# THE ENVIRONMENTAL PROTECTION AGENCY: PRELIMINARY ANALYSIS OF THE PROPOSED 1983 BUDGET

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CONTENTS

## SUMMARY

This paper contains a brief analysis of the President's 1983 budget request for the Environmental Protection Agency (EPA). In particular, the analysis concentrates on four major media programs within EPA--water quality, air quality, hazardous waste, and toxic substances. The analysis was prepared at the request of Senator Patrick Leahy and Congressman Paul McCloskey, Jr., the Co-Chairmen of the Environmental and Energy Study Conference.

The numbers presented in this analysis were prepared for the March 9 EPA Budget Workshop hosted by the Environmental and Energy Study Conference. The numbers are preliminary and subject to revision as part of the continuing analysis of the federal budget by the Congressional Budget Office (CBO).

### Methodology

All historical and projected budget figures presented here were obtained from the EPA Appropriations Justification documents submitted each year to the Congress. Historical figures from 1975 to 1981 depict actual obligations; these figures were used because they are the most detailed, showing budget trends within the individual media programs. Obligations reported for the years 1982 and 1983 in Tables 1, 4, 7, and 9 represent CBO estimates of expected obligations, and include carry-over funds from the previous year. In other comparisons of the 1982 and 1983 budgets, only budget authority as estimated (1982) or requested (1983) by EPA is used.

In comparing 1982 and 1983 budget authority levels, both nominal and 1981 constant dollars (adjusted for inflation) are used. Historical figures were adjusted to 1981 dollars using appropriate gross national product (GNP) deflators; projected 1982 and 1983 figures were adjusted using CBO's estimated GNP deflators described in The Prospects for Economic Recovery (February 1982).

In addition to the EPA Budget Justification Statement submitted to the Congress, other documents used in this analysis include the 1983 EPA budget submission to the Office of Management and Budget and the 1982 EPA Resource Impact Analysis (workload models) prepared by the agency. In all cases, the Budget Justification Statement was assumed to contain the final and most accurate description of potential program changes.

## Overview of the EPA Budget

The total EPA budget request of $3.6 billion for 1983 includes funds for construction of public treatment works (construction grants program) and emergency hazardous waste cleanup (superfund). The remainder of the EPA budget funds the operating programs conducted by the agency, and includes funds for abatement and control, enforcement, research and development, management and support, and buildings and facilities (see Summary Table). The total 1983 request of $961 million for EPA's operating programs represents a 17 percent decrease in real terms from 1982 appropriation levels. Funding for abatement and control will be reduced from its 1982 level by 22 percent, enforcement by 22 percent, and research and development by 27 percent. The Summary Table shows the budget changes between 1982 and 1983 for the agency.

In the following sections, four separate EPA programs are examined--water quality, air quality, hazardous waste, and toxic substances. The first part of each section explores the legislative requirements underlying the program. The second part describes the budget and program changes between 1982 and 1983 for the program and its subprograms. Each program is subdivided into abatement and control, enforcement, and research and development subprograms. This discussion presumes some basic familiarity with environmental issues and policies.

In summary, the 1983 budget makes several major changes in EPA program direction and raises corresponding issues:

- The states will receive a greater share of program responsibility, often in conjunction with reductions in the amount of federal resources supplied to the states in the form of direct grants, training, and assistance. Will the states be capable of assuming such greater responsibility in light of probable budgetary constraints at the state level?

- Federal resources in the enforcement areas of the air, water, hazardous wastes, and toxic substances programs are being reduced, with legal resources being consolidated in a single office of the agency, the Office of Legal and Enforcement Counsel. It appears that a sharp reduction will occur in the resources available to monitor compliance. Will such reductions be offset by increased state enforcement activities, or will reduced federal efforts lead to possible relaxed compliance in certain areas of the country?

- In general, EPA is shifting research and development efforts away from long-term projects to those activities more concerned with the immediate implementation of regulations. This may have the effect of reducing the amount of data available to review, revise, and develop future regulations.

