ENVIRONMENTAL PROTECTION AGENCY



JUSTIFICATION OF APPROPRIATION ESTIMATES FOR COMMITTEE ON APPROPRIATIONS, FISCAL YEAR 1977



ERRATA

Page Number	Line	Correction		
		from	to	
WQ-32	1975 Accomplishments line 3	3,646	6,052	
	Active New Law Projects Add:	# Step 1&2 2,406	\$ 283.5	
WQ-50	Obligations 1977	6,008,350	6,076,420	
	Contract Authority	6,008,350	6,076,420	
	ANALYSIS OF INCREASES & (same change)	DECREASES <u>6-008-350</u> 6-008-350	6,076,420 6,076,420	
WQ-52	Active Projects 1975	3,646	6.052	



Summary

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Environmental Protection Agency

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1977 Budget Estimates

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ENVIRONMENTAL PROTECTION AGENCY

Budget Summary

The Environmental Protection Agency's 1977 budget proposal provides for a decrease of \$53.3 million and is presented under eight appropriations. A summary of each area and the major changes for 1977 follows.

1. <u>Abatement and Control</u> programs provide for development and implementation of environmental standards, monitoring and surveillance of pollution, pollution control planning, financial and technical assistance to State and local pollution control agencies, assistance to other Federal agencies to minimize adverse impact of their activities on the environment, and training of personnel engaged in pollution control activities.

Funds budgeted for the air program decrease by \$1.6 million. This results from the reduction of funds for air pollution control training programs, offset by a number of small increases. The water quality abatement and control program shows a reduction of \$59.3 million in 1977. Thirty-eight million dollars of this decrease occurs in assistance to areawide water quality management planning agencies funded under Section 208 of the Federal Water Pollution Control Act. The bulk of the remainder of the decrease arises from \$15 million appropriated in 1976 for the Clean Lakes program which will not be required in 1977.

The water supply program will be increased significantly in 1977. An additional \$10 million will double the amount of grant support to the States for the support of public water system supervision programs and underground injection control programs. Additional funds have also been included to support 35 additional positions, most of which will provide technical assistance to the States in their assumption of primary enforcement responsibilities for these programs.

A reduction of \$5.3 million in the pesticides abatement and control program will be made possible by the anticipated completion of the initial peak workload required to implement the new provisions of the 1972 amendements to the Federal Insecticide, Fungicide and Rodenticide Act. The major item (\$4 million) in the reduction will result from the phase-out of funding to support the joint EPA/Department of Agriculture-Extension Service applicator training program which will be substantially completed during 1976.

Other changes in the abatement and control program are a decrease of \$464 thousand in the radiation program which will result in the termination of technical assistance support to States, an increase of \$1.9 million in the interdisciplinary media for contracts to support the preparation of environmental impact statements, a reduction of \$838 thousand in the toxic substances program, and an increase of \$1 million in program management and support.

2. Enforcement program responsibilities are in the areas of air pollution control, water quality, water supply, pesticides and noise. The EPA enforcement program is conducted in cooperation with, and in support of, State and community enforcement programs. Major increases totalling \$2.7 million are planned for air and water quality enforcement in 1977. The air enforcement increase will support additional positions to be assigned to regional offices to step up enforcement efforts, particularly in areas of concentrated population where the primary health related standards, particularly those for particulates and sulfur dioxide, are not being met. Additional resources are also planned for regional water quality enforcement. Most of the positions will be allocated to the enforcement of water discharge permits. Grants-in-aid to States for pesticides enforcement will be increased by \$1 million in 1977. This will permit a reduction of 10 positions. A reduction of \$321 thousand in the noise enforcement program is possible due to the completion of funding requirements associated with the establishment of a noise test facility.

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3. <u>Research and Development programs produce the scientific information and technical tools on which to base national policy and effective control strategies in the regulation, prevention, and abatement of environmental pollution.</u>

The program will decrease by \$7.0 million, principally because the full \$7.6 million added to the 1976 request by the Congress was not carried forward. Reductions will be effected in the air program (\$2.6 million), water quality (\$2.2 million), radiation (\$800 thousand), and interdisciplinary research (\$2.8 million). The water supply program will be increased by \$1 million.

4. <u>Energy Research and Development programs provide for development of a scientific basis to ensure (1) protection of human health, (2) environmental protection necessary to facilitate the use of domestic energy supplies, (3) implementation of energy systems initiatives without delays caused by inadequate and insufficient environmental impact data, and (4) the concurrent development of appropriate control technologies and emerging energy systems to minimize control costs and environmental impact. The energy related research program will be reduced by \$3.6 million. This adjustment reflects the results of a review of the governmentwide energy research program, aimed at fully coordinating this effort.</u>

5. Agency and Regional Management activities provide for Agencywide program direction and management carried on at EPA headquarters and in the regional offices; it also covers a variety of common service or support functions which serve Agencywide needs. An increase of \$5.5 million is budgeted for management and support activities. This will permit audit coverage of the construction grants program to be expanded; strengthening of civil rights, public information, evaluation, and employee training programs; and provide for increased rental, communications, and ADP costs.

6. <u>Construction Grants</u> are made to local public agencies for construction of municipal waste water treatment facilities to assist States and localities in attaining and maintaining water quality standards. The Federal Water Pollution Control Act Amendments of 1972 authorized \$18 billion for this purpose. As of December 1975, \$8.1 billion of these funds had been obligated.

7. Buildings and Facilities activities provide for the design and construction of new EPA facilities as well as necessary repairs and improvements to federally installations which are occupied by EPA. No increase is being requested for these purposes in 1977 and activities will be limited to necessary repairs and alteration to existing facilities.

8. <u>Scientific Activities Overseas</u> (Special Foreign Currency Program) supports cooperative research and demonstration programs in other countries, using excess currencies available. No funds were appropriated in 1975. The 1976 level of \$4 million will be increased to \$6 million for 1977 to allow participation in a special cooperative energy related environmental studies program with Poland.

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Summary

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Budget Authority, Contract Authority, Obligations, Outlays, End-of-Year Employment By Appropriation (dollars in thousands)

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977
Abatement and Control				
Budget authority	\$286,816	\$339,548	\$374,788	\$329,544
Obligations	150,000 267,634 149,977	346,548	397,136	330,519
Outlays Contract authority	259,227 6,122	287,000 65,000	300,000 92,000	260,000 45,000
End-of-year employment	3,653	3,998	4,102	4,241
Enforcement Budget authority Obligations Outlays End-of-year employment	₩ 51,096 50,747 51,637 1,662	53,162 53,162 54,000 1,525	52,744 52,856 53,000 1,568	56,561 56,561 56,000 1,595
Research and Development				
Budget authority Obligations Outlays End-of-year employment	166,532 166,675 166,608 1,810	162,632 164,632 167,000 1,779	166,466 170,463 177,000 1,688	159,476 152,155 160,060 1,679
Energy Research and Development				
Budget authority Obligations Outlays	₩ 134,000 88,339 23,204	112,000 125,000 113,000	100,550 136,156 120,000	96,973 88,333 120,000
End-of-year employment	* * •	40	123	123
Agency and Regional Management Budget authority Obligations Outlays End-of-year employment	60,364 58,779 53,868 1,823	67,358 67,358 63,000 1,837	70,872 70,872 68,000 1,952	67,538 67,538 66,000 1,795
<u>Buildings and Facilities</u> Budget authority Obligations Outlays	1,529 341 3	2,100 2,100 1,500	2,100 2,959 612	2,100 2,186 2,000
Construction Grants	ž.			
Budget authority Contract authority Obligations Contract authority Outlays Contract authority	7,666,230 581,037 3,645,899 1,063,417 874,158	5,200,000 700,000 1,600,000	100,000 4,400,000 580,000 1,770,000	6,076,420 400,000 3,370,000
Scientific Activities Overseas				
Budget authority Obligations Outlays	1,243 3,512	6,000 6,000 4,000	4,000 4,198 5,000	6,000 6,000 5,000
Operations, Research and Facilities Obligations Outlays	6,285 28,691	25,000	15,446 27,000	3,600 16,000
End-of-year employment	61			• • •

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	
<u>Revolving Fund</u> Obligations Outlays	403 -246	500 50	500 -39	500 -50	
<u>Trust Funds</u> Budget authority Obligations Outlays	28 9 6	 24	9 72 90	•••	
Reimbursements Obligations End-of-year employment	4,399 135	6,000 105	6,000 	6,000 105	
Advances and Allocations Accounts End-of-year employment	16	16	.6	12	
<u>Consolidated Working Fund</u> Obligations Outlays	530 487	439	337	•••	
Total, Environmental Protection Agency					
Budget authority Contract authority Obligations	700,365 7,816,230 1,226,421	742,800 771,300	771,529 956,658	718,192 713,392	
Contract authority Outlays Contract authority	3,795,876 1,650,414 880,280	5,200,000 1,415,013 1,665,000	4,400,000 1,331,000 1,862,000	6,076,420 1,084,950 3,415,000	
End-of-year employment	9,160	9,300	9,550	9,550	

NOTE: Excludes comparative transfer of Environmental Impact Statement activities from Agency and Regional Management to Abatement and Control:

Budget authority	5,016	8,789	8,789
Obligations	3,728	8,789	8,789
Outlays	3,728	8,700	8,700
End-of-year employment	50	130	130

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All subsequent tables and text include this comparative transfer.

End-of-year employment = permanent positions.

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977
Reimbursements	1 300	6 <u>000</u>	6 000	6 000
End-of-year employment	135	105	111	105
Advances and Allocations Accounts End-of-year employment	16	16	6	12
Consolidated Working Fund	500			
Obligations Outlays	530 487	439	337	•••
Total, Environmental Protection Agenc	У.			
Budget authority	700,365	742,800	771,529	718,192
Obligations	1,226,421	771,300	956,658	713,392
Contract authority	3,795,876	5,200,000	4,400,000	6,076,420
Outlays	1,650,414	1,415,013	1,331,000	1,084,950
LONTRACT AUTHORITY	οσυ, 2ου _b /	1,005,000	1,802,000	3,415,000
Enu-or-year employment	9,100	9,500	9,000	9,000

<u>a/</u> Includes comparative transfer of EIS from Agency and Regional Management to Interdisciplinary:

Budget authority	5,016	8,789	8,789
Obligations	3,728	8,789	8,789
Outlays	3,728	8,700	8,700
End-of-year employment	50	1.30	130

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<u>b</u>/ Excludes 43 vacancies.

Summary of Increase or Decrease Budget Authority and End-of-Year Employment (dollars in thousands)

	Current Estimate 1976	Estimate <u>1977</u>	Increase + Decrease -
Abatement and Control Budget authority End-of-year employment	\$383,577* 4,232*	\$329,574 4,230	-\$54,003 -2
Enforcement Budget authority End-of-year employment	52,744 1,568	56,551 1,604	+3,807 +36
Research and Development Budget authority End-of-year employment	166,466 1,688	159,422 1,678	-7,044 -10
Energy Research and Development Budget authority End-of-year employment	100,550 123	96,973 123	-3,577
Agency and Regional Management Budget authority End-of-year employment	62,083* 1,822*	67,572 1,798	+5,489 -24
Buildings and Facilities Budget authority	2,100	2,100	··• • •
Scientific Activities Overseas Budget authority	4,000	6,000	+2,000
Reimbursements End-of-year employment	111	105	-6
Advances and Allocations End-of-year employment	.6	12	+6
Trust Funds Budget authority	9	•••	-9
<u>Total, Environmental Protection Agency</u> Budget authority End-of-year employment	771,529 9,550	718,192 9,550	-53,337

* Includes comparative transfer of Environmental Impact Statement activities from Agency and Regional Management to Abatement and Control:

Budget autho	ority	\$8,789
End-of-year	employment	130

End-of-year employment = permanent positions.

VIII

Summary of Budget Authority, Contract Authority, Obligations, Outlays and End-of-Year Employment By Media (dollars in thousands)

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	Actual <u>1975</u>	Budget Estimate <u>1976</u>	Current Estimate 1976	Estimate 1977
0.4 m				
Air Budget authority Obligations Outlays End-of-year employment	\$155,190 152,221 159,498 1,559	\$137,229 142,036 158,000 1,671	\$145,757 158,932 170,452 1,738	\$142,824 139,082 148,720 1,763
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<u>Water Quality</u> Budget authority Contract authority	178,462 150,000	210,708	238,279	178,237
Obligations	167,270	214,199	246,873	176,564
Contract authority Outlays Contract authority End-of-year employment	173,350 6,122 3,050	175,400 65,000 3,054	189,160 92,000 3,105	138,655 45,000 3,132
Water Supply Budget authority Obligations Outlays End-of-year employment	12,704 7,714 5,240 169	32,325 27,647 21,500 255	32,174 32,281 17,620 264	43,754 42,594 29,480 298
Solid Wastes				
Budget authority Obligations Outlays End-of-year employment	19,421 20,184 11,623 174	15,620 21,510 14,000 184	15,685 16,213 13,800 183	15,737 16,346 13,200 183
Pesticides				
Budget authority Obligations Outlays End-of-year employment	35,213 33,722 29,016 965	44,333 42,948 33,000 972	44,290 44,561 35,520 994	39,807 39,862 34,880 952
Radiation				
Budget authority Obligations Outlays End-of-year employment	7,115 7,070 9,574 262	5,977 5,965 5,700 231	6,166 6,244 6,100 234	4,901 4,991 5,270 204
Noise				
Budget authority Obligations Outlays End-of-year employment	5,304 4,673 4,057 56	10,159 10,081 6,900 86	10,574 10,631 6,513 95	10,285 10,345 9,045 95
Interdisciplinary				
Budget authority Obligations Outlays End-of-year employment	21,659 <u>a/</u> 24,953 <u>a/</u> 18,197 <u>a/</u> 313	29,565 <u>a</u> / 28,189 <u>a</u> / 26,200 <u>a</u> / 382	36,944 <u>a/</u> 37,743 <u>a/</u> 26,140 <u>a/</u> 334	36,020 36,390 26,500 350

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977
Toxic SubstancesBudget authorityObligationsOutlaysEnd-of-year employment	9,444 4,888 2,445 50	8,059 9,429 8,200 56	8,205 8,744 4,100 52	7,367 8,188 5,100 52
Program Management and Support Budget authority Obligations Outlays End-of-year employment	64,948 66,089 68,200 577	70,156 71,127 67,800 541	65,263 67,572 69,295 489	67,195 65,385 65,150 486
Agency and Regional Management Budget authority Obligations Outlays End-of-year employment	55,348 ^{a/} 55,051 _{a/} 50,140 <u>a</u> / 1,773	58,569 <u>a/</u> 58,569 <u>a/</u> 54,300 <u>a/</u> 1,707 <u>-</u>	62,083 <u>a</u> / 62,083 <u>a</u> / 59,300 <u>a</u> / 1,822	67,538 67,538 66,000 1,795
Energy				
Budget authority Obligations Outlays End-of-year employment	134,000 88,339 23,204	112,000 125,000 113,000 40	100,000 135,606 120,000 123	96,427 87,787 120,000 123
Buildings and Facilities Budget authority Obligations Outlays	1,529 341 3	2,100 2,100 1,500	2,100 2,959 612	2,100 2,186 2,000
Construction GrantsBudget authorityContract authorityObligationsContract authorityOutlaysContract authority	7,666,230 581,037 3,645,899 1,063,417 874,158	5,200,000 700,000 1,600,000	100,000 4,400,000 580,000 1,770,000	6,076,420 400,000 3,370,000
Scientific Activities Overseas Budget authority Obligations Outlays	1,243 3,512	6,000 6,000 4,000	4,000 4,198 5,000	6,000 6,000 5,000
Operations, Research and Facilities Obligations Outlays End-of-year employment	6,285 28,691 61	25,000	15,446 27,000	3,600 16,000
Revolving Fund Obligations Outlays	403 -246	500 50	500 - 39	500 -50
<u>Trust Funds</u> Budget authority Obligations Outlays	28 9 6		9 72 90	· · · · · · · · · · · · · · · · · · ·

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Transition Quarter Budget Authority, Contract Authority, Obligations,Outlays By Appropriation (in thousands of dollars)

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Abatement and Control Budget authority Obligations Outlays Contract authority	\$94,700 126,229 111,000 15,000
Enforcement Budget authority Obligations Outlays	13,931 13,931 15,000
Research and Development Budget authority Obligations Outlays	42,923 55,925 56,000
Energy Research and Development Budget authority Obligations Outlays	21,000 30,138 24,000
Agency and Regional Management	14,862 14,862 13,000
Buildings and Facilities Budget authority Obligations Outlays	500 533 1,000
Construction Grants Obligations Contract authority Outlays Contract authority Contract authority	1,000,000 110,000 490,000
Scientific Activities Overseas Budget authority Obligations Outlays	670 670 1,000
<u>Miscellaneous Accounts</u> Obligations Outlays	2,425 1,990
Total, Environmental Protection Agency Budget authority. Obligations. Contract authority. Outlays. Contract authority.	188,586 244,713 1,000,000 332,990 505,000
NOTE: Includes comparative transfer of \$2,061 for Environmental Impact State activities from Agency Regional Management to Abatement and Control:	ement
Budget authority Obligations Outlays.	2,061 2,061 2,000

Liquidation of Contract Authority (in thousands of dollars)

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	<u>1976</u>	<u>1976</u>	Transition Quarter	<u>1977</u>
Construction Grants	\$1,400,000	\$500,000	\$600,000	\$4,100,000
Abatement and Control (Areawide Waste Treatment Management Grants)	26,000	65.,000	19,000	49,182
Tota]	1,426,000	565,000	619,000	4,149,182

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The 1977 Environmental Protection Agency appropriation request, summarized on the preceding pages, is identical to the President's Budget submission of January 21, 1976. Subsequent to the transmission of the President's Budget, the Agency has made a number of small 1976 appropriation transfers consistent with the seven percent transfer authority provided in the 1976 Appropriation Act (Department of Housing and Urban Development--Independent Agencies Appropriation Act, 1976, P.L. 94-116, 89 STAT. 590). Some of these changes affect the planned 1977 program. Consistent with the Appropriations Committees' interest in reviewing a "current" budget, these reprogramming actions are reflected in the following analyses and justifications.

Since reprogramming actions occur frequently, other changes may be expected before congressional action is completed. The President's Budget reflects the situation at one point in time as a basis for congressional action.

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COMPARISON OF 1977 PRESIDENT'S BUDGET AND CURRENT OPERATING PLAN ADJUSTMENTS BY APPROPRIATION (dollars in thousands)

	1977 President's Budget	1977 Current <u>Plan N. B.</u>	Difference
Abatement and Control Budget authority End-of-year employment	\$329,544 4,241	\$329,574 4,230	+\$30 <mark>a/</mark> -11
Enforcement Budget authority End-of-year employment	56,561 1,595	56,551 1,604	-10 <mark>b/</mark> +9
Research and Development Budget authority End-of-year employment	159,476 1,679	1 59,422 1 ,67 8	-54 <u>c/</u> -1-
Energy Research and Development Budget authority End-of-year employment	96,973 123	96,973 123	
Agency and Regional Management Budget authority End-of-year employment	67,538 1,795	67,572 1,798	+34 <u>d/</u> +3
Buildings and Facilities Budget authority	2,100	2,100	. e e e
Scientific Activities Overseas Budget authority	6,000	6,000	
Reimbursements End-of-year employmént	105	105	••••
Allocation Accounts End-of-year employment	12	12	
Total Budget authority End-of-year employment	718,192 9,550	718,192 9,550	•••

a/ Abatement and Control

A transfer of +1 position and +\$30,000 from Enforcement to reflect a transfer of functions to the Office of Water Supply pursuant to the closing of the Cincinnati National Field Investigation Center.

A transfer of -3 positions from the Abatement and Control pesticides registrations and tolerances program to Enforcement to provide pesticides technical support in enforcement case reviews.

A transfer of -1 position from program management to Enforcement for the Office of General Counsel to provide additional legal support for water quality programs.

A transfer of -8 positions from interdisciplinary to Enforcement to strengthen air regional enforcement programs.

b/ Enforcement

A transfer of +1 position and +\$20,000 from Agency and Regional Management to the Office of General Counsel pursuant to the decentralization of routine administrative services.

A transfer of -3 positions to Research and Development to reflect the transfer of the stationary source enforcement function to the Denver National Environmental Investigations Center and to the Office of Research and Development.

A transfer of -1 position and -\$30,000 to Abatement and Control to reflect a transfer of functions to the Office of Water Supply pursuant to the closing of the Cincinnati National Field Investigation Center.

A transfer of +3 positions from the Abatement and Control pesticides registrations and tolerances program to pesticide enforcement to provide technical support in enforcement case reviews.

A transfer of +1 position from Abatement and Control to the Office of General Counsel to provide additional legal support for water quality programs.

A transfer of +8 positions from Abatement and Control to air enforcement to strengthen regional air enforcement programs.

c/ Research and Development

A transfer of -4 positions and -\$54,000 to Agency and Regional Management to reflect the transfer and consolidation of financial management services from the Office of Research and Development in Corvallis to the Office of Resources Management in Las Vegas.

A transfer of +3 positions from Enforcement to reflect the transfer of the stationary source enforcement function to the Denver National Environmental Investigations Center and to the Office of Research and Development.

d/ Agency and Regional Management

A transfer of +4 positions and +\$54,000 from Research and Development to reflect the transfer and consolidation of financial management services from the Office of Research and Development in Corvallis to the Office of Resources Management in Las Vegas.

A transfer of -1 position and -\$20,000 from the Office of the Administrator to Enforcement for the Office of General Counsel pursuant to the decentralization of routine administrative services.

N.B. The 1977 "current plan" reflects the impact on 1977 of 1976 reprogramming actions made subsequent to the presentation of the 1977 President's Budget. These transfers, which are listed above, were made pursuant to the authority contained in the Department of Housing and Urban Development--Independent Agencies Appropriation Act, 1976 (89 STAT. 590).

