates of automotive price increases due to pollution control with actual sticker price increases. Retrospective studies show that the ratio of estimated to actual sticker price increases (those attributable to pollution-control equipment) for 1973-1976 model year automobiles were as high as 2:1 for model years 1973-1974 and 2.3:1 for model years 1975 and 1976 (PHB, 1980). Generally, manufacturer cost estimates covered a wider range than those of EPA or other scientific organizations. This points out the fallacy of using upper-end industry estimates as the basis for decisionmaking, especially in an industry where technological advances have generally reduced costs over time and provided ancillary benefits.

In motor vehicle emission control, the prominent technology advance was the catalyst. Two basic catalyst types have been developed—oxidation (CO and HC control only) and three-way (CO, HC, and NO_x control). For three-way catalysts to operate effectively, fuel-air ratios must be controlled much more precisely than is needed for oxidation catalyst systems. As a result, three-way catalysts have stimulated the development of improved air-fuel management systems, such as advanced carburetors, throttle body fuel injection systems, and electronic controls.

The net result of the technology-forcing aspects of the Federal motor vehicle control programs has been both reduced emissions and improved fuel economy. These dual objectives would not have been achieved had Congress limited its regulations to proven currently-available technologies.

Figures 1 and 2 summarize the trends over the last 12 years in passenger car pollution-control technologies and fuel injection installation, respectively. Virtually all passenger cars and light trucks are now equipped with catalysts—mostly three-way systems. During the 1980s, fuel injection installations increased dramatically; they are now in over 98 percent of 1989 models (MVMA, 1990).

These technological advances have lowered per vehicle air pollutant emissions and have improved fuel economy. Figure 3 shows fleet fuel economy changes for passenger cars over the past 12 years (Heavenrich, 1989).

Charts are not printed in the RECORD.

An EPA report (Cheng, 1983) makes the following statement about the relationship between fuel economy and exhaust emissions control:

"The relationship between fuel economy and exhaust emissions does not exist in isolation, but rather is intertwined with many other vehicle characteristics. These associated characteristics include, but are not limited to: driveability, performance, cost, octane requirement, production lead time, and fuel economy/exhaust emission relationships would include quantification of the concurrent interactions with these other vehicle characteristics."

Unfortunately, no such studies are available. Suffice it to say, though, that technological advances have enabled per vehicle emissions to be lowered while simultaneously improving fuel economy. Because fuel economy has improved partially because the average vehicle weight has decreased in the last 12 years, comparisons of fleet average fuel economy between model years must correct for vehicle weight reductions. Correcting for vehicle weight reductions (i.e., had they not occurred), fuel economy has improved by more than 40 percent compared with precontrolled cars.

Achieving limitations on CFCs

Chlorofluorocarbons (CFCs) are regulated because of concern about their impact on stratospheric ozone. The potential for introducing substitutes for CFCs to reduce the risks of ozone depletion and global warming has been known for many years. For example, the DuPont Company stated in 1980 that high-priced substitutes could be created (EPA, 1989). Without regulation, however, there was no market for these alternative chemicals, and they were not produced.

In September 1987 a historic international agreement, the Montreal Protocol on Substances That Deplete the Ozone Layer, was

signed to provide a framework for global reductions in CFC emissions. The ratification of the protocol has prompted several CFC-producing companies to announce a total phase-out of CFC production by the end of the century. To meet this goal while minimizing the cost and time of studies, several CFC producers have formed consortia to share costs and expedite the testing process. Also, in pilot plants around the world, chemists and engineers are aggressively working to develop critical data that will allow them to design and build world-scale commercial facilities in record time to meet the needs of society as CFCs are phased out (Manzer, 1990).

DuPont has projected that a 30 percent reduction in the market for CFCs will occur through improved conservation measures. Another 30 percent will switch to less expensive, not in-kind replacements. The remaining 40 percent of the projected market, however, will still require fluorocarbon-based products (Manzer, 1990).

Currently, the most promising alternatives to replace CFCs are hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). DuPont has mixed a newly developed compound called HCFC-124 along with two already available chemicals, HCFC-22 and HFC-152a. These mixtures are designed to replace the refrigerant CFC-12 while reducing the risk to the environment. The new compound has an ozone depletion potential that is only 3 percent of CFC-12. Also, these blends may not require modification of existing equipment unlike other substitutes (Science News, February 11, 1989). Another alternative, a blend of HCFC-123 and HCFC-141b called Genesolv 2010 by Asahi Glass, has been identified as the first potential substitute for the industrial degreaser, CFC-113. It has been found by the EPA to perform as well or better than CFC-113 while lessening the threat to the environment (Science News, February 3, 1990).

Organic emission controls

A number of examples can be provided of how technology forcing regulations and standards have improved the state-of-the-art of pollution control and have led to reduced control costs. Costs of incineration have been reduced in certain applications as the ability to recover heat input has improved. In some instances, 95 percent of heat input can be recovered. The result is near-zero operating costs, and operating costs are a large portion of the cost of incineration.

Similarly, through RACT and NSPS regulations, water-based inks and coatings have been developed that have higher solids and lower VOC contents than the materials they replaced. These water-based inks and coatings are much less expensive than add-on control equipment that might be installed to achieve the same control levels.

Improvements in transfer efficiencies in painting have moved from 30 percent to 60 percent in some industries. These improvements result in less material being available for evaporation. Such improvements were not possible 10 to 15 years ago before implementation of technology-forcing regulations.

What follows are case study examples of VOC control measure that have proven to be both very effective and less expensive than the continued use of VOC containing materials.

The boat building industry was faced with the need to reduce both VOC and styrene emissions. The source of the styrene was as a polymerizing agent in both the resin (the main body of the boat) and in the gelcoat (the outer skin of the boat). Working in conjunction with chemical companies, recent advancements have lead to a resin which contains 50 percent less styrene than the industry standard, and a styrene free gelcoat. In addition to reducing air emissions, the new materials are stronger, provide a better finish, and are cheaper. In fact, one company who is testing these new materials feels that their use will reduce the cost of their specialty boats by 35 percent while producing a better quality product.

A medium sized label printer for the tea industry, and others, was faced with the choice of complying with regulations by means of add-on controls or by using water based inks. After significant initial problems, the ability to produce low VOC content ink has been established, and for the printer offers the advantage of quality products with no cost increase. An additional benefit was the reduction of workplace odors. This change was so noticeable that the printer's employees have stated that they greatly prefer the water based low VOC inks and will not return to using high VOC inks, regardless of circumstances.

An audit of a major military base indicated that there had been significant reductions in the use of VOC cleaning materials from previous audits. The reduction was attributable to the substitution of water based cleaning materials for solvent based materials The base maintenance supervisor indicated that the water based material could perform almost all of the jobs of the solvent cleaners at a lower cost with no worry about worker exposure to fumes.

Simple Green, an all-purpose automotive and household cleanser, is a non-toxic, biodegadeable product that can be used as a substitute for high VOC content degreasers. This cleanser was originally designed by Sunshine Makers, Inc. as a product to be used in the food market as a safe alternative to tri-sodium phosphate in removing tannic acid. This product is currently marketed primarily to households, constituting 80 percent of sales, as a remover of ink, oil, blood, and other stains from any washable surface. The industrial sector makes up the other 20 percent of sales, using Simple Green mainly as a degreaser.

Riker Laboratories in Northridge, California, has substituted a water-based solvent for an organic-based solvent when coating their medicine tables. The new solvent, combined with the installation of different spray equipment, has saved the company $15,000 per year in solvent costs and has prevented an estimated 24 tons of air pollution per year (Institute, 1986).

The Hamilton Beach Division of Scovill, Inc., in Clinton, North Carolina, now recycles its trichloroethane solvent and saves 50 percent on solvent costs. The company has also experimented with substituting water-based cleaners for organic-solvent-based materials, thereby reducing use of organic solvents by 30 percent (Institute, 1986).

2. Estimating Acid Rain Control Costs

All of the major acid rain control studies cited in the CAA debate have assumed that reductions will be achieved predominantly through implementation of conventional control methods, switching to cleaner fuels, and installation of flue gas control equipment. Significant use of alternative technologies could result in reductions of anticipated costs as well as ancillary environmental benefits in areas such as emissions of greenhouse gases. For example, installation of combined-cycle units using high-efficiency turbines can result in substantially improved heat rates when compared with current technology steam generation units.

Pechan has recently analyzed both House and Senate acid rain provisions. These analyses have used the AIRCOST/PC model and incorporate cases with and without interphase allowance banking. For cases in which no banking is included, Phase I costs are lower and overall costs are somewhat higher. The no-banking Phase I (1995-1999) annual costs range from $0.9 to $1.1 billion, and Phase II (2000-2009) annual costs range from $3.1 to $3.4 billion. If banking is assumed to be allowed, Phase I costs range from $1.1 to $1.5 billion and Phase II from $2.8 to $2.9 billion. These costs are based on assuming only traditional control methods—switching to low-sulfur coal and use of flue gas desulfurization. The cost of nitrogen oxide controls—approximately $0.3 billion—must also be added. Thus, the latest maximum cost estimate is $3.7 billion.

In January 1990, industry-sponsored studies reported a figure of $5.3 billion; in July 1990, the figure was $8.5 billion. The reason for the increase appears to be the assumption that the House bill NO_x provisions would cost $2.5 billion. This figure is based on the supposition that the EPA Administrator would require additional technology over and above the low NO_x burners specified in the bill and that such technology would be substantially more expensive than the technology specifically identified in the bill. It is not clear that these provisions would lead to more stringent reductions than those obtainable from low NO_x burners since EPA has not taken any action to revise the current utility NO_x NSPS emission limit despite evidence that steam electric plants in other countries are achieving significantly lower emission rates.

3. Costs of VOC Emission Controls

Reformulated gasoline costs

Pechan has estimated the costs of the reformulated gasoline programs in the House and Senate bills in the year 2005 to range between $0.5 billion and $1.7 billion. House bill costs in this projection year are expected to be higher than those in the Senate bill, because the quantities of reformulated gasoline sales and the cost per gallon of producing the fuel described in the House bill are expected to be higher. For example, the incremental cost of the Senate bill mandated reformulated gasoline is estimated at 6.2 cents per gallon, while the House bill cost in 2005 is 8.6 cents per gallon.

The July 1990 analysis prepared for the CAWG estimates House bill reformulated gasoline costs to be $16.4 billion, a number 10 times higher than our best estimate. The CAWG value assumes double the per-gallon cost of reformulated gasoline. More importantly, the value is based on the assumption that all nonattainment cities decide to use reformulated gasoline. Arguments can be made about the cost of reformulated gasoline, but the latter assumption is clearly misleading. Pechan's analyses have shown that of the 81 ozone nonattainment areas modeled, less than 20 are likely to continue to be nonattainment areas by 1995 under the provisions of the proposed House and Senate bills. Further, no reformulated gasoline is needed in 1995 to meet programs requirements.

Costs of Tier II controls

The Business Roundtable and CAWG cost estimates of the CAA Amendments include the costs of the Phase II or Tier II motor vehicle emission standards. Their cost estimates also assume the highest available estimate of the per-vehicle costs for meeting those standards. It is important to examine each of these assumptions in more detail in order to produce a more likely cost of the Tier II emission standards.

On the first point, EPA analysts indicate that Tier II standards will not likely be adopted. The House bill indicates that EPA,

with participation by the Office of Technology Assessment (OTA), will study whether additional reductions in emission from passenger cars and LDTs should be required. The Senate bill has a trigger that ties Tier II standard adoption to the number of ozone nonattainment areas around the year 2000.

When EPA was given similar discretion in the 1977 CAA Amendments, more stringent motor vehicle emission standards were not adopted. An appropriate example is Sec. 202 of P.L. 95-95 which charged EPA with conducting "a study of the public health implications of attaining an emission standards on oxides of nitrogen from light duty vehicles of 0.4 gram per mile, the cost and technological capability of attaining such standard, and the need for such a standard to protect public health or welfare. The Administrator shall submit a report of such study to the Congress, together with recommendations not later than July 1, 1980." The closest EPA ever came to satisfying this requirement was a January 1981 Regulatory Analysis for proposed emission regulations for light-duty trucks and heavy duty engines. No specific mention of the 0.4 g/mile standard was made in this report, however.

Even if the Tier II emission standards are implemented, there is a wide range of possible costs of these limits. The main disagreement among researchers now is if catalysts are durable enough to last 100,000 miles. Catalyst manufacturers insist that they are. If so, the cost of the Tier II standards will be approximately $125 per vehicle, which adds $1.8 billion to the motor vehicle standard cost of the House and Senate bills in 2005; considerably lower than the CAWG/BRT estimate of $10.6 billion for Tier II tailpipe standards.

The Manufacturer's of Emission Controls Association (MECA) has testified that improve catalyst durability is a major focus of auto emissions control research, and that great progress has been made. MECA has said that "We belive that (1) improvements in catalyst design, either in existence and under development, (2) utilization of multipoint fuel injection and other engine improvements, and (3) a declining presence of trace lead in unleaded gasoline make the prospects for developing durable systems excellent."

The California Air Resources Board (CARB) estimates that the cost of compliance with Tier II light-duty vehicle standards is $125 compared with a car meeting the Tier I standards (CARB, 1989). CARB estimates that in order to meet a 0.2 gram per mile NO_x emission standard, all light duty vehicles (LDVs) will need improved catalysts which use more catalytic material. A small percentge (20 percent) of LDVs will add exhaust gas recirculation (EGR). The meet a 0.125 gram per mile HC standard, CARB estimates that 75 percent of LDVs will use improved catalysts which feature an electronically heated section that effective controls cold start HC and CO emissions. The 25 percent of cars not requiring an electrically heated catalyst will use improved fuel vaporizers or an improved start catalyst.

Some cars already meet the Tier II standards today in certification, and durability test results are promising. California has already noted one engine family that met the Tier II hydrocarbon standard at 40,000 miles—in use on California roads. In 1970, not a single car met or came anywhere close to the standards adopted by Congress for 1975, nor was the technology for doing so apparent. At that time, modern electronic control systems were not even envisioned by technology forecasters.

The CARB analysis notes that Tier II standards will not begin for 12 to 14 years. During this period, improvement in engines, electronics, and emission controls will occur, which will facilitate compliance with more stringent standards. As an example, improved vehicle electronics will allow more precise control of fuel injection and EGR.

Reducing emissions of toxic pollutants

The air toxics section of the latest industry-sponsored study was prepared by Denny Technical Services. It provides the result of the studies by Delta Management for the American Petroleum Institute (API), by Denny for the Chemical Manufacturers Association (CMA), and by Energy and Environmental Analysis, Inc. (EEA) for EPA. All comments are based on the information presented in the Denny report, since we did not have access to the original reports.