SUMMARY TABLE. TOTAL EPA BUDGET CHANGES, 1982-1983 (Budget authority as reported by EPA, in thousands of dollars)

| | 1982 (EPA current estimate) | 1983 (EPA request) | Percent Change |
|---|---|---|---|
| | | Nominal Dollars | |
| Construction Grants | 2,400,000 | 2,400,000 | 0 |
| Superfund | 190,000 | 230,000 | +21 |
| Operating Programs | 1,086,012 | 961,392 | -11 |
| Total | 3,676,012 | 3,591,392 | -2.3 |
| | | Constant 1981 Dollars | |
| Operating Programs | | | |
| Abatement and control | 482,319a/ | 394,340 | -22 |
| Enforcement | 80,112b/ | 62,821 | -22 |
| Research and development | 238,281 | 174,117 | -27 |
| Management and support | 205,628 | 199,647 | -3 |
| Buildings and facilities | 3,368 | 2,601 | -23 |
| Total | 1,010,208 | 833,527 | -17 |

NOTE: Includes salaries and expenses.

a/ Includes hazardous waste permit issuance.

b/ Does not include hazardous waste permit issuance.

## WATER QUALITY

Water quality is the largest regulatory program in EPA's operating budget. Obligations reached a peak of $387 million in 1979, more than double (without adjusting for inflation) the EPA 1983 budget estimate of $192 million. This 1983 budget represents a 23 percent decline from the 1982 level. It will require a substantial reduction in water quality research and development, and a significant increase in the responsibilities of individual states in developing water quality programs.

### BACKGROUND

Water pollution arises from numerous sources, notably industrial and municipal discharges and natural drainage from farmland, forests, and developed areas. Among the most widespread pollutants observed by state officials who monitor water quality are high levels of nutrients, bacterial pollution, high concentrations of suspended sediment, and materials that deplete oxygen in streams. 1/ More recently, concern has increased over toxic pollutants in surface waters and contamination of groundwater by conventional pollutants and toxic substances.

#### Policy Action 2/

Congressional Mandate. The history of Congressional action to deal with water pollution problems begins with the Federal Water Pollution Control Act of 1948. Major changes followed in amendments in 1956 and 1961, the Water Quality Act of 1965, the Clean Water Restoration Act of 1966, and the Water Quality Improvement Act of 1970. The current program, however, is primarily a result of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) and the Clean Water

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1/ Environmental Quality: The Ninth Annual Report of the Council on Environmental Quality (December 1978), p. 91.

2/ Additional information can be found in David Harrison, Jr., and Robert Leone, Federal Water Pollution Control Policy, Working Paper Number 12, American Enterprise Institute (November 18, 1981), and Environmental Quality: The Sixth Annual Report of the Council on Environmental Quality (December 1975).

Act of 1977 (Public Law 95-217). These acts established a "zero discharge" goal by 1985 and an interim water quality goal of "fishable" and "swimmable" waters by July 1, 1983.

The 1972 legislation requires EPA to develop limitations for industrial and municipal discharges into the nation's waters. Direct industrial discharges are to be controlled utilizing the "best practicable control technology currently available" (BPT) by July 1, 1977, and the stricter standard of "best available technology economically achievable" (BAT) by July 1, 1983. Discharges from new sources are to be controlled using the "best available demonstrated control technology." EPA is required to maintain a list of industries (including 27 industries mentioned specifically) and promulgate standards (effective immediately) for new sources in these industries within 16 months of their inclusion on the list.

Industrial discharges into municipal sewage systems ("publicly owned treatment works") are to be regulated through "pretreatment guidelines." Pretreatment standards are to specify a compliance date no later than three years from the date of promulgation, and shall prevent the discharge of pollutants through publicly owned treatment works that strain the capacity of those facilities.