COMPARISON OF 1977 PRESIDENT'S BUDGET AND CURRENT OPERATING PLAN ADJUSTMENTS BY MEDIA (dollars in thousands)

	1977 President's Budget	1977 Current Plan N.B.	Difference
Air Budget authority End-of-year employment	\$142,824 1,763	\$142,824 1,770	+7
<u>Water Quality</u> Budget authority End-of-year employment	178,237 3,132	178,183 3,128	-54 -4
<u>Water Supply</u> Budget authority End-of-year employment	43,754 298	43,784 299	+30 +1
Solid Waste Budget authority End-of-year employment	15,737 183	15,737 183	• • •
Pesticides Budget authority End-of-year employment	39,807 952	39,807 952	•••
Radiation Budget authority End-of-year employment	4,901 204	4,901 204	• • •
Noise Budget authority End-of-year employment	10,285 95	10,285 95	• • •
Interdisciplinary Budget authority End-of-year employment	36,020 350	36,020 343	-7
Toxic SubstancesBudget authorityEnd-of-year employment	7,367 52	7,367 52	•••
Program Management and Support Budget authority End-of-year employment	67,195 486	67,185 486	-10
Agency and Regional Management Budget authority End-of-year employment	67,538 1,795	67,572 1,798	+34 +3
Energy Budget authority End-of-year employemnt	96,427 123	96,427 123	•••
<u>Facilities</u> Budget authority	2,100	2,100	
Scientific Activities Overseas Budget authority	6,000	6,000	• • •

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	1977 President's Budget	1977 Current Plan N.B.	Difference
Reimbursements End-of-year employment	105	105	•••
Advances and Allocations End-of-year employment	12	12	• • •
<u>Total, Environmental Protection</u> <u>Agency</u> Budget Authority End-of-year employment	718,192 9,550	718,192 9,550	•••

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N.B. The 1977 "current plan" reflects the impact on 1977 of 1976 reprogramming actions made subsequent to the presentation of the 1977 President's Budget. These transfers, which are listed above, were made pursuant to the authority contained in the Department of Housing and Urban Development--Independent Agencies Appropriation Act, 1976 (89 STAT. 590).

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PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (6	Current Estimate 1976 dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Abatement and Control: Appropriation Permanent Positions Transition Quarter	\$84,899 735 N/A	\$77,235 773 20,858	\$84,715 803 23,258	\$83,139 815 N/A	-\$1,576 +12 N/A
Enforcement: Appropriation Permanent Positions Transition Quarter	10,870 401 N/A	12,020 444 3,447	12,499 462 3,447	13,743 482 N/A	+1,244 +20 N/A
Research and Development: Appropriation Permanent Positions Transition Quarter	56,452 423 N/A	47,974 454 13,120	48,542 473 13,120	45,942 473 N/A	-2,600 N/A
Total, Air Program: Appropriation Permanent Positions Transition Quarter Outlays Authorization Levels	152,221 1,559 N/A 159,498 490,000	137,229 1,671 37,425 158,000	145,756 1,738 39,825 170,452 240,486*	142,824 1,770 N/A 148,720 219,621	-2,932 +32 N/A -21,732

* Authorization pending, \$225,486.

** Authorization pending.

OVERVIEW AND STRATEGY

The Clean Air Act authorizes a national program of air pollution research, regulation, and enforcement activities. Primary responsibility for the prevention and control of air pollution rests with State and local governments. The program is directed at the Federal level by the Environmental Protection Agency (EPA). EPA's role is to conduct research and development programs, set national environmental goals, ensure that adequate standards and regulations are established to meet these goals, provide assistance to the States, and ensure that the standards and regulations are effectively enforced.

The environmental goals are quantified in the National Ambient Air Quality Standards (NAAQS), which set forth the allowable concentration in air of pollutants which affect human health and public welfare. The health and other effects of pollutants are delineated in criteria documents which are the basis for the standards. National Ambient Air Quality Standards have been set for total suspended particulates, sulfur dioxide, nitrogen dioxide, carbon monoxide, photochemical oxidants, and hydrocarbons. Two types of standards are set: primary standards to protect human health and secondary standards to protect the public welfare (prevention of damage to property, animals, vegetation, crops, visibility, etc.). Controlling emissions to meet the standards is handled through two major types of activities: (1) States carry out State implementation plans (SIPs) which control pollution primarily by prescribing specific emission limitations or control actions for types of polluters, and (2) EPA controls, by regulation, emissions from new motor vehicles and new industrial sources.

The attainment of the primary air quality standards has been the primary objective of the air program under the Clean Air Act. The combined Federal-State-local effort to control air pollution has achieved a notable degree of success in reducing air pollutant emission levels and in improving ambient air quality across the Nation. The number of air quality control regions (AQCRs) where violations of the standards are recorded has decreased between 1973 and 1974. In terms of the primary annual standard, the percentage of AQCRs reporting violations of the total suspended

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particulates primary standard has dropped from 63 percent in 1973 to 55 percent in 1974. For sulfur dioxide, the comparable figures are 13 percent and six percent. A similar trend is evident for automotive related pollutants. For carbon monoxide, the one-hour standard was violated at 20 percent of the reporting AQCRS in 1974, while in 1973, 17 percent reported violations. However, the eighthour carbon monoxide standard violations show a decline--from 77 percent in 1973 to 64 percent in 1974. The oxidants standard was violated in 89 percent of the reporting AQCRs in 1974 and 84 percent in 1973. In assessing attainment progress, it should be noted that yearly fluctuations in ambient air quality measurements can be influenced by both meteorological conditions and levels of economic activity as well as by emission reductions resulting from control programs per se.

In spite of the progress that has been made, however, there still remain many AQCRs where one or more of the primary standards is exceeded; many of these AQCRs will continue to have ambient air quality levels in excess of the primary standards in the future. Nonattainment is defined as the primary standard being exceeded at one or more monitoring sites in the AQCR. Current projections indicate that 132 AQCRs will not attain the particulate standard by statutory dates. For SO₂, 35 AQCRs will not attain the standard. It is further projected that 79 AQCRs will have ambient air quality levels in excess of the primary standard for oxidants by the statutory attainment dates (which for this pollutant is generally beyond mid-1975), 69 AQCRs will exceed the primary standard for carbon monoxide, and 16 AQCRs will exceed it for nitrogen dioxide.

The program emphasis for 1977 will continue to be on the attainment of the National Ambient Air Quality Standards. Emphasis will be given to the enforcement of State implementation plans, concentrating on those regions of high population density where the air quality exceeds primary health related standards. States and communities will continue to bear most of the responsibility for enforcing State implementation plans both for stationary sources, the origin of most of the controllable particulate matter and sulfur dioxide, and for automotive related pollutants. State and community efforts to control stationary source pollution will be abetted by 20 additional positions assigned to EPA regional enforcement programs in 1977. The control of automotive pollutants will include State and community implementation of Transportation Control Plans (TCPs) in areas where the emission reductions achieved as a result of the Federal motor vehicle pollution control program will not be sufficient to meet the primary standards for the automotive related pollutants (primarily carbon monoxide, hydrocarbons, and oxidants). Emphasis will be placed on the implementation of the vehicle inspection and maintenance provisions of the TCPs and, where necessary, reasonable measures to reduce vehicle miles traveled.

In many air quality control regions, State implementation plans will not be adequate to meet primary standards. In 1977, emphasis will be put on revising SIPs where it has been determined they are clearly inadequate for attainment. An additional 20 positions have been added to EPAs regional abatement and control program for this purpose. Revision of State plans will also be necessary to include the controls required to assure that the standards, once attained, are not violated in the future.

The maintenance of standards in the long run will also be facilitated by Federal programs that lead to the minimization of emissions from new sources, i.e., new motor vehicle emission standards and standards of performance for new stationary sources. The Clean Air Act requires EPA to set national emission standards for new motor vehicles. The burden for compliance with auto emission standards is with the manufacturer. EPA assures compliance primarily by certifying prototype vehicles. EPA also has the responsibility to ensure that in-use vehicles meet standards through implementation of the recall, warranty, tampering, and import provisions of the Clean Air Act. The emphasis in the New Source Performance Standards program for the control of emissions from new stationary sources will be shifted from the control of sulfur dioxide and particulate emissions to the control of pollutants that lead to photochemical pollutants formation, i.e., on sources of nitrogen oxides and hydrocarbons. This action is expected to result in a greater impact on long-term nationwide emissions. The nature and magnitude of the problems associated with attainment and maintenance of the standards varies with the specific pollutant involved. Particulate matter problems are related in many cases to sources that are not generally controllable by the application of commonly available particulate emission controls. Examples of such sources are "fugitive dust" and "urban particulate background," which result from activities such as farming operations, construction, the abrasion of road surfaces, and atmospheric reactions involving pollutants emitted as gases. Development of control strategies for particulates that take into account these problems will require definition of sources, development of appropriate analytical tools (including, in some cases, measurement technology), and the identification of control technology. The 1977 program addresses these problems.

For sulfur dioxide, the national problem is generally related to the need to minimize the impact on energy supplies of the specific control technologies that are to be applied for attainment and maintenance of the standard; the attainment of standards for this pollutant is relatively well in hand although significant problems must be resolved with respect to compliance with emissions limitations by power plants. Similarly, problems associated with carbon monoxide do not require extensive development work; implementation of reasonable controls, rather than development of controls, seems to be required. The 1977 program is aimed at such implementation.

Problems associated with the atmospheric transformation of pollutants are related to our understanding of the formation of photochemical oxidants and other pollutants, such as nitrogen dioxide, sulfates, and nitrates. Understanding of the atmospheric transformation and the impact that resulting pollutants have on public health and welfare is essential if adequate control strategies are to be developed. The research program addressing these issues will be continued in 1977. Implementation plans will be reassessed as to their control requirements in view of improved understanding of the transport and transformation processes. The definition of the impacts on human health of many substances emitted to the atmosphere in small amounts, such as many trace metals, also requires attention.

In summary, the EPA program is aimed at supporting States and localities in their air pollution control efforts, at providing an adequate level of Federal activity in those areas for which the Federal Government has the primary responsibility (e.g., the setting of emissions standards for new sources) or where Federal activity would result in a high environmental pay-off (e.g., enforcement actions against major air pollution sources in cases where States do not have the resources to take action), and at the development of air pollution control related knowledge and techniques supportive of the national air pollution control effort (e.g., control technology for NO_x , health effects of air pollutants).

SUMMARY OF INCREASES AND DECREASES

		(in thousands of dollars)
1976	Air Program	\$145,756
	Abatement and Control	-1,576
ن	The net resource reduction for the air abatement and co program includes both increases and decreases for specific p The resource level will decline primarily as a result of a million reduction which will eliminate the academic training programs. Regional resources will increase by \$.4 to supplement activities related to State Implementation Pro assessment and revision for the attainment and maintenance ambient air quality standards. The mobile source program w \$1.4 million due to the new obligation authority required for previously funded from available prior year funds.	ontrol programs. \$3.2 million ogram of ill increase or activities

Resource levels for the air enforcement program will increase \$.6 million to provide additional regional enforcement capability in nonattainment AQCRs and \$.6 million for mobile source enforcement for the implementation of vehicle assembly line testing and recall programs.

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Research levels for the air research and development program will decrease as a result of carrying forward only \$1 million of the nonrecurring 1976 Congressional increment of \$3 million, and the reprogramming of \$600 thousand to other priority areas.

1977 Air Program.....

SUMMARY OF BUDGET ESTIMATES

1. Summary of Budget Request

An appropriation of \$142,824,200 is requested for 1977. This request, by appropriation account, is as follows:

Abatement and Control	\$83,139,000
Enforcement	13,743,000
Research and Development	45,942,200

This represents a decrease of \$2,333,100 from the 1976 air program and includes the termination of the academic training program (-\$3,189,500); annualization of the October 1975 pay raise (+334,200); an increase in the mobile sources standards and guidelines, mobile source certification and testing, and trends monitoring and progress assessment subactivities which is primarily attributable to activities which have been previously funded from available prior year funds (+\$1,185,400); an increase in regional air quality strategies implementation related to the support of 10 additional positions (+\$297,000); miscellaneous operating adjustments (-\$81,000); an increase in stationary source enforcement to provide additional regional capabilities in nonattainment air quality control regions (+\$557,400); and an increase for mobile source enforcement for the implementation of vehicle assembly line testing and recall programs (+\$564,000). The resource level for the research and development program will decrease by \$2,600,000. In 1976, the Congress added-on \$3 million to this program. \$1 million will remain in the base to continue, at a reduced level, the program in atmospheric pollutant carcinogen studies which has been initiated with a portion of the 1976 add-on. Also, \$600 thousand has been reprogrammed from the industrial processes program to support other priority research efforts.

2. Changes from Original 1976 Budget Estimate

(in thousands of dollars)

142,824

Changes from the budget are as follows:

Original 1976 estimate	\$137,229
Congressional increases: Control Agency grants Training Research	+3,750 +800 +3,000
Operating adjustments	+1,113
Miscellaneous increases and decreases	<u>-136</u>
Current 1976 estimate	145.756

Most of the additional funds currently estimated for Air Programs were provided by congressional increases to the 1976 budget request. The increase of \$3,750,000 for State and local air pollution control agency grants restored this program to the 1975 appropriated level (however, because of a deferral of 1975 budget authority to 1976, this additional amount does produce a net increase in funds available for 1976 grants). The additional \$800,000 for training is part of the \$2 million increase appropriated for academic training grants (the remaining \$1,200,000 is allocated to Water Quality activities). The \$3 million provided for research is directed toward health effects research on emissions from catalyst-equipped vehicles and research on pollutant carcinogen relationships. Most of the remaining change consists of adjustments to actual operating conditions. In the process of applying the budget to the specific needs of each regional office, laboratory, and headquarters program office, numerous small changes are frequently required. Since Air programs are among the Agency's highest priority objectives, operating adjustments are often necessary which result in an overall increase.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

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	Current Estimate 1976 (dollars in	Estimate <u>1977</u> n thousands)
Prior year obligations	\$152,221	\$158,932
Additional cost of air control agency grant funds brought forward	+3,750	-3,750
Congressional add-on for research and development, air control agency grants, and training	+4,520	-1,600
Decrease in amount of carryover funds estimated to be available	-1,559	-13,175
Decrease in training program		-2,000
Miscellaneous increases and decreases		+675
Total estimated obligations (From new obligation authority) (From prior year funds)	158,932 (133,816) (25,116)	139,082 (127,141) (11,941)

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

Increases provided by the Congress account for most changes in obligations in 1976. The total additional budget authority of \$7,550,000 in 1976 plus a congressional increase of \$3,750,000 deferred from 1975 are expected to increase obligations by \$8,270,000. This is partially offset by a decrease in the amount of obligations from prior year funds which were brought forward into 1976.

Although there is no major change in the total program level between 1976 and 1977, obligations will decrease in 1977 because of a reduction in carryover funds expected to be available in 1977 and the nonrecurrence of 1976 obligations which resulted from congressional increases. The decrease in the training programs reflects the termination of academic training in 1977. "Miscellaneous increases and decreases" consist largely of annualization of the October 1975 pay raise, plus the net change of increases and decreases in mobile source programs, monitoring, and enforcement. Detailed explanations of these changes are contained in the following sections.

	AIR	2		ί. K
	مدينة م	Current	F-44 4-	Increase +
	<u>1975</u>	1976	<u>1977</u>	1977 vs. 1976
PROGRAM LEVELS				
Total identified point sources		1. 188 . 199		t state
in U.S Identified point sources in	19,360	19,500	20,000	+500
nonattainment AQCRs	NA	10,035	10,200	+165
nonattainment AQCRs	NA	130 ,000	130,000	
actions (under SIPs)	5,882	4,000	5,200	+1,200
(under SIPs)	593	700	875	±175
Number of sources subject to NSPS Number of States delegated NSPS	300	1,500	4,000	+2,500
enforcement authority	4	42	48	+6
NESHAPS enforcement authority	4	34	48	+14
Assembly line testing test orders Certification, Inspection/	•••	10	20	+10
Investigation	53	60	60	
Fuels inspection	18,955	25,000	20,000	-5,000
Investigations	104	85	115	+30
hazardous pollutants covered by	3	4	4	
Number of source categories	12	10	25	
Number of engine families certi- fied for conformity with	Ę I	1 Å	20	+0
emission standards	250	300	300	
out for motor vehicle certifica-				
tion purposes Number of fuel economy tests	2,111	2,180	2,890	+710
carried out	1,516	1,810	1,810	s ™ * • •
monitoring stations reporting				
data to EPA for:				
Sulfur Dioxide	2,259	2,100	2,000	-100
Particulates	3,792	3,500	3,000	-500
Carbon Monoxide	370	400	425	+25
Oxidants	343	350	375	+25
Nitrogen Dioxide	1,834	1,900	2,000	+100
Number of stationary sources included in the emissions data	· · · · ·	- · · · ·		
Number of ambient air quality values stored in the aerometric	125,000	145,000	155,000	+10,000
data bank	58 mi111	on 73 milli	on 88 milli	ion +15 million

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Abatement and Control

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Abatement and Control

	lctual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)	Page
Dudget Authousity						
Air Quality and		, ×				
Planning and Standards.	57,777	\$7,466	\$8,001	\$8,058	+\$57	A-9
and Guidelines	5,299	2,027	3,907	4,320	+413	A-13
Assistance	54,456	50,265	54,731	51,554	-3,177	A-16
Implementation	4,797	5,095	5,411	5,676	+265	A-18
and Testing	5,940	6,126	6,384	6,827	+443	A-21
Progress Assessment	6,630	6,256	6,281	6,704	+423	A-24
Total 8	34,899	77,235	84,715	83,139	-1,576	
Permanent Positions Air Quality and						
Planning and Standards.	160	165	182	181]	A-9
and Guidelines	50	.53	60	60		A-13
Assistance	. 33	33	15	15	• • •	A-16
Implementation	217	212	240	250	+10	A-18
and Testing	n 125	162	165	158	-7	A-21
Progress Assessment	150	148	141	151	+10	A-24
<u>Total</u>	735	773	803	815	+12	

Purpose

The Abatement and Control appropriation encompasses air program activities related to the development of control strategies and control programs, and the implementation of such programs. This objective is accomplished in two basic ways. First, State and local agencies are encouraged to implement requisite programs by the provision of assistance in all areas of technical and policy matters. Second, direct Federal action is taken in cases of State or local failure to act as required by the Clean Air Act.

Abatement and control activities in the air program are aimed at supporting the overall air program objectives of attaining and maintaining the National Ambient Air Quality Standards. Support of State and local programs is the highest priority objective under abatement and control, followed by the implementation of complementary Federal controls, i.e., New Source Performance Standards for new stationary sources of pollution and motor vehicle emission controls. Lower emphasis must be placed on other important environmental problems, such as the control of pollutants with localized effects and the control of pollutants with no direct human health impact.

Supportive of the primary air program objective are activities related to the assessment of the adequacy of State Implementation Plans (SIPs) for attaining and maintaining primary NAAQS in view of widespread lack of attainment for particulates, carbon monoxide, and oxidants. The assessment of SIPs in relation to sulfur dioxide standards is related to the energy impacts of these SIPs rather than attainment since attainment is generally well in hand. The maintenance of all standards in the future (and, in many cases, their eventual attainment) will require long-range planning of controls with an ever increasing level of sophistication. The impacts of air pollution control requirements on society, economic activity, and energy supplies will be minimized and air pollution control goals will be adequately considered along with other social goals only if improved planning processes are implemented. Program emphasis in 1977 will be on the development of analytical tools, data bases, and State and local planning and control processes that will foster implementation of control programs at the State and local level in order to alleviate the need for Federal intervention.

The abatement and control activities are categorized under the following subactivities:

Air Quality and Stationary Source Planning and Standards. This subactivity is related to (1) the development of nationwide control strategies for both regulated and unregulated pollutants, the assessment and modification of these strategies, and the translation of decisions on appropriate control requirements into regulatory actions, and (2) the development of emissions standards for stationary sources of air pollution, and the requisite supporting analyses and technology assessments. Control strategies developed under this subactivity are translated into criteria for State action, e.g., SIPs, or directly into Federal control requirements, e.g., New Source Performance Standards.

<u>Mobile Sources Standards and Guidelines</u>. This subactivity involves the setting of emissions standards for mobile sources (including the associated technical analyses and technology assessments) and the development of mobile sources technical procedures and guidelines for the control of emissions from new and in-use vehicles. Under this subactivity, findings made as to the need for control of mobile source emissions under the research and development activities or under the air quality and stationary source planning and standards subactivity are translated into practical control programs.

<u>State Programs Resource Assistance.</u> This subactivity involves the provision of resources to support State and local governments' activities in implementing air pollution control programs. The primary responsibility for controlling air pollution rests on the States and localities. If these governments are to effectively implement air pollution control programs, thereby eliminating or reducing the need for direct Federal intervention, supplementation of State and local resources is required. Resource supplementation complements the activities carried out under the other subactivities of the Abatement and Control appropriation.

<u>Air Quality Strategies Implementation</u>. This subactivity is related to the implementation of regulatory requirements for which the Federal Government has primary responsibility, such as the implementation of air quality standards and control strategies when States or communities fail to act, the interaction with State and local governments in the implementation of air pollution control activities, the consultation with, and overview of air pollution control activities carried out by Federal facilities, and the review of environmental impact statements prepared by other Federal agencies for air pollution impact. These activities result in the implementation of the general control strategies (developed under the <u>standards</u> subactivities), through State and local control programs.

<u>Mobile Source Certification and Testing</u>. This subactivity includes the certification of prototype motor vehicles and engines for conformity with motor vehicles emissions standards developed under the mobile source standards and guidelines subactivity, and the laboratory and other support activities involved in certification and standards setting for mobile sources.

Trends Monitoring and Progress Assessment. This subactivity includes the determination of ambient air quality and emissions levels, determining their relationships, and assessing progress made toward the attainment of environmental goals. These data assessments are used for judging the progress made in achieving legislative or regulatory program goals and providing guidance as to the need for reassessing, changing, or developing new control strategies. J B N

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Abatement and Control

Air Quality and Stationary Source Planning and Standards

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$7,777	\$7,466	\$8,001	\$8,058	+\$57
Permanent Positions	160	165	182	181	-1

Budget Request

An appropriation of \$8,057,700 is requested for 1977. This represents an increase of \$56,700 over the 1976 appropriation.

Program Description

This subactivity includes the setting of emission standards for stationary sources and all industry studies, cost studies, and other analyses which support the standard setting function. Also included is the setting of ambient air quality standards, the development of control strategies for noncriteria pollutants, and the translation of all control strategies into regulatory actions.

New Source Performance Standards are set for production processes within specific designated industries for the control of specific pollutants. An example is the standard for electric arc furnaces within the ferroalloy industry to control particulates. They provide the basis for controlling emerging industries, such as oil shale use and coal gasification, and are a major long-run tool to prevent significant deterioration and to maintain air quality. The standards define best available control technology (BACT) for specific production units of the industries studied; the technical data used for determining BACT are documented and made available with the standards. These data are useful to State agencies who are frequently engaged in dialogues with industry on the subject of control technology.

The standard setting activity for new stationary sources has been largely concerned with sources of particulate (TSP) and SO_2 emissions. A study prepared in 1975 by the Argonne National Laboratory showed that the standard setting activity can have a greater impact on long-term nationwide emissions by changing its emphasis to control of sources of substantial hydrocarbon (HC) and nitrogen oxides (NO_X) emissions. This change in direction is underway; a listing of sources emitting large amounts of HC and $\rm NO_X$ has been prepared. Some sources in this category are small but very numerous, and therefore the category contributes a large amount of emissions. Standard setting for these small sources has been somewhat inhibited by the requirement for compliance testing of new sources. Since individual compliance testing for many small sources would be extremely burdensome, a design verification program is planned. In this program the design of equipment to be used by the small sources will be "verified" as to its control capability, at the source of its manufacturer, rather than at the source of its use. This places the responsibility for conforming to standards on the manufacturers of equipment, rather than on individual operators, who are less well-equipped to bear the technical and economic burdens of compliance.