Both the API and CMA studies contain methodology drawbacks which appear to overstate the costs of compliance with the proposed Amendments. The more significant points are:

(1) Neither study accounts for the significant time period during which specific control requirements will be developed and resultant costs incurred. Costs associated with air toxic emission standards will be incurred over at least the next 10 years, and possibly over a much longer time period under certain provisions of the Senate Bill. Extending the period of time over which the costs are incurred will reduce the impact on industry.

Time reduces industry impacts for a number of reasons. Affected industries will have an opportunity to explore options available to them; such options typically include factor or product substitution (e.g., use of water-based solvents), other technological changes, and installation of control equipment. To the extent that installation of control equipment appears to be the most appropriate solution, vendors are likely to develop and market equipment to meet identified needs.

(2) There is no indication in the industry-sponsored studies that currently achieved control levels have been taken into account. In essence, this has the effect of assuming industry will have to reacquire all current control technology which is in place, a substantial amount [1]. This has the effect of assuming that EPA under MACT requirements would require a source with a baghouse to install an additional baghouse, or a VOC source with an incinerator to add a second incinerator. Obviously, this grossly overstates costs. In many cases, existing control equipment can be upgraded at a much more modest cost. No nationwide data base exists, however, which can support adequate analysis of this factor. Similarly, in the API study, it appears that no consideration was given to the fact that refineries in nonattainment areas (a majority of capacity) have already installed much of the equipment which the study assumes will be required by MACT.

(3) The equipment life in the API study is based on the assumption that the operating permit section of the new amendments will require installation of new controls every 5 years. This is inconsistent with most interpretations of this section and has the effect of significantly overstating the annual cost of the controls.

(4) Both studies appear to assume that each and every source which meets the emission criteria for toxics will be controlled to at least the MACT level. In fact, although it is unclear how many source types will be controlled, it is very likely that either EPA will determine that many source categories do not pose a risk to public health and do not have to be controlled or that sources will make a demonstration that they do not contribute a one in a million risk and will not be required to put on controls under this provision of the Act.

E. Impact of Compliance Costs on Consumers

1. General

Twenty-five billion dollars in estimated annual costs to implement either House or Senate bills (according to EPA studies) is a small portion of the current U.S. economy. This amount will constitute an even smaller share as the economy grows and in the future years in which the costs are actually incurred. Table 4 shows the costs of the CAA amendments in 1995 and 2005 in terms of average costs per household, average costs per capita, and percentage of overall GNP. To put these figures into context, the table also reports estimated current expenditures for alcoholic beverages, tobacco products, motion pictures, and other entertainment. The overall impact of gasoline price increases in the last two months is also reported.

In 2005, the proposed amendments are expected to cost the average household approximately $20 per month (1990 dollars), assuming all costs are transferred to consumers. This impact, occurring fifteen years from now, is less than the cost impact of gasoline price increases over the past two months. It is also low relative to average current estimated expenditures for other products and/or activities.

While the figures in Table 4 include the entire cost of the proposed amendments, costs of some specific aspects of the program can be estimated separately, as discussed below.

2. Automobile Control Costs

The best estimate of the hardware costs of the House and Senate provisions on new car purchasers is $4.08 per month. This figure is based on EPA's estimates of the per-vehicle costs (provided in Table 5) along with assumptions regarding costs of automobile financing [2]. Costs of more intensive inspection and maintenance would add $1.15 per year (or less than 10 cents per month) to this figure.

TABLE 4.—ESTIMATED CAA AMENDMENT AND OTHER EXPENDITURES

Expenditure category	Year	Monthly cost per household	Monthly cost per capita	Percent of GNP
CAA amendments	1995	$10	$4	0.19
CAA amendments	2005	20	8	0.35
Tobacco products	1990	15	13	0.71
Alcoholic beverages	1990	51	20	1.04
Motion pictures	1990	25	10	0.60
Other entertainment	1990	43	20	0.89
Gasoline price increase (August-October)	1990	28	11	0.58

[1] According to Bureau of Economic Analysis surveys, industry capital investments in air pollution control hardware from 1975-1985 amounted to approximately $88 billion (1990 dollars) (Commerce, 1988). Not all of this expenditure would be relevant to this type of pollution control requirement.

[2] According to the Motor Vehicle Manufactures Association (MVMA, 1990), the average monthly payment on car loans for new cars in 1989 was $291.50, with an average amount financed of $12,040.

TABLE 5.—*EPA Tier I Passenger Car Cost Estimates*

Control measure	Passenger Car Per Vehicle Costs
RVP Phase II	[1] $5.20
Evaporative/running loss	3.80
VOC Tailpipe-extended useful life	36.00
Onboard VRS	10.00
NO, tailpipe standards	115.00
Cold temperature CO	7.00
Total	173.00

[1] This cost applied to existing as well as new vehicles. All other costs.

In comparison, the cost of a AM/FM stereo sound system, ordered on 90 percent of U.S. built cars, ranges from $3.69 to $14.58 per vehicle per month. Costs of air conditioning, also ordered on approximately 90 percent of U.S. built cars, ranges from $17.85 to $24.17 per vehicle per month. Automatic transmission costs range from $11.30 to $19.43 per vehicle per month (Crain, 1990).

The most likely estimate assumes that Tier II standards would not be implemented and that the House provisions for cold temperature CO would be adopted. If the Senate cold temperature provisions and Tier II were required, the estimated monthly percar costs would increase from $3.04 to $12.15 per month. Since Tier II requirements would not be effective until after the year 2000, the estimates of compliance given above are highly speculative.

3. Costs of Achieving Acid Rain Controls

A similar perspective can be provided for acid rain control costs. Since current annual electricity generation in the United States is over 2,500 terawatt hours, one mill per kilowatt-hour (kWhr) translates into over $2.5 billion per year. Typical residential electricity rates were approximately 7.5 cents (75 mills) per kWhr in 1988 (EIA, 1989). Thus, the average costs of acid rain controls (on the order of 1-2 mills/kWhr) are low relative to total prices. Total estimated acid rain control costs ($3.7 billion per year maximum) is small compared with total industry revenues of $163.7 billion in 1988 (EIA, 1989).

Table 6 shows the estimated state-level impact of proposed acid rain controls on residential consumers. These figures are based on the Senate bill provisions and incorporate banking and trading effects. House bill results are similar. By 1995 (Phase I), typical residential customers in only three states (Indiana, Missouri, and Tennessee) would be facing increases of more than $1.00 per month. By 2000, the maximum monthly residential increase is estimated to be $2.60 per month in Ohio. In 1987, the typical monthly bill for Ohio residential customers was $57.90. An annual real price increase for electricity of even 0.5 percent per year between 1987 and 2000 would result in an increase to the typical Ohio residential utility customers of $4.20 per month, much higher than the impact from the proposed acid rain control program.

Average electricity prices for commercial customers are almost as high as those of residential customers (7.0 cents versus 7.5 cents/kWhr) (EIA, 1989). For industrial customers, average prices were somewhat lower at 4.7 cents in 1989 (EIA, 1989). Even for these customers, however, cost increases associated with acid rain control will be relatively modest as a percentage of current amount paid for electricity.

TABLE 6.—IMPACT OF PROPOSED ACID RAIN CONTROLS ON RESIDENTIAL ELECTRIC BILLS

[Dollars per month]

State	Average bill (1987)	Increase by phase I	Increase by phase II
[illegible]	$65.10	$0.30	$0.50
[illegible]	76.33	———	< $.50
[illegible]	65.49	———	< $.50
[illegible]	41.65	———	< $.50
[illegible]	38.86	———	< $.50
[illegible]	59.02	———	< $.50
[illegible]	63.08	———	< $.50
[illegible]	73.70	0.30	0.90
[illegible]	61.92	0.40	< $.50
[illegible]	51.55	———	< $.50
[illegible]	64.07	0.30	0.70
[illegible]	61.39	1.40	2.10
[illegible]	56.43	0.20	0.60
[illegible]	58.70	0.00	< $.50
[illegible]	53.66	0.60	1.90
[illegible]	74.78	———	< $.50
[illegible]	47.10	———	< $.50
[illegible]/D.C.	61.25	0.20	1.90
[illegible]	47.47	———	0.50
[illegible]	41.43	0.50	< $.50
[illegible]	45.11	0.00	< $.50
[illegible]	63.93	0.40	0.70
[illegible]	60.80	1.50	1.50
[illegible]	48.78	———	< $.50
[illegible]	49.69	———	< $.50
[illegible]	54.77	———	< $.50
[illegible]	54.89	0.20	1.40
[illegible]	57.32	0.30	0.50
[illegible]	45.71	———	< $.50
[illegible]	50.47	0.10	0.50
[illegible]	73.48	———	0.60
[illegible]	55.73	———	< $.50
[illegible]	57.90	1.00	2.80
[illegible]	54.71	———	< $.50
[illegible]	49.34	———	< $.50
[illegible]	59.10	0.30	0.80
[illegible]	43.90	———	< $.50
[illegible]	75.85	———	0.60
[illegible]	55.67	———	1.30
[illegible]	64.58	0.10	2.70
[illegible]	65.52	———	< $.50
[illegible]	48.81	———	< $.50
[illegible]	65.64	———	< $.50
[illegible]	60.88	———	0.50
[illegible]	48.76	———	< $.50
[illegible]	43.85	0.40	1.10
[illegible]	44.63	0.00	< $.50
[illegible]	43.34	———	< $.50

F. Uncertainty of cost estimates

Any estimates of the cost impacts of complex legislation such as the CAA Amendments are likely to be subject to considerable uncertainty. The proposed legislation attempts to achieve a balance between statutory requirements and legislative flexibility. Of course, Congress retains the authority to modify the legislation in the future if the implementation does not proceed as envisioned. The dire consequences predicted by industry studies assume that almost all discretionary decisions by executive branch policymakers are adverse to industry. Such assumptions ignore the realities of the past 20 years of "strong" Federal initiatives to address air pollution problems. In reality, the executive branch has, if anything, been protective of industry to the extent that, in many areas, states (such as California) are taking more initiatives than the Federal government.

III. CAA EFFECTS ON EMPLOYMENT

A. Overview

A variety of additional effects of CAA Amendments are likely, some of which are beneficial to the economy and some of which are adverse. Industry studies have tended to dismiss benefits associated with pollution control and have instead concentrated on potential adverse effects, primarily job losses. In this chapter, some of the major effects of air pollution control are discussed.

B. Industry studies

The major industry-sponsored study of job impacts was the Hahn and Steger report (Hahn, 1990). This study begins with the cost analysis performed for the BRT (Denny Technical Services, 1990a). The study reports a range of impacts from 20,000 jobs "almost surely to be lost" to over 2,000,000 jobs "adversely affected and potentially lost."

In an economy with well over 100,000,000 jobs, the 20,000 figure translates to less than 0.2 percent of total employment. The 2,000,000 figure appears to represent the total employment at plants which may possibly be affected by CAA Amendment provisions. This figure represents less than two percent of the total U.S. work force. In essence, the Hahn study concludes that 2,000,000 people work at plants which, in some way, may be affected by various aspects of the CAA Amendments. Given the size of the economy and the assumptions of the study, the less-than-two-percent figure is actually fairly low since many of the facilities at which the 2,000,000 are employed may take no action as a result of implementation of the amendments.

Dire predictions have been offered before on the major job impacts of earlier environment legislation. Most did not occur. In a dynamic economy, the only constant factor is change. Technological advances and changes have always resulted in temporary economic dislocations.

The methodology used in the industry-sponsored employment analysis does not take into account any of the important, dynamic factors of the U.S. economy. For example, concern over coal miners in the high-sulfur coal industry has been a key issue affecting acid rain control policy. None of the existing models or analyses, however, account for the ability of existing mines, many of which have already depreciated their entire capital investment, to reduce prices to levels only slightly above marginal production costs in order to continue to operate. Similar effects are bound to occur in other industries.

The regional employment effects reported in the industry-sponsored jobs study are more artifacts of data analysis than accurate forecasts. They completely ignore the competitive aspects of the U.S. economy discussed above.

The extreme nature of the assumptions in the industry-sponsored employment study become evident when focusing on paper industry figures. The study concludes that job losses will range from 73,000–86,000 and that fully half of industry capacity will close.

The jobs report executive summary states that results include consideration of the following:

An analysis of CAA-related cost increases relative to the ability to absorb increases.

Investigation of cost increases relative to other firms within each industrial sector.

Projection of "jobs-at-risk" relative to degree of competition.

In fact, none of these factors appears to be consideration in the quantitative analysis results presented, despite the fact that the report authors admit their importance.

The analysis of toxic pollution control costs incorporates some estimates of per-plant control costs, but the relevance and interpretation of the results presented in unclear. For example, a VOC control cost of $29.2 million per plant is reported for "air transportation" and is characterized as "extremely high." If an "air transportation plant" is a major airport, however, a $29.2 million cost would be relatively minor.

The discussion of permitting requirements and potential impacts on small businesses states that "U.S. job creation in the last decade has overwhelmingly been accomplished by small business." Later, the report concludes that "it is very likely that fewer small businesses will be started" and "this

will likely have an adverse effect on employment growth." While the report contends that permitting and monitoring expenses will significantly burden small businesses, the report does not bother to examine what percentage of small businesses and/or recently established small businesses are in the affected industries. The only information given, however, seems to conflict with the authors' conclusions. On page 3.16, the report indicates that "about 3.5 percent" of all small businesses are "potentially adversely affected" by all types of environmental regulations. The actual number affected by CAA amendment requirements would likely be only a portion of the 3.5 percent.

For the analysis of jobs lost or "at risk" relative to acid deposition control, the following additional problems were found:

Industries selected for analysis were those accounting for 0.5 percent or more of total industrial electricity demand. A more meaningful selection criteria would have used total electricity cost as a percentage of total value added. What is of interest is those industries which rely heavily on electricity in producing their products not those which, in the aggregate, simply happen to be major utility customers.

The cost impacts associated with acid deposition control used in the study appeared to be those for Phase II (beginning in 2000), but the impacts were assumed to occur only in those counties containing Phase I plants.

C. Employment benefits

Estimated decline in employment such as those presented in the Hahn/Steger study are highly speculative. It is clear, however, that a substantial environmental control industry has developed in the United States, and this growing industry is responsible for the creation of many jobs. In 1980, there were 79,000 environmental scientists employed in the labor force. That number increased to 116,000 by 1986 (Commerce, 1988). In this one category, almost 40,000 new jobs were created over a six-year period, and the creation of those jobs is directly linked to increasing interest in and expenditures for improving the environment.