Municipal sewage discharges are to receive "secondary treatment" (as defined by EPA) by July 1, 1977, and "best practicable waste treatment technology" (BPT) by July 1, 1983. In order to assist local governments in meeting these requirements, the 1972 amendments greatly increased the amount of federal aid for constructing municipal waste water collection and treatment systems. The 1972 amendments set the federal share of planning, design, and construction costs at 75 percent and authorized $18 billion over a three-year period for this purpose.

The major change of the Clean Water Act of 1977 was to specify different standards for toxic and conventional pollutants, a distinction not made in the 1972 act. The 1977 act requires EPA to develop industry effluent limits based on "best available technology economically achievable" (BAT) for control of the 65 classes of toxic priority pollutants referred to in the act. For conventional pollutants, BAT was replaced by "best conventional pollution control technology" (BCT), and the deadline was extended to 1984. BCT was to be as strict as the "best practicable control technology" (BPT), but no more strict than BAT. BCT was to be determined by the relationship between the cost of effluent reduction and the resulting effluent reduction benefits, and the cost and level of reduction attained from publicly owned treatment works.

Therefore, these two acts require EPA to set three types of effluent limitation standards for industry: BPT for interim control, BAT for toxic pollutants, and BCT for conventional pollutants. These standards are to be enforced through the issuance of permits to individual point sources. In

addition, pretreatment guidelines are to be set for discharges into municipal treatment works and standards also are to be set for each category of new sources.

Program Accomplishments. Effluent limitations are standards set by EPA for an entire industry or subcategories of an industry. Permits are then issued to individual sources within an industry to enforce the standards.

1. BPT and NSPS Guidelines for Direct Industrial Discharges. Although EPA was only required to develop effluent standards for new sources for 27 industries within 16 months of the effective date of the act, EPA decided to issue BPT guidelines for sources within these industries at the same time. These 27 industries, along with three added by EPA, were termed Group I, Phase I industries and standards were promulgated by the end of 1974. Nearly all were challenged in court. As a result of a court decision (N.R.D.C. versus Train, 1974), EPA began the development of guidelines for another 38 industries (termed Group I, Phase II and Group II industries). Approximately one-half of these guidelines have been promulgated.

2. BAT Standards for Direct Industrial Discharges. BAT standards for nine primary industries--leather tanning and finishing, textile mills, timber products processing, gum and wood chemicals, rubber manufacturing, petroleum refining, paint formulating, ink formulating, and inorganic chemicals manufacturing--were proposed by the end of 1980. The standards include standards for existing and new discharges into publicly owned treatment works and pretreatment standards of performance for new sources. However, only one standard (timber products processing) has been promulgated.

3. Pretreatment Guidelines. Only one guideline (for electroplating, in 1979) has been promulgated concerning indirect industrial discharges into municipal sewage treatment systems.

4. BCT Guidelines. BCT guidelines for conventional (non-toxic) pollutants were promulgated for 41 industrial subcategories in August 1979. EPA also published at that time its methodology for developing BCT effluent limitations. In July 1981, a court decision remanded these regulations to EPA. In February 1982, EPA withdrew all BCT limitations that were more strict than BPT. Over the next few months, EPA will be developing the cost-effectiveness test required by the court, assessing the desirability of revising the underlying BCT methodology, correcting its calculations, and examining new data that have been developed since 1979.

Other program accomplishments have occurred at the state level. National Pollutant Discharge Elimination System (NPDES) permits are issued to industrial and municipal dischargers by an EPA regional office or by a state if permitting authority has been delegated. About one-half of the states and territories currently have authority to issue permits. Approximately, 62,000 NPDES permits have been issued to dischargers.

## Obligations by Budget Function

EPA's obligations by budget function are shown in Table 1 for water quality programs and construction grants, for the years 1975-1983.