National Ambient Air Quality Standards have been set for six pollutants; attainment of the standards is envisioned by the Clean Air Act by 1975-1977. Although most readily available control methods have been employed nationally, many regions have not attained standards and most likely will not attain them in the 1975-1977 time frame. Available air quality data indicate that 16 AQCRs will not attain the standard for NO₂ 79 for oxidants and 69 for CO; 132 AQCRs have concentrations of TSP exceeding the standard and 35 AQCRs show values exceeding the standards for SO₂. In addition, the analyses required by Section 4 of the Energy Supply and Environmental Coordination Act (ESECA) have identified many areas with potentially inadequate SIP regulations for control of TSP and SO₂. Presently, there are 15 to 30 areas currently without specific controls for²CO and oxidants which are experiencing levels of these pollutants higher than the primary standards. These areas may require the addition of specific controls to their SIPs. Additional plan revisions will be required for maintenance of standards in many areas now attaining standards.

This situation requires a reassessment of control strategies. Methodologies and criteria for control strategy development for large geographic areas and for specific areas must be developed. In addition, air pollution problems related to atmospheric transformations (e.g., nitrogen dioxide and nitrates formed from nitrogen oxide emissions, photochemical oxidants from hydrocarbon and nitrogen oxides, and sulfates from sulfur dioxide) are proving to involve large-scale geographical areas, i.e., multi-States areas, far exceeding the size of AQCRs. New approaches to air pollution control for areas of this magnitude are required. In other cases (e.g., sulfur dioxide or carbon monoxide-related air quality problems), refinements and improvements in well-understood techniques may be in order for optimization of control requirements. The current situation with respect to EPA involvement in energy projects such as the Clean Fuels Policy, the oil-to-coal program and other aspects of ESECA has made it apparent that the availability of energy and fuels information, in a readily useable form, is necessary to conduct these activities. The gathering and interpretation of energy information, and the subsequent analysis using this information have become significant tasks in themselves which have been taken on without additional resources.

This subactivity covers the development of control strategies and the preparation of the analytical tools needed by State and local agencies to plan for attainment and maintenance of air quality goals. The analytical tools will aid in the control strategy reassessment and development task; guidelines will be issued for ordering SIP revisions where needed to attain and maintain standards. EPA activities supporting States in these tasks are decribed under the air quality strategies implementation subactivity.

Control strategies for noncriteria pollutants are also required by the Clean Air Act. The regulatory pathway for controlling these pollutants may be any of a series of authorities provided by the Clean Air Act, e.g., Section 111 (NSPS) or Section 112, National Emission Standards for Hazardous Air Pollutants (NESHAP). To control a pollutant via Section 112, the Administrator must make a determination that the pollutant "may cause or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness." Thus far, NESHAP has been applied to mercury, asbestos, and beryllium from specific sources. During 1976, vinyl chloride was added to the list of hazardous pollutants controlled under Section 112 and the standards for asbestos and mercury will be expanded to include additional sources. Section 111 also allows the Agency to promulgate standards for control of noncriteria pollutants from not only new sources, but from existing sources as well. Thus far, sulfuric acid mist is the only noncriteria pollutant controlled under NSPS. However, during 1976, fluorides from phosphate fertilizer plants and from aluminum reduction plants will be controlled in this manner. In addition, standards to control total reduced sulfur (TRS) from Kraft pulp mills will be proposed during 1976. Now under review to identify specific environmental damages are several multimedia pollutants such as lead, chromium, arsenic, and mercury. The health effects and environmental damage of approximately 20 high volume industrial organic substances, presumed to be prevalent in the environment, are being assessed. The need for action, if any, will be determined and the regulatory pathway will be recommended at the conclusion of each assessment. In addition, control strategies for sulfates, nitrates and other acid aerosols must be developed and regulatory pathways determined.

Activities which support the development of these standards include comprehensive industry studies, emissions testing, economic studies of specific industries, analyses of source-receptor relationships, and analyses of national regulatory strategies. This work is documented in guidance for use by State and local control agencies.

1975 Accomplishments

New Source Performance Standards were proposed for phosphate fertilizer plants (five separate processes), electric arc furnaces in the iron and steel industry, electric arc furnaces in the ferroalloy industry, primary aluminum plants, and coal preparation plants. These standards are to be promulgated in 1976.

Most actions required by the Energy Supply and Environmental Coordination Act were completed. In addition to reports to Congress, Section 4 required the Agency to review every SIP to determine whether any regulations which limit emissions from fuel burning sources could be revised without jeopardizing attainment and maintenance of NAAQS. The findings resulting from each individual review were reported to each State and territory, as required by the Law. Other ESECA-mandated activities included the preparation of guidance regarding application of environmental limitations to sources receiving conversion orders.

To ensure the accuracy of the oxidant control strategy, the Agency has conducted a continuing program of research studies and data collection and analysis. An assessment of the findings to date from these studies was made during 1975; the findings supported present control measures but indicated that additional control may be needed in both urban and nonurban areas to attain the standards.

1976 Program

NSPS for phosphate fertilizer plants, electric arc furnaces in the iron and steel industry, electric arc furnaces in the ferroalloy industry, primary aluminum plants, and coal preparation plants will be promulgated. Additional standards will be proposed for Kraft pulp mills, petroleum refineries, by-product coke ovens, refuse-fired steam generators, lignite-fired steam generators, and grain terminals.

National emission standards for hazardous pollutants were proposed and will be promulgated for vinyl chloride, and the coverage will be expanded by the addition of two manufacturing processes for asbestos, and by including sewage sludge incinerators for mercury.

Regulations defining requirements for source modification and for continuous emission monitors will be promulgated. State guidelines for standards of performance under Section 111(d) for existing primary aluminum plants (fluoride), and sulfuric acid plants (sulfuric acid mist) will be issued in 1976.

Additional regulations which will be promulgated in 1976 include criteria for SIP revisions for air quality maintenance. Several guidelines will also be issued: the use of models in control strategy demonstrations, criteria for ordering revisions to approved SIPs, the approval procedure for SIP revisions, and policy with respect to "tall stacks". A policy document for application of the nonregulated pollutant (significant risk) provision of ESECA will be issued.

A review of scientific knowledge of health effects, atmospheric chemistry and transport, and control technology for sulfates will be completed in 1976. Preliminary findings indicate that some forms of sulfates are more toxic than SO₂, that environmental damage probably occurs through acid rain, that higher levels of sulfates occur in a 24-State area of the eastern U.S. than in any other area, and that reductions in SO₂ emissions will reduce sulfates, although at a ratio of less than one to one. The implication for control is to minimize the increase in SO₂ emissions in the 24-State area until sulfate-specific control strategies can be²developed.

<u>1977 Plan</u>

Contraction of

In 1977, NSPS will be promulgated for: Kraft pulp mills, petroleum refineries, by-product coke ovens, refuse-fired steam generators, lignite-fired steam generators, and grain terminals. Additional standards are being considered for gas turbines, chloralkali plants, crushed stone plants, degreasing operations, phosphate rock preparation, carbon black plants, sintering plants, gasification of fossil fuels, stationary internal combustion engines, lime plants, melting of printing type, electric arc furnaces in gray iron foundries, and asphalt roofing plants.

The regulatory pathway for five of the 20 high volume industrial organic substances now undergoing review will be determined. An industrial design verification program should be ready for implementation by the end of 1977, to replace individual compliance testing for small sources that may be subject to NSPS.

A reference method and equivalent methods for NO_2 are expected to be designated, and recommendation on the need for a short-term ambient air quality standard for NO_2 is to be made.

AIR

Abatement and Control

Mobile Source Standards and Guidelines

PROGRAM HIGHLIGHTS

	Actual 	Budget Estimate 1976(Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$5,299	\$2,027	\$3,907	\$4,320	+\$413
Permanent Positions	50	53	60	60	

Budget Request

An appropriation of 4,320,600 is requested for 1977. This represents an increase of 413,800 over the 1976 appropriation.

Program Description

This subactivity includes the development of emission standards for mobile sources of air pollution (i.e., passenger motor vehicles, heavy-duty and light-duty trucks, motorcycles, and aircraft) and associated technical activities. Work related to any specific category of mobile sources and power source combination involves a characterization and analysis process. First, air pollutant emissions from representative individual vehicles are characterized. Follow-up work involves the characterization of the use of these vehicles and the characterization of emissions on the basis of vehicle samples representative of actual in-use vehicle populations. At this stage, the development of appropriate emissions sampling and testing procedures may have to be carried out. The development of appropriate recommendations for control actions follows the acquisition of an appropriate data base. After the initiation of a regulatory action, further definition of issues raised during the regulatory process may be required. After a regulatory action has been completed, the reassessment of control requirements or procedures may be indicated; such reassessments may involve a process similar to that of new regulatory actions. An essential part of the reassessment process is the continous assessment of new or improved technologies for potential changes in the nature and magnitude of air pollutant emissions and other related factors, e.g., fuel economy.

The emphasis for 1977 will stress two general areas, (1) characterization of unregulated pollutants, and (2) the control of other than light-duty vehicles. Characterization of unregulated pollutants for current and, more importantly, future control technologies must be implemented if we are to be aware of the types and quantities of pollutants which can be expected to result from the introduction of new technologies. A strong characterization program will help avoid the kinds of problems that have arisen in the case of light-duty vehicle sulfate emissions. In the vehicle control area final emission standards will be proposed for heavy-duty trucks as well as revised evaporative emissions from light-duty motor vehicles.

This subactivity covers the analytical and contractual testing aspects of this work, while the in-house testing carried out for these purposes is covered by the mobile source certification and testing subactivity

1975 Accomplishments

The most significant element of work during 1975 was the analysis and testing performed in support of the hearings (and the subsequent decision by the Administrator) on the application for suspension of the light-duty motor vehicle exhaust emission standards applicable to the 1977 model year. The requested suspension was granted, based on the need to prevent an increase in sulfuric acid emissions from catalystequipped vehicles. Continuing sulfates-related work represented a significant effort during 1975 as did the technology assessment prior to and pursuant to the hearings.

The report "Potential for Motor Vehicle Fuel Economy Improvements", prepared pursuant to Section 10 of ESECA, was submitted to the Congress.

Regulations requiring that light duty vehicles sold at high altitudes (i.e., more than 4,000 feet) meet emission standards at those altitudes were promulgated. Manufacturers are required to prove (for vehicles to be sold at high altitudes) that their vehicle designs are capable of meeting emission standards when operated at high altitudes.

Emission standards applicable to SST aircraft were proposed early in the fiscal year; work in support of these standards (as well as in support of standards for other types of aircraft) was carried out during the year. EPA is required to continually assess the progress of technology being developed to meet the standards applicable to aircraft in 1979 and 1981.

Pursuant to an advanced notice of proposed rulemaking published January 17, 1974, technical work on setting emissions standards for motorcycles was carried out through the year. Similarly, extensive work leading to the development of more stringent emission standards (based on new data on operational and use characteristics) for heavy-duty trucks was carried out. During 1975, studies and analyses that will provide the basis for implementing the provisions of Section 207(b) of the Clean Air Act (warranties for in-use vehicles that fail a State emissions test) were carried out. Additionally, work to facilitate State adoption of in-use vehicle emissions inspection and maintenance programs was carried out.

Responses to an advanced notice of proposed rulemaking for a nonmethane hydrocarbon emission standard were analyzed. This action has been taken pursuant to a Ford Motor Company petition requesting such a standard.

1976 Program

The program of motor vehicle emissions control technology assessments will continue to be carried out. The definition of sulfate/sulfuric acid emissions from catalyst-equipped vehicles (on the basis of tests of in-use vehicles) and the development of an appropriate control strategy for these emissions is the highest priority objective of these activities for 1976. Sulfate/sulfuric acid assessments utilize the full range of expertise available to the Agency, with significant resources dedicated to this work under the Research and Development appropriation; the results of work carried out by manufacturers are also available to EPA. Under this subactivity, the following sulfates-related work will be carried out: characterization of sulfate emissions from (1) a representative in-use vehicle population, and (2) heavy and light-duty diesel engines; assessment of the impact on sulfate emissions of catalysts with low sulfates emission characteristics.

Other planned standard setting activity includes the promulgation of SST aircraft emission standards, the promulgation of exhaust emissions standards for motorcycles, light-duty trucks, and heavy-duty trucks, and the proposal of revised evaporative emission standards for light-duty motor vehicles. Work on development of an emission test for Section 207(b) implementation will have reached a stage such that the development of regulations establishing a short test will have been initiated.

It is also planned that laboratory certification procedures will be established by the end of the fiscal year. Work will continue on the development of long-term (as opposed to interim) emission standards, for motorcycles and light-duty and heavy-duty trucks. Work on characterization of emissions from diesel engines, turbine aircraft, two-stroke cycle engines, emissions from catalyst other than sulfuric acid/sulfates, and the effects of ambient temperatures on emissions will also be carried out.

1977 Plan

Characterization of the impact of changing technologies and manufacturer efforts towards meeting statutory standards will have to be continuously assessed during 1977 as a continuation of the 1975 and 1976 work. Special attention will be placed on the impact that evolving technologies will have on the emissions of uncontrolled substances and on the fuel economy of motor vehicles. It is expected that by 1977



revised standards will be set for evaporative emissions from light-duty motor vehicles, and that final emissions standards for heavy-duty trucks will be proposed. In addition, the results of characterization work carried out during 1976 may indicate the need for setting emissions standards for pollutants not currently controlled, such as sulfates/sulfuric acid from diesel powered vehicles, or particulates.

Some changes in test procedures will likely be implemented. Changes may include those resulting from studies on the operational characteristics of motor vehicles (leading to changes in the driving cycles used to characterize typical vehicle use patterns), those resulting from studies on the effects of different types of tires on dynamometer performance (which may affect fuel economy test results as well as emissions test results) and those resulting from studies on variations that may be possible in emissions testing without affecting test validity by improving testing efficiency, e.g., reducing "soak" periods between the various phases of the Federal Test Procedure.

Although there is an increase of \$413,800 reflected in 1977, there are no additional or new program activities attributable to this increase. This merely reflects the additional new obligational authority required in 1977 to provide for activities previously funded from prior year funds available to the Agency.

AIR

Abatement and Control

State Program Resource Assistance

PROGRAM HIGHLIGHTS

•	Actua1 1975	Budget Estimate <u>1976</u> (c	Current Estimate 1976 Wollars in t	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976	
Appropriation	\$54,456	\$50,265	\$54,731	\$51,554	-\$3,177	
Permanent Positions	33	33	15	15		

Budget Request

An appropriation of \$51,553,900 is requested for 1977. This represents a decrease of \$3,176,600 from the 1976 level.

Program Description

This subactivity includes the resources and assistance provided to support State and local governments' activities in implementing air pollution control programs. Support is provided as grants to control agencies, grants for demonstrating improvements in agency operations, services of contractors, assignment of personnel to State agencies, and training provided to personnel of State/local control agencies.

Control Agency Resource Supplementation

Grants to State and local control agencies, which have a major role in carrying out State implementation plans (SIPs), constitute the major form of EPA assistance. These funds support the full range of activities required of a control agency including ambient air quality monitoring, plan development (including control regulations), source surveillance, enforcement actions against violators, and support functions.

For cases in which States require special assistance for the performance of specialized tasks, such as the development of emission inventories, revisions related to attainment and maintenance of standards, and plans to prevent significant deterioration, the services of EPA contractors are available. EPA enters into contracts with a series of firms for services to be provided upon call. This arrangement greatly speeds up the availability of contractors' services to States and permits States to comply with the short deadlines imposed by the Clean Air Act and related court orders.

Training

The training program complements other support to control agencies. Without skilled personnel, these agencies cannot be expected to execute appropriate air pollution control actions. All control agencies have indicated a continued need for the training provided by EPA. In 1976, direct training is being provided by EPA primarily for State and local control agency personnel. These short courses are developed to provide state-of-the-art information and specialized hands-on laboratory and instrument training for the purpose of improving the skills of both entry level and advanced personnel of pollution control agencies. No academic training program is intended during 1977.

1975 Accomplishments

Funds appropriated for control agency grants totalled \$56.5 million in 1975. However, the \$3.75 million added on by the Congress was deferred to 1976. Grants were apportioned to 54 State and 150 local agencies which had a major role in either planning revisions to the SIP, such as maintenance plans, transportation control plans, or significant deterioration plans, or in implementing the SIP

regulations. In return for grant dollars, regional offices received State and local commitments to specific outputs considered desirable by EPA. Approximately 44 EPA employees were assigned to State programs in 1975, and contractual assistance was provided, much of it to aid States and local agencies to gather data needed for preparation of air quality maintenance plans.

The training program developed and delivered 77 short courses to more than 2,000 students; it also developed eight packaged self-instructional courses on specific subprofessional topics, such as the basics of automotive inspection, environmental statistics, what to look for when observing stack tests, special topics in air pollution, air pollution effects on vegetation, auto mechanics' training, and legal aspects of air pollution for agency decision makers. A part of a former course dealing with odors was also developed into a short self-instructional package. All of these packages were distributed to regions for their use. Through fellowships, 70 State and local professional employees were trained at the university graduate level. This was made possible by the curriculum development supported at 12 universities through academic grants.

1976 Program

Funds appropriated for control agency grants totalled \$51.5 million in 1976. An additional \$3.75 million was available from funds deferred from 1975. Although the 1975 deferral resulted in an increase in funds available for control agency grants, requirements for additional control strategies for purposes of attainment and maintenance of standards will necessitate a conscious choice of activities agencies will agree to perform. The Agency expects again to make contract support available for necessary projects which States otherwise could not do.

In 1976, the training program is in a transition period between in-house training, and training performed by contractors. As a result, no new courses will be developed, but at least five manuals will be updated for use by contractors for delivery of courses. Approximately 60 courses previously developed will be delivered by contractors in 1976. Graduate training will continue to be supported at a lower level.

<u>1977 Plan</u>

Although there is no change in the appropriated level of funds for control agency grants, the total amount of funds available will be reduced by \$3.75 million from the 1976 level because deferred funds which were available in 1976 will not be carried forward to 1977. State and local agencies will be encouraged to accept additional responsibilities related to a large number of SIP revisions required in nonattainment areas, coupled with maintenance plans in many areas. Increased activity for new source reviews and enforcement of NSPS and NESHAPS will be required, since by 1977 additional sources will be subject to these standards. In addition, States will have to begin making plans to control the noncriteria pollutants for which EPA will be issuing standards under Section 111(d) of the Clean Air Act.

Academic training will be eliminated in 1977.

Abatement and Control

Air Quality Strategies Implementation

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (Current Estimate <u>1976</u> dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$4,797	\$5,095	\$5,4 11	\$5,676	+\$265
Permanent Positions	217	212	240	250	+10

Sudget Request

An appropriation of \$5,676,000 is requested for 1977. This represents an increase of \$264,700 over 1976.

Program Description

This subactivity involves activities related to the development of control strategies for areas of the country where States do not carry out their responsibilities under the Clean Air Act, the incorporation of these control strategies into appropriate regulatory actions, the interaction with State and local governments in implementing air pollution control programs, evaluation of State and local control agencies, consultation with State and local control agencies on specific air pollution control problems, and management of the State and local support resources and their allocation. It also involves EPA responsibilities in monitoring Federal facilities' air pollution control activities, in providing advice to other Federal agencies in their air pollution control activities, and reviewing the Environmental Impact Statements (EIS's) prepared by other Federal agencies insofar as air pollution impacts are concerned.

Air Quality Management Implementation

High levels of activity are foreseen in the area of State implementation plans reassessment, development, and execution. Many of these plans will prove to be inadequate for the attainment of the standards, requiring redevelopment. During 1977, it is expected that a substantial number of plan revisions will be asked of States; EPA personnel will have to participate in such planning and, in some cases, do the planning required. Likewise, plans for the maintenance of standards will have to be developed. Implementation of additional SIP related controls, e.g., the new hazardous air pollutant standards, will require increased EPA activity.

All of these activities require the application of more sophisticated analytical techniques than has been the case to date. Increased awareness of the impacts that air pollution controls have on other economic and social factors, such as energy supplies, mandates exhaustive analyses (based on welldeveloped and understood data bases) of the implications of control actions.

Planning of controls will have to be approached with an area-specific orientation not heretofore required. "Example region" and "rollback" approaches to control strategy development are no longer acceptable; control requirements so developed are too broad and, although they can lead to standard attainment and maintenance at little expense in terms of control agency planning expenditures, they may lead to many unforeseen and unexpected adverse impacts such as exhaustion of available clean fuels supplies. More detailed assessment for each geographic area that is relevant from an air pollution control perspective will result in optimum control strategies. Area-specific and diffusion model-based planning will be required for pollutants that have generally localized sources or impacts. Carbon monoxide and sulfur dioxide control strategies would fall under this category. Very complex control strategies will have to be developed for the control of particulates and those pollutants that are produced in atmospheric reactions, such as sulfates, photochemical oxidants, and nitrogen dioxide. These pollutants are characterized by originating from many sources spread over wide geographical areas and by the transport, over large distances, of their precursors, e.g., HC and NO_X . The improvement of analytical tools related to these activities is covered by the air quality and stationary source planning and standards activity; the activities required to use those tools for the development of appropriate control strategies and to encourage State and local activity in such planning are covered by this activity.

The EPA role in implementation of the Energy Supply and Environmental Coordination Act when specific prohibition orders are issued by FEA is also covered in this activity. The issuance of a prohibition order by FEA requires EPA to make individual determinations as to compliance date extensions and the amount of pollution control required of power plants subject to the prohibition order.

Federal Activities/EIS Review

This activity includes EPA activities in connection with the process of assuring Federal agency compliance with pollution control requirements and the review of Environmental Impact Statements (EIS's). All Federal agencies are, under Executive Order 11752, to ensure that their facilities comply with Federal, State, interstate, and local substantive standards and limitations for the prevention and control of environmental pollution. EPA activities in relation to other Federal agencies include providing technical advice and assistance in air pollution control, monitoring their programs for achieving air quality standards, and reviewing compliance strategies. Activities also include the review, for air quality impact, of EIS's prepared by other Federal agencies pursuant to the National Environmental Policy Act (NEPA). Equivalent reviews are carried out pursuant to Section 309 of the Clean Air Act.