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ACRONYMS

API	American Petroleum Institute.
BRT	Business Roundtable.
CAA	Clean Air Act.
CARB	California Air Resources Board.
CAWG	Clean Air Working Group.
CFC	Chlorofluorocarbon.
CMA	Chemical Manufacturers Association.
CTG	Control Technique Guidelines.
EEA	Energy and Environmental Analysis, Inc.
EGR	Exhaust gas recirculation.
EPA	Environmental Protection Agency.
FIP	Federal Implementation Plan.
GNP	Gross National Product.
HC	Hydrocarbons.
HCFC	Hydrochlorofluorocarbons.
HFC	Hydrofluorocarbons.
I/M	Inspection and maintenance.
LAER	Lowest achievable emission rate.
LDV	Light duty vehicles.
MACT	Maximum achievable control technology.
MECA	Manufacturers of Emission Controls Association.
MVMA	Motor Vehicle Manufacturers Association.
NAAQS	National Ambient Air Quality Standards.
NSPS	New Source Performance Standards.
OTA	Office of Technology Assessment.
RACT	Reasonably achievable control technology.
RD&D	Research, development, and demonstration.
RVP	Reid vapor pressure.
VOC	Volatile organic compounds.

The Air Bill: HB 377, SB 383

The Air Bill: HB 377, SB 383

Will Our Cars and Trucks Really Have to Meet California Pollution Standards?

NO—Neither the House Bill nor Senate Bill adopts California auto standards. California is the only state authorized to set their own motor vehicle pollution standards. Nationally, tailpipe standards are set by EPA. California standards are much tougher. There is absolutely no reason for these tough California standards in Alaska. A few east coast states are adopting the California rules but not the state of Alaska. The Alaska Air Quality Bill would not change our motor vehicle pollution standards!

Is the Air Bill More Stringent Than Required By The Clean Air Act ?

The Air Bill was drafted to meet only the minimum federal requirements. The bill mentions authority for DEC to set "ambient" or ground-level standards that could be tougher than federal standards or otherwise set standards for pollutants for which there is no federal standard. DEC has had this authority for the past 20 years. Existing statutes were incorporated where possible when the new bill was drafted.

Has this power ever been used ?

DEC has used this broader authority sparingly in years past. Only after a strong outcry from the citizens of north Kenai, following three years of evaluation and public review, was a public health standard set for ammonia gas. Now, once again in response to a strong citizen outcry about benzene vapors in the Government Hill area of Anchorage, the agency is considering adoption of new standards if voluntary actions to curtail the emissions are not adequate to safeguard public health. As a regulating public health agency, DEC's first mission is to protect public health.

If these DEC authorities are reduced, won't the federal rules protect us ?

Yes—the federal standards will protect Alaskans, but Alaskans have always been first to say: "Things are different in Alaska!" If this flexibility were removed from the Air Bill, DEC would not be able to respond to unique Alaska issues, such as ammonia in Kenai, to ensure health protection.

Why Not Let The Feds Do Air Permits in Alaska ?

The state can design the new air permit program to be more flexible to Alaska conditions. The Air Bill has many features, such as "general permits," to make the state permit more streamlined and responsive to Alaska's needs. Permit fees will be lower than federal fees, and our industries will not have to talk to an EPA staff person in Seattle.

Why a Bill This Year?

Passage of a bill this year is important to allow plenty of time for public involvement during development of the ensuing regulations. An advisory committee and task force will directly involve industry and all other affected parties. This will tailor the Clean Air Act's requirements to the needs and concerns of Alaskans.

ALASKA AIR STATUTES

REQUIRED & ESSENTIAL FEATURES

Exclusive Fund for Air Permit Program

Create Small Business Assistance Program
- Create Advisory Panel
- Provide Assistance to Larger Group

Modify Criminal Provisions and Fines

Construction Permits v. Operating Permits
- Agency/Operator Emission Limits to Avoid Need for Permit

General Permits

Flexibility for Permit Fee Structure

Ability to Implement New Federal Rules in Permits
- Reopening of Permits

Emission Limits Based on Health Risks or Available Technology

Local Governments to be Implementing Partners

Administrative Penalties for Violations
- Deter EPA Intervention

Public Involvement in Permits
- Public Review of Permits
- Appeal through Adjudication
- Judicial Review
- EPA Review
- Public to Petition EPA

Retain & Update Existing Statutes

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Air Quality Management

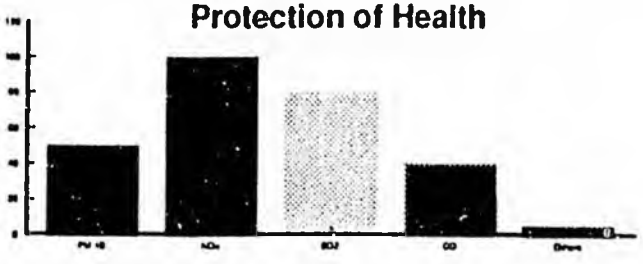
1990 AMENDMENTS to the CLEAN AIR ACT

and their IMPACTS on ALASKA

Mobile Sources

Vehicle Tailpipe Standards

Protection of Health

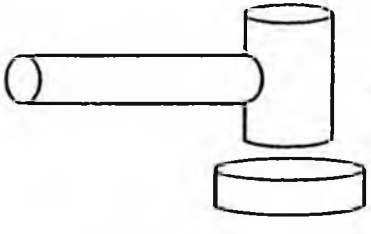


Ambient Air Quality Standards

State Air Quality Control Plan

Clean Air Act of 1970

Clean up poor Air Quality Regions

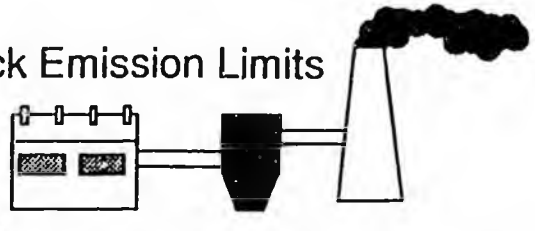


Enforcement

Civil Penalties - $10,000/day

Criminal Penalties - $10,000/day

Stack Emission Limits



State Stack Emission Standards

Federal New Source Performance Standards

National Emission Standards for Hazardous Air Pollutants

PROGRAMS ADDED by AMENDMENTS

In addition to changes in previous components of the ACT

Clean Air Act Amendments
1975
1977
1980
1982

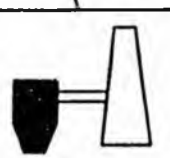
AREA CLASSIFICATION

Prevention of Significant Deterioration (PSD)

PERMIT to CONSTRUCT PSD Facility

Review

PSD Increments



BACT

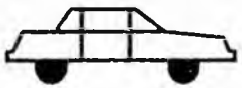
Secondary Impacts

Components of the Clean Air Act Amendments of 1990

Title I	Provisions for Attainment and Maintenance of National Ambient Air Quality Standards
Title II	Provisions Relating to Mobile Sources
Title III	Hazardous Air Pollutants
Title IV	Acid Deposition Control *
Title V	Permits
Title VI	Stratospheric Ozone Protection
Title VII	Provisions Relating to Enforcement
Title VIII	Miscellaneous Provisions
Title IX	Clean Air Research
Title X	Disadvantaged Business Concerns
Title XI	Clean Air Employment Transition Assistance

* Alaska is exempt from Title IV Provisions

CLEAN AIR ACT 1990 AMENDMENTS



Mobile Sources

Cold Start
CO Standards
Inspections

NON-ATTAINMENT AREA CLASSIFICATION

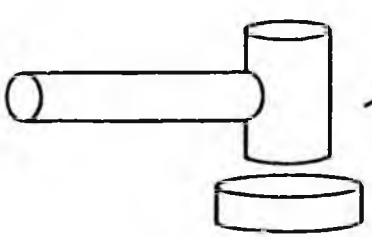
Clean Air Act Amendments

Nov. 15, 1990

List of TOXIC AIR POLLUTANTS

STATE OPERATING PERMIT PROGRAM

Federal Emission Standards
State Emission Standards
New Source Performance Standards
Standards for Hazardous Air Pollutants
Early Reduction/MACT
Permit Fees
Voluntary Emission Limits
Certification of Compliance
Reporting & Monitoring Procedures
Ability to Reopen for Cause
Public Comment
EPA Review
Judicial Review of Actions



Enforcement

Civil Penalties - $10,000/day
Criminal Penalties - $10,000/day

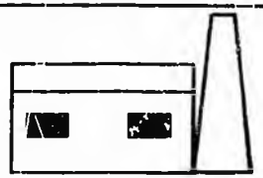
Small Business Assistance Program / Pollution Prevention

OPERATING PERMIT PROGRAM

Title V

WHO NEEDS AN AIR PERMIT ?

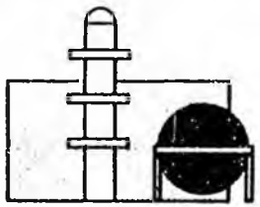
OLD CLEAN AIR ACT



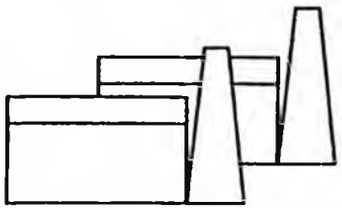
Fuel Burning Facilities
potential emissions of 250 tpy

Incinerators 1000 lb/hr

Diesel Engines - > 2350 hp



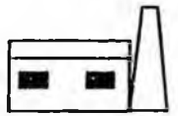
Petroleum Refineries



PSD size Facilities

State Air Quality Permit to Operate

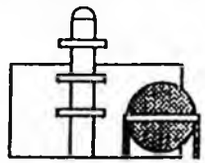
1990 CLEAN AIR ACT



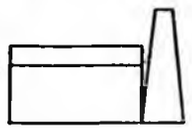
Fuel Burning Facilities
potential emissions of 100 tpy

Incinerators
1000 lb/hr & Sewage Sludge

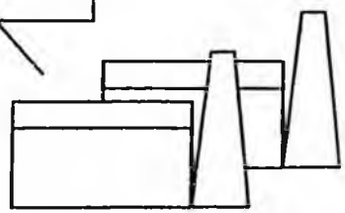
Diesel Engines - > 740 hp



Petroleum Refineries



Facilities emitting
Hazardous Air Polln
potential of 25 tpy



PSD size Facilities

PERMITS: WHO NEEDS THEM?

~~1991~~

Asphalt Plants

Incinerators rated larger than 1000 lb of waste per hour

Industrial processes with a design throughput greater than 5 tons per hour AND require an emission control device

Fuel burning equipment larger than 50 mm Btu/hr AND require an emission control device, such as a coal fired boiler which could burn 3 tons per hour

Fuel burning equipment larger than 100 mm Btu/hr, such as a natural gas fired boiler which could burn 1,667 cubic feet of gas per minute.

Petroleum refineries

Coal preparation facilities

Portland cement plants

Any facility subject review under the Prevention of Significant Deterioration (PSD) provisions, such as a new facility which could emit more than 250 tons per year of a regulated air contaminant, or an existing large facility which could emit more than 40 tons per year of a regulated air contaminant.

This includes facilities with stationary diesel equipment rated at more than 1700 kw or 2350 Horsepower, or could consume more than 45 gallons of diesel fuel per hour.

Any new or modified facility within 10 kilometers of Anchorage or Fairbanks which emits greater than 100 tons per year of carbon monoxide.

Any permittee which requests physical or operational limitations to provide emission offsets for facilities emitting carbon monoxide in Anchorage or Fairbanks.

Any permittee which requests physical or operational limitations to preclude review under PSD.

1993

Asphalt Plants

Incinerators rated larger than 1000 lb of waste per hour

Industrial processes with a design throughput greater than 5 tons per hour AND require an emission control device

Fuel burning equipment larger than 50 mm Btu/hr AND require an emission control device, such as a coal fired boiler which could burn 3 tons per hour

Fuel burning equipment larger than 100 mm Btu/hr, such as a natural gas fired boiler which could burn 1,667 cubic feet of gas per minute.

Petroleum refineries

Coal preparation facilities

Portland cement plants

Any facility subject review under the Prevention of Significant Deterioration (PSD) provisions, such as a new facility which could emit more than 250 tons per year of a regulated air contaminant, or an existing large facility which could emit more than 40 tons per year of a regulated air contaminant.

This includes facilities with stationary diesel equipment rated at more than 1700 kw or 2350 Horsepower, or could consume more than 45 gallons of diesel fuel per hour.

Any new or modified facility within 10 kilometers of Anchorage or Fairbanks which emits greater than 100 tons per year of carbon monoxide.

Any permittee which requests physical or operational limitations to provide emission offsets for facilities emitting carbon monoxide in Anchorage or Fairbanks.

Any permittee which requests physical or operational limitations to preclude review under PSD.

1993

ALL THE FACILITIES LISTED FOR 1991

All sewage sludge incinerators

All facilities with emissions greater than 100 tons per year. Examples: stationary diesel equipment larger than 740 Hp or 550 Kw, or stationary gasoline equipment rated at greater than 52 Hp or 39 Kw.

All facilities with emissions greater than 10 tons per year of any hazardous air contaminants listed by Congress, or 25 tons per year in aggregate.

All facilities which have equipment which must comply with specific federal New Source Performance Standards. In Alaska we have:

Boilers with a rated heat capacity greater than 10 mm Btu/hr

Facilities with petroleum storage vessels which store more than 40,000 gallons

Coal preparation plants

Grain elevators

Combustion turbines

Lime manufacturing plants

Metallic mineral processing plants

Dry cleaners with a total rated dryer capacity of 84 lb

Onshore natural gas processing plants

Gravel crushers

Bulk gasoline transfer facilities, with gasoline throughput of 20,000 gallons per day.

All facilities with equipment for which specific emission limits will be set by federal law.