## Future Program Direction

The two major regulatory activities in the water program will continue to be the effluent guidelines and NPDES permitting program. Effluent guidelines (including BAT requirements, standards for new sources, and pretreatment standards for new and existing sources) are required to be proposed and promulgated for 23 primary industries according to a schedule specified in the N.R.D.C. et al. versus Gorsuch et al. and Union Carbide et al. consent decree. EPA failed to meet any of the deadlines in the consent decree as modified, and filed with the court on March 5, 1982, a new schedule for proposal and promulgation. This schedule, which has not yet been agreed to by the court, requires proposal of all guidelines by March 1983 and promulgation by June 1984 (see Table 2). EPA's March 5 proposal would require compliance by June 30, 1984, except where a later date is allowed by the act.

All dischargers are required to have a NPDES permit under the 1972 and 1977 laws, and about 62,000 facilities have such permits. About one-half of these have expired, another 6,000 will expire by the end of fiscal year 1982, and another 6,000 will expire in fiscal year 1983. The current permitting rate of the EPA and the states is about 12,000 permits a year. Since permits last for five years, the current rate implies issuance of 60,000 permits every five years. If this rate continues, EPA can probably eliminate the backlog and stay even with permitting requirements for the existing 62,000 permitted facilities.

Whether the current permit rate will accelerate or slow down is an open question. For some permits, issuance of the BAT permit will be easier than the original BPT permit, since BAT will be like BPT and thus major modifications will not be required. For other permits, the new permit may be more difficult to issue because of the presence of toxic pollutant requirements that were not in the original permit. Another factor affecting the permit rate could be the unavailability of BAT guidelines. If BAT guidelines are not available, EPA could base permits on interim guidance (as was done in the early 1970s), or delay the issuance of new permits.

## WATER QUALITY AND THE 1983 BUDGET

The requested 1983 budget for the water quality program is approximately $186 million. This represents a drop of 27 percent in real terms

TABLE 1. WATER QUALITY PROGRAM OBLIGATIONS, 1975-1983 (In thousands of current dollars)

| | Total a/ | Abatement, Control, and Compliance | Enforcement | Research and Development | Construction Grants |
|---|---|---|---|---|---|
| 1975 | 167,270 | 101,837 | 24,284 | 41,149 | 4,224,936 |
| 1976 | 216,248 | 161,633 | 19,414 | 35,201 | 4,329,228 |
| 1977 | 209,939 | 143,639 | 21,229 | 45,071 | 7,501,146 |
| 1978 | 309,034 | 214,106 | 22,522 | 72,406 | 2,859,908 |
| 1979 | 387,169 | 294,216 | 27,230 | 65,723 | 4,256,588 |
| 1980 | 344,918 | 249,824 | 27,789 | 67,305 | 4,673,011 |
| 1981 | 318,237 | 237,696 | 30,559 | 49,908 | 3,941,567 |
| 1982* | 248,598 | 167,257 | 28,945 | 52,396 | 3,409,458 |
| 1983* | 192,294 | 136,467 | 23,628 | 32,199 | 2,400,000 |

* Estimate of obligations, including carry-over funds as estimated by EPA.

a/ Construction grants obligations are not included in total.

TABLE 2. EPA PROPOSAL FOR EFFLUENT GUIDELINES SCHEDULE

| | Proposal Date | Promulgation Date |
|---|---|---|
| Aluminum Forming | 8/82 | 9/83 |
| Battery Manufacturing | 8/82 | 9/83 |
| Coal Mining | 12/80 | 10/82 |
| Coil Coating | 12/80 | 11/82 |
| Copper Forming | 12/82 | 1/84 |
| Electric and Electronic Components | 8/82 | 8/83 |
| Foundries | 11/82 | 1/84 |
| Ink | 12/79 | 8/82 |
| Inorganic Chemicals (Phase I) | 7/80 | 7/82 |
| Iron and Steel | 12/80 | 5/82 |
| Leather Tanning and Finishing | 6/79 | 12/82 |
| Metal Finishing | 8/82 | 10/83 |
| Nonferrous Metals (Phase I) | 1/83 | 2/84 |
| Ore Mining | 5/82 | 3/83 |
| Organic Chemicals and Plastics and Synthetic Materials | 3/83 | 6/84 |
| Paint | 12/79 | 7/82 |
| Pesticides | 10/82 | 11/83 |
| Petroleum Refining | 11/79 | 9/82 |
| Pharmaceuticals | 10/82 | 11/83 |
| Porcelain Enameling | 1/81 | 12/82 |
| Pulp and Paper | 12/80 | 11/82 |
| Steam Electric | 10/80 | 3/83 |
| Textile Mills | 10/79 | 9/82 |
| Timber | 10/79 | 1/81 |