1975 Accomplishments

Assessments of the attainment status of AQCRs were completed. Such assessments are a continuing activity, involving the assessment of the specific SIP's control strategy (e.g., emission control regulations), status of source compliance, and projected control agency activity. Reports required by Section 4 of ESECA, assessing the potential for SIP changes that would reduce demands for clean fuels or otherwise minimize the energy impacts of air pollution controls related to sulfur oxides and particulates, were transmitted to the States. The identification of air quality maintenance areas was completed.

Air pollution control agencies receiving grants assistance were evaluated as to their ability to carry out air pollution control tasks, in areas such as monitoring, laboratory and engineering services, and enforcement. Commitments for the performance of high-priority program outputs were obtained from these agencies.

Approximately 1,100 environmental impact statements were reviewed for air pollution impact. Assistance was provided to Federal facilities for assuring their compliance with air pollution control requirements.

1976 Program

Designation of approximately 170 air quality maintenance areas (used as the basis for SIP air quality maintenance planning) will have been completed. By the end of 1976, the need for specific SIP revisions for assuring that ambient air quality standards are maintained will be determined. As part of this process, it is expected that attainment dates for the standards will be reassessed in view of the control measures necessary for attainment under current statutory deadlines and extensions in such dates to be made possible by prospective amendments of the Clean Air Act. The attainment status of AQCRs will continue to be assessed and recommendations for corrective action will be made.

The SIP emission limitations for primary nonferrous smelters will be approved or promulgated. Regulations for these sources involve complex issues of control technology availability, costs of control, and the use of supplementary control systems. The impact that FEA-issued conversion orders (issued under the provisions of ESECA) will have on air quality will be assessed. Recommendations related to regional limitations, primary standard conditions, and significant risk constraints of ESECA will be made. SIP revisions implementing recommendations made in reports prepared pursuant to Section 4 of ESECA will be reviewed. States will be provided guidance on the development of such revisions.

A-20

Air pollution control agencies will be evaluated and output commitments will be obtained. EIS reviews, assistance to Federal facilities for air pollution control, and assessment of Federal progress towards complying with Clean Air Act mandates will be carried out.

1977 Plan

SIP revisions for the attainment and maintenance of air quality standards will have been initiated. Such revisions are envisioned for areas where the current SIP is clearly deficient in providing for the attainment and maintenance of the standards. The attainment status of all AQCRs will continue to be assessed and recommendations for corrective action will be made. All of the 10 additional positions in 1977 will be allocated to the Regional offices to conduct these high priority activities. This action will improve EPA's ability to provide assistance to the State and local agencies and to take action where these agencies fail to fulfill their obligations under the Clean Air Act. Air pollution control agencies will be evaluated and output commitments will be obtained. EIS reviews and activities related to Federal agencies' air pollution control efforts will continue to be carried out.

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AIR

Abatement and Control

Mobile Source Certification and Testing

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976 (Current Estimate 1976 dollars in	Estimate <u>1277</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$5,940	\$6,126	\$6,334	\$6,827	+\$443
Permanent Positions	125	162	165	158	-7

Budget Request

An appropriation of \$6,827,100 is requested for 1977. This represents an increase of \$442,900 over 1976.

Program Description

This subactivity includes the certification of prototype motor vehicles and engines for conformity with applicable emission standards, the operation of a voluntary program by which manufacturers label new automobiles with fuel economy data, and the operation of EPA's motor vehicle emissions laboratory at Ann Arbor, Michigan. Two distinct areas of activity are covered by this subactivity: (1) activities related to engineering review of the data used to certify motor vehicles for compliance with emission standards and associated technical support, and (2) the operation of the Ann Arbor motor vehicle emissions testing laboratory, including data processing and analysis support, for both certification of motor vehicles and engines and the development of standards and guidelines. The certification process for light-duty vehicles and heavy-duty engines involves the submission to EPA of applications for certification, the development of emissions performance information by manufacturers and EPA on the basis of prototype vehicle testing, and the review of these data by EPA for the purpose of determining compliance with standards and approval or disapproval of a certificate of conformity.

Automobile manufacturers apply for certification by submitting an application for certification to EPA (Part I application) which describes the vehicles and engines the manufacturer plans to offer for sale. EPA reviews the manufacturer's application and determines what actions the manufacturer is to take to demonstrate compliance with emission standards. EPA reviews the application for acceptability of proposed procedures for mileage accumulation and emission testing, and the proposed maintenance procedures for the vehicles and engines.

EPA selects durability vehicles and engines (i.e., those tested to determine emission control system durability to 50,000 miles for purposes of deriving deterioration factors) and emission data vehicles and engines (i.e., those tested to determine typical engine class emissions) based on information supplied in the application for certification. During the testing of vehicles, EPA personnel carry out surveillance of manufacturers' testing. During visits to manufacturers' facilities, EPA personnel also inspect the procedures and controls used by the manufacturers in their own test facilities to insure that these facilities and certification procedures comply with Federal requirements and that data submitted to EPA is obtained using valid procedures.

After completion of the testing program (including confirmatory testing at the EPA laboratory), manufacturers submit a Part II application, which summarizes the certification test results. Review of this application involves the final review of test data, the review of manufacturers' engineering reports, the calculation of the deterioration factors to ensure that emission levels do not exceed the applicable standards, and the final decision to certify an engine family. Certification review also involves the review of manufacturers' maintenance instructions to the ultimate purchaser, manufacturers' warranties, and manufacturers' service and technical bulletins.

After the issuance of the certificate of conformity, manufacturers are allowed to submit requests for "running changes" to their certified products to reflect technological changes in product lines. Review of "running changes" may involve, at EPA's discretion, additional testing at the manufacturer's facility or at the EPA facility. Since "running changes" are approved after the certificate of conformity has been issued and vehicles may be in production, their impact on changing emissions is monitored closely by EPA.

Additional activity is required in the constant reevaluation of certification procedures. The automotive industry is characterized by constant engineering changes resulting from technological changes or the constraints imposed by the marketplace. All changes in vehicle and engine configurations which may affect emissions are reviewed and analyzed by EPA. Manufacturers, in order to evaluate the impact on emissions of proposed changes they wish to make, request interpretation from EPA of the Federal regulations, advisory circulars (used to document EPA-approved procedures and policy that do not require regulatory action) and general policy. These activities are expected to increase in the future.

The changing nature of the emissions standards for light-duty motor vehicles (with congressional action expected to provide a phased scheduling of standards to the statutory levels for a manufacturer's full vehicle line by model year 1982), coupled with industry's certain attempts to meet the standards with a changing technology aimed at lowering costs and improving fuel economy, necessitate the continuation of the design verification (by actual emissions testing) function represented by the certification program. For 1977, workloads associated with the certification program are expected to increase due to the need to certify additional classes of motor vehicles that will be covered by emissions standards, such as motorcycles, and expanded class of light-duty trucks, and a revised heavy-duty engine standard.

It should be noted that motor vehicle manufacturers' full line of vehicles and engines undergoes the certification process each fiscal year. In general, each fiscal year covers the premanufacture certification of each model year, e.g., fiscal year 1977 covers the certification of 1978 model year, with production changes, i.e., "running changes", processed in the following year, e.g., fiscal year 1978. An additional factor impacting on the certification and testing process is the availability of a real-time computer system to handle much of the data collection and processing function in the testing laboratory. It is expected that the computer system will be fully operational during 1977, permitting emissions testing to be carried out with increased accuracy, reliability, and speed.

The 1975 accomplishments, 1976 program and 1977 plan related to these activities are summarized in the Tables of this section. The reduction of seven positions in 1977 is part of the Agency effort to reprogram additional resources to the regions. It is expected that the operation of the real-time computer system will minimize the program impact of this action. Although there is an increase of \$442,900 reflected in 1977, there are no additional or new program activities attributable to this increase. This merely reflects the additional new obligational authority required in 1977 to provide for activities previously funded from prior year funds available to the Agency.

> Table 1 - Summary of Certification Tests Carried Out at EPA by Model Years and Fiscal Years - Light-Duty Vehicles

Model	Total Number of	Tests b	y Fiscal Y	ear
Year	Emission lests	1975	1976	19//
1975	2,773	1,589		
1976	1,989	522	1,465	0.00
1977	1,5/5	5	/15	860
1978	2,752		·····	2,030
	Total	2,111	2,180	2,890

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Table 2 - Summary of Certification Tests Carried out by EPA - Heavy-Duty Engines

-	,	· · ·	Fiscal Years	
	τ	1975	<u>1976</u>	1977
••		4	0	30

Table 3 - Summary of Number of Engine Families Certified and Number of Certificates of Conformity Issued

Type of Vehicle	Number Certifica <u>parenth</u> 1975	of Engine Fa tes of Confor neses) by Fiso 1976	amilies and rmity (in cal Year 1977
Light-duty vehicles	(250)	405 (300)	405 (300)
Running changes and up-	()	()	()
dating of applications.	300	320	324
Heavy-duty engines	107	107	107
	(107)	(107)	(107)
Running changes and up-			
dating of applications.	107	107	107
Motorcycles	• • •	,	59
Light-duty trucks	40	53	64
	(27)	(40)	(51)

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Number of tests.....

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Abatement and Control

Trends Monitoring and Progress Assessment

PROGRAM HIGHLIGHTS

	Actua1 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$6,6 30	\$6,256	\$6,281	\$6, 704	+\$423
Permanent Positions	150	148	141	151	+10

Budget Request

An appropriation of \$6,703,700 is requested for 1977. This represents an increase of \$422,300 over 1976.

Program Description

This subactivity covers the work related to determining ambient air quality levels and air pollution source emission levels, determining and analyzing their relationships, and assessing the progress made toward the attainment of environmental goals.

Ambient Air Quality Monitoring and Emissions and Monitoring Data Analysis

This element includes the operation of EPA's ambient monitoring network (the National Air Surveillance Network, or NASN) by regional offices, associated laboratory support, special field monitoring studies, and the interaction with State and local agencies concerning the operation of the SIP monitoring networks. Most ambient air quality and source monitoring is carried out by State and local agencies who provide these data to EPA. The EPA regional offices oversee State monitoring efforts, assure that data quality is consistent, and process data submitted to EPA by the States. Determinations of attainment or nonattainment of ambient air quality data are made on the basis of these data. It is expected that monitoring activities and data analyses will increase due to the need for reassessing the SIPs in nonattainment areas as to their adequacy for attaining standards, the need to assess all SIPs as to adequacy for maintaining standards, and the likely need to develop revised control plans. In addition to SIPs, (i.e., criteria pollutants and related monitoring), acquisition of available State data on nonregulated pollutants is in process. These data will aid in understanding relationships between sources and receptors of currently unregulated pollutants, and they will be used for making long- and shortterm trends analyses supportive of decisions on the need for control. Also included are the development, updating, and maintenance of systems for storage and retrieval of air quality and emissions data gathered by monitoring activities. The data systems are composed mainly of an inventory of point sources and their emissions, and a storage file for ambient air quality data.

Mobile Source Monitoring

This element includes activities aimed at determining mobile sources' emissions performance. These data are used to assess the effectiveness of control programs, to assess the need for additional or new controls, and to develop the basis for regulatory actions. In this program, vehicles in consumer use are tested in the condition in which they are received (i.e., without any consideration as to state of maintenance), in order to determine their emissions. The data are used to determine the average emissions that are to be expected from average in-use vehicle populations. Samples tested are generally defined by model year and are representative of diverse geographical areas. The data so obtained are used to calculate emission reductions to be required by control strategies developed for attainment and maintenance of air quality standards. The model year and type of vehicles to be tested each year varies. In general, a sample of 180 vehicles, selected to be representative of the in-use vehicle population mix, are tested in six locations in the country. The areas covered to date have been Denver, Detroit, Houston, Los Angeles, Newark, St. Louis, and Washington. Results are available from programs initiated in fiscal years 1971, 1972, and 1973. Approximately 900 vehicles were tested by the 1971 and 1972 programs, covering 1957 through 1972 model year vehicles. The 1973 testing program covered 1,080 vehicles from 1967 through 1974 model year. Coverage has been extended to 1975 model year vehicles, (i.e., those equipped with catalysts) under later testing programs.

The In-Use Compliance Testing Program (IUCP) has been discontinued. Under IUCP, approximately 3,000 vehicles for 1972 model year and 3,000 vehicles covering 1972, 1973, and 1974 model years were tested by programs initiated in fiscal years 1972 and 1973. This testing was carried out on properly used and maintained vehicles. Prior to testing, vehicles were tuned to manufacturers' specifications. The data so gathered can be used to determine the differences in emission between those vehicles that are properly used and maintained and those that are more representative of an average in-use vehicle population, i.e., it permits a determination to be made as to the potential improvements in vehicle emissions performance that may be gained by inspection and/or maintenance of vehicles. The data also permits determinations to be made as to the manufacturers' ability to produce vehicles that will continue to meet emissions standards when in actual use.

1975 Accomplishments

The status of attainment of air quality standards by air quality control regions was determined. These assessments indicated that, as of the end of the fiscal year, the national status of attainment of the primary standards was not as advanced as would be desirable or as is envisioned in the legislation. For total suspended particulates, 132 air quality control regions were classified as nonattainment (33 of these are so classified due to fugitive dust problems); for sulfur dioxide, 35 AQCRs were classified as nonattainment areas. It is expected that standards for oxidants, carbon monoxide, and nitrogen dioxide will be violated (by the statutory attainment dates) in 79, 69, and 16 AQCRs, respectively.

A study of oxidant levels in rural areas indicated that photochemical oxidants continued to be formed in rural areas, removed from large population centers, from the hydrocarbons transported from population centers.

Analyses of the data obtained from the 1972 and 1973 IUCP were completed. These data identified classes of light-duty motor vehicles which had emission levels in excess of the applicable standards. Due to technical documentation problems, the Agency has not found it possible to use these data to support a recall of high-emitting vehicle classes.

The motor vehicle emissions data analysis led to the issuance of Supplement No. 5 to publication AP-42, the compilation used for estimating current and projected air pollutant emissions as part of air pollution control strategies development.

Technical guidance and direction was provided to State and local agencies to ensure that State monitoring sites are operating and generating valid data. Assistance to States in data processing systems improvements was also provided; the installation of the Comprehensive Data Handling System (CDHS) at States will improve and streamline the processing of data (which, in many cases, was based on manual systems) and its submission to EPA for national trends assessments.

1976 Program

A Federal-State program for collection and analysis of ambient data for nonregulated pollutants will be inititated. Nationally, much of these data are collected by State and local agencies, but at this time these data are not available for national assessments of the need for control action and to determine trends for these pollutants. Related to these types of assessments, the development of a rapid response capability for obtaining air quality information for special studies is planned. During the year, the need for assessing the impacts of unregulated substances (past examples are lead, sulfates, vinyl chloride, hexachlorobenzene) can be expected to arise.

The motor vehicle emission surveillance program data will be used for updating AP-42, for the first time including data on emissions from in-use production vehicles that were equipped with catalysts. These data will permit an assessment to be made of in-use catalyst deterioration and the impact that such deterioration

may have on new and in-use vehicle control strategies as well as stationary sources control. This program will also provide improved data on heavy-duty vehicle emissions on the basis of actual measurements over a road route.

The installation of automated air quality data handling systems (CDHS) in an additional 12 to 15 States and local control agencies will have been completed.

1977 Plan

Activities of the same nature as those described for 1975 and 1976 will be carried out. Motor vehicle surveillance data will provide additional data on in-use catalyst-equipped vehicles with more mileage than those covered by the 1976 revisions to AP-42. Additional data on emissions for heavy-duty and light-duty trucks, motorcycles, and less common mobile sources (e.g., diesel engines) will be available.

An improvement in the overall emissions data base for NO_2 , NO_X , and SO_X is also contemplated in support of the need to reassess control strategies for these pollutants. Similarly, expanded availability of air quality data will permit more precise assessments of control strategy potentials for attaining standards and will provide guidance to control strategy reassessment activities.

All of the 10 additional positions in 1977 will be allocated to the regions to increase the quality and level of monitoring support necessary for the accurate assessment of control strategies, for the determination of attainment status, and the development of high priority SIP revisions. Although there is an increase of \$422,300 reflected in 1977, there are no additional or new program activities attributable to this increase. This merely reflects the additional new obligational authority required in 1977 to provide for activities previously funded from prior year funds available to the Agency.

Enforcement

SECTION TAB

	Actual <u>1975</u>	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousa	Increase + Decrease - <u>1977 vs. 1976</u> nds)	<u>Page</u>
Budget Authority	· · · ·					
Stationary Source Enforcement Mobile Source	\$8,800	\$8,892	\$9,196	\$9,841	+\$645	A-29
Enforcement	2,070	3,128	3,303	3,902	+599	A-32
Total	10,870	12,020	12,499	13,743	+1,244	
Permanent Positions						
Stationary Source Enforcement Mobile Source	321	3 33	342	362	+20	A-29
Enforcement	80	111	120	120		A-32
Tota]	401	444	462	482	+20	

Purpose

The air enforcement program is directed toward achieving compliance with the standards and regulations established for stationary and mobile sources of air pollution under the provisions of the Clean Air Act. The stationary source enforcement program is undertaken to bolster and stimulate State enforcement of State Implementation Plans, New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPS). The mobile source enforcement program is primarily a Federal effort directed toward achieving compliance with fuel and motor vehicle emission standards and regulations.

The Clean Air Act places the primary responsibility for development and enforcement of regulations limiting emission of air pollutants upon the States. EPA's primary objective regarding the stationary source enforcement program is to assist and stimulate State enforcement programs. Activities under State Implementation Plans (SIPs) thus far have focused on identifying major existing sources of pollution, ascertaining compliance status, developing enforceable compliance schedules for sources not in final compliance, and assuring compliance with final emission limitations or increments of progress contained in compliance schedules. In 1976, attention is also being placed on determining which smaller sources of pollution are having an impact on nonattainment of primary health-related standards.

In 1977, more resources will be placed into stationary source enforcement against the remaining major violators and the many smaller violators having a direct impact on attainment of the ambient standards. In addition, more effort will be channeled into maintaining compliance by those sources now on schedules or complying with the final emission limits in order to ensure that advances made toward clean air goals are not lost. The promulgation of additional new source performance standards and NESHAPS regulations, plus a substantial increase in sources subject to NSPS and NESHAPS, will call for greater effort in the enforcement of these standards.

Efforts in the mobile source enforcement program support the prototype certification program funded under the Abatement and Control appropriation by ensuring that production vehicles and vehicles in-use meet the standards for which the model prototypes have been certified.

Enforcement

The Clean Air Act provides a variety of enforcement tools to achieve the reductions in pollutants associated with the statutory emission standards applicable to cars and trucks. Since the ambient air quality benefits expected from the Federal motor vehicles control program will not be realized unless the Agency assures compliance of vehicles with the standards, it is essential that these tools be utilized. Full implementation of the enforcement measures provided in the Act, including assembly line testing, in-use warranty testing and recall, will be accomplished during 1977. The established level of compliance monitoring associated with certification, vehicle production, imports, and fuels will be maintained.

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Enforcement

Stationary Source Enforcement

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976 (d	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$8,800	\$8,892	\$9,196	\$9,841	+\$645
Permanent Positions	321	333	342	362	+20

Budget Request

An appropriation of \$9,840,800 is requested for 1977. This represents an increase of \$644,800 over 1976.

Program Description

The stationary source air enforcement program is designed to effectively utilize the enforcement authorities provided by the Clean Air Act to ensure nationwide compliance with State Implementation Plans (SIPs), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAPS). EPA's stationary source enforcement program consists of monitoring major sources, encouraging States to request enforcement authority for NSPS and NESHAPS, and enforcing SIP, NSPS and NESHAP requirements to support and stimulate State efforts.

The responsibility for enforcing State-developed, EPA-approved emission limitations is shared by EPA and the States. The Clean Air Act recognizes that States have primary responsibility for achieving clean air within their jurisdiction. When States do not enforce air pollution standards, however, the Act requires EPA to take action. In accordance with the intent of the Act, the EPA air enforcement program is designed to ensure that all sources achieve compliance with applicable standards. EPA bolsters State air enforcement efforts by supporting State control agencies through control agency grants, providing specialized skill and expertise or special contractual efforts, and by taking enforcement actions against selected sources when the States cannot or will not enforce.

EPA has primary responsibility for the enforcement of the Federal emission standards it promulgates. However, both Section 111 (New Source Performance) and Section 112 (National Emission Standards for Hazardous Air Pollutants) provide for State enforcement of all or a portion of these standards. In accordance with the intent of Congress, EPA is placing a high priority on delegating enforcement authority for NSPS and NESHAPS to the States. After delegation, EPA will actively monitor the enforcement of these standards.

1975 Accomplishments

- Achieved compliance with standards or compliance schedules by 84 percent of the point sources subject to SIPs--up from 59 percent at the end of 1974;
- Increased the number of enforcement actions taken (593 actions in 1975) by more than 50 percent over the 1974 level, making possible the large increase in point source compliance;
- Reduced the percentage of point sources of unknown compliance status from 31 percent to 5 percent. This accomplishment is substantial considering that about 3,000 additional point sources were identified during the year. This large improvement is a direct result of nearly 6,000 field investigations undertaken by EPA in 1975;
- Achieved 90 percent compliance of new sources subject to NSPS, a significant increase over the 66 percent compliance at the beginning of 1975;

- Increased the usability of the compliance tracking system through a major effort to establish a data base for the compliance data system (CDS);
- Achieved nearly 90 percent compliance of NESHAPS sources (excluding spraying and demolition operations); and
- Delegated enforcement authority for NSPS and NESHAPS to four States and six local agencies, and received formal requests from eight additional States.

1976 Program

- Increase compliance levels for point sources to achieve 97 percent compliance in nonattainment AQCRs and reach 97 percent compliance in all AQCRs. EPA enforcement actions will be maintained at 600, about 570 of which will be initiated in problem areas. An estimated 3,500 field surveillance actions will be undertaken to ascertain and verify compliance status of major emitters;
- Focus on nonpoint sources in problem areas to achieve 98 percent compliance among 3,000 already identified problem sources. About 500 surveillance actions will be conducted and about 100 Federal enforcement actions will be initiated;
- Delegate NSPS to 42 States and achieve 94 percent compliance with NSPS;
- Delegate NESHAPS to 34 States; and
- Use CDS as a management tool to track compliance and to further enforcement coordination with State agencies.

1977 Plan

Stationary source enforcement efforts during 1977 will remain focused on the Agency's foremost goal: attainment of the primary NAAQS for particulates and sulfur dioxide. Although considerable progress has been made in reducing pollutant levels, preliminary estimates show that more than half of the air quality control regions (AQCRs) in the country are now failing to meet either the primary particulate standard or the primary sulfur dioxide standard. In working toward attainment, past efforts have concentrated on compliance by an estimated 20,000 point sources, which contribute about 85 percent of air pollutants from stationary sources. By the beginning of 1977, nearly all of these point sources will either be in final compliance or on schedules leading to compliance in the very near future. The next task facing enforcement in assuring attainment of the primary standards is achieving compliance with emission limitations by a substantial number of minor emitters contributing to nonattainment problems. Enforcement attention will therefore be centered on two groups of sources during 1977: the remaining hard core of major violator; and the numerous minor sources that are judged by State and local agencies to be causing nonattainment in their jurisdictions. The increased resources for 1977 will be utilized by the regions to increase their enforcement capabilities for these high priority activities.