Permit Contents

STATE AIR QUALITY

PERMIT TO OPERATE

Single Permit contains all State and Federal Requirements

Facility Location, Mailing address

Federal Emission Standards

State Emission Standards

New Source Performance Standards

Standards for Hazardous Air Pollutants

Early Reduction/MACT

* Permit Fees

Voluntary Emission Limits

* Small Business Assistance Provisions

* Certification of Compliance

Reporting & Monitoring Procedures

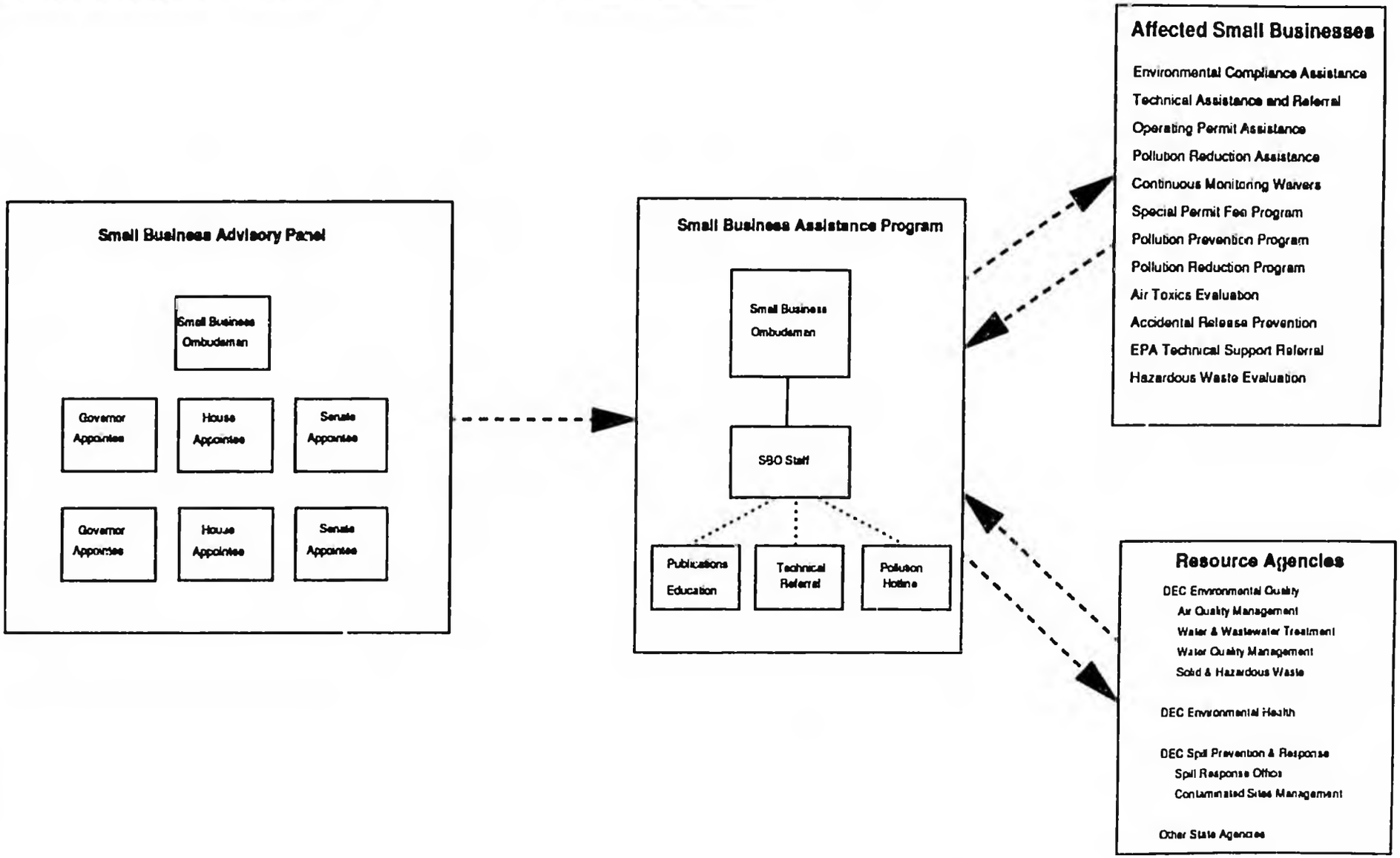
* Ability to Reopen for Cause

Public Comment

* EPA Review

* Judicial Review of Actions

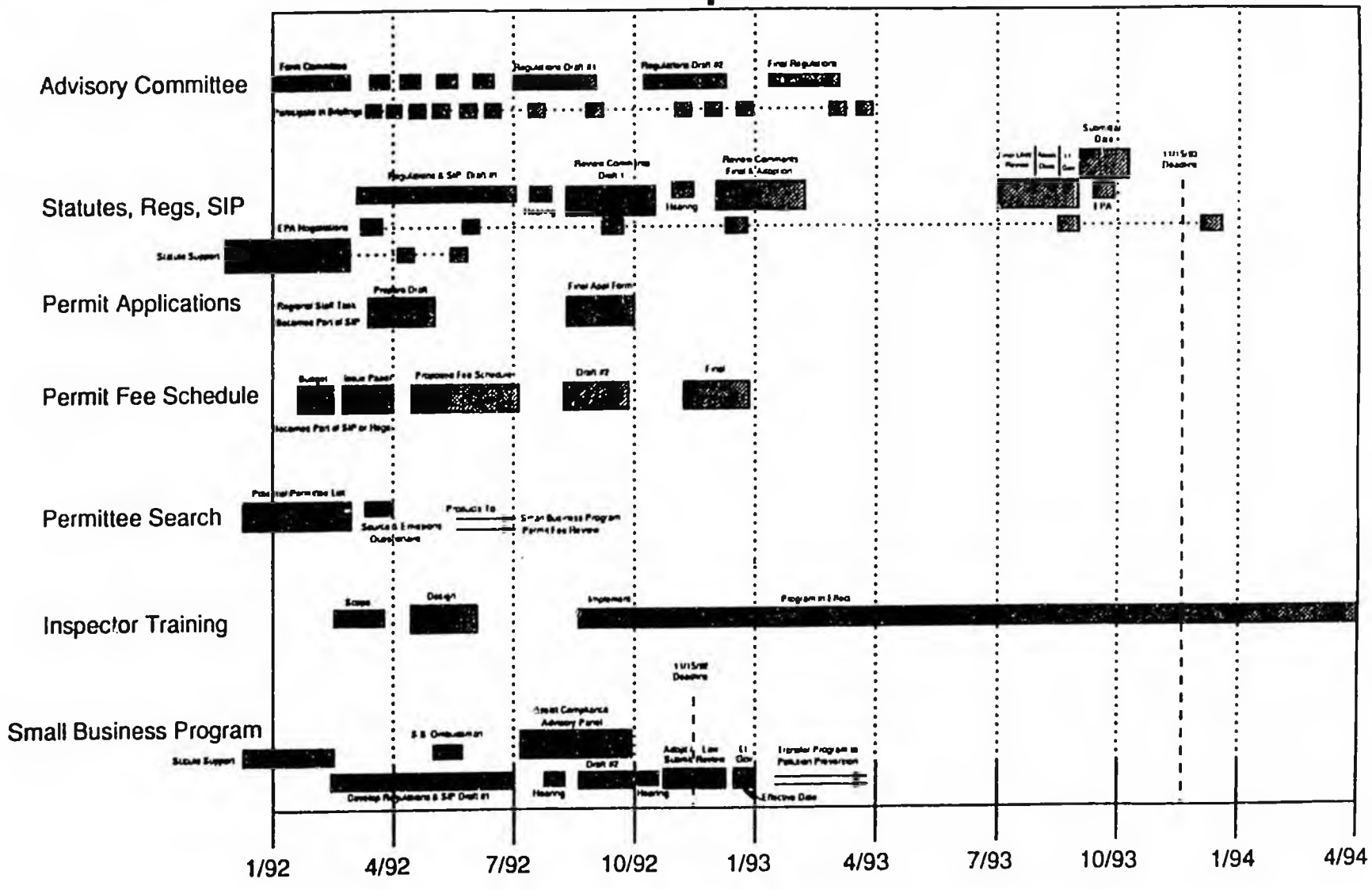
Small Business Assistance Program



STATUTORY NEEDS

- Establish exclusive fund for Permit Fees and Air Program direct expenses
- Create Small Business Assistance Program
- Create Small Business Compliance Advisory Panel
- Increase Criminal Penalty Provisions and Fines
- Establish authority for General Permits
- Separate Construction Permits from Operating Permits
- Update Existing Statutes

CAAA 90 Title V - State Operating Permit Program Development Phase



CLEAN AIR ACT

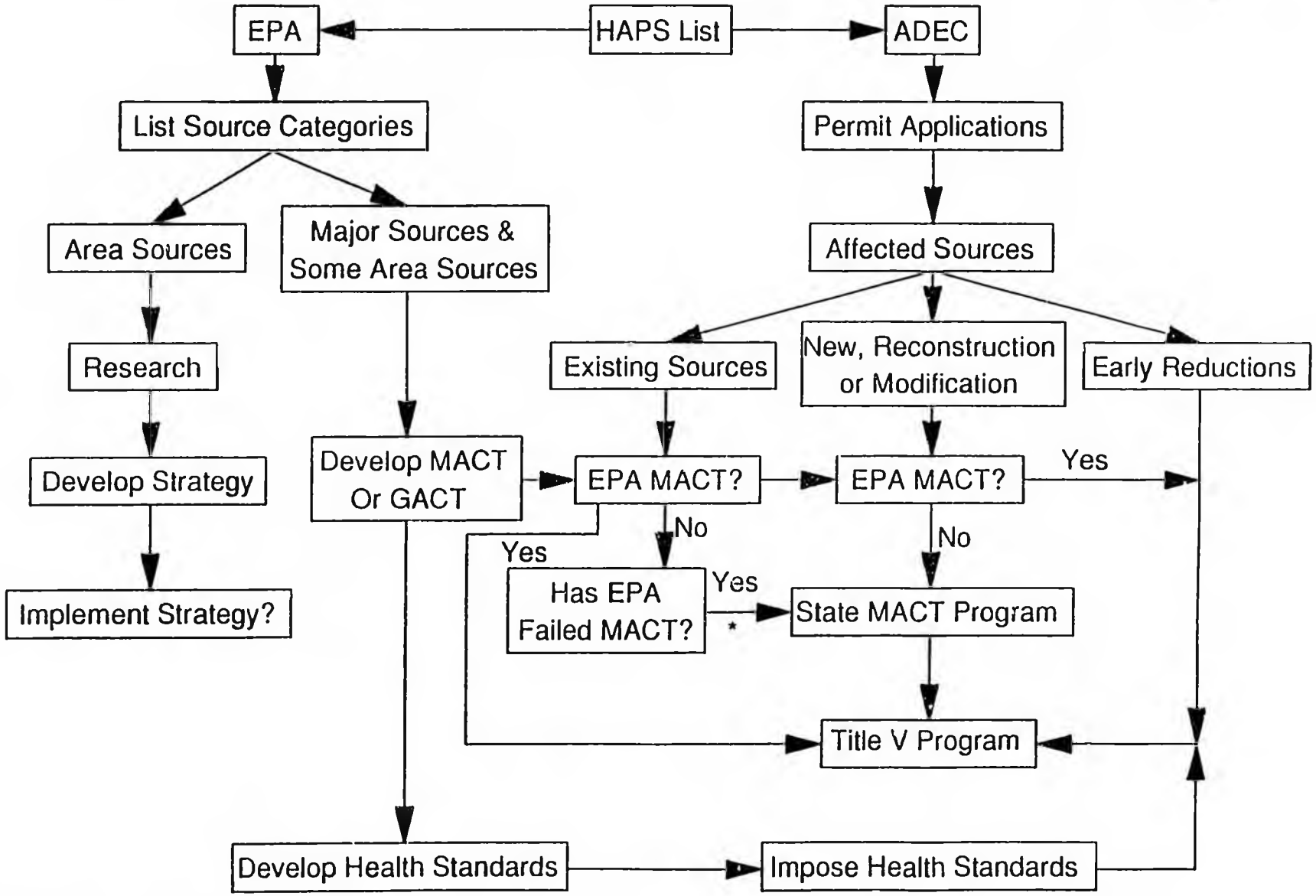
1990

TITLE III

SECTION 112

HAZARDOUS AIR POLLUTANTS

SECTION 112 (HAPS) REGULATORY FLOWCHART



* Equivalent Emission Limitation

Clean Air Act. Section 112
Hazardous Air Pollutants (HAPS)

Chemical Name	CAS No.
Acetaldehyde	75070
Acetamide	60355
Acetonitrile	75058
Acetophenone	98862
2-Acetylaminofluorene	53963
Acrolein	107028
Acrylamide	79061
Acrylic Acid	79107
Acrylonitrile	107131
Allyl Chloride	107051
4-Aminobiphenyl	92671
Aniline	62533
o-Anisidine	90040
Asbestos	1332214
Benzene	71432
Benzidene	92875
Benzotrichloride	98077
Benzyl Chloride	100447
Biphenyl	192524
Bis(2-ethylhexyl)phthalate (DEHP)	117817
Bis(chloromethyl)ether	542881
Bromoform	75252
1,3-Butadiene	106990
Calcium cyanamide	156627
Caprolactam	105602
Captan	133062
Carbaryl	63252
Carbon disulfide	75150
Carbon tetrachloride	56235
Carbonyl sulfide	463581
Catechol	120809
Chloramben	133904
Chlordane	57749
Chlorine	7782505
Chloroacetic Acid	79118
2-Chloroacetophenone	532274
Chlorobenzene	108907
Chlorobenzilate	510156
Chloroform	67663
Chloromethyl methyl ether	107302
Chloroprene (Neoprene; 2=chloro-1,3butadiene)	126998
m-Cresol	108394
o-Cresol	95487
p-Cresol	106445
Cresols/Cresylic acid	1319773
Cumene(Isopropylbenzene)	98828
D(2,4), salts and esters	94757
DDE	3547044
Diazomethane	334883
Dibenzofurans	132649
Dibromo-3-chloropropoanol(1,2)	96128
Dibutylphthalate	84742
1,4-Dichlorobenzene(p)	10
3,3-Dichlorobenzidene	91941
Dichloroethyl ether (Bis(2-chloroethyl)ether)	111444
1,3-Dichloropropene	542756
Dichlorvos	62737
Diethanolamine	111422
N,N-Dietyl aniline (N,N-Dimethylaniline)	121697
Diethyl sulfate	64675
3,3-Dimethoxylbenzidene	119904
Dimethyl aminoazobenzene	60177
3,3-Dimethyl benzidene	119937
Dimethyl carbamoyl chloride	79447
Dimethyl formanide	68122
1,1-Dimethyl hydrazine	57147
Dimethyl phthalate	131113
Dimethy sulfate	77781
4,6-Dinitro-o-cresol and salts	534521
2,4-Dinitrophenol	51285
2,4-Dinitrotoluene	121142
1,4-Dioxane (1,4-Diethyleneoxide)	123911
1,2-Diphenylhydrazine	122667