from the 1982 level of $237 million. The 1983 request amounts to 43 percent less for research and development, 24 percent less for enforcement, and 23 percent less for abatement and control. Reductions in abatement and control account for over one-half of the total decrease, as this subprogram receives the greatest proportion of water quality funds. Full-time employment levels also will fall in 1983 (by approximately 18 percent). Personnel reductions will be 22 percent in research and development, 21 percent in enforcement, and 15 percent in abatement and control. These data are presented in Table 3.

Explanation of Changes

Abatement and Control. The abatement and control subprogram is made up of six activities: state program management, effluent standards and guidelines, grants assistance programs, water quality strategies and implementation, water quality monitoring and analysis, and municipal source control activities.

Reduced federal resources for state program management imply an increased state responsibility. Some individual programs will be completed or terminated, including the Great Lakes program (providing only what is necessary to maintain U.S. participation in the joint U.S.-Canadian Great Lakes Water Quality Agreement), the Chesapeake Bay program, the Flathead Environmental Impact Study, and the wastewater treatment training program. Decreases will occur in oversight activities for section 106 supplementary grants to the states, and in resources for developing and overviewing delegated programs.

Under effluent standards and guidelines, there will be an overall nominal increase (but a 3 percent real decrease) due to an increase in extramural (contracts) funding for technical and litigation support after the expected completion and proposal of 23 required effluent guidelines in 1982 and 1983. This increased extramural support is offset by a decrease in internal agency resources due to the completion and proposal of these effluent guidelines.

More than one-half of the total decrease in water quality abatement and control occurs in the grants assistance program. Section 106 supplementary grants to assist states generally with water quality improvement efforts will be reduced 26 percent in 1983. The estimated funds that will be set aside by states under Section 205(g) and 205(j) of the Clean Water Act for construction grants and water quality management will be approximately 18 percent lower in real terms in 1983. The Clean Lakes program will not be funded by the agency in 1983, leaving further work to the states. No wastewater treatment training grants will be funded in 1983.

TABLE 3. WATER QUALITY PROGRAM SUMMARY, 1982-1983 (Budget authority as reported by EPA)

| | 1982 (EPA current estimate) | 1983 (EPA request) | Percent Change |
|---|---|---|---|
| | | Thousands of Dollars | |
| Nominal Dollars, Total | 236,796.7 | 185,965.7 | -21 |
| Constant 1981 Dollars | | | |
| Abatement and control | 151,607.7 | 116,785.9 | -23 |
| Enforcement | 26,718.3 | 20,421.7 | -24 |
| R&D | 41,942.4 | 24,024.6 | -43 |
| Total | 220,268.3 | 161,232.2 | -27 |
| | | Permanent Full-Time Employees | |
| Abatement and Control | 1,261 | 1,074 | -15 |
| Enforcement | 621 | 490 | -21 |
| R&D | 365 | 286 | -22 |
| Total | 2,247 | 1,850 | -18 |

There will be a net decrease in funding for water quality strategies and implementation, accounted for by an overall reduction of federal effort in such areas as dredge-and-fill permit review, water quality standards, review and promulgation efforts, damage assessments for oil spills, spill prevention, control and countermeasure inspections, and Clean Lakes Management. Therefore, in most cases, responsibility will be shifted to the states. There will be a 7 percent real increase in funding and effort for ocean disposal permits, as the ocean dumping program developed in 1982 is implemented.