Attainment: Major Sources

Although most of the major emitters will be complying with final emission limitations or on compliance schedules by 1977, the last group of major polluters will probably be the primary cause of nonattainment in about one-half of those areas where standards will not be achieved, and EPA expects to have particular difficulty with this group of sources. In obtaining compliance, much effort will go into negotiating consent agreements in attempts to avoid lengthy litigation, into monitoring and enforcing increments of progress contained in compliance schedules, and into preparing actions and cases against the most recalcitrant of these sources.

Attainment: Minor Sources

It is estimated that minor sources now total about 200,000. Although neither local, State, nor Federal inventories of such sources are complete enough to precisely

determine the number or types of these sources that are contributing to nonattainment problems in each AQCR, it is estimated that more than half of these sources present important attainment problems. During 1976, EPA in conjunction with State and local control agencies, will assess the specific problems posed by minor emitters and will formulate local strategies to abate emissions from those smaller sources in nonattainment areas.

Maintenance

Enforcement efforts will also be channeled into maintaining primary standards. This includes establishing and operating an expanded inspection and monitoring program to ensure that sources in final compliance in both attainment and nonattainment AQCRs remain in compliance, and that those on schedules meet their increments of progress. For example, all point sources in final compliance will have to be checked frequently (at a minimum once a year), and all complying nonpoint sources more or less frequently, depending on type and location of the sources in order to ensure standards maintenance. This objective also requires more emphasis than in previous years for enforcing new source performance standards to assure that new sources comply with applicable standards. EPA will also be assisting States in implementing a comprehensive program for new source review, an important element in maintaining ambient standards that still needs much work.

Hazardous Pollutants

Enforcement of NESHAPS and delegation to States of the authority to enforce NESHAPS will continue to receive priority enforcement attention.

Existing NESHAPS will be amended to cover more processes and operations that generate hazardous emissions of either beryllium, asbestos, or mercury--increasing the number of sources requiring enforcement attention. There are now approximately 700 fixed sources of hazardous pollutants in the country; in addition, an estimated 30,000 transitory asbestos spraying and demolition operations occur each year. State and local agencies will be especially encouraged to mount a comprehensive program to regulate these transitory spraying and demolition operations.

AIR

Enforcement

Mobile Source Enforcement

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Appropriation	\$2,070	\$3,128	\$3,303	\$3,902	+\$599
Permanent Positions	80	111	120	120	

Budget Request

An appropriation of \$3,902,200 is requested in 1977. This represents an increase of \$598,900 over 1976.

Program Description

The mobile source enforcement program is directed primarily toward achieving compliance with vehicle emission standards and fuel regulations promulgated by EPA under provisions of the Clean Air Act. The activities of the program include preventing introduction of uncertified new domestic and imported vehicles into commerce; auditing certification procedures of domestic and foreign automobile manufacturers; enforcing vehicle assembly line emission test activity and the recall, warranty and tampering provisions of the Act; developing and enforcing Federal regulations on the availability of regulated fuels; and ensuring compliance with mobile source aspects of State implementation plans.

In the past years, EPA has relied primarily on the certification of prototype vehicles to assure that new vehicles meet emission standards. Although there have been reductions in vehicle emissions since the start of the certification program, data available to the Agency suggests that certification alone does not assure that production vehicles will meet standards. Mass production techniques may result in vehicles having different emission characteristics than prototypes even though designs are identical.

The activities of the mobile source enforcement program complement the Agency's certification program for prototype new motor vehicles by assuring that manufacturers follow acceptable certification practices; that assembly line vehicles also meet emission limitations; that imported vehicles meet the same standards as domestically producted automobiles; and that the in-use regulatory provisions on recall, warranty, and tampering are applied to ensure that vehicles continue to meet standards throughou their useful life.

Enforcement of the transportation control plans is included as part of the mobile source enforcement program since these plans basically require regulation of automobile emissions and usage in order to achieve the national ambient air quality standards. Enforcement efforts include monitoring State and local implementation of control strategies which include motor vehicle inspection and maintenance programs, vapor recovery control systems, and measures to reduce vehicle miles traveled. In addition, the mobile source enforcement staff will be involved in the implementation of air quality maintenance plans in those areas with automotive related pollution problems. However, in 1977, the mobile source air enforcement program will place primary emphasis on programs to reduce the failure of vehicles to meet emission standards. The States will be relied upon to implement transportation control plans with limited EPA enforcement assistance and guidance, primarily in the certification of vapor recovery control systems and preparation of air quality maintenance plans.

Assembly line testing will be increased to the level of full implementation to assure compliance with emission standards before vehicles are introduced into commerce. This activity will serve as an incentive for manufacturers to improve quality control and manufacturing processes which will result in improved emission performance for production vehicles. Data from the California assembly line test indicate that some classes of production vehicles, although built like the certified prototype vehicle, do not meet the emission standards. This data indicates that the establishment of a quality standard as contemplated by the Selective Enforcement Auditing (SEA) program is necessary if the emission performance of production vehicles is to be controlled.

During 1977, the implementation of vehicle inspection and maintenance programs by the States will be encouraged so that the emissions of noncomplying vehicles in use can be reduced. The data from this program will be fed into the recall program so that classes of noncomplying vehicles which have been properly maintained can be recalled and remedied by the manufacturers. Emphasis will be placed on the warranty and aftermarket parts program so that defective vehicles which fail to meet the emission standards can be remedied at the manufacturer's expense without having anticompetitive effects on the aftermarket parts industry.

1975 Accomplishments

- Conducted 43 inspections of major domestic and foreign vehicle manufacturers' certification and production compliance programs and conducted 10 investigations of possible violations. Referred one violation to the Department of Justice for prosecution;
- Initiated procurement of the mobile enforcement test facility;
- Promulgated exemption and exclusion regulations defining which vehicles are subject to Clean Air Act requirements;
- Promulgated regulations for catalyst replacement of imported vehicles which have been operated overseas where unleaded fuel is not available;
- Initiated 15 investigations of potential tampering violations and referred cases requiring enforcement action to the Department of Justice for prosecution;
- Updated the Inspector's Guidebook on tampering;
- Initiated 17 investigations for potential recall orders, and monitored three self-initiated recalls by manufacturers;
- Promulgated recall regulations establishing procedures for implementing recall provisions for the Clean Air Act;
- Proposed defect reporting regulations for use in enforcing recall and warranty provisions of the Clean Air Act;
- Initiated development of a Section 207(a) warranty defects list defining area of coverage by manufacturer vehicle emission warranty;
- Monitored the importation of over three million vehicles and engines for compliance with emission control regulations, initiated investigations of illegal importation, issued 360 orders that nonconforming vehicles be modified, exported, or bonds thereon forfeited;
- Initiated a national fuels enforcement program and conducted 18,955 fuel inspections of gasoline retail outlets; and
- Promulgated lead-free fuel regulations for issuance of stop sale notices of contamination at retail gasoline outlets, established hearing procedures for penalty assessment for violators of gasoline regulations, and developed reporting requirements for suppliers and retailers of lead-free gasoline.

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1976 Program

New Sources:

The Clean Air Act provides EPA with the authority and responsibility to test production line vehicles. In 1976, EPA is developing selective enforcement auditing (SEA) regulations for assembly line testing and planning to implement a pilot SEA program. The pilot SEA program will issue in 1976 an estimated 10 test orders to manufacturers to inspect a portion of the 68 domestic and foreign assembly plants.

As part of the SEA program, an EPA mobile enforcement test facility (METFac) is being developed to be used where additional testing capability is required to enable the manufacturer to respond to an SEA test order. The METFac will also be used to perform other enforcement related emission testing in connection with the tampering, warranty, and import programs.

Fuels:

In 1976, plans call for 25,000 fuel inspections of gasoline retail outlets nationwide. EPA will also seek greater assistance from the States to enable a greater volume of retail service station inspections in those regions of the country having relatively larger number of service stations. This will assure that each service station would have the same probability of being inspected each year.

In-Use:

An increase in activity in the recall program is planned for 1976. Regulations are being developed which will require manufacturers to report defects in emission control components, will formalize fleet and State contacts to obtain defects data, and will computerize a defect reporting system to handle the volume of data anticipated. It is estimated that 20 recall investigations will be conducted in 1976.

The two warranty provisions of the Clean Air Act are intended to help assure that manufacturers develop and produce vehicles which meet emission standards throughout their defined useful life of 50,000 miles or five years. Under Section 207(a) of the Act, EPA is developing regulations to implement the defects list, which is intended to be largely self-enforcing through consumer claims for service under warranty.

In 1976, performance warranty regulations will be developed under Section 207(b) of the Act. These regulations will be promulgated when a short test correlatable to the Federal test procedure has been developed.

EPA will also develop in 1976 aftermarket parts guidelines in order to alleviate the potentially anticompetitive impact of the recall and warranty provisions on the aftermarket parts industry.

EPA will continue in 1976 to investigate potential tampering violations, monitor the importation of vehicles and engines for compliance with emission control regulations, investigate illegal importations, and issue orders requiring nonconforming vehicles to be modified or exported.

Transportation Control Plans:

EPA enforcement personnel will assure enforcement of TCPs in effect and assist in TCP revisions. In 1976, enforcement effort will be used to certify Stage I vapor recovery systems in TCPs.

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1977 Plan

New Source:

In 1977, EPA plans full implementation of the selective enforcement auditing program for assembly line testing of new motor vehicles. The issuance of 20 test orders is anticipated. The increase in resources for mobile source enforcement will be partially allocated to this activity.

EPA will perform approximately 60 inspections of major domestic and foreign manufacturers' certification and production compliance programs in direct support of the EPA certification program, and will conduct investigations of possible violations.

Fuels:

The number of inspections of gasoline retail outlets conducted under the fuels enforcement program in 1977 will be reduced from about 25,000 in 1976 to about 20,000. States will be encouraged to assist in the inspection program.

In-Use:

In 1977, EPA will enforce the defect reporting regulations and conduct an estimated 20 recall investigations. The Agency will also establish a recall enforcement surveillance program. Data from inspection and maintenance programs will be used to recall classes of noncomplying vehicles. A portion of the 1977 resource increase will be devoted to these recall activities.

Development will continue on the Section 207(a) defect warranty regulations, the Section 207(b) performance warranty regulations, and the aftermarket parts guidelines for self-certification.

EPA will continue to monitor the importation of vehicles and engines for compliance with emission control regulations and begin enforcement of regulations governing the importation of catalyst equipped vehicles.

Transportation Control Plans:

In 1977, EPA will continue to assist States in the implementation of TCPs for metropolitan areas. EPA will also oversee Stage II certification for vapor recovery systems in TCPs.

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Research and Development
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Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousar	Increase + Decrease - <u>1977_vs. 1976</u> nds)	Page
Budget Authority						
Health and Ecological Effects Industrial Processes	\$33,648 15,777	\$33,490 7,372	\$32,705 5,665	\$30,705 5,065	-\$2,000 -600	A-37 A-42
Monitoring and lechnical Support	4,958	4,947	10,172	10,172		A-44
Advanced Automotive Propulsion Systems	2,069	2,165				A-46
Total	56,452	47,974	48,542	45,942	-2,600	
Permanent Positions				•		
Health and Ecological Effects Industrial Processes Monitoring and Technical	258 101	282 101	303 49	303 49		A-37 A-42
Support	64	64	121	121	• • •	A-44
Propulsion Systems		7		•••	•••	A-46
Tota1	423	454	473	473	• • •	

Purpose

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The Clean Air Act, as amended, directs EPA to conduct research on the causes, effects, extent, and methods of controlling air pollution. The air research and development program is designed to furnish EPA with the knowledge to establish prudent environmental controls based upon known or potentially adverse health and ecological effects; to define, develop, and demonstrate systems for controlling stationary sources; and to evolve strategies for minimizing the emission of pollutants.

To achieve these ends, the program is structured to quantify the effects of air pollutants on man, animals, plants, and the general environment; develop predictive models for pollutant emission, transport, transformation, and removal, and verify these models by actual measurements; develop and standardize techniques for the monitoring of pollutants; and develop new and improved technology for preventing and controlling air pollution and demonstrate the cost effectiveness of such technologies.

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Research and Development

Health and Ecological Effects

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (c	Current Estimate <u>1976</u> Jollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$33,648	\$33,490	\$32,705	\$30,705	-\$2,000
Permanent Positions	258	282	303	303	

Budget Request

An appropriation of \$30,705,300 is requested for 1977. This represents a decrease of \$2 million from the 1976 level.

Program Description

Research on air health and ecological effects, coordinated with research in other media, is conducted to provide a sound scientific basis upon which to establish and continually evaluate both primary and secondary air quality standards and air pollution control strategies. Research is accomplished in three subprogram areas of this activity: health effects; ecological processes and effects; and transport and fate of pollutants.

Health effects research is comprised of epidemiological, clinical, and toxicological studies of the impact of air pollutants upon man's health. Studies are continued on pollutants with established ambient air quality standards as part of a continuing reevaluation of such standards and increased emphasis is being given to selected noncriteria air pollutants. A research program on environmentallyinduced carcinogenesis has just begun in 1976.

Air ecological processes and effects research focuses upon the effects of **air** pollutants on the structure and functions of ecosystems and their components. Projects involving laboratory and/or field studies, and mathematical and/or theoretical simulations are conducted to support the establishment and continuing evaluation of air pollutant criteria as well as to provide policy makers with guidelines to assess the environmental impact of municipal, industrial, agricultural, and energy resource development.

Development of effective pollution control strategies requires the ability to link the impact of pollutants to their sources. Therefore, research is also .conducted in the transport and fate program to determine, characterize, and measure the transport and transformation of pollutants in the atmosphere. Air transport and fate research encompasses three major categories:

(1)meteorological research to determine air pollutant transport mechanisms;

- (2) investigations of chemical and physical plant processes; and
- (3) determination of the environmental impact of and catalytic reactor emission-control devices.

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1975 Accomplishments

- Publication of the first annual research report on pollutants from vehicles equipped with oxidation catalysts. Results were compiled on all catalyst related studies in the Office of Research and Development and the Office of Air and Waste Management, including all current results from studies of roadside sulfate levels and noble metal attrition products. Results are expected to contribute to EPA's assessment of mobile emission standards for regulated and non-regulated pollutants;

- Completion of preliminary assessments on potential effects of exposure to compounds of manganese and cerium, which may be associated with mobile source emissions--this information will be used to evaluate the health impact of fuel additives which may be substituted for lead;
- Publication of a monograph on the health effects of exposure to sulfur-oxides--results compiled were obtained from the human epidemiology studies or Community Health Environmental Surveillance Study (CHESS) program and indicate that adverse health effects may be more closely associated with exposure to sulfate compounds than to sulfur dioxide;
- Completion of developmental phases of design and hardware for a system for intensive environmental and human health characterization-this system includes the Community Health Air Monitoring Program (CHAMP), the Clinical Laboratory Evaluation and Assessment of Noxious Substances (CLEANS), and the Clinical Laboratory Evaluation and Verification of Epidemiological Results (CLEVER);
- Expansion of ongoing research on air pollutants for which primary ambient air quality standards have been promulgated and on certain pollutants, such as sulfate compounds, which are currently unregulated. Such studies are aimed at improving information on these pollutants to allow the refinement of the standards themselves and to provide scientific health bases for promulgation of new standards should this become necessary;
- Completion of an 18 city survey of carboxyhemoglobin levels in humans as
 part of a continuing evaluation of the primary ambient air quality
 standard for carbon monoxide. It indicated that carboxyhemoglobin may be an
 indicator of ambient CO levels, but that it is also a function of smoking habits;
- Completion of annual reviews of available research results on nitrogen oxides and particulates as part of a continuting evaluation of the primary ambient air quality standards for nitrogen dioxide and total suspended particulates. The data suggest that short-term peak exposures to nitrogen oxide may be important in health considerations for this class of compounds and that health information is needed on effects of particulate size distribution and chemical/physical characteristics;
- Initiation of a survey of existing repositories of tissue samples with a view toward the establishment of a coordinated, nationwide tissue sample banking system--information obtained through tissue analysis would include data on exposure trends in the population with respect to trace metals, for example;
- Compilation of a series of animal studies on nitrogen oxides and ozone which showed exposure to be associated with lowered resistance to infection;
- A preliminary determination on the urban, regional, and multiregional distribution of atmospheric sulfate levels in the United States. Results suggest widespread distribution of sulfate at levels which may be near expected thresholds for health effects;

 Preliminary findings of field studies conducted in the St. Louis area indicate that (a) the conversion rates of sulfur dioxide to sulfate in coal-fired power plant plumes are usually low, with values typically on the order of one to two percent per hour, while oil-fired plants exhibit much higher conversion rates; and (b) vegetative uptake constitutes one of the major removal mechanisms of sulfur dioxide emitted from low-level sources (e.g., urban plumes).

1976 Program

The objectives for air health and ecological effects research in 1976 include:

- Focusing studies toward selected population subgroups to describe health effects of short and long-term exposure to sulfur oxides, respirable particulates, nitrogen oxides, carbon monoxide, and photochemical oxidants;
- Refining the data on acid sulfate aeroso'l health impact and impact of trace metals in primary smelter communities;
- Strengthening support for secondary air quality standards by completing research on bioenvironmental effects of hydrocarbons and photochemical oxidants on plants and animals;
- Continued development of empirical and anlytical techniques to relate air pollution source emissions to ambient exposures;
- Continued determination of the effects of air pollutants on visibility, rainfall, and climate;
- Expanding research on the health effects of emissions from catalytic converter equipped vehicles by quantifying the health effects of exposure to mobile source pollutants, particularly sulfuric acid; conducting studies to more accurately determine pollutant concentrations at which adverse health effects can be expected to occur; and including studies on complex sinks such as parking garages and shopping centers; and
- Initiation of a cohesive research program to study environmentally induced carcinogenesis, which will include not only the quantitative assessment (carcinogenic vs. noncarcinogenic) of atmospheric pollutants, but also, their quantitative effects (i.e., dose-response relationships) in order to determine estimates of risk to human populations.

1977 Plan

Health and ecological effects research in 1977 is basically similar to that for 1976 and can be divided into four areas: (1) studies of criteria pollutants, (2) studies of noncriteria pollutants, (3) studies of non-pesticide organic and inorganic substances, and (4) studies of pollutants particularly associated with transportation (i.e. emissions from vehicles equipped with catalytic converters). Health effects information and the data on ambient air quality criteria pollutants will continue to be refined, with a view toward assessing exposure averaging times, the adequacy of existing safety margins, the health benefits of meeting the standards and the health risks of exceeding the standards. Studies will also be conducted to identify populations most at risk, to refine exposure to pollutants in combinations. Health effects research will also continue on noncriteria pollutants with emphasis on sulfate, nitrates and respirable particulates. Questions which will continue to be addressed include determinations of exposure-response relationships for these pollutants, and their effects when present in air in combination with other pollutants.

In the third area, the program will continue to address similar questions about the health effects of such inorganic substances as trace metals--lead, zinc, cadmium, and arsenic. One important research area in the case of the ubiquitous trace metals to be addressed concerns the relative contributions of the various possible routes of exposure to observed health effects.

The relatively modest effort in environmental carcinogens initiated in 1976 will be continued. This effort is unique in that it will seek a quantitative evaluation of environmental levels and sink factors associated with carcinogens. Among the primary objectives of the planned effort are the identification of carcinogens present in the environment, characterization of human exposure to them and determination of possible dose-response relationships.

The fourth area is specially concerned with the health implications of automotive emissions--essentially those from catalyst-equipped vehicles. Efforts will be continued to determine exposure to pollutants emitted in terms of both current and predicted future levels, as well as to determine the health response to exposure.

Like the health program, the ecological effects portion of the program addresses both the criteria and noncriteria air pollutants and trace metals. This effort will continue in 1977 to research and describe the effects of air pollutants on disrupted and/or natural terrestrial ecosystems or their components, particularly those of economic value. Effects will be researched with regard to pollutants occurring both singly and in combination, at varying concentrations and for varying periods of exposure. The resulting data will be useful for assessing current and predicting future ecological impacts of airborne pollutants.

Included in the program will be studies to characterize particular terrestrial ecosystems (i.e., identify their components and discern the dynamic interrelationships between them). Among the studies will be those on grass lands, deciduous and mixed forests, soil microbiotic communities and soil microorganisms. Both field and laboratory studies will be conducted on the effects of pollutants on single animal and plant species, including effluents on growth and reproduction.

In the area of transport and fate of air pollutants, specific planned accomplishments include:

- Evaluation of urban sulfate model based on RAPS data base;
- Report on climate of air quality trends;
- Report on IR analysis for tropospheric halogenated compounds; chemistry of degradation;
- Report of long-range transport of ozone/precursors;
- Evaluation of highway model based on Long Island Expressway field study;
- Development and application of measurement methodology to study emissions of unregulated pollutants such as HCN, HCl, HBr, and H2S from current and future light-duty vehicles;
- Development of emission measurement instrumentation, for proposed stationary source regulation such as monitoring systems for specific halocarbons and mass concentration particulate emissions;

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- Development and application of techniques and instrumentation to measure carcinogenic air pollutants in the air and in the vicinity of sources;

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- Development of techniques and instrumentation to measure specific toxic organic chemicals in the air; and
- Development of techniques to measure specific sulfate species in the air and in source emissions.

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Research and Development

Industrial Processes

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976 (d	Current Estimate <u>1976</u> dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$15,777	\$7,372	\$5,665 49	\$5,065	-\$600

Budget Request

An appropriation of \$5,065,000 is requested for 1977. There represents a decrease of \$600,000 from the 1976 level.

Program Description

The industrial processes program concentrates on point sources of air pollution arising from the industrial sector of the economy and is focused on those mining, manufacturing, service, and trade industries which are involved in the extraction, production and processing of materials into consumer products. This research activity supports the technology requirements of the Clean Air Act through the development and demonstration of new or improved cost-effective technology having industry-wide applicability, short-term achievability and long-term viability.

Since a significant amount of air pollution comes from energy production and consuming processes, there is considerable overlap in the problems addressed by the industrial processes program and the energy related research program. These programs have therefore been carefully structured to complement each other.