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

CLEAN AIR ACT

1990

TITLE III

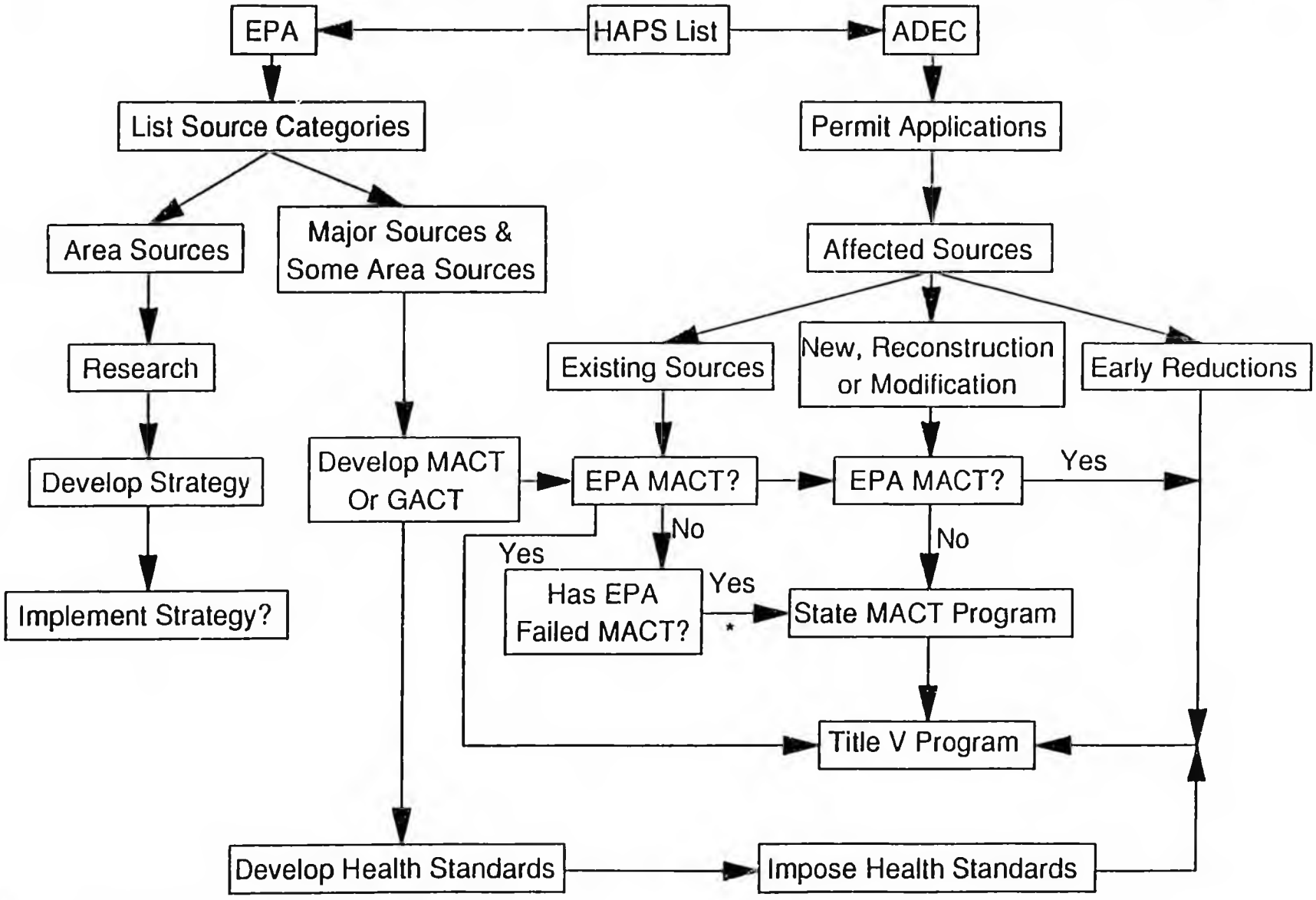
SECTION 112

HAZARDOUS AIR POLLUTANTS

CLEAN AIR ACT. SECTION 112
HAZARDOUS AIR POLLUTANT ACRONYM LIST

HAPS	Hazardous Air Pollutants; one or more of the 189 air pollutants listed in the Clean Air Act Amendments of 1990.
GACT	Generally Available Control Technology
MACT	Maximum Achievable Control Technology
PACT	Politically Achievable Control Technology
PICT	Politically Impossible Control Technology
$3M^2$	3 Month Moratorium

SECTION 112 (HAPS) REGULATORY FLOWCHART



* Equivalent Emission Limitation

CLEAN AIR ACT

1990

TITLE III

SECTION 112

HAZARDOUS AIR POLLUTANT LIST

Clean Air Act. Section 112
Hazardous Air Pollutants (HAPS)

Chemical Name	CAS No.	Chemical Name	CAS No.
Acetaldehyde	75070	Chloroprene (Neoprene; 2=chloro-1,3butadiene)	126998
Acetamide	60355	m-Cresol	108394
Acetonitrile	75058	o-Cresol	95487
Acetophenone	98862	p-Cresol	106445
2-Acetylaminofluorene	53963	Cresols/Cresylic acid	1319773
Acrolein	107028	Cumene(Isopropylbenzene)	98828
Acrylamide	79061	D(2,4), salts and esters	94757
Acrylic Acid	79107	DDE	3547044
Acrylonitrile	107131	Diazomethane	334883
Allyl Chloride	107051	Dibenzofurans	132649
4-Aminobiphenyl	92671	Dibromo-3-chloropropoanol(1,2)	96128
Aniline	62533	Dibutylphthalate	84742
o-Anisidine	90040	1,4-Dichlorobenzene(p)	10
Asbestos	1332214	3,3-Dichlorobenzidene	91941
Benzene	71432	Dichloroethyl ether (Bis(2-chloroethyl)ether)	111444
Benzidene	92875	1,3-Dichloropropene	542756
Benzotrichloride	98077	Dichlorvos	62737
Benzyl Chloride	100447	Diethanolamine	111422
Biphenyl	192524	N,N-Dietyl aniline (N,N-Dimethylaniline)	121697
Bis(2-ethylhexyl)phthalate (DEHP)	117817	Diethyl sulfate	64675
Bis(chloromethyl)ether	542881	3,3-Dimethoxylbenzidene	119904
Bromoform	75252	Dimethyl aminoazobenzene	60177
1,3-Butadiene	106990	3,3-Dimethyl benzidene	119937
Calcium cyanamide	156627	Dimethyl carbamoyl chloride	79447
Caprolactam	105602	Dimethyl formanide	68122
Captan	133062	1,1-Dimethyl hydrazine	57147
Carbaryl	63252	Dimethyl phthalate	131113
Carbon disulfide	75150	Dimethy sulfate	77781
Carbon tetrachloride	56235	4,6-Dinitro-o-cresol and salts	534521
Carbonyl sulfide	463581	2,4-Dinitrophenol	51285
Catechol	120809	2,4-Dinitrotoluene	121142
Chloramben	133904	1,4-Dioxane (1,4-Diethyleneoxide)	123911
Chlordane	57749	1,2-Diphenylhydrazine	122667
Chlorine	7782505		
Chloroacetic Acid	79118		
2-Chloroacetophenone	532274		
Chlorobenzene	108907		
Chlorobenzilate	510156		
Chloroform	67663		
Chloromethyl methyl ether	107302		

Chemical Name	CAS No.
Epichlorohydrin (Chloro-2,3-epoxypropane(1))	106898
1,2-Epoxybutane (1,2-Butylene oxide)	106887
Ethyl acrylate	140885
Ethyl benzene	100414
Ethyl carbamate (Urethane)	51796
Ethyl chloride (Chloroethane)	75003
Ethylene dibromide (1,2-Dibromomethane)	106934
Ethylene dichloride (1,2-Dichloroethane)	107062
Ethylene glycol	107211
Ethylene imine (Aziridene)	151564
Ethylene oxide	75218
Ethylene thiourea	96457
Ethylene dichloride (1,1,-Dichloroethane)	75343
Formaldehyde	50000
Heptachlor	76448
Hexachlorobenzene	118741
Hexachlorobutadiene	87683
Hexachlorocyclopentadiene	77474
Hexachloroethane	67721
Hexamethylene-1,6-diisocyanate	822060
Hexamethylphosphoramide	680319
Hexane	110543
Hydrazine	302012
Hydrochloric acid	7647010
Hydrogen flouride (Hydroflouric acid)	7664393
Hydroquinone	123319
Isophorone	78591
Lindane (all isomers)	58899
Maleic anhydride	108316
Methanol	67561
Methoxychlor	72435
Methyl bromide (Bromomethane)	74839
Methyl chloride (Chloromethane)	74873
Methyl chloroform (1,1,1-Trichloroethane)	71556
Methyl ethyl ketone (2-Butanone)	78933
Methyl hydrazine	60344
Methyl iodide (Iodomethane)	74884
Methyl isobutyl ketone (Hexone)	108101
Methyl isocyanate	624839
Methyl methacrylate	80626
Methyl tert butyl ether	1634044
4,4-Methylene bis (2-chloroaniline)	101144
Methylene chloride (Dichloromethane)	75092
Methylene diphenyl diisocynate (MDI)	101688
4,4'-Methylenedianiline	101779
Napthalene	91203
Nitrobenzene	98953
4-Nitrobiphenyl	92933
4-Nitrophenol	100027
2-Nitropropane	79469
N-Nitroso-N-methylurea	684935
N-Nitrosodimethyamine	62759
N-Nitrosomorpholine	59892
Parathion	56382
Pentachloronitrobenzene (Quintobenzene)	82688
Pentachlorophenol	87865
Phenol	108952
p-Phenylenediamine	106503
Phosgene	75445
Phosphine	7803512
Phosphorus	7723140
Phthalic anhydride	1336363
PCB's (Arochlors)	1336363
1,3-Propane sultone	1120714
beta-Priolactone	57578
Propionaldehyde	123386
Propoxur (Baygon)	114261
Propylene dichloride (1,2-Dichloropropane)	78875
Propylene oxide	75569

Chemical Name	CAS No.	Chemical Name	CAS No.
1,2-Propylenimine (2-Methyl aziridine)	75558	m-Xylene	108383
Quinoline	91225	o-Xylene	95476
Quinone (1,4-Cyclohexadienedione)	106514	p-Xylene	106423
Styrene	100425	Xylenes (mixed)	1330207
Styrene oxide	96093	Antimony Compounds	-----
Tetrachlorodibenzo-p-dioxin (2,3,7,8)	1746016	Arsenic Compounds (inorganic including arsine)	-----
1,1,2,2-Tetrachloroethane	79345	Beryllium Compounds	-----
Tetrachlorethylene (Perchloroethylene)	127184	Cadmium Compounds	-----
Titanium tetrachloride	7550450	Chromium Compounds	-----
Toluene	108883	Cobalt Compounds	-----
2,4-Toluene diamine (2,4-Diaminotoluene)	95807	Coke Oven Emissions	-----
2,4-Toluene diisocyanate	584849	Cynanide Compounds[1]	-----
o-Toluidine	95534	Glycol ethers[2]	-----
Toxaphene (Chlorinated camphene)	8001352	Lead Compounds	-----
1,2,4-Trichlorobenzene	120821	Manganese Compounds	-----
1,1,2-Trichloroethane	79005	Mercury Compounds	-----
Trichloroethylene	796016	Mineral fibers[3]	-----
2,4,5-Trichlorophenol	95954	Nickel Compounds	-----
2,4,6-Trichlorophenol	88062	Polycyclic Organic Matter[4]	-----
		Radionuclides (including radon)[5]	-----
		Selenium Compounds	-----

---

[1]X'CN where X=H' or any other group where formal dissociation may occur, for example, KCN or $Ca(CN)_2$.

[2]Includes mono- and di-ethers of ethylene glycol, diethyl glycol and triethyl glycol $R-(OCH_2CH_2)_n-OR'$ where:
n = 1,2, or 3
R = alkyl or aryl groups
R' = R,H, or group which, when removed, yield glycol ethers with the structure: $R-(OCH_2CH)_n-OH$. Polymers are excluded from the glycol category.

[3]Includes glass microfibers, glass wool fibers, rock wool fibers, and slag wool fibers, each characterized as "respirable" (fiber diamter less than 3.5 micrometers) and possessing an aspect ratio (fiber length divided by fiber diameter) greater than 3.

[4]Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C.

[5]A type of atom which spotaneously undergoes radioactive decay.