Under water quality monitoring and analysis, there will be a net real increase of 1 percent. Emphasis in this program will shift from analysis aimed at control strategies development to determination of environmental benefits of existing and proposed regulations and controls, which will be used for regulatory impact analyses.

Finally, municipal source control will experience a net decrease in funding in 1983. Some of this decrease is attributable to the transfer of functions to the state programs management activity and also to slightly greater state responsibility for construction grants management. However, most of the net decrease is due to lower obligations for municipal waste treatment facilities construction (which is supported by regional and headquarters management activities associated with the construction grants program). Despite this reduction, the level of effort will rise in most areas of this activity to eliminate fraud, reduce backlogs, support state programs, and improve performance and compliance.

Enforcement. The water quality enforcement subprogram is composed of enforcement and permits issuance. Both activities will receive budget reductions in 1983, with the bulk of the reduction being in enforcement. Under enforcement, some of the decrease is due to the transfer of various legal activities to the Agency Office of Legal and Enforcement Counsel. Despite this reduction in resources, water quality enforcement activities are expected to increase slightly over 1982 levels, although the manner in which this increase will occur is unspecified. The focus in enforcement will be on more effective compliance monitoring. The Water Quality Office of Legal and Enforcement Counsel will be eliminated in 1983, with the completion of one objective (development of a legal docket system), the transfer of one objective to the Agency Office of Legal and Enforcement Counsel (case development), and the elimination of one objective (training efforts).

Under permits issuance, the reduction in resources is accompanied by an expected reduction in level of effort. The highest priority of this activity will be issuance of major industrial permits. The other major objective will be reform of permit issuance procedures, designed to achieve greater efficiency in processing permit applications. The pretreatment program, intended to control indirect discharge of damaging pollutants to municipal treatment facilities, will be restricted to approval of individual

state pretreatment programs and development of pretreatment programs for states without approved programs. In permit activities concerning direct discharges to waterways, EPA will concentrate on major non-municipal sources and will avoid issuance of "second-round" permits.

Research and Development. The research and development subprogram is divided into three main research areas: water quality, municipal wastewater, and industrial wastewater. All have decreased funding for 1983, with the greatest reduction occurring in water quality research. These research activities provide a scientific base for EPA and the states to use in establishing policies, guidelines, and standards.

Reductions in research resources are consonant with completion of research projects and a decreased effort devoted to long-term research projects. Major projects in three areas--health effects research involving municipal wastewater re-use and sludge disposal, development of water quality criteria documents for priority pollutants, and development of effluent guidelines for industries--will be completed by 1983. Dissemination of information gathered in the Chesapeake Bay study will be completed in 1982. The primary objective of the research portion of the Great Lakes study, eutrophication research, will be achieved by 1983, with no further funding requested.

Long-term projects that will have reduced funding in 1983 include new process development, land treatment of wastewater, toxic pollutant control, urban runoff, and small wastewater flows, as well as others not specified. Research efforts in 1983 will concentrate on projects addressed to current program needs. The decrease in funds for monitoring systems and quality assurance results from cooperative agreements with states in which they will carry out all monitoring procedure research that does not have national application.

## Outstanding Issues

- In the research and development subprogram, a reduction of 46 percent in real terms from 1981 levels is planned for the water quality research activity. However, EPA's 1983 budget submission to OMB states that if funding for this activity were continued at real 1981 levels, the necessary minimum technical and scientific base in water quality research could be completed, but not field validated, by approximately 1990. Under current funding levels, and with overall de-emphasis on long-term research projects, completion of this information base will likely be delayed beyond that date. Without this scientific base, EPA and the states may not be able to identify water quality problems and pursue water quality control strategies according to the budget submission.