1975 Accomplishments

In 1975, the air industrial processes program:

- Initiated a hazardous materials source assessment program in order to provide information for developing future standards and hazardous pollution controls;
- Demonstrated NO_x control using molecular sieve sorption systems;
- Achieved substantial progress in developing low emission burners and providing understanding of NO_x formation in flames;
- Assessed mobile source pollution control technology for application to stationary internal combustion engines and gas turbines;
- Completed a demonstration test program on a high efficiency (99.6 percent) electrostatic precipitator, establishing the capability of this device as a total (including fine) particulate dust collector; and
- Constructed and placed in operation a mobile particulate test unit. This unit will provide data for setting and enforcing particulate standards.

1976 Program

The 1976 program focuses on assessing the magnitude of the problem and the state-of-the-art for control of noncriteria and hazardous pollutants, while finishing several development and demonstration projects on criteria pollutant control systems. In addition, work has begun on transferring technology for particulate control to the industrial sector. The results of the assessment studies will provide identification, characterization, and prioritization of industrial sources of hazardous pollutants. The information will enable development of national strategies for control of industrial air pollution.

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Major outputs to be achieved in 1976 include:

- Completion of a system for controlling both air and water discharge from pushing and quenching operations in the iron and steel industry; and
- Initiation of two demonstrations of technology for control of fine particulates in steel making processes and in the production of ferroalloys.

1977 Plan

In 1977, activities will continue to characterize and assess the air pollution problems associated with industrial sources and to identify the available technology for pollution control (as well as the economic implications of such controls). This information will continue to be used in formulating specific technology requirements and strategies for control of air pollution from these sources. Accomplishments will include:

- Completion of a preliminary design for an air pollution abatement system for copper and lead smelters; and
- Completion of a study on feasibility of using a solventless sheet metal coating process.

AIR

Research and Development

Monitoring and Technical Support

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (c	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$4,958	\$4,947	\$10,172	\$10,172	• • •
Permanent Positions	64	, 64	121	12]	• • •

Budget Request

An appropriation of 10,171,900 is requested for 1977. There is no change from the 1976 level.

Program Description

The air monitoring and technical support program has two program activities: (1) research, development, and standardization of methods, equipment, and techniques to quantify and characterize air pollutants in ambient air and emissions from mobile and stationary sources, and (2) the provision of technical support through which the results of the research and development programs, and the expertise of researchers throughout the research and development organization, are made available to other parts of the Agency. This technical support activity provides resources to respond to both continuing requests for assistance as well as immediate-response requests on any given technical subject.

1975 Accomplishments

1975 accomplishments in the methods, equipment, and techniques research and development program included:

-Development of improved measurement methods for particulate organic matter;

-Validation of improved mobile source pollution control methods;

-Improvement of particulate mass and size determination methods;

-Development of odor measurement methods;

-Field test of open path spectral monitors;

-Research, development, and evaluation of multipollutant analyzers; and

-Research, development, and evaluation of a prototype x-ray fluorescense analyzer.

In the air technical support area, major accomplishments inlcuded conducting a program to monitor burning of toxic industrial wastes in the Gulf of Mexico by a shipboard incinerator, provision of the airborne sampling capability for the Regional Air Pollution Study, and assisting several regions by conducting airborne compliance monitoring.

1976 Program

The 1976 objectives of the methods, equipment, and techniques program include: (1) sampling and analytical techniques for identification and measurement of pollutants from Various sources; (2) characterization of the gaseous and aerosol components of air pollution; (3) characterization of mobile source and stationary source emissions; (4) developing, sampling, and analytical techniques for characterization of ambient air; and (5) establishing criteria for "equivalent" measurement and monitoring systems.

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During 1976, research and development technical support has been identified separately as a program activity in order to improve the responsiveness of the research and development program to the scientific and technical needs of the Agency. During 1976, a resource data base will be developed and a unified planning and management system will be implemented for technical support. The exact nature of this technical support can only partly be documented because requirements cannot be completely predicted. However, the type of support to be provided includes conducting routine chemical analysis of samples from operational air pollution monitoring networks, and chemical analysis support of registration of fuel and fuel additives.

<u>1977 Plan</u>

The 1977 measurement techniques and equipment program will continue development and assessment of air pollutant monitoring and measurement methodologies, techniques, and instrumentation. It will concentrate on considerable emissions from mobile sources, nonregulated pollutant characterization in urban-rural areas, characterization of toxic trace metals and organic emissions from stationary sources, and methods for identification of carcinogens and mutagens. The 1977 air technical support program will continue and enhance the support given by ORD to other Agency programs.

AIR

Research and Development

Advanced Automotive Propulsion Systems

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation Permanent Positions	\$2,069 	\$2,165 7	•••	•••	6 6.9 6 16.9

Explanation of Change in Program

With the creation of the Energy Research and Development Administration during 1975, the majority of the resources allocated to the Advanced Automotive Propulsion Systems research activity was transferred to that agency. Residual resources, amounting to \$2,164,600 were transferred to the Air abatement and control account during 1976.

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Water Quality

SECTION TAB

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
			(dollars	in thousands)
Abatement and Control:					
Appropriation	\$101,837	\$144,522	\$174,547	\$115,173	-\$59,374
Permanent Positions	1,534	1,729	1,819	1,816	-3
Transition Quarter	N/A	24,960	37,860	N/A	N/A
Enforcement:					
Appropriation	24,284	21,294	19.793	21,242	+1.449
Permanent Positions	962	744	738	764	+26
Transition Quarter	N/A	5,245	5,245	N/A	N/Ă
Research and Development					
Appropriation	41,149	44.892	43,940	41.769	-2 171
Permanent Positions	554	581	548	548	2,171
Transition Quarter	N/A	11,900	11,900	N/A	N/A
Total, Water Quality Progra	am•				
Appropriation	167.270	210.708	238,280	178,184	-60.096
Permanent Positions	3,050	3,054	3,105	3,128	+23
Transition Quarter	N/A	42,105	55,005	N/A	N/Ă
Outlays	173.350	175,400	189,160	138,655	-50,505
Authorization Levels	9.476.536		1,499,913	211,051*	

*Authorization pending.

NOTE: The program highlights and description of the Construction Grants activity will be found in the Construction Grants section of this submission.

OVERVIEW AND STRATEGY

Evidence has been gathered to indicate that almost one stream or river mile out of every three is markedly polluted, whether measured by oxygen demanding loads and bacteria count, nutrients such as nitrogen and phosphorus, other pollutants such as industrial compounds and suspended solids, heavy metals, or pesticides. These impacts result from point source discharge of waste from industrial, commercial, agricultural, and municipal sources, and the nonpoint source discharge (including spills and runoff) from activities that cover a broad land area and are mostly diffuse in nature. These nonpoint sources include agriculture, silviculture, construction activities, mining, and runoff from urban areas.

Pollution control activities have focused initially on the abatement of industrial and municipal point sources. The relative extent of point source pollution is fairly evenly divided among industry and communities, with a much smaller portion attributed to agriculture.

The biggest user of water is industry--over 200 billion gallons a day, two-thirds of which is used for cooling. Over 33,000 applications have been received from industry for discharge permits under the National Pollution Discharge Elimination System. The next biggest user of water is agriculture with a daily intake of about 130 billion gallons. The Nation's farm animals produce about as much waste as two billion people although only a portion of that ends up in our waterways. The largest agricultural discharge is irrigation water, often infused with pesticide and fertilizer residues and natural salts. Additional pollutant loads include an estimated four billion tons of sediment a year, most of it from farm and forest land and the drainage of acid and other contaminants from some 11 million acres of mined land. An estimated 6,500 discharge permit applications are expected from the agricultural sector. Communities use only about 30 billion gallons of water a day. However, only half of the Nation's population is served by sewage systems that provide adequate treatment.

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Over 20,000 municipal discharge permit applications, plus an additional 50,000 to 100,000 from privately owned treatment works (excluding those serving single family homes), are expected to be received ultimately.

The process of analyzing and reporting on the quality of the Nation's water continued during 1975 with the preparation of the second <u>National Water Quality</u> <u>Inventory Report to Congress</u>. This year's report includes, for the first time, full reports from each of the 50 States and six Territories of the United States. The States generally agreed with the findings of the 1974 report--that the parameters which have been the focus of pollution control efforts, oxygen-demanding loads and coliform bacteria, are showing overall improvement while nutrient parameter levels were becoming worse in many areas.

Legislated Federal involvement in water pollution control began in 1948 in a very limited way. There were antecedent laws such as the River and Harbor Act at the turn of the century whose water pollution control authorities were not utilized until 1970. The Congress, in a series of six amendments from 1952 through 1970, gradually broadened the scope of Federal participation and assistance as stipulated in the 1948 Federal Water Pollution Control Act.

It was recognized that (1) the pollution of the Nation's water was continuing to increase, (2) differences in the degree of emphasis among States were fostering economic and competitive inequities, (3) existing legal mechanisms for abating discharges were often weak and insufficient, (4) costs of control required increased Federal funding, and (5) uniform national norms were needed to protect the progress that had been achieved. In response, the Congress established as law the most comprehensive pollution control act ever enacted--the Federal Water Pollution Control Act Amendments of 1972, which significantly accelerated the Nation's pollution abatement program.

Federal and State governments have now been operating under the provisions of this Act for over three years. Top priority has been given to issuance of waste discharge permits to point sources; funding of publicly-owned waste treatment works; and the compliance monitoring, technical assistance, and enforcement necessary to assure that permit conditions are met and the waste treatment plants are operated effectively. These activities are supported by monitoring and analyses to determine water quality dictated levels of control for critical stretches of water, promulgating guidelines and standards, setting national norms for comparable levels of control for all industrial discharges, and assessing and structuring future program needs and solutions.

The Act basically encompasses a 10 year period from October 1972, to June 1983. Two important dates by which all point sources should have achieved a legislatively specified level of control occur in 1977 and 1983. By July 1, 1977, industries are to use the best practicable control technology currently available to control water pollution and the best available technology economically achievable is to be in-use by July 1, 1983. Publicly owned waste treatment plants are required to provide a minimum of secondary treatment by July 1, 1977, and to apply the best practicable waste treatment technology by July 1, 1983. Various interim steps occur on a continuing basis leading up to these dates. These include those activities previously described which are complemented by other specifically focused programs such as lake restoration, economic studies, annual quality assessments, and management of nonpoint sources. The Agency is turning additional attention to nonpoint sources in the revision of its regulations on water quality management planning.

The total cost over the 1974-1990 period of achieving the highest priorities for the municipal sector (construction of treatment plants and interceptors) was estimated at \$46.3 billion in the 1974 Needs Survey. This omits estimated costs for collection sewers, correction of infiltration/inflow, major sewer rehabilitation, and correction of combined sewer overflows (totalling \$61.1 billion). The costs for providing treatment and/or control of storm water, a category which is receiving particular scrutiny by the Agency, are estimated to be \$235 billion.

The principal responsibility for conducting many of the tasks under the Act is assigned to the States. Local communities conduct several types of planning and construct and operate treatment facilities. EPA's role is to coordinate nationally all the many and various aspects of the Act, overseeing their implementation and, where a State is unable to act, to carry out the activity. Additionally, EPA performs those

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activities which are singularly assigned to it under the law. The magnitude of the tasks demands that a continuing cooperation exist among all levels of government as each conducts its appropriate role.

Because of the long-term phased nature of the Act, many activities are proceeding in a sequenced fashion. Top priority has been given to research and development efforts concentrating on the technological and informational needs related to the 1983 objective. Areawide and Phase II basin planning are also oriented toward this date. Since most of the first round of waste discharge permits have been issued and their schedules have taken effect, enforcement activities to assure compliance with these requirements are being intensified. Under a continuing cycle, efforts leading to the second round of permit issuance are commencing. These include stream analyses of water quality, development of water quality based pollutant reduction where needed, and revised criteria. Research studies have pointed the way directly into revised criteria by providing more complete data and better values. Accordingly, guidance is being prepared for the States to follow in revising their water quality standards. Overall, the fiscal year 1977 permit program strategy is to continue the process of putting first round enforceable permits into effect, to begin the issuance of second round permits and, with particular reference to municipal permits, reissue major permits assuring compatibility between funding and compliance schedules. Upgrading the enforcement quality of permits in force is also a feature of the 1977 permit program strategy.

The great bulk of Federal environmental funding is allocated to the water program. These Federal funds are supplemented by sizeable amounts of State and local monies. This funding level reflects the major investment in publicly owned facilities that must be constructed to abate a principal source of water pollution--the discharge from municipal sewage facilities.

The investment in municipal facilities is supported by Federal and State review of grant applications for cost effectiveness and compliance with the various requirements of the law. Funding for municipal treatment works has been significantly accelerated. A national municipal operations program strategy is being drafted to broaden and intensify Federal, State, local, and private sector efforts to assure that plants built and permitted under the Federal Water Pollution and Control Act (FWPCA) reliably meet operating and design specifications and permit requirements. Assistance in the training of operators and in the development and training of State and local water pollution control professionals will continue to be provided. Research and development projects examine more effective and economical technologies in an effort to reduce the total cost. A major reorientation of the municipal permit program is under way to ensure more effective support of the Agency effort to grant \$18 billion for municipal sewage treatment construction projects. Another major concern in the municipal permit area is the revision of existing policies which will ultimately necessitate the modification or reissuance of most of the 20,000 municipal permits.

Initial studies and efforts to develop the framework for managing nonpoint source pollution are being carried out. As point sources are increasingly abated, nonpoint pollution will become an ever larger factor.

Technological research will assist in formulating effluent standards for industrial discharges. Existing effluent guidelines need to be reviewed and revised so that they can be successfully utilized in the second round of permit issuance.

SUMMARY OF INCREASES AND DECREASES

	(in thousands of dollars)
1976 Water Quality Program	\$238,280
Abatement and Control	-59,374
The net reduction results from a 1976 congressional increase of \$15.0 million for clean lakes that will not be required in 1977.	

\$15.0 million for clean lakes that will not be required in 1977 a \$38.0 million decrease for Section 208 water quality management planning grants, a \$3.1 million decrease resulting from the termination of academic training grants, a \$4.5 million

reduction in State control agency grants, and a \$2.7 million reduction in water quality planning. These decreases are partially offset by increases for the funding of an interagency agreement to conduct interim construction inspections for municipal facilities and for the full-year cost of the October 1975 pay increase.	
Enforcement	+1,449
The increase will provide for 26 additional positions to be used to enforce permit conditions now in effect and to modify, issue, or reissue additional permits.	
Research and Development	-2,171
The decrease is due to carrying forward only a portion of the \$3.6 million added-on by the Congress in 1976.	
1977 Water Quality Program	178,184

SUMMARY OF BUDGET ESTIMATES

1. Summary of Budget Request

An appropriation of \$178,183,300 is requested for 1977. This request, by appropriation account, is as follows:

Abatement and Control	\$115,172,900
Enforcement	21,241,900
Research and Dévelopment	41,768,500

This represents a decrease of \$59,695,700 from the 1976 water quality program and includes a decrease of \$38 million for areawide waste treatment management grants as a result of the change in emphasis from areawide to Statewide grants. Also included is a \$15 million decrease for the clean lakes program; these funds were added-on by the Congress in 1976 and will be dequate for 1977. There is a reduction in the training program due to the termination of the academic training grants (-\$3,070,000); a reduction in the State control agency grants (-\$4,456,500); and a reduction in the water quality planning and standards activity (-\$2,570,900).

These decreases are partially offset by an increase for the annualization of the October 1975 pay raise (+\$661,600); for the funding of an interagency agreement to conduct interim construction inspections for municipal facilities (+\$2,500,000); and for increased staffing and miscellaneous program items (+\$2,011,200).

The resources for the research and development program decrease by \$2,171,100 due to carrying forward only a portion of the \$3.6 million funds added-on by the Congress in 1976. The remaining \$1,428,900 will be used to continue ecological effects research on ocean outfalls, ocean dumping, and dredge spoil; health effects research on the potential health hazards associated with waste water treatment facilities and utilization/disposal of waste waters and sludge; and to continue work in sludge treatment and utilization.

2. Changes from Original 1976 Budget Estimate

Changes from the budget are as follows:

· · ·	(in thousands of dollars)
Original 1976 estimate Congressional increases:	\$210,708
Control agency grants	+10,000
Academic training	+1,200
Clean lakes grants	+15,000
Construction grants administration \$6,000 Less: transfers to Agency and Regional	
Management	+5,412
Research	+3,600

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Research activities transferred to Interdisciplinary media..... -4,777 Manpower planning activities transferred to Agency and Regional Management..... -166 Operating adjustments..... -1,949 Transfer of resources to strengthen Noise enforcement program..... -80 Transfer of accounting activity to Agency and Regional Management..... -47 Cost reduction savings transferred to other media..... -185 Miscellaneous increases and decreases..... -436 Current 1976 estimate..... 238,280

Most of the additional funds currently estimated for water quality programs were provided by congressional increases to the 1976 budget request. The increase for water pollution control agency grants restored this program to the 1975 appropriations level (the availability of funds deferred from 1975 results in an increase in total funds available in 1976, however). The additional \$1,200,000 for training is part of the \$2 million increase appropriated for academic training programs (the remaining \$800,000 is allocated to Air programs). Grants to improve water quality in the Nation's lakes were increased by \$15 million. An increase of \$6 million was provided for administration of the municipal waste water treatment facility construction grants program, of which \$588,000 has been allocated to construction grants activities in the Agency and Regional Management media. Although the core of this program is included in water quality, some key functions such as audit and contract compliance are classified under Agency and Regional Management. Finally, \$3,600,000 was added for research on ocean disposal, waste water disinfection and sludge disposal.

Current estimates for water quality research include a transfer of \$4,777,000 from water quality to interdisciplinary. This change is part of a broad restructuring of research and development activities in order to achieve an integrated approach to the identification, measurement and control of pollutants which transmigrate through various media. The objectives and purposes of the functions transferred, primarily the development of methods and management practices for the abatement and control of pollution from agriculture and silviculture, are essentially unchanged except for the greater emphasis on multi-media relationships.

A similar transfer of resources has been made in the case of manpower planning activities. The overall manpower planning function, which cuts across media lines and is centrally located organizationally, has been financed partially by water quality resources and partially by Agency and Regional Management. This transfer consolidates the funding of the program, but does not change the function.

Operating adjustments are changes required to adjust the budget to actual operating conditions. In the process of applying the budget to the specific needs of each regional office, laboratory, and headquarters program office, it is often necessary to make small adjustments to the planned budget. The \$1,949,000 reduction is the cumulative effect of these changes on water quality programs in 1976. Most of these funds were transferred to air programs to support activities aimed at the attainment of National Ambient Air Quality Standards and the maintenance of high air quality levels. Reductions were applied selectively to avoid the impairment of high priority water quality programs. No priority activities were eliminated.

Other transfers include \$80,000 to noise enforcement to help enable the Agency to establish a centralized noise testing facility, and a shift of \$47,000 to Agency and Regional Management to cover the transfer of a small financial management office. Resources for the financial management activity are more properly classified under agency management than water quality. An additional \$185,000 of savings realized in an Agencywide cost reduction program was also transferred to other media. ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	_Current	- . .
	Lstimate	Estimate
	(dollars	in thousands)
Prior year obligations	\$166,785	\$246,873
Additional cost of water quality control agency		
grant funds brought forward Congressional add-ons for water quality grants, academic training clean lakes research and	+5,625	-5,625
development, and construction grants administration.	+29,300	-17,000
as contract authority	+45,000	-35,000
Miscellaneous increases and decreases Decrease in amount of carryover funds estimated to be	+163	-1,990
available		-8,594
Decrease in training program	•••	-2,100
Total estimated obligations (From new obligation authority)	246,873 (223,279)	176,564 (161,564)
(From prior year runds)	(23,394)	(15,000)

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

Obligations are expected to grow substantially in 1976 because of congressional increases to the 1976 budget request as well as a change in the financing of areawide waste treatment management grants. Over \$35 million was added to the water quality budget by Congress for control agency grants, academic training, clean lakes grants, construction grants administration, and research and development. A total of \$29.3 million of these increases is expected to be obligated in 1976. A 1975 increase of \$5,625,000 for water pollution control agency grants which was deferred to 1976 will also be obligated in 1976.

The largest increase in 1976 obligations results from the funding of Section 208 areawide waste treatment management grants from new obligational authority. This program was financed from contract authority in 1974 and 1975. Although obligations for this program will actually decrease in 1976, this change in financing results in an increase to the water quality media.

Estimated 1977 obligations decrease sharply because congressional increase in 1976 are not carried forward to 1977; the Section 208 areawide waste treatment management grant program is being phased downward; the academic training grant program is being terminated; and the amount of prior year funds available for obligation is expected to decrease. Of the congressional increases, only construction grants administration, control agency grants, and a portion of research and development funds are being carried forward. No funds for clean lakes grants are proposed for 1977. Elimination of academic training grants will cause a reduction in obligations of \$2.1 million. The remaining major decrease is in prior year funds available for obligation. Such carryover funds are expected to result in obligations of \$23,594,000 in 1976, but only \$15 million in 1977, a decrease of \$8,594,000.

Other changes in the 1977 budget will result in a net decrease in obligations of \$1,990,000. This change reflects decreases in water planning and technical assistance activities, partially offset by increases for construction grants administration and annualization of the October 1975 pay raise. Detailed explanations of these changes are provided in the following sections.

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WATER QUALITY

	Actual 1975	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
PROGRAM LEVELS				
Section 208 Regional Planning				
Agency Designations Review of Environmental Impact	149	40	5	-35
Statement-Drafts	500	500	500	
Clean Lakes Projects		20	50-60	+(30-40
Cean Dumping Permits	100	53	60	+7
Construction Grants Awards	2,591	3.375	4.825	+950
Step I Awards	(1,693)	(1,800)	(1,000)	(-800
Step II Awards	(266)	(1,000)	(2,300)	(+1,300
Step III Awards	(632)	(1,075)	(1,525)	(+45(
State Program Approvals (NPDES)	24	34	36	+2
Enforcement Actions (Referrals and				
Admin Orders)	782	1,423	1,380	-43
djudicatory Hearings:				
(a) Prehearing conferences	(a) 114	(a) 150	(a) 70	(a) -80
(b) Settled	(b) 123	(b) 600	(b) 300	(b) -300
Permits Issued by EPA:				
Municipal				
major	1,599	268	2,000	+1,732
minor	6,402	1,644	1,500	-144
Nonmunicipal				
major	1,527	584	3,000	+2,416
minor	7,233	5,492	2,500	-2,992
Sampling and Reconnaisance				
Inspections Conducted	1,075(6	est) 2,872	3,072	+200

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Abatement and Control

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WATER QUALITY

Abatement and Control

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousan	Increase + Decrease - 1977 vs. 1976 ds)	<u>Page</u>
Budget Authority						
Water Quality Planning and Standards	\$15,737	\$17,285	\$32,393	\$14,927	-\$17,466	WQ-10
Guidelines	7,961	6,999	7,127	7,141	+]4	WQ-15
Brograms	50,604	89,245	100,527	55,000	-45,527	WQ-18
Water Quality Strategies Implementation	7,361	7,686	7,479	7,534	+55	WQ-22
Water Quality Monitoring and Analysis Municipal Source Control	6,074 14,100	5,168 18,139	4,495 22,526	4,515 26,056	+20 +3,530	WQ-28 WQ-31
Total	101,837	144,522	174,547	115,173	-59,374	
Permanent Positions						
Water Quality Planning and Standards	408	441	424	403	-21	WQ-10
Guidelines	47	45	54	54	•••	WQ-15
Grants Assistance Programs			•••	•••	• • •	WQ-18
Water Quality Strategies Implementation	261	267	243	241	-2	WQ-22
and Analysis Municipal Source Control	245 57.3	· 190 786	176 922	176 942	+20	WQ-28 WQ-31
Total	1,534	1,729	1,819	1,816	-3	

Purpose

The objective of the water quality abatement and control program is primarily to assist State and local agencies in controlling water pollution by providing management, technical, and resource assistance and through disseminating guidelines and standards. These guidelines set methods and procedures and levels of control for sources of pollution. Water quality criteria and standards are applied to the receiving waters and are subsequently reflected in the level of control placed on the source. Management assistance is provided in the preconstruction and construction of waste water treatment facilities and their operation. One-half of the water program manpower is used to manage and monitor this multibillion dollar program. Additional management assistance is provided in developing areawide planning agencies, improving municipal waste control management, and in monitoring and reporting on ambient water quality and changes in quality. Technical assistance includes general assistance on controlling persistent and complex pollution problems as well as specific response assistance for spills or other pollution emergencies.