Chemical Name	CAS No.
Triethylamine	121448
Trifluralin	1582098
2,2,4-Trimethypentane	540841
Vinyl acetate	108054
Vinyl bromide	593602
Vinyl chloride	75014
Vinylidene chloride (1,1-Dichloroethylene)	75354

CLEAN AIR ACT. SECTION 112
Some Source Categories and Subcategories Located in Alaska

I. **Industry Group -- Fuel Combustion**

Category

1. Industrial External Combustion Boilers
2. Institutional External Combustion Boilers
3. External Combustion Space Heaters
4. Industrial Electric Generation Turbines
5. Industrial Reciprocating IC Engines
6. Commercial/Institutional Turbines
7. Commercial Reciprocating IC Engines
8. Process Heaters
9. Petroleum Industry Process Heaters
10. Oil and Gas Steam Generation
11. Industrial In-Situ Fuel Use
12. Prescribed Burning
13. Residential Boilers
14. Residential Wood Combustion - Fireplaces
15. Residential Wood Combustion - Woodstoves

II. **Industrial Group -- Metallurgical Industry: Nonferrous Metals**

Category Name

1. Primary Metals -- Miscellaneous
2. Lead Acid Battery Manufacturing

III. **Industrial Group -- Mineral Products Processing and Use**

Category Name

1. Asphalt Concrete Manufacture
2. Stone Quarries
3. Mining Operation -- Sand/Gravel
4. Metal Pipe Coating Asphalt/CoalTar
5. Asbestos Removal: Demolitions
6. Asbestos Removal: Renovations
7. Asbestos Waste Disposal: Demolitions
8. Asbestos Waste Disposal: Renovations
9. Construction: Spraying and Insulation
10. Asphalt Paving and Roofing Operations
11. Asphalt Processing
12. Mineral Dryers/Calciners
13. Ore Flotation

CLEAN AIR ACT. SECTION 112
Some Source Categories and Subcategories Located in Alaska

IV. Industry Group -- Petroleum Refineries

Category Name

1. Petroleum Refining

V. Industry Group -- Petroleum and Gasoline Production and Marketing

Category Name

1. Oil and Gas Production
2. Gasoline/Petroleum Storage
3. Petroleum Marketing (With Bulk Terminals and Plants)
4. Natural Gas Storage/Transmission

VI. Industry Group -- Surface Coating Processes

Category Name

1. Surface Coating Operations -- General Solvent Uses
2. Auto and Light Duty Truck
3. Wood Furniture
4. Large Ship
5. Printing/Publishing
6. Architectural

VII. Industry Group -- Waste Treatment and Disposal

Category Name

1. Solid Waste Disposal -- Open Burning
2. Sewage Sludge Incineration
3. Municipal Landfills
4. Groundwater Cleaning
5. Hazardous Waste Incineration
6. Cooling Water Chlorination --Steam Electric Generators
7. Wastewater Treatment Systems
8. Water Treatment Purification
9. Water Treatment -- Boilers

VIII. Industry Group -- Agricultural Chemicals Production and Use

Category Name

1. Fumigation Use
2. Parathion Use
3. Soil Fumigant Use
4. Space Fumigant Use
5. Substituted Phenyl Ureas Production

CLEAN AIR ACT. SECTION 112
Some Source Categories and Subcategories Located in Alaska

IX. Industry Group -- Food and Agriculture Industry

Category Name

1. Coffee Roasting

X. Industry Group -- Polymers and Resins Production

Category Name

1. Polyurethane Foam

XI. Industry Group -- Production and Use of Inorganic Chemicals

Category Name

1. Chlorine
2. Fertilizer Formulation and Use
3. Fluorides
4. Hydrogen cyanide
5. Manganese chemicals
6. Phosphate fertilizers
7. Sodium cyanide production

XII. Industry Group -- Production of Synthetic Organic Chemicals

Category Name

1. Pulp & Paper Production
2. Sawmill Operations
3. Dry Cleaning (petroleum and chlorinated solvents)
4. Boat Building
5. Comfort cooling towers
6. Commercial sterilization facilities
7. Hospital sterilizers
8. Industrial cooling towers
9. Industrial process aids -- enhanced oil recovery
10. Jet fuel deicer use
11. Leather tanning
12. Paint removers use
13. Paints, coatings, and adhesives: manufacture and use
14. Photographic film processing

XIII. Industry Group -- Miscellaneous

Category Name

1. Wood preservation -- direct use

Note: This is not the complete list which was published by the U.S. EPA

CLEAN AIR ACT. SECTION 112
CONTROL STRATEGY DEFINITIONS

Maximum Achievable Control Technology (MACT)

NEW SOURCES

A degree of emissions reductions that is achieved in practice by the best controlled similar source, to be determined by the Administrator.

EXISTING SOURCES

A degree of emission reduction that shall not be less stringent than but may be more stringent than;

the average emission limitation achieved by the best performing 12% of the existing sources in categories with more than 30 sources; or

the average emission limitation achieved by the best performing 5 sources in categories with fewer than 30 sources.

Generally Available Control Technology (GACT)

An alternative degree of emissions reductions which can be established by the Administrator for **area sources**. GACT can be the same as MACT or less stringent.

Health and Environment Standards

An additional degree of emissions reduction developed after promulgation of MACT that is necessary to protect public health or prevent an adverse environmental effect.

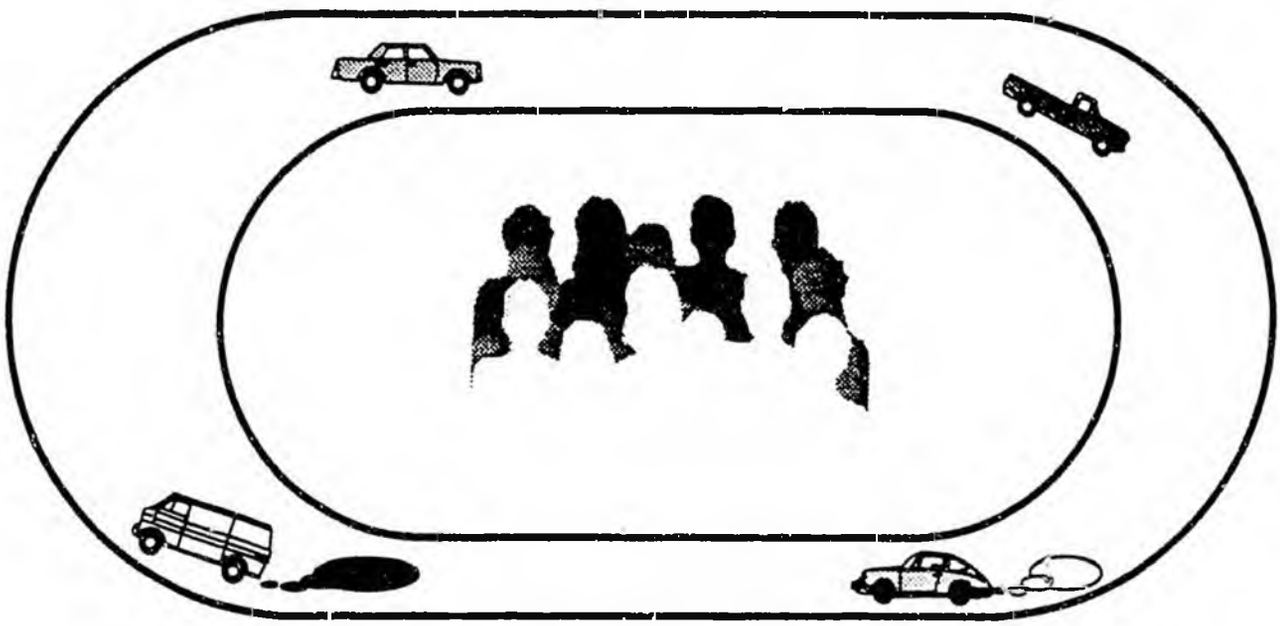
Early Reductions

A program where a facility operator can receive a 6-year compliance extension to a MACT deadline, if the HAPS emission are reduced by 90% (95% in the case of HAPS which are particulates) before the proposal of a MACT standard.

Equivalent Emission Limitation

A degree of emission reductions established by a state air quality program which would be equivalent to what the Administrator would have developed as MACT, and implemented by the state after the Administrator has failed to promulgate the MACT standard on schedule.

Title I & II
Charting A New Course



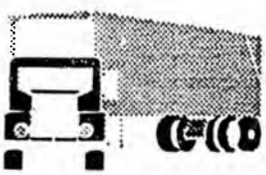
- Classification System
- Emission Reduction Targets
- Attainment Demonstrations
- Required Control Measures
- Provisions for Failures
- Federal Measures

Develop New Air Quality Plan

Air Quality Plan

General Plan Provisions

- Demonstrate Attainment
- Contingency Measures
- Emission Inventory



Diesel Vehicles

- Emission Control Systems
- Low Sulfur Fuel

Gasoline Motor Vehicles

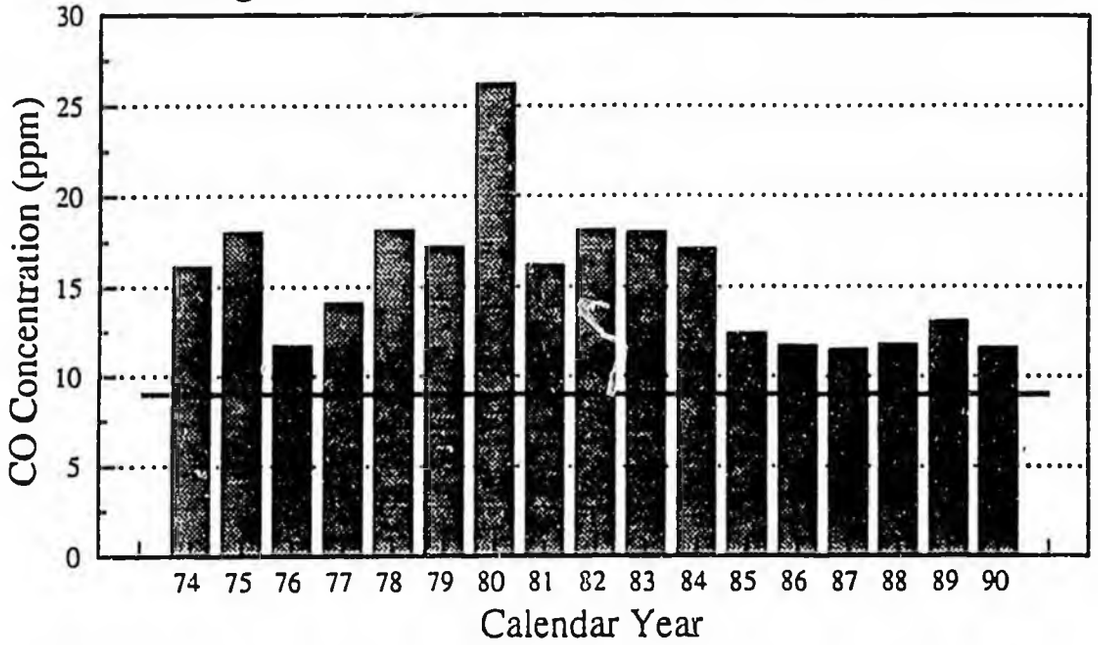
- Stronger I/M Program Standards
- Commuters
- Oxygenated Fuels
- Cold Temperature Standards

Transportation System

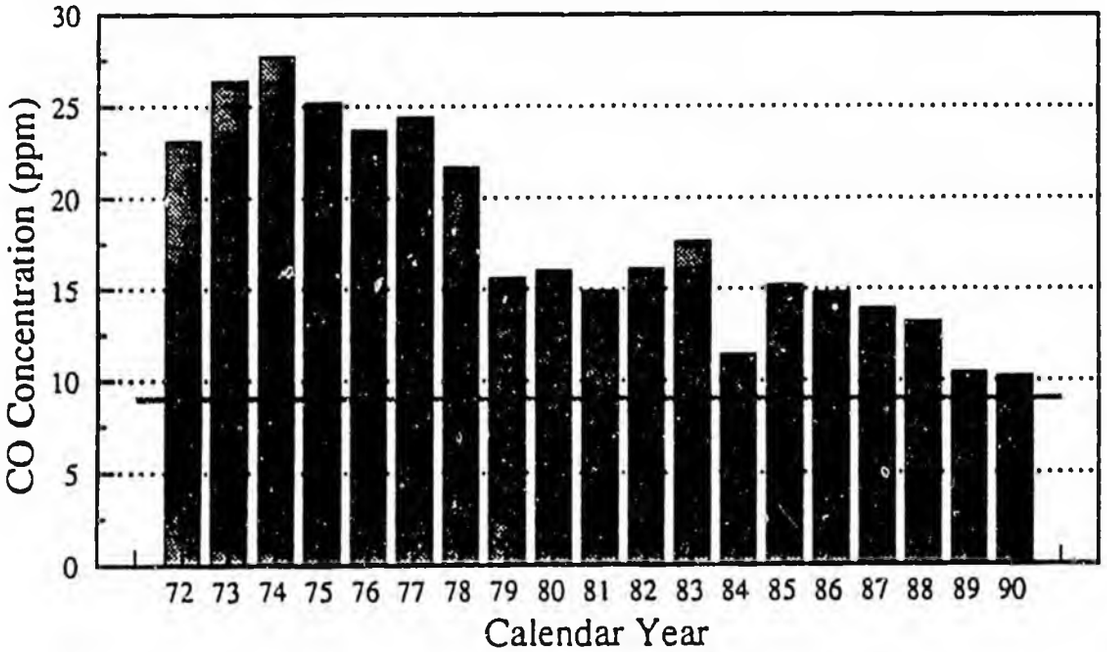
- New Planning Requirements
- Reporting Requirements

Where Do We Stand?

Anchorage Carbon Monoxide Concentrations



Fairbanks Carbon Monoxide Concentrations



Ambient Concentration

National Health Standard

DEC Clean Air Act Contacts
Air Quality Management Section
465-5100

Chief, Air Programs	Leonard Verrelli
Manager, Permit Program	Tom Chapple Environmental Engineer
Manager, Hazardous/Toxic Air Pollutants	John Stone Environmental Engineer
Manager, Transportation and Mobile Sources	Ron King Environmental Specialist
Manager, Ambient Air Analysis	Gerry Guay Environmental Engineer

COMMENTS TO HOUSE RESOURCES COMMITTEE
ON CLEAN AIR
January 29, 1992

Steven A. Torok, Chief, State Operations Section
U.S. Environmental Protection Agency
Region 10, Alaska Operations Office

The Clean Air Act of 1970 was a legislative landmark for the United States in dealing with the environment, with the clear intent being clean air. The Act required EPA to establish national ambient air quality standards as opposed to regional air quality standards. In addition, the Act established a statutory deadline by which states had to comply with these standards. Congress also directed EPA to establish emission standards for new stationary sources. Despite the fact that the 1970 Act lead to a reduction in sulfur oxides, volatile organic compounds, carbon monoxide, particulates and lead, we did not achieve the goals and intent of the Act. This is reflected in the facts: ninety-six cities have not attained the ambient ozone standard, forty-one cities exceed the carbon monoxide ambient standard, and seventy-two cities exceed the particulate matter standard. Due to controversy and legal challenges of the previous Act, EPA only established emission standards for seven hazardous air pollutants, out of a potential list of several hundred. In response to not meeting our goal of Clean Air, Congress passed the Clean Air Act Amendments on November 15, 1990.

The 1990 Clean Air Act Amendments are a significant departure from the previous Act. Over the past 20 years we have learned several things about what does and does not work and the new Act utilizes this knowledge and experience. The Act mandates cleaner fuels and cars to be built with lower emissions of pollutants. Technology based standards as opposed to risk based standards will be implemented to control air toxics which will control emissions from the entire plant and not just one chemical from the plant. Sulfur dioxide emissions from power plants are to be reduced by 10 million tons a year. Chlorofluorocarbons are to be phased out by the end of the decade. In summary, the goals of the Act when it is fully implemented by 2005 are: to remove 56 billion pounds of pollutants to the air each year, reduce emissions causing acid rain emission by 50%, reduce by 75% air toxic emissions, to have cleaner cars, fuels, factories, and power plants, and to assure that all the areas in the country meet the national ambient air quality standards.

The Act is organized into eleven Titles (next page). In order for Alaska to carry out the requirements of the Clean Air Act, specific state statutory authority will need to be provided to the Alaska Department of Environmental Conservation. Such legislation will need to address an operating permits program which incorporates enforcement authority.