- In the abatement and control subprogram, the grants assistance programs will be reduced 37 percent in real terms from 1982, with over one-half of this decrease coming in Section 106 (general water quality activity funds) supplementary grants to states. This represents over one-third of the entire decrease in the water quality program. In addition, less money will be available under Sections 205(g) and 205(j) of the Clean Water Act, funds which assist state management efforts. Despite these reductions, increased responsibility is being given to the states in all areas. Reduced federal funding for management and implementation of state water quality programs in combination with potential budgetary stringency at the state level may affect the progress in water quality improvement efforts nationwide.

- In the abatement and control subprogram, the municipal source control activity (supplying management support to the construction grants program) will have 19 percent less funding in real terms from 1982 levels. Despite the overall reductions in resources for this activity, management efforts in the construction grants program are expected to increase in 1983, in an attempt to improve program efficiency, performance, and compliance.

## AIR QUALITY

The air program is the second largest program in EPA's operating budget. Obligations reached a peak of $290 million in 1980. The current EPA 1983 budget estimate is $189 million. Almost half of the 16 percent 1983 appropriation reduction will occur in assistance to states under the abatement and control program.

### BACKGROUND

Air pollution is a problem for human health, property, and aesthetics. Control of visible discharges in urban industrial areas was among the first air pollution concerns. The problem of air pollution became more prominent in the early 1960s, when "smog incidents" began occurring in California. These incidents galvanized interest in the short- and long-term health effects of air pollution.

#### Policy Action

Congressional Mandate. The Clean Air Act Amendments of 1970 provided for development and enforcement of two kinds of standards for ambient air quality--"primary" standards designed to protect human health and "secondary" standards to protect public welfare. These standards are the cornerstone of the air pollution program. EPA was to promulgate national ambient air quality standards for six major classes of pollutants: particulates, sulfur oxides ($SO_2$), hydrocarbons (HC), carbon monoxide (CO), oxides of nitrogen ($NO_x$), and photochemical oxidants. States were to develop state implementation plans (SIPs) for EPA's approval, setting forth how they intended to achieve the national standards. Achievement of primary standards was required by 1975; secondary standards were to be achieved within a subsequent reasonable time period.

Ambient air quality standards were, therefore, to be uniform nationally, but the emission limitations set for existing sources to attain these standards would vary by state. In contrast to this state-based control of existing sources, the 1970 act provided for uniform national emission standards for new stationary sources and hazardous pollutants. New sources were required to comply with emission standards reflecting the best system of emission reduction that (taking into account the cost of achieving such

reduction) had been adequately demonstrated. EPA was required to promulgate standards by the fall of 1971 for each category of sources of pollutants that may cause or contribute to the endangerment of public health or welfare. By spring of 1971, EPA was required to publish (and from time to time thereafter revise) a list of hazardous air pollutants. 3/ By fall 1971, EPA was required to promulgate national emission standards for hazardous air pollutants on this list that would apply to both new and existing stationary sources and would provide an ample margin of safety to protect the public health.

The August 1977 amendments to the Clean Air Act changed some practices regarding national ambient air quality standards and new source performance standards. By December 31, 1980, and at five-year intervals thereafter, EPA was required to make a thorough review of the national ambient air quality standards. The 1970 act had only required a review "from time to time." The 1977 act also required EPA to promulgate by August 1978 a new list of major stationary source categories and to promulgate NSPS for these categories by August 1982.

Significant changes were also made in the 1977 amendments in automobile emission requirements, prevention of significant deterioration in "clean" air areas, and requirements for areas that failed to meet the standards. Deadlines for the reductions in emissions required by the 1970 act were postponed for automobiles, trucks, motorcycles, and other vehicles (already postponed for one year by the Energy Supply and Environmental Coordination Act of 1974). The prevention of significant deterioration requirements divided clean air regions into three classes, with the amount of air quality deterioration permitted varying with the class. The 1977 amendments delayed the required date for attainment of primary standards to 1982, and for automobile-related pollution to 1987. New sources in non-attainment areas were required to attain a "lowest achievable emission rate" standard.