Because a primary responsibility for the control of pollution lies with the States, most of EPA's abatement and control efforts are oriented toward support of State and local efforts. States are responsible for detailed planning, monitoring, and enforcement efforts, as well as for establishing the priorities for commitment of Federal funds for the construction of sewage treatment plants. ź

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Grants support development and operation of State water pollutions control agencies, which include the functions of construction grants review, permits, monitoring, and other implementation measures. States are encouraged to undertake the issuance of industrial and municipal permits and conduct the enforcement program to ensure compliance with permits.

EPA monitoring and surveillance activities are coordinated with State and other Federal efforts and include ambient water quality monitoring, collection, and dissemination of information and water quality data, and compliance monitoring of specific types of pollution sources.

Technical assistance and information is provided to assist in applying technology, developing standards, and instituting effective programs and source management. A major program thrust involves the development and establishment of industrial effluent (point source) guidelines on best practicable and available technologies, effluent and pretreatment standards, and regulations for all industrial categories. Limited assistance and technical development efforts will continue on nonpoint sources to support Phase II (1977-1983) planning. A spill prevention and control program focuses on implementing spill prevention plans at non-transportation related onshore and offshore facilities, and responding to major spill events to mitigate the effects of polluting spills on the environment.

EPA provides or supports training to improve the skills of State and local water pollution control personnel as well as to increase the availability of water pollution control manpower. Skills which are addressed range from sewage treatment plant operation to plant design and management. Also under this program, EPA assists other Federal agencies to bring their facilities into conformance with prevailing pollution standards and helps to ensure that the programs, projects, and other activities of Federal agencies produce a minimum water pollution impact.

The Marine Protection, Research and Santuaries Act of 1972, as amended, authorizes the Administrator of the Environmental Protection Agency to regulate the disposition of materials into the ocean, excepting dredged material. Under this authority, a permit program for ocean disposal of waste was implemented in 1973. Primary objectives for 1977 include:

- Designation and funding of approximately five new areawide planning agencies to develop water quality management plans in those areas that are not designated for State conducted planning;
- Promulgation of final regulations for hazardous substances spill prevention;
- Full implementation of oil removal regulations;
- Approximately 4,825 new awards obligating \$6.0 billion for the planning, design, and construction of waste treatment facilities;
- Final promulgation of fill and dredged material guidelines;
- Implementation of the merged Section 208 and Section 303 (e) regulations governing planning activities;
- Initiation of two ocean disposal site surveys and continuation of five site surveys;
- Initiation of an expanded and intensified national municipal operations program;
- Development of a detailed national water monitoring strategy, based on 50 individual State strategies developed as part of the State program process; and
- Management of an estimated 50 to 60 clean lake restoration projects.

WATER QUALITY

Abatement and Control

Water Quality Planning and Standards

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
			(dollars	in thousands)
Appropriation Permanent Positions	\$15,737 408	\$17,285 441	\$32,393 424	\$14,927 403	-\$17,466 -21

Budget Request

An appropriation of \$14,927,000 is requested for 1977. This represents a decrease of \$17,465,600 from 1976.

Program Description

The water quality planning and standards subactivity includes four program elements. The state programs regulations and guidelines element covers a broad range of activities including providing technical guidance, assistance, and information to States, other Federal agencies, and local agencies to assist with the development of water pollution control programs. These activities include assisting States in the preparation of their annual plans for the prevention, reduction, and elimination of water pollution; providing guidance on the setting of standards; disseminating technical information concerning scientific and engineering advances; and providing technical consultation. Also included under this program element is an assessment of the status of pollution in the Nation's estuaries and preparation of a report to Congress, identification and designation of priority for removal of in-place toxic pollutants in harbors and waterways, development and publication of quality criteria for water, promulgation of a regulation to control aquaculture and nonpoint source studies and guidelines.

The second program element covered by this subactivity is the Great Lakes program which includes both funding for the Great Lakes initiative program as well as demonstration grants authorized by Section 108(a) of the FWPCA. The Great Lakes initiative program was established in 1973 to provide the principal source of funding for United States activities in direct support of the Canadian-United States Agreement including the Upper Lakes Study, the Pollution from Land Use Study, Great Lakes water quality surveillance, International Joint Commission support activities, special studies of water quality problem areas, and demonstration grants authorized by Section 108(a).

The third program element covered by this subactivity is the clean lakes program. Under this program, the Agency provides financial assistance to the States to carry out methods and procedures to restore the quality of publicly owned fresh water lakes.

The fourth program element covered by this subactivity is support provided the Water Resources Council. This program has three principal activities: (1) Headquarters participation in Water Resources Council meetings as a member agency; (2) participation by both headquarters and regions in the National Assessment through furnishing data on water supplies and water quality, along with appropriate analysis of the total assessment data and findings; and (3) regional participation in comprehensive water and related land resource planning studies and in the activities of River Basin Commission, established under Title II of P.L. 89-80.

1975 Accomplishments

State Program Regulations and Guidelines

- Developed water quality criteria based on the latest scientific information;

- Completed basic water quality criteria documents for interagency review;
- Conducted a symposium on water quality integrity factors;
- Conducted a symposium workshop on the status of the Nation's estuaries;
- Developed a proposed regulation relating to the control of sewage from vessels;
- Developed a final regulation pertaining to aquacultural projects;
- Developed regulations for State Water Quality Management Planning;
- Developed an Agency policy on water quality standards;
- Used Section 106 grant resources to support priority program areas including permits, municipal facilities management, compliance monitoring, and planning;
- Implemented the SBA Loan Program nationwide;
- Initiated a project to aid State water pollution control agencies in upgrading and reclassifying key environmental control positions;
- Developed a resource/output data base to evaluate the progress of State water pollution control agencies;
- Draft first phase nonpoint source study of Santa Maria basin in California completed, covering analysis of pollution soruces and legal, regulatory, and institutional means currently available for nonpoint source control in the area; and
- Three nonpoint source planning demonstration projects were initiated.

Great Lakes Program

The Land Use Activities Reference Group Studies were initiated in 1974. This basinwide study will be continued in 1975 and will result in recommendations for the abatement and control of pollution resulting from land drainage. The Upper Great Lakes Reference Group Studies were also started in 1974 and comprise a comprehensive investigation of the water quality and remedial programs on Lakes Superior and Huron. These studies were continued during 1975 in which all field and laboratory investigations were initiated. During 1975 demonstration projects were under way for eight projects funded under Section 108(a) of the Federal Water Pollution Control Act. These demonstration projects include the Muskegon, Michigan, Land Disposal Project; East Lansing Spray Irrigation and Lagoon Project; Black Creek Study; Rochester Storm and Combined Sewer Overflow Study; Douglas County, Wisconsin, Red Clay Project; and Southeastern Michigan Waste Water Management Study; Mashington County Project; and Southeastern Michigan Waste Water Management Study. An additional project, Cleveland Watershed, was completed during 1975. Support for the Water Quality Board and Research Advisory Board of the International Joint Commission will be continued. Lake-Wide surveillance was initiated.

Clean Lakes Program

In 1975, the Congress appropriated \$4 million for the Clean Lakes program. These funds were to "provide for adequate planning so that EPA could get the program under way". These funds were brought forward and will be used in 1976 to gain additional knowledge on the benefit-cost and effectiveness of methods and procedures to restore fresh water lakes.

Water Resources Council

For 1975, four planning studies were completed, including the Connecticut supplemental, Long Island Sound, Platte, and Southeastern New England studies. In addition, a new study on the Hudson River was started.

1976 Program

State Programs Regulations and Guidelines

In 1976, program emphasis will be placed on the merging of Section 208 planning with 303(e) planning to include the management of programs addressing nonpoint source pollution. In the past, EPA and the States have concentrated virtually all of their resources on abating point sources of pollution. The States will begin to develop strategies which include nonpoint source abatement in accordance with regulations and guidance issued by EPA. Based on the Agency policy developed in 1975, regulations will be written to address revisions of State Water Quality Standards.

Through contracting services, EPA will provide technical assistance through 1976 to State water pollution control agencies to aid them in upgrading and reclassifying environmental control positions. This will enable States to fill present vacancies with the well qualified staff necessary to meet increasing responsibilities. The development of a Continuing Planning Process Handbook and a State Strategy Handbook are planned to assist the States in developing well integrated planning and decision making processes.

Additional delegations of Federal functions to the States are planned for 1976. The recommendations of a task force on decentralization will be incorporated into the 1977 operating guidance.

In 1976, plans for the SBA Loan Program include a substantial increase in the number of loans approved and the delegation of this program to several States.

In 1976, under the State Programs Regulations and Guidelines program, EPA will also:

- Publish quality criteria for water;
- Publish the report on water quality integrity factors;
- Complete and publish the report to Congress on the status of the Nation's estuaries;
- Fund three nonpoint source demonstration projects dealing with sediment control, the reclamation of abandoned mine tailings dumps, and nutrient control;
- Publish a regulation pertaining to aquaculture projects;
- Publish the proposed regulation for the control of sewage from vessels and the approval of no discharge areas;
- Complete the report assessing current knowledge about in-place toxicants in harbors and waterways;
- Develop a method of assigning priorities for the removal of in-place toxicants;
- Complete a documentary film on the status of estuaries; and
- Make initial attempts to identify controls for polltuion from urban stormwater and other nonpoint pollution sources and to disseminate this technology.

Great Lakes Program

During 1976, the final report on the Upper Great Lakes Reference Group Studies will be presented to the International Joint Commission. The Land Use Activities Reference Group Studies will continue with additional emphasis on gathering more data on erosion rates and sediment characteristics. Work on the eight demonstration projects funded under Section 108(a) of the FWPCA will continue during the year. Support for the Water Quality Board and Research Advisory Board of the International Joint Commission will be continued, including surveillance activities.

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Clean Lakes Program

The \$4 million appropriated in 1975 for Clean Lakes will be used to fund an estimated 20 lake restoration projects. Additional fresh water lake restoration grant applications will be solicited for funding from the \$15 million added by the Congress for 1976.

Water Resources Council

In 1976, six comprehensive planning studies will be completed for Hawaii, the Hudson River, Maumee, Minneapolis-St. Paul, Monongahela, and Pacific Northwest. Two new studies will be started for the Ohio Main Stem and Yellowstone.

1977 Plan

State Programs Regulations and Guidelines

Implementation of the merged Section 208 and Section 303(e) basin plan will begin in 1977. Federal funding for statewide Section 208 plans in nondesignated areas is provided to assist State and local government in complying with U.S. District Court for the District of Columbia ruling that Section 208 plans must be developed by late 1978 for the entire Nation.

Decentralization of functions and responsibilities will be in a major Section 106 program emphasis. The development of policies and guidance to ensure State emphasis on and commitment to national priorities will continue.

Other activities to be undertaken in 1977 are:

- Continued development of water quality criteria in concert with latest scientific information;
- Assistance in issuance of pollution discharge permits for approved aquaculture projects;
- Investigations of harbors and waterways of critical importance which requires additional studies and provide the basis for a decision on the removal of in-place toxic pollutants;
- Investigations and approval of six to 10 applications for States to prohibit the discharge of vessel waste;
- Continued provision of technical support rationale for toxic pollutants, effluent guidelines, ocean dumping, hazardous spills, and dredged or fill materials;
- Initiation of a reevaluation of the aquatic integrity;
- Promulgation of final modified standard for marine sanitation devices;
- Initiation of the reevaluation of the status of the Nation's estuaries, a three-year cycle report to Congress; and
- Continuation of the three nonpoint source planning projects (sediment control, livestock water, and new institutional arrangements for nonpoint source control).

Great Lakes Program

The 1977 plan will support the implementation phase of the Upper Great Lakes Reference Group Studies final report recommendations. The Land Use Activities Reference Group Studies will continue through 1977 and into 1978 when the final report is presented to the International Joint Commission. Work on the Section 108(a) demonstration projects will be continued. Support for the Water Quality Board and Research Advisory Board of the International Joint Commission will be continued. Surveillance activities will be continued.

Clean Lakes Program

In 1977, activity will be devoted to the management of an expanded clean lakes program funded in 1976, and, in conjunction with the EPA Office of Research and Development, initiation of the evaluation of selected projects.

Water Resources Council

In 1977, the Ohio Main Stem and Yellowstone stuides will be completed. A national assessment study will also be completed.

The bulk of the decrease in funds for water quality planning and standards is due to the \$15.0 million appropriated by the Congress in 1976 for the Clean Lakes program that will not be required in 1977. The \$15 million will be sufficient to meet 1977 needs and will fund an estimated 50-60 projects over a three-year period. The balance of the decrease is due to reduced contract support of the nonpoint source program and development of start-up, nonrecurring guidance to support Section 208 planning. The decrease of 21 positions reflects reduced water quality monitoring support and technical assistance.

WATER QUALITY

Abatement and Control

Effluent Standards and Guidelines

PROGRAM HIGHLIGHTS

	Actual <u>1975</u>	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousands	Increase + Decrease - <u>1977 vs. 1976</u> s)
Appropriation	\$7,961	\$6,999	\$7,127	\$7,141	+\$14
Permanent Positions	47	45	54	54	

Budget Request

An appropriation of \$7,141,400 is requested in 1977. This represents an increas of \$14,000 over 1976.

Program Description

The Federal Water Pollution Control Act Amendments of 1972 require the Environmental Protection Agency to establish effluent limitations which must be achieved by point sources of discharges into the navigable waters of the United States. Section 301 of the Act requires the achievement by July 1, 1977, of effluent limitations which require the application of the "best practicable control technology currently available," and the achievement by July 1, 1983, of effluent limitations which require the application of the "best available technology economically achievable." Section 306 of the Act requires the establishment of new source standards and 307(b) and (c) requires pretreatment standards for industry.

The first major effort of developing and promulgating effluent limitations, standards, and guidelines for 52 major industrial categories has largely been completed, with the exception of final pretreatment standards for existing industry sources. These industrial categories include the 30 industries identified in the FWPCA (Group I) and the 22 that were later identified (Group II). The 30 Group I industries have been split into two phases to reflect available resource levels. Future activity will be devoted to completing standards for industrial subcategories which have been published as interim final or deferred, development of pretreatment standards for industries for which effluent limitations have been developed, the promulgation of standards of performance for new resources, development of technical information to support the judicial review of standards already promulgated, review and revision of all standards within five years of promulgation, and the development of standards for toxic substances.

1975 Accomplishments

- Published final regulations for the remaining 30 Group I, Phase I industries such as textile and steam electric industries;
- Published proposed regulations for 18 of the 22 Group I, Phase II industries such as glass, phosphate, rubber, ferroalloys, asbestos, meats, poultry, inorganics, cane sugar, grain mills, electroplating, plastics and synthetics, nonferrous, fertilizer, timber, insulation board, pulp and paper, and seafood;
- Promulgated eight of Group I, Phase II and published eight interim finals for Phase II;
- Published final pretreatment regulations for existing sources for Group I, Phase II industries;
- Initiated a toxic task force to evaluate alternative approaches for initial list of nine substances;

- Developed regulatory strategy for nine toxic substances; and
- Prepared contracts to evaluate the technology available for the treatment of the nine substances.

1976 Program

- Publish final pretreatment regulations for existing sources for remaining 20 segments of the 30 Group I, Phase II industries;
- Publish final regulations for existing sources for 14 of Group I, Phase II industries;
- Publish final regulations for 11 of the Group II industries;
- Develop regulations for specific categories not covered under Group I and II;
- Review all 1983 effluent guidelines and standards and, as appropriate, revise and publish;
- Develop and analyze data and background information to be used in the annual review of established limitations. The effluent limitations must be revised every five years;
- Provide technical support and assistance to the Office of Enforcement on enforcement proceedings involving industrial discharges;
- Provide technical support and assistance to the Office of Enforcement, regions, and States on enforcement proceedings involving industrial waste water treatment technology and control;
- Develop technical information necessitated by legal reconsiderations and remands as a result of court challenges to Phase I and Phase II of Group I;
- Development technical information required by the judicial review of Group II effluent limitations and standards;
- Conduct studies to evaluate the effect of effluent limitations guidelines on energy, solid wastes, air, and radiation impact and to identify alternative technologies to reduce such impacts;
- Provide scientific and engineering technology to control the discharge of industrial pollutants affecting the quality of drinking water;
- Evaluate alternative methodology for developing and establishing effluent limitations and guidelines as recommended by the Effluent Standard and Water Quality Information Advisory Committee (ESWQIAC), and other interested organizations;
- Quantitatively evaluate the environmental effects of the regulations applicable to industrial point sources under Section 301(b), 304(b) and (c), 306, and 307(b) and (c) as BPT, BAT, NSPS, and pretreatment regulations are implemented;
- Provide profiles of discrete industrial sources for use in preparing new source environmental impact assessments;
- Provide technical assistance to the Data and Monitoring Support Division on the economic studies in the form of investment costs, operating costs, and energy requirements for various treatment models;
- Provide technical assistance to the regions and States on the applicability of the guidelines and standards to the NPDES permit program;
- Conduct regional industrial workshops for the purpose of introducing new regulations and training permit writing personnel in the application of effluent limitation guidelines for the purpose of issuing permits;

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- Continue technology assessment of the nine toxic substances;
- Prepare draft revision of proposed standards for the nine toxic substances and conduct an initial review; and
- Prepare environmental assessments on the nine toxic substances and prepare new candidate list for additional toxic pollutants.

<u>1977 Plan</u>

- Develop and analyze data and background information to be used in the annual review of Section 306 New Source Performance Standards (NSPS). Information must be gathered on growth patterns in all industrial categories in order to establish priorities for the revision of NSPS;
- Develop, propose, and promulgate pretreatment standards based on mass limitations. This is an extension of pretreatment standards originally promulgated on the basis of concentration;
- Develop, propose, and promulgate effluent limitations and standards for nuclear power plants, uranium mills, uranium mines, and other selected nuclear sources;
- Develop, propose, and promulgate effluent limitations and standards for subcategories omitted from coverage by the Group I and Group II industries;
- Publish final regulations for the remaining Group II industries such as photographic processing, pharmacenticals, and machinery and mechanical products;
- Develop technical information required by the judicial review, technical reconsiderations, and remands of the Group II industries and those subcategories finalized in the above item;
- Repropose new standards for three industrial categories for one of the nine toxic substances or one industrial subcategory for three of the nine toxic substances to support standards for proposed rulemaking;
- Add one additional pollutant to the toxic pollutant list with one industrial subcategory; and
- Subsequently publish proposed toxic rulemaking, conduct public hearings, and promulgate final standards.

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WATER QUALITY

Abatement and Control

Grants Assistance Programs

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousands	Increase + Decrease - <u>1977 vs. 1976</u>)
Appropriation	\$50,604	\$89,245	\$100,527	\$55,000	-\$45 ,5 27
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Budget Request

An appropriation of \$55,000,000 is requested for 1977. This represents a decrease of \$45,526,500 from the 1976 level.

Program Description

The water quality grants assistance programs include three grant assistance activities: control agency resource supplementation grants, Section 208 planning grants, and training grants.

The water control Agency resource supplementation program provides Federal support to State and interstate water pollution control agencies. In virtually every program activity (e.g., permitting, monitoring, planning, enforcement, and municipal facilites management), EPA and the States each perform functions which must be coordinated if they are to be effective. EPA develops the strategy for coordination of effort between EPA and the States as well as the sequencing of this effort from year to year. These broad guidelines are translated into operational program terms in the annual program prepared by each State and approved by the EPA regional office.

Upon approval of the program, EPA funds each State agency to enable it to conduct its program activity. The EPA regions also monitor State performance to ensure that the outputs specified in the programs are accomplished.

In 1975, the last year for which figures are available, the role of the States is clearly shown in that State manyears of effort total approximately 5,500, compared to EPA regional manyears totaling about 2,200. Thus, the States are providing about 71 percent of the manpower resources in the water program. To help fund the State efforts, EPA provided \$40 million in State grants, or 34 percent of the total State spending of \$117 million for 1975.

The Act provides for the establishment of areawide waste treatment management and planning agencies under Section 208. Through Section 208, State and areawide planning agencies are provided a unique opportunity to plan and manage a comprehensive program based on integrated planning and control over such activities as municipal and industrial waste water, storm and combined sewer runoff, nonpoint source pollutants, and land use as it relates to water quality. From a pollution control standpoint, Section 208 provides the unique opportunity to examine all sources of pollution in an area and develop the most beneficial cost effective trade-offs between sources to reach the desired ambient water quality level.

The designated agencies, upon receipt of an acceptable grant application will receive grants for 75 percent of their eligible planning costs. This represents a reduction in Federal participation since areawide planning agencies designated and funded in 1974 and 1975 received 100 percent funding for their two-year planning period.
A management system will be developed to carry out the objectives and requirements of the plans. This comprehensive management system is expected to be the cornerstone of efforts for attaining the 1983 goals of the Act as it incorporates all the principal functions of water pollution control planning, construction, and regulation.

Academic training grants are awarded to institutions of higher education to meet a variety of professional manpower needs. Efforts in this area are divided into four primary categories: the professional training grant program, the graduate fellowship program, professional training curriculum activities, and undergraduate training grants.