CLEAN AIR ACT AMENDMENTS 1990

Title I	Provisions for Attainment and Maintenance of National Ambient Air Quality Standards
Title II	Provisions Relating to Mobile Sources
Title III	Hazardous Air Pollutants
*Title IV	Acid Deposition Control
Title V	Permits
Title VI	Stratospheric Ozone Protection
Title VII	Provisions Relating to Enforcement
Title VIII	Miscellaneous Provisions
Title IX	Clean Air Research
Title X	Disadvantaged Business Concerns
Title XI	Clean Air Employment Transition Assistance

* Not applicable to Alaska

1. **How has Congress established the respective roles of the federal Environmental Protection Agency (EPA) and the state air agencies in providing healthy outside air quality?**

In the Clean Air Act of 1970, Congress charged EPA with establishing national air quality standards to protect public health and welfare. These are concentrations of contaminants that cannot be exceeded and are to be applied uniformly throughout the country.

Congress recognized that sources and severity of pollution problems varied across the nation. Locally developed plans to achieve compliance with the standards were likely to be more cost-effective. Congress, therefore, delegated authority to the states to implement air quality programs.

EPA retains ultimate responsibility for clean air, though. Congress required that EPA develop and implement plans for areas that were not being controlled adequately by state plans or even to take over an entire state program.

2. **What is Title V of the Clean Air Act Amendments of 1990?**

Title V is an entirely new section that was added to the Clean Air Act (CAA) through the November 15, 1990 amendments. Its purpose is to ensure compliance with the diverse requirements of the CAA by compiling these complex requirements into a single, clear "operating permit" document for each of the affected stationary air pollution sources.

Alaska is fortunate to already have an operating permit program. The 1990 Amendments are quite prescriptive. Therefore, the Alaska program will need to be modified to meet all of the requirements mandated by Congress.

3. **What sources are subject to Title V operating permits?**

The 1990 Amendments require nearly all stationary sources of significant air emissions to apply for and obtain permits. This includes sources that:

1) emit or have the potential to emit more than 10 tons per year (tpy) of any hazardous air pollutant or a total of 25 tpy of any combination of hazardous air pollutant

2) have the potential to emit 100 tpy of any regulated air pollutant

3) are subject to a federal standard established by EPA under the authority of Sections 111 or 112 of the Clean Air Act

4) Any source requiring a permit prior to construction or modification. This would include such sources that have the potential to emit 250 tpy of any

regulated air pollutant or petroleum refineries that emit more than 100 tpy of any air pollutant

4. What fees are required by Title V?

Alaska must collect fees from the permitted sources sufficient to cover all direct and indirect costs *to develop* and *administer* the permit program to control affected sources. The 1990 Amendments presume that a minimum fee of $25 per ton of emission is necessary to adequately fund the new program.

Costs include, but are not limited to, the following activities:

- reviewing the permit application
- enforcing the permit conditions
- emissions (stack) and ambient (outdoor) monitoring
- inspections
- developing necessary legislation, regulations, and guidance
- mathematical modeling analyses
- preparing emissions inventories
- development and administration of a small business assistance program
- information management such as tracking permit applications, compliance certification, and other data entry

5. How was the minimum fee of $25 per ton of emission derived?

Through an indepth analysis of costs using data from state and local air agencies, EPA calculated that $25 per ton of emission would be the minimum amount necessary to fund a program as extensive as that which is required by Title V.

The permit fees will need to support many new activities and a significant expansion of existing activities. New required activities include permitting of toxic air pollutant sources and a comprehensive small business assistance program to help the many smaller companies that will be regulated for the first time.

A state that submits a program that collects a smaller fee will have to demonstrate that the lesser amount will be adequate to support all the costs of the program. EPA economists would look very carefully at such a program.

EPA must collect fees if a state does not. Also, a source failing to pay its fee is penalized 50% of the fee amount, plus interest. Federally collected fees go to a special U.S. Treasury fund for permitting activities *not to the state.*

6. What are the timeframes for all these activities?

The Title V permit program is the mechanism that ties together all the diverse requirements of the 1990 Clean Air Act Amendments.

Here's the aggressive schedule for activities:

- November 1991

Within *one year*, EPA must promulgate operating permit regulations. On April 23, 1991 EPA proposed regulations for implementing this program with substantial state government assistance (appeared in Federal Register, May 10, 1991). Missed 11/15/91, but anticipate issuing final regulations by the end of January 1992.

- November 1992

Within *two years*, states must submit to EPA plans for a comprehensive small business assistance program.

- November 1993

Within *three years*, states must submit to EPA their permit program along with the attorney general's evaluation that the state has adequate legal authority to implement the program.

- November 1994

Within *one year* after receiving the program, EPA must approve or disapprove the state's program.

(The state has 180 days to revise and resubmit a program that has been disapproved.)

- November 1994

Industry must submit permit applications by this date.

- November 1997

Permits will be issued over no more than a three year period with at least 1/3 of the permits issued each year.

7. What consequences do the 1990 Amendments provide if a state fails to develop an adequate Title V permit plan?

If a state fails to submit an approvable program by November 1993, EPA *must* apply sanctions against the state within 18 months. If the state does not correct the deficiencies by November 1995, then EPA *must* administer the program including collecting permit fees.

In the past, Congress gave EPA some discretion in when to apply sanctions and when to administer a state program. The 1990 Amendments have taken away *much* of EPA's flexibility. In the case of the permit program, the 1990 Amendments clearly mandate that EPA must assure that an adequate program, either state-run or EPA-run, is in effect by 1995.

8. What are the sanctions?

The sanctions available to EPA are to withhold federal highway funds and/or to require new sources to provide 2 to 1 offsets (reduce pollution from existing sources at twice the amount that the new source will emit.) EPA *must* impose one or both of these sanctions within 18 months after November 1993. EPA *must* impose *both* sanctions by November 1995.

9. What would happen if EPA took over Alaska's permit program?

The permit program, including enforcement, would be run from EPA's Regional Office in Seattle. EPA would collect permit fees to pay for its program. Because the federal permitters would not be as familiar with Alaska's industries, the permits are likely to be less flexible and perhaps less responsive to the individual needs of each facility.

Alaska would not be preempted from continuing their own permit program. This could result in double permitting. EPA *and* Alaska could issue permits, collect fees, and conduct enforcement. This would lead to additional costs for industry as well as confusion and uncertainty.

Also, sanctions would have been imposed which could have a negative effect on Alaska's economic growth. EPA would continue to work with Alaska to develop an adequate state program. Eventually, Alaska could assume the permit program and the sanctions would be lifted. Alaska would then be responsible for enforcing and renewing permits that were originally written by EPA staff.

Summary of Consequences of Not Adopting an Approvable Operating Permit Program

A complete, fully-approvable operating permits program must be submitted to EPA by no later than November 15, 1993.

If an approvable program is not submitted by November 15, 1993, EPA may impose any one of the Clean Air Act's sanctions - either a prohibition on federal highway funds statewide or the imposition of a 2-for-1 offset requirement for new or modified major stationary sources in nonattainment areas.

If a permit program is not approved by May 15, 1995, EPA is required to impose the Clean Air Act's sanctions - specifically, a prohibition on federal highway funds statewide and the imposition of a 2-for-1 offset requirement for new or modified major stationary sources in nonattainment areas.

EPA is also authorized to withhold any federal air grant funds which would support permitting and enforcement activities.

If a full program is not approved by November 15, 1995, EPA is required to promulgate and run a federal permitting program. In this situation, sanctions on highway funds and offset requirements will continue and federal air grant funds will be withheld.

If EPA must run a permit program, EPA will charge fees adequate to pay for the cost of the federal program. Federal fees are likely to be much greater than state fees would be.

If EPA must run a permit program, permits will be issued in accordance to EPA regulations and standard procedures. Little consideration can be given to Alaska-specific concerns or needs.

Benefits of a State Program Instead of a Federal Program

State permitting program can be customized to best fulfill the state's needs and environmental policies (provided the minimum federal requirements are met).

State agencies are more in tune with local concerns and can respond better to both the regulated community and the public.

Good operating permits that adequately reflect a source's operating will be a benefit to the source, the state, and the public alike.

Permit revenues will greatly reduce the amount of state general funds needed to support the air program (i.e., the user fee concept).

ATTACHMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 24 1991

OFFICE OF
AIR AND RADIATION

SUMMARY OF EPA PROPOSED OPERATING PERMIT RULE

UNDER THE CLEAN AIR ACT

On April 23, 1991, the Environmental Protection Agency (EPA) proposed a national air pollution control permit program, as required by the Clean Air Act Amendments of 1990. The entire text of the proposal will appear soon in the Federal Register. The public will have 60 days from the date of publication to comment on the proposal. EPA will take the public comments into consideration and issue the final rule in November 1991.

- Signed into law by President Bush on November 15, 1990, the Clean Air Act Amendments of 1990 include a number of new programs to be implemented by the operating permit program, including an acid rain title that calls for an annual 10 million ton reduction in sulfur dioxide from 1980 levels; a performance-based standard equivalent to "maximum achievable control technology" for air toxics; and an "annual improvement" program for reducing ground-level ozone or "smog."

- The most important procedural reform -- and arguably the most important of all the new provisions -- in the new Act is the operating permit program in Title V.

- While the established State Implementation Plan remains the key strategic and planning document for States to use in meeting many air quality goals, the new permit program enhances air quality control by simplifying oversight and enforcement of a source's air pollution control requirements and generating income for States.

- The new operating permits program makes the Clean Air Act more consistent with other environmental laws, like the Clean Water Act, the Resource Conservation and Recovery Act, and the Federal Insecticide, Fungicide, and Rodenticide Act, all of which require permits. The new Clean Air Act's program is modelled after a similar program under the Clean Water Act's Federal National Pollution Discharge Elimination System (NPDES).

- Over 40 States already have their own laws requiring operating permits for sources that emit pollution into the air. The new program under the Clean Air Act Amendments of 1990 will establish some national consistency by calling on all States to establish and operate a program requiring permits from sources affected under the new Act.

- In April 1991 EPA signed proposed regulations that specify the minimum elements of a State operating permit program. EPA will issue those regulations in final form in November 1991.

THE TIMETABLE: HOW THE NEW OPERATING PERMIT PROGRAM WILL WORK

- EPA has one year to issue the final regulations (by November 1991). Then each state has two years to submit to EPA a permit program that meets those regulatory requirements (by November 1993).

- EPA then has one year to approve or disapprove the program (by November 1994).

- EPA must levy sanctions against a state that does not submit or enforce a permit program.

- All sources subject to the permit program must submit a complete permit application within 12 months of the effective date of the EPA-approved state program.

- The state has three years after EPA approval to issue the first round of Title V permits.

- After the first round of permits has been completed, state permitting authorities will then have 18 months from receipt of a new permit application to issue or deny a new or renewed permit.

- EPA has 45 days to review each permit and to object to permits that violate the Clean Air Act. If EPA fails to object to a permit that violates the Act or the state implementation plan, citizens have 60 days to petition EPA. EPA must then explicitly grant or deny the permit within 60 days.

- Judicial review of EPA's decision on a citizen's petition is available in the Federal Courts of Appeals.

BENEFITS OF THE PERMIT PROGRAM

- Improved Enforcement President Bush promised that his clean air legislation would contain strong enforcement provisions and the new permitting program plays a key role in fulfilling

that promise. The program is the centerpiece for compliance with the entire Act.

- Under the old Act, pollution control requirements were often ambiguous, incomplete, and scattered throughout numerous hard-to-find provisions of state implementation plans and federal regulations. In many cases applicable state implementation plans did not require sources to submit periodic compliance reports to EPA or the States.

- The new program will ensure that all of a source's obligations with respect to the Clean Air Act will be contained in one permit document. Sources will file periodic reports identifying the extent to which it has complied with those obligations. These requirements will greatly enhance the ability of state agencies and EPA to track compliance and evaluate its air quality situation.

- Also, public involvement in reviewing and commenting on draft permits and being able to petition EPA will result in improved enforcement of the Act.

- More State Resources The new program will greatly augment a state's resources to administer air pollution control programs by requiring sources of pollution to pay their fair share of the costs of a state's air pollution permitting program.

  - In the past inadequate state resources have sometimes hampered air pollution control efforts.

  - Under the new Act States will levy an annual permit fee sufficient to cover all reasonable direct and indirect costs to develop and administer the permit program. That amount must be equal to at least $25 per ton of each regulated pollutant (not including carbon monoxide), adjusted for inflation. The state is not required to count emissions of any pollutant from any one source in excess of 4,000 tons per year. The program can reduce the required fee if it can demonstrate that a lesser amount will support the program.

  - EPA expects that the permit fee program will raise some $300 million per year on a nationwide basis. This will significantly increase the funding level of state air pollution control agencies.

  - If EPA determines that a state's fee program is not approvable, or that a state is not adequately administering or enforcing an approved fee program, EPA may collect reasonable fees from permittees. Those fees

would be deposited in a special Treasury fund, subject to appropriation, to carry out EPA's permitting activities.

- Streamlined Process to Revise Control Requirements. The new program lays the foundation for streamlining the process to revise control requirements for single sources of air pollution. In the past, revisions to a source's pollution control requirements would often require full rulemaking by both the States and EPA to change the state's implementation plan. This process sometimes took years, creating a great deal of uncertainty for the affected source. In the near term, States will still have to submit revised plans if they rely on more stringent permit limits to achieve improved air quality. Eventually, however, the new program proposes that the plans allow for single source revisions to be handled through the permit process that limits EPA to a 45 day review period.

A PUBLIC PROCESS: HOW EPA DEVELOPED THE PERMITS PROPOSAL

- In order to meet the short timeframe provided in the Act for EPA to issue the final rules (12 months), EPA developed an unprecedented consultation process prior to proposal.

- EPA conducted a series of preproposal roundtable discussions with representatives from state and local air pollution control agencies, industry, environmental groups, and other federal agencies. This has allowed EPA to address as many contentious issues as possible as early as possible in the regulatory process.

- With insight from this process, the Agency has been able to construct creative solutions to many of the most complicated aspects of the permit regulations. Also, the process pioneered for this rulemaking illustrates an expedited method for identifying key outside group concerns and resolving internal EPA issues. A similar process is being used for the early reductions of toxic air emissions and is being planned for other rulemakings in the future.

- This "roundtable discussion" process supplements, but in no way replaces, the formal notice and public comment process that has traditionally been used by EPA. We will, of course, take full public comment on the proposed rule.

- The public will have 60 days to comment on the proposed rule. EPA will analyze those comments and intends to issue the final rule in November 1991.