Program Achievements. EPA regulatory actions have focused on development of national ambient air quality standards, review of State Implementation Plans (SIPs), development of new source performance standards, and development of standards for hazardous air pollutants. EPA promulgated national ambient air quality standards for the six pollutants specified in the 1970 act (particulates, sulfur dioxide, hydrocarbons, carbon monoxide, oxides of nitrogen, and photochemical oxidants [or ozone]) in 1971. A seventh (lead) was added in 1978. EPA has been reviewing these

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3/ Hazardous air pollutants were defined as those for which no ambient air quality standard is applicable (the "criteria" pollutants for which primary and secondary ambient standards are developed) and which may cause, or contribute to, an increase in mortality or an increase in serious irreversible illness.

standards, as required by the 1977 amendments. A revised ozone standard was promulgated in 1979 and the hydrocarbon standard was revoked in 1981.

EPA reviewed the SIPs as submitted in the early 1970s, and subsequently has reviewed a number of proposed changes in these plans. As of early 1981, all but 11 states had submitted complete SIPs; the remaining 11 states had submitted SIPs covering most requirements. In August 1979, EPA released its list of the 64 categories or subcategories of major new stationary sources, which the 1977 amendments had required by August 1978. Since that time, approximately 12 source categories have been deleted, usually because the categories were expected to show only limited growth. NSPS have been promulgated for a number of other categories, including a major one for coal-fired steam electric generating plants in 1979. EPA has also promulgated NSPS for all of the 27 categories required by the 1970 amendments.

Seven substances (asbestos, mercury, beryllium, vinyl chloride, benzene, radionuclides, and arsenic) have been listed by EPA as hazardous air pollutants; emission standards have been promulgated for four of these (asbestos, beryllium, mercury, and vinyl chloride).

## Obligations by Budget Function

Obligations for air programs by budget function are shown in Table 4 for the years 1975-1983.

## Future Program Direction

EPA will continue its revision of national ambient air quality standards and its issuance of new source performance standards and standards for hazardous air pollutants. The 1977 amendments required EPA to complete its review of the ambient standards by December 31, 1980, and review these standards every five years thereafter. Of the required seven, only the review of the ozone standard and the revocation of the hydrocarbon standard have been completed. The current EPA schedule envisions promulgation of a carbon monoxide standard in 1982 and a particulate standard in 1983, and proposals for a nitrogen dioxide standard in 1982 and a sulfur dioxide standard in 1983. Review of the 1978 lead and 1979 ozone standards will also be initiated during this period.

The 1977 amendments require EPA to promulgate NSPS by August 1982 for the 64 categories listed in August 1979. EPA now believes it will not be possible to meet this deadline.

EPA is required to develop emission standards for the hazardous pollutants it has listed. Three substances (benzene, asbestos, and radio-

TABLE 4. AIR QUALITY PROGRAM OBLIGATIONS, 1975-1983 (In thousands of current dollars)

| | Total | Abatement, Control, and Compliance | Enforcement | Research and Development |
|---|---|---|---|---|
| 1975 | 152,221 | 84,899 | 10,870 | 56,452 |
| 1976 | 110,711 | 63,552 | 11,353 | 35,806 |
| 1977 | 165,644 | 98,718 | 15,398 | 51,528 |
| 1978 | 171,190 | 106,087 | 20,810 | 44,293 |
| 1979 | 243,362 | 162,999 | 28,359 | 52,004 |
| 1980 | 290,059 | 190,203 | 31,474 | 68,382 |
| 1981 | 235,388 | 146,770 | 29,487 | 59,086 |
| 1982* | 228,141 | 138,158 | 29,265 | 60,718 |
| 1983* | 188,611 | 117,622 | 20,644 | 50,345 |

* Estimate of obligations, including carry-over funds as reported by EPA.