THE OPERATING PERMITS PROPOSAL

- The proposed package addresses concerns raised by state and local agencies, and industry and environmental groups on several key issues, including the scope of the program; flexibility of industry to make operational changes without revising its permit; the relationship between permits and the state implementation plans; the extent to which a source can rely on the permit as a complete statement of all its obligations under the Act (so-called "permit shield"); and other issues.

- Program Scope: The program will require all major sources of air pollution to obtain an operating permit. The definition of "major" source varies within the Act's classification system for nonattainment areas. For example, while a source would have to emit 100 tons per year or more of ozone-producing volatile organic compounds to be considered a "major" source in most areas of the country, that definition tightens to 50 tons per year in urban areas designated as "serious," and 25 tons per year in those urban areas designated as "severe" under the Act. In the Los Angeles area, a 10 ton per year source of volatile organic compound emissions is considered a "major" source under the Act.

  Likewise, the definition of major source under the air toxics provisions in Title III of the new Act defines major sources as those that emit 10 tons per year of any hazardous pollutant or 25 tons per year of a combination of hazardous pollutants.

  EPA proposes to defer the applicability of most small (sources not defined as "major") sources for five years. This will help phase in the program in an orderly fashion, as well as reduce the administrative burden on many small businesses, as well as States that must implement the program.

  EPA also proposes to define a "source" as all similar emission units under common control at the same plant site. This means that units within a contiguous area and which are in the same major group industrial classification will be considered in whether a source is defined as "major."

  The Agency also proposes that a source be subject to the Title V permits requirements for emissions of all pollutants regulated under the Act, once the source is subject to the permit program for one pollutant. [Note: this is consistent with the way EPA has historically operated for construction permits issued under Title I of the Act.] The law does not allow EPA to restrict the applicability of permit requirements to the group of equipment within a plant emitting the particular pollutant for which the source is defined as "major."

- Operational Flexibility: Title V requires the operating permit program to include provisions for allowing sources to make certain allowable operational changes without revising its operating permit. This requirement is an important factor for assuring that the program does not seriously hinder a source's ability to respond to market factors.

  EPA proposes to establish a three-tiered process that tailors the amount of administrative review preceding a proposed change to the environmental effect of the change. These include:

  - Administrative permit amendments which include "typos," address and ownership changes, changes processed under the New Source Review provisions of the Act which have already had public notice and comment, certain changes to interim compliance plan milestones, and other changes having no effect on air quality. These changes can be handled by direct correspondence, copies of which would be supplied to EPA and placed in the public record.

  - Minor permit amendments which include changes to a permit that result in emission increases to the permit, but that do not trigger "modification" requirements under the Act. Sources making minor permit amendments would have to give at least seven days prior notice to the permitting authority and EPA before changing its operations. If the permitting authority does not object to the changes within 7 days, then the change would automatically be approved.

  - Permit modifications which involve significant changes to a source's operation. These changes would be subject to the complete permit review process.

- Relationship between Permits and State Implementation Plans: Under the Act the permit will contain detailed source-specific requirements. As a result, state implementation plans will need to be less detailed in the future. EPA proposes to change its criteria for future state plans in a way that will allow more flexibility and avoid bureaucratic duplication between the plans and the permit program.

- Permit Fees: EPA is encouraging States to consider actual, rather than allowable or potential, emissions as the basis for assessing permit fees owed by sources. The use of "actual" emissions will encourage pollution prevention to limit the size of the fee and will provide sources with more flexibility in their permits, while ensuring sufficient resources for the permit program.

- Permit Shield: EPA is proposing to allow the "shield" (the extent to which an approved permit shields sources from other additional requirements under the Act) to apply to all applicable requirements so long as they are explicitly included in the permit or specifically found to be inapplicable in the permit. The shield does not apply to the acid rain provisions; nor does it shield a source from enforcement in conjunction with preexisting violations of the Act.

- Federal Enforceability of State Requirements: Because the primary purpose of the Title V permit program is to assure that sources comply with all applicable federally-recognized requirements under the Act, States may not incorporate inappropriate state requirements into the Title V permits. Unless state requirements have been used to demonstrate compliance with state implementation plans, they should not be included in the permit; if they are, they will not be enforceable by EPA or by citizens under the Act's citizen suit provision.

KEY ISSUES FOR SMALL BUSINESS

- For the first time ever, many small businesses will be required to obtain an approved operating permit for their emission requirements under the federal Clean Air Act.

- Many small businesses will benefit from EPA's proposal to delay the permit program for 5 years for sources that are not defined as "major." Because of the time required for EPA to issue final rules and States to submit approved programs, this means that the program will not apply to "nonmajor" sources for 7 to 10 or more years. It is important to note, however, that this is not necessarily a blanket deferral for all small businesses. Some small businesses emit enough pollutants to qualify as a major source under the new, lower emissions thresholds mandated in the Act.

- Separate and apart from this proposed regulation on operating permits, EPA is also setting up a program to help States meet their requirements under section 507 of the new Act. That section calls on States to establish a small business stationary source technical and environmental compliance assistance program. Among other things, these programs will help small businesses determine what requirements are applicable and provide information concerning compliance methods.

- EPA also plans to encourage States to take advantage of the "general permits" provisions in section 504(d) of the Act when dealing with small business sources. This section allows the

permitting authority to issue a single permit covering numerous similar sources. This could be particularly helpful for different small businesses operating similar processes in a given area.

KEY ISSUES FOR STATES

- Several States are already initiating efforts to review and modify their state legislative authority regarding the permit program. This is important so that the programs can be set up in a timely fashion. Over 40 States already have programs in place, and need to determine what changes must be made to make their programs (and possibly their legislative authorities) compatible with the new Clean Air Act. Those States without programs may need new legislative authority.

- EPA's operating permits proposal contains rules that are designed to be flexible so that States can adapt their existing programs to minimum federal requirements.

- One key benefit associated with the permit program is the fee that sources are required to pay to the permitting agency. The sooner the state program is up and running, the faster the States will be able to take advantage of the revenue-generating aspect of the permit program.

ABEL
KIRCHER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 27 1991 JUL 05 1991

AIR & RADIATION BRANCH

OFFICE OF AIR AND RADIATION

MEMORANDUM

SUBJECT: Summary Information on Title V Permit Fee Provisions

FROM: William Houck,
Senior Program Analyst
Office of Program Management Operations

TO: Regional Air Grant Coordinators
Regions I-X

At the recent national Air Grant Coordinators' meeting in Dallas we discussed the implications of the new Title V permit fee requirements on the role of the regional air grant coordinators (RGCs). At that time the RGCs expressed a common desire to take a more active role in tracking progress and assisting their states in the implementation of their Title V permit fee provisions.

Several regions indicated that many of their states were eager to begin development or modification of their permit fee provisions and requested that EPA provide more detailed guidance on the criteria it would use to determine the acceptability of a state's fee program. Indeed, over the last several months, this office has received several requests from states to assess the approvability of their draft enabling legislation or fee schedule design.

As you know, the proposed rule covering the Title V operating permit program was published in the Federal Register on May 10, 1991 (40 CFR 70; pp. 21712-21781). The public comment period closes July 9, 1991. The preamble accompanying the rule discusses numerous issues which might affect the fee aspects of a state's operating permit program. On some issues the Agency poses three or more alternatives for consideration. Therefore, it would be premature, if not problematic, to issue a guidance document on the elements of an acceptable permit fee program prior to the close of the public comment period.

It is not premature, however, to provide you with general information on the Title V fee provisions and an overview of central fee issues. This memo also apprises you of further efforts underway or proposed to develop more detailed guidance on Agency criteria to determine the acceptability of a state's permit fee program.

Attached are talking points prepared by this office and discussion papers prepared by the Northeast States for Coordinated Air Use Management (NESCAUM) and the National Governors' Association (NGA). The talking points outline general fee program requirements and discuss key fee issues in the preamble. The latter document, "In Brief- Development of State Permit Fee Programs Under the New Clean Air Act," resulted from two national workshops held for state and local officials in early 1991. The workshops were conducted by the National Governors' Association under a grant from the Office of Program Management Operations and incorporated input on key fee issues earlier identified by the joint EPA-State Title V workgroup.

As regards the development of Agency guidance, interest has been expressed in reactivating the permit fee subgroup in order to produce, or oversee the production of, a permit fee national program guidance document for regional and state use. The exact form of the guidance is still open to question (e.g., checklist, Q&As, how-to-workbook, etc.). At a minimum it would cover: (a) the criteria EPA would use in defining minimally acceptable permit fee program elements, (b) recommended legislative authority for fees, (c) describe how EPA would assess the adequacy of a state's determination of its program costs and fee schedule, and (d) articulate eligible and ineligible Title V activities.

Production of the guidance needs to be coordinated with the preparation of the response to comments for the fee aspects of the proposed Title V regulation and preamble. Mike Trutna and Kirt Cox have been approached about how best to accomplish this. To be of the most use the guidance would need to completed and distributed very soon after the close of the comment period.

Currently myself, Steve Hitte, Bill Hamilton and Allen Basala of OAQPS and Carla Pierce of Region IV are interested in participating in this effort. If you or another representative of your region would like to participate in this effort please contact me as soon as possible at FTS 382-7754.

Attachments

cc: (w/o attachments)

Allen Basala, OAQPS
Air Branch Chiefs, Regions I-X
Rob Corry, Reg. VIII
Kirt Cox, OAQPS
Bill Hamilton, OAQPS

Steve Hitte, OAQPS
Jerry Kurtzweg, OPMO
Carla Pierce, Reg. IV
Paul Rasmussen, OPMO
Pat Reisback, Reg. VIII
Mike Shapiro, OAR
Mike Trutna, OAQPS
Tom Williams, OAQPS
Tim Williamson, OPAR

Attachment A

Title V Permit Fee General Information

Process

- The procedural backbone of new CAA is Title V operating permit program. Each permit shall contain all requirements and emission limitations applicable to a source. This should enable EPA and states to more precisely track compliance and attainment progress rather than solely rely on SIP milestones. Title V effectively integrates the various titles of the Act.

- One year after enactment EPA must publish final regulations (by 11/91). Three years after enactment states must submit their operating permit programs (11/93). EPA must act on the state submittal within one year (11/94). If EPA disapproves the state's program in whole or in part, the state has 180 days to correct any deficiencies or it may be subject to section 179 (b) sanctions (highway ban and 2 to 1 new construction offsets). EPA may also promulgate an operating permit program and charge fees in lieu of state action.

- A covered source must submit an application within twelve months after the date EPA approves or promulgates a program applicable to that source. For the initial round of permit applications to be submitted, the state must act on at least 1/3 per year over a three year period.

Source Applicability

- Affected sources include: major stationary sources as defined in section 302, and in nonattainment areas depending upon the area's severity, as defined in Title I, part D of the Act; section 111 NSPS sources; section 112 sources emitting any HAP with the potential to emit 10 TPY or multiple HAPs at 25 TPY; Title IV acid rain sources; any NESHAP source; PSD/NSR sources; and any other stationary source designated by final EPA rule.

- EPA has proposed to allow a state to defer any source, except major sources and acid rain sources, from coverage under the program for a period not to exceed five years, from the point of program approval. EPA is proposing this in consideration of a possible permit processing overload on states in the initial years of the program. A deferral could not be granted, however, if it jeopardized SIP obligations.

Applicable Activities

- The operating permit program is to be self-supporting by charging fees to all affected sources. Sources are meant to pay their fair share for services rendered by the permitting authority. Fees must cover all direct and indirect costs incurred by the permitting authority in developing and administering the permit program. Various estimates of the percentage of a state's total air program costs attributable to permitting-related activity have ranged from 50 to 75%.

- In keeping with Congressional intent, EPA has taken a broad reading of the applicable activities covered by the statute. Fees collected must cover all indirect and direct costs incurred by the permitting authority, as well as other agencies incurring costs in the permitting process. This includes, for each source being permitted, all costs related to: permit program planning and development; permit processing and issuance; permit oversight and compliance (but not litigation); monitoring, modeling, analyses and demonstrations; preparing inventories and tracking emissions; related information management needs; SIP approval; administration and overhead; and section 507 small business assistance program costs.

- States may also reasonably charge for that portion of the source's area-wide or network costs related to functions like ambient monitoring. States have requested that EPA provide more information on how these costs might be fairly apportioned and provide more specific information on what program activities EPA considers to appropriate for Title V cost recovery.

- Title V fees cannot be assessed to mobile sources nor can Title V fees be expended on mobile source activity. Title V fee revenue can only used to offset the costs related to permitting Title V sources. Fees cannot be used for other unrelated air work or other program purposes.

Fee Determination

- The permit fee program requirements have been designed to accomodate a variety of state approaches (owing to the existence of numerous well-established state and local permit fee programs). State fee program schedules can be based on any one or a combination of factors (such as workload, cost accounting, level of actual or allowable emissions, arbitrary

levels per type of source or source category, risk, etc.). However, states must design or modify their fee schedules sothat, at a minimum, they collect in the aggregate the equivalent of at least $25 per ton per pollutant per year from each source, adjusted by the CPI for inflation each year (with 1990 as the base year), up to 4000 tons per year per pollutant per source.

- Should a state choose the emissions-based fee approach outlined in Title V, it is not required to charge fees on pollutant emissions greater than 4000 tons per year per pollutant although it may choose to do so. Criteria pollutants (except CO) and air toxics, when regulated, are subject to these requirements. There is some question as to what "when regulated" means (i.e., upon enactment, upon EPA promulgation, upon state regulation in advance, etc.).

- States may also charge different amounts per ton per pollutant or per source category as long as the as the "presumptive norm" amount (total actual emissions of affected sources x CPI-adjusted cost per ton) is collected in the aggregate.

- The $25 per ton "presumptive norm" approach is meant to be a benchmark to enable EPA to determine the adequacy of a state's program. EPA believes that this fee rate should assure the minimum level of support necessary for a state. EPA is basing its analysis on actual emissions. Beyond using this as a test for adequacy, states may opt for this approach as their fee schedule or may submit their own form of fee schedule as noted above. EPA only requires that the state program collect, in the aggregate, at least the equivalent $25 per ton amount, adjusted for inflation. If a state submits a program designed to recover less than this amount it must undergo more detailed EPA scrutiny to determine its approvability. EPA has yet to define how rigorous a demonstration it will require in these circumstances.

- No Title V source can be exempted from paying a fee without the Administrator's approval. Due to considerations of undue economic impact some small business sources are likely to receive some relief from the fee requirements. This could take the form of a reduced fee, a nominal fee or a fee waiver.

- Affected sources failing to pay their fee will be subject to additional fines and penalties pursuant to section 502(b)(3)(C)(ii).