1975 Accomplishments

Control Agency Resource Supplementation

- Use of grant resources to support priority program areas including permits, municipal facilities management, compliance monitoring, and planning;
- State issuance of 1,100 major permits and 9,900 minor permits;
- Increased capacity of State compliance monitoring to strengthen the enforcement of more than 38,000 issued permits; and
- Increased capacity of State agencies to manage the construction of municipal facilities, and expedite the award of more than \$3.6 billion of construction grants.

Section 208 Planning Grants

During the past fiscal year, the areawide designated agency portion of the Section 203 areawide waste treatment management planning program became fully operational. This involved not only management of the 13 areawide agencies funded in 1974, but included the initiation of planning activities by 136 newly designated areawide agencies. This brought 149 waste treatment management plans under development throughout the Nation. Completion of most of these plans is expected in mid-1978 (six months ahead of the Court imposed deadline) with the content of the plans to have a major impact on decisions to award contruction grants and issue, reissue, and modify permits.

Training Grants

The professional training grant program provides for training graduate level students in water-related engineering and environmental sciences. In 1975, 640 graduate trainees were supported at 52 institutions. Under the graduate fellowship program 74 employees from 53 State and territorial water pollution control agencies were selected by the director of that agency to spend one year in a water-related graduate or undergraduate program. Upon completion of this training, the employees returned to their respective agencies. Professional training curriculum activities for 1975 included a joint project with the Ohio State Environmental Protection Agency to train high school teachers in monitoring techniques, the development of an operation and maintenance technical assistance course, and a waste water collection systems operator training course. Undergraduate training and environmental disciplines to support 104 students.

1976 Program

Control Agency Resource Supplementation

Compliance monitoring and enforcement will recieve increase emphasis while permitting activities will decline. The point source control phase of planning will be completed in most basins in 1975, and 1976 will see a beginning of nonpoint source planning. Additional State personnel must be provided to properly manage the multibillion dollar construction grants program. The Agency is depending on increasing program delegations to the State in such areas as plans and specifications review, operation and maintenance manual review, bid tabulation, etc. EPA manpower resources will be inadequate to undertake all required increased activities in areas of program emphasis. Thus, States must be encouraged to respond by shifting and adding personnel to carry out priority activities. Resources will be moved from permitting to compliance monitoring and enforcement. Manpower will be shifted from point source planning to nonpoint source planning. However, additional staffing must be provided to increase State capacity to manage the construction grant program, and simultaneously to carry out the other requirements of the Act.

Section 208 Planning Grants

Approximately 40 additional high priority areawide agencies will be designated. Funds will also be provided to State agencies to assist in their development of work plans and to initiate State water quality management planning efforts incorporating the requirements of Section 208.

Training Grants

In 1976, 425 graduate trainees will be supported at 33 institutions. Funds will also be used to continue curriculum development in the Ohio Model Monitoring Programs, Operations and Maintenance, Tech Assistance and Collection System Correspondence Course. In addition, demonstration grants will be developed for professional training in the 208 Program, and in certification of senior operators in the local water pollution control facilities.

Undergraduate training grants will be funded at the same level as in 1975 with funds being applied to curriculum development and demonstration projects for design and operation of municipal water/waste water facilities at the Associate of Art and Bachelor of Environmental Technology levels and for training to meet NPDES municipal permit requirements.

1977 Plan

Control Agency Resource Supplementation

The water strategy points to 1977 as an important period, because the Act designates July 1977 as one of the two major milestones. In 1977, there is no legislatively specified ambient goal. However, the objective of the Act, "to restore and maintain the chemical, physical, and biological integrity of the Nation's water," has been administratively interpreted by EPA as requiring standards which generally protect indigenous aquatic life and secondary contact recreation. Appropriate uses and associated criteria will be incorporated into the water quality standards during the next revision cycle (October 1975-October 1970).

The major means of achieving the 1977 goal are the issuance and enforcement of permits and the construction of large numbers of municipal treatment plants. Additional program emphasis will be placed on compliance monitoring and permit reissuance; the merging of Section 208 planning with Section 303(e) planning; preparation of water quality standards revisions; and the planning and managing of programs addressing nonpoint source pollution. In the past, EPA and the States have concentrated virtually all of their resources on abating point sources of pollution. The area of concentration will now expand to include nonpoint sources to a limited extent. Control strategies will begin to be developed in 1976 by the States, based on "best management practices." Beginning in 1977, specific controls and regulatory programs are to be developed by the States to cover their nonpoint source problems for selected categories.

State agency grants under Section 106 of the Act will decrease by \$4.5 million. This level of funding will provide continued support to high priority State program activities.

Section 208 Planning Grants

Approximately five new designations of regional planning agencies are expected to be made during 1977. State agencies will be funded to further develop State water quality management plans for areas that are not designated.

Section 208 planning grants decrease by \$38 million for 1977. This reflects a downward phase of the areawide grants to statewide grants with a corresponding reduction in the number and valude of grants to be made. The \$15 million for Section 208 planning will fund the remaining high priority areawide designations as well as initial support for statewide planning.

Training Grants

Training grants will be terminated after 1976. This concludes the policy of a gradual phase-out of this activity that has been pursued over the past few years. Termination of the professional training program reflects the decision to rely on State and local government as well as the private sector to support these costs. The reduction of \$3.1 million for professional training grants reflects the termination of this program.

Abatement and Control

Water Quality Strategies Implementation

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousands	Increase + Decrease - <u>1977 vs. 1976</u>)
Appropriation	\$7,361	\$7,686	\$7,479	\$7,534	+\$55
Permanent Positions	261	267	243	241	-2

Budget Request

An appropriation of \$7,533,900 is requested for 1977. This represents an increase of \$54,700 over 1976.

Program Description

The water quality strategies implementation subactivity covers the program areas of Federal activities and EIS reviews, ocean disposal permits, dredge and fill regulations, and spill prevention and response.

The Federal activities and EIS review activity includes the evaluation of projects and programs of other Federal agencies in light of the requirements and goals of the National Environmental Policy Act (NEPA) and the Federal Water Pollution Control Act, as amended (FWPCA).

The EIS activity includes both review (of other agencies' EIS's) and preparation of EPA's own EIS's. The EIS review function includes:

- 1. Providing critical review and comments on the water quality aspects of nationally significant environmental impact statements and proposed regulations of other Federal agencies.
- 2. Providing guidance and encouragement to the regions in the decentralization program, supplying Agency direction with regard to water related programs.
- 3. Providing technical review, guidance, and assistance to the regions and other program offices in the preparation of the water aspects of EIS's.
- 4. Developing policy guidance regarding the implementation of NEPA in relation to P.L. 92-500, especially in the construction grants area.

The Federal activities function focuses on Federal agency compliance with water quality management practices and covers the following functions:

- Developing water quality related parts of EPA guidelines to Federal agencies and instructions to regions covering compliance planning, monitoring, exemptions, data needs, operator training/certification, land management, nonpoint sources, water resource planning and new OMB Circular A-106 (replaces Circular A-81 and A-78).
- Developing water quality related instructions to regions for Federal agency project evaluations for use in preparation of annual priority recommendations to OMB.

The ocean disposal permit program is authorized by the Marine Protection, Research, and Sanctuaries Act of 1972. Under Title I of this Act, the Administrator of EPA is authorized to strictly regulate the disposition of all materials except dredged material which is regulated by the Corps of Engineers. It further prohibits the transportation for the purpose of dumping and the dumping in ocean waters of chemical, biological, and radiological warfare agents and high level radioactive materials. Under this authority, a permit program for ocean disposal of wastes was implemented in 1973, and has been operational since then.

In conjunction with the U.S. Corps of Engineers in its responsibility to issue permits for the discharge of dredged or fill materials in navigable waters, EPA is to prepare guidelines with authority to prohibit such discharges in the event of an unacceptable adverse impact. EPA's involvement in the implementation of these guidelines is to furnish technical information to delimit navigable waters and wetlands, to assist in the preparation of general or categorical permits, and to contribute to program development involving full State participation to ensure that the Corps permit program is modified in a timely manner to protect the aquatic environment from dredged or fill material discharges.

The primary objective of EPA's spill prevention and response program is to protect water quality through the prevention of spills and minimize the impact of spills on the environment. Section 311 of the Federal Water Pollution Control Act specifies a three-fold approach to the control of spills which consists of response, prevention, and enforcement. Essential to the implementation of Section 311 is the promulgation of key regulations (including the designation of about 307 hazardous materials), development of the National Contingency Plan, establishment of spill response programs, and development of an aggressive spill prevention program. The Spill Response Program is shared with the U.S. Coast Guard and jurisdictional lines between the agencies are drawn geographically between inland and coastal (including the Great Lakes) waters. It is EPA's position that the discharger should take actions to remove the spilled material; however, if the violator fails to do so, clean-up will be undertaken by EPA and the discharger charged for the cost of removal. To provide efficient and coordinated response actions, national and regional contingency plans are required which delineate procedures, techniques (chemical uses) and responsibilities of the various Federal, State and local authorities.

The prevention program is also divided between EPA and the U.S. Coast Guard in accordance with facility functions, with EPA having the responsibility for nontransportation related operations. Initially, the EPA program is being directed at the repeat violators and major dischargers.

The enforcement aspect of the program serves as a deterrent to dischargers through the assessment of penalties authorized by the Act. For hazardous substances, the enforcement program will have greater significance because penalties can be assessed for dischargers of nonremovable hazardous substances. Also, more aggressive field investigations will be required because hazardous substances spills are more likely to go undetected than oil.

1975 Accomplishments

Federal Activities/EIS Reviews

- Developed techniques for expediting the preparation of EIS's;
- Reviewed and commented on about 900 environmental impact statements and regulations (drafts and finals) from EPA and other Federal agencies;
- Developed the EPA manual on preparation of impact statements for waste water treatment works and Title II plans;
- Developed evaluation procedure for use in prioritizing pollution abatement projects proposed for funding by Federal agencies;
- Reviewed nearly 500 water pollution abatement projects proposed by Federal agencies for the 1976 budget and recommended funding priorities to OMB;
- Contributed to the final publication in April 1975 of EPA's NEPA regulations for nonregulatory programs; and
- Contributed to the preparation of EIS's on regulatory EPA programs.

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Ocean Disposal Permits

The ocean disposal permit program has been operational for slightly more than two years. In this time, EPA has developed criteria for the evaluation of permit applications, prepared procedural regulations, identified on an interim approved basis, some 110 ocean disposal sites including 100 Corps of Engineers sites and issued approximately 100 permits. Violations of the Act have been reported and civil enforcement actions have been taken with fines levied and paid. During 1975, baseline surveys of three sites were conducted.

Dredge and Fill Regulations

- Participated with the Corps of Engineers to publish proposed regulations for navigable waters, and
- Developed and prepared guidelines for the discharge of dredged or fill material.

Spill Prevention and Response

- Published Advance Notice of Proposed Rulemaking for designating hazardous substances and determining removability;
- Completed contract study and conducted symposium on methodologies for determining harmful quantities and rates of penalty;
- Oil spill prevention program became fully operational in January 1975;
- Conducted oil spill prevention training program (two sessions);
- Established management information control system for the oil pollution prevention program;
- Initiated advanced planning to incorporate reliability analysis techniques for offshore oil drilling, production, and service operations;
- Initiated oil prevention monitoring by aerial photography;
- Revised the National Oil and Hazardous Substances Pollution Contingency Plan;
- Finalized development of technical document to support oil removal regulation (Section 311(j)(1)(A));
- Established management program requirements for implementing the National Chemical Use Schedule (Annex X National Contingency Plan);
- Provided technical support to the regions for oil and hazardous materials spills; and
- Initiated agreement with the U.S. Coast Guard to develop and implement local area oil surveillance systems utilizing a variety of fixed remote and in-situ sensors for continuous surveillance of ports, estuaries and inland waters.

1976 Program

Federal Activities/EIS Reviews

- Provide continuing consultation to Federal agencies on Federal installation water pollution control and environmental impact matters;
- Develop and refine water quality related guidelines for the preparation and review of EPA and other Federal agency EIS's;
- Develop techniques to expedite the preparation of EIS's and negative declarations, yet maintain a quality product;
- Review and comment on about 1,600 environmental impact statements and emphasize follow-up on implementation of projects covered by previously reviewed statements, including the newly added category of EIS's on new source discharge permits, and EPA regulatory program (approximately 200 in headquarters);

- Review and evaluate Federal agency budget proposals for installing water pollution control measures and recommend funding priorities to OMB;
- Review NPDES water discharge permit applications for Federal facilities and recommend conditions of issuance;
- Monitor Federal facility compliance with applicable water quality standards and implementation schedules;
- Develop comprehensive water quality related program guidance to regional offices, Federal agencies, and States for implementing the requirements of Executive Order 11752; and
- Contribute to improvement of the quality of environmental assessments prepared by non-Federal applicants to assure an increased evaluation of environmental effects of project during the planning phase.

Ocean Disposal Permits

The ocean disposal permit program will continue to improve the criteria for permit applications evaluation. The number of ocean disposal permits is expected to increase reflecting a rise in ocean disposal activity. Ocean disposal site selection will involve close scrutiny and assessment of a limited number of sites. Violations will continue to be reported with civil enforcement actions taken and fines levied. Baseline surveys of two additional sites will be initiated and surveys of three sites will be continued.

Dredge and Fill Regulations

- Publish interim final guidelines for the discharge of dredged or fill material;
- Prepare guidelines for the evaluation of Corps of Engineers designated disposal sites and criteria to be used for the denial and approval of sites;
- Design categorical and general permits;
- Develop test procedures in conjunction with the Corps of Engineers for District Engineers and Regional Administrators to be used in granting 404 dredge and fill permits;
- Participate in Corps of Engineers public hearings on final regulations;
- Develop vegetation list to delineate wetlands;
- Review individual proposed projects (often including EIS review) to insure that permits are not issued for projects that will have unacceptable adverse effects on the aquatic environment; and
- Refine and clarify where navigable waters of U.S. begin and end.

Spill Prevention and Response

- Publish proposed hazardous pollutant rules for designation, removability, harmful quantities, and rates of penalty;
- Promulgate hazardous pollutant regulations;
- Conduct regulations workshop at National Hazardous Substances Meeting;
- Conduct contract study on spill prevention impact;
- Conduct contract study on the relationship of 96-hour bioassay data to chemical spills;
- Continue, working with Government of Canada on spill prevention related annexes of the Great Lakes Water Quality Agreement;

- Continue to implement the oil pollution prevention program through review of appeals of technical amendments to spill prevention plans, providing maintenance and operational support of management information control system, and technical field assistance to special enforcement cases;
- Design technical approach for development of the Hazardous Substances Spill Prevention Program (Section 311(j)(1)(C));
- Continue oil spill prevention monitoring for compliance;
- Promulgate Oil Removal Regulations (Section 311(j)(1)(A));
- Complete contract studies which may lead to development of regulations for Non-Harmful Discharges of Oil Regulation (Section 311(b)(3)(B));
- Implement training program for hazardous substances response personnel in the field; and
- Complete contractual studies for development of regulation for Small Facilities Liability for Hazardous Substances.

1977 Plan

Federal Activities/EIS Reviews

The 1977 program will consist of the continued review of EIS's prepared by EPA and other Federal agencies with added focus on pre-EIS and post-EIS liaison to insure the early consideration of environmental effects and the subsequent implementation of measures to mitigate the adverse effects. Guidelines, techniques and regulations developed during 1975 and 1976 will be revised and refined to further improve the quality and expedite the EIS and negative declaration process. It is anticipated that the review process for EIS's and other Federal agency facilities will be especially critical and time consuming during 1977, because of the Section 301 secondary treatment requirements which come due in 1977-1978. Increased emphasis will also be placed on assisting and reviewing non-Federal environmental assessments submitted to EPA and other Federal agencies.

Ocean Disposal Permits

During 1977, baseline and trend assessment surveys will be continued at the present rate. Environmental assessments will be conducted and where sufficient data are obtained and available, Environmental Impact Statements will be made.

In conjunction with the Corps of Engineers, baseline surveys of two additional sites will be initiated and surveys of five sites will be continued.

Dredge and Fill Regulations

EPA anticipates a fully operational program with the first six months of 1977. This will include:

- Final promulgation of Corps of Engineers regulations after EPA input;
- Final promulgation of EPA guidelines;
- Review of high priority permit applications only;
- Granting of categorical and general permits; and
- Intensifying exchange of technical information and coordination with States and other Federal agencies for further implementation of Section 404.

Spill Prevention and Response

 Promulgate final regulations of Hazardous Substances Spill Prevention (Section 311(j)(1)(C));

- If required, amend 0il Pollution Prevention Regulation to include specification requirements for selected prevention features;
- Expand management information control system to incorporate hazardous substances prevention;
- Continue oil prevention monitoring and implement hazardous substances prevention monitoring techniques;
- Finalize technical approach for Development of Removal and Mitigating Actions Regulations (Section 311(j)(1)(A));
- Fully implement Oil Removal Regulation (Section 311(j)(1)(A));
- Provide special equipment and technical assistance to regions in hazardous substances spill removal operations;
- Revise National Contingency Plan;
- Implement training program for field inspections in hazardous substances prevention;
- Promulgate Small Facilities Liability Regulations for Hazardous Substances;
- Continue training program for hazardous substances response personnel;
- Prepare hazardous pollutant guidelines for EPA and Coast Guard on appropriate response actions by discharger;
- Update and refine hazardous pollutant regulations based on economic and environmental impacts;
- Continue expansion of hazardous pollutant regulations to include new problem chemicals;
- Based on contract study, advise and assist in development of spill prevention regulations;
- Defend regulations and provide technical expertise to headquarters and regional enforcement personnel (also Coast Guard); and
- Continue participation in the Intergovernmental Maritime Consultative Organization (IMCO), Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), and United States-Canada efforts to insure compatible regulations.

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Abatement and Control

Water Quality Monitoring and Analysis

PROGRAM HIGHLIGHTS

, ,	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
			(dollars	in thousands)
Appropriation Permanent Positions	\$6,074 245	\$5,168 190	\$4,495 176	\$4,515 176	+\$20

Budget Request

An appropriation of \$4,515,300 is requested for 1977. This represents an increase of \$20,300 over 1976.

Program Description

This program includes (1) the operation of monitoring stations and surveys, including survey design, field sampling and data collection, laboratory analyses, and quality control operations; (2) data interpretation, reporting, and evaluation; (3) technical guidelines, direction, overview, review, and assistance to State and regional monitoring programs; (4) water quality and effluent progress measurement, reporting, and analysis; and (5) maintenance, operation and improvement of a national water quality data system.

The Federal Water Pollution Control Act Amendments of 1972 require the Environmental Protection Agency, in cooperation with the States and their political subdivisions and other Federal agencies, to establish, equip, and maintain a water quality surveillance system for the purpose of monitoring the quality of the navigable waters and ground waters and the contiguous zone and the ocean. EPA has established this program for the Nation's streams and rivers, by selecting several areas representing a variety of drainage areas, and funding monitoring stations (188 stations) upstream and downstream of these areas through the transfer of funds to the United States Geological Survey. To date, the national water quality surveillance system has not been extended to estuaries, lakes, ground water, and oceans.

The Act (Section 305) requires that States prepare annually and submit to EPA a description of the water quality of all navigable waters during the preceding year; an analysis of the extent to which all navigable waters provide for the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in or on the water; an analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality has been or will be achieved which provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in or on the water, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary; and an estimate of (1) the environmental impact, (2) economic and social costs necessary to achieve the objective of this Act, (3) the economic and social benefits of such achievement, and (4) an estimate of the date on such achievements; and a description of the nature and extent of nonpoint sources of pollutants, and recommendations as to the programs which must be undertaken to control each category of such sources, including an estimate of the costs of implementing such programs. These State reports, together with an EPA analysis thereof, are sent annually to Congress. EPA provides guidance, technical assistance, review, and independent analysis for the above questions through this program.

The Act requires that no grant under Section 106 (Grants for Pollution Control Programs) shall be made to any State or interstate agency which has not provided or is not carrying out as part of its program the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compile and analyze data on the quality of navigable waters and, to the extent practicable, ground waters including biological monitoring; and provision for anually updating such data. Under this section EPA provides technical guidance, direction, overview, review, and assistance to State and regional monitoring programs. EPA endeavors to ensure adequate State programs to support permitting, compliance, enforcement, planning and program evaluation activities.

EPA operates the STORET water quality file as a service to Federal agencies, States, and other governmental agencies to ensure their ability to store, retrieve, and manipulate water quality data in support of water quality evaluation, planning, permitting, compliance, and enforcement programs. In addition, this data system provides data for responding to questions concerning water quality. Under this program, EPA is conducting a feasibility study to determine the necessity for a data system oriented around questions concerning effluent data and effluent trends. The EPA Office of Planning and Management has recently completed an evaluation of STORET which will result in the further installation of management controls, such as chargeback of computer costs to users, editing of data at time of entry, putting unnecessary data in archives, and cleanup of data remaining in STORET.

1975 Accomplishments

- Establishment of national water quality surveillance system;
- Submission to Congress of the first national water quality inventory analyzing national water quality trends for 22 major rivers and analyzing in detail eight of these major rivers;
- Training and assistance to users of the STORET water quality file. Maintenance of STORET system and extensive software reprogramming to hold costs constant, despite system growth;
- Development of regulations specifying minimum requirements for State monitoring programs;
- Termination of the general point source file; and
- Drafting and distribution of Model State Monitoring Program.

1976 Program

- Evaluation of the economic impact of proposed water quality criteria and of State water monitoring regulations;
- Operation of the STORET water quality file. Reprogramming to decrease storage space by 30 percent. Introduction of automatic editing of data at input time. Standardization of effluent data storage. Distribution of a package providing for determination of which STORET data should be put in archives, and providing for cleanup of remaining data;
- Initial analysis of national water quality surveillance system data;
- First analysis of State water quality inventory questions, review of State water quality inventories, and transmittal to Congress;
- Publication of regulations for State water monitoring programs; and
- Performance of feasibility study on necessity of system for storage of effluent data.

<u>1977 Plan</u>

- Implementation of a system to charge computer costs to users of the STORET water quality file;
- Second evaluation of national water quality surveillance system data;
- Expansion of edits of input data for STORET water quality data to permit edit ranges to vary from station to station;
- Development of a detailed national water monitoring strategy, based on 50 individual State strategies developed as part of State program process;
- Evaluation of State quality assurance programs by Regional Surveillance and Analysis Divisions;
- Second analysis of State water quality inventory questions, review of State water quality inventories, and transmittal to Congress;
- Monitoring support of Phase II water quality management plans (Section 303 and 208 of P.L. 92-500); and
- Operation and possible expansion of the National Water Quality Surveillance System to include estuaries, lakes, ground water, oceans and coastal zones, and a broader range of pollutants including toxic substances.

Abatement and Control

Municipal Source Control

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousands	Increase + Decrease - 1977 vs. 1976
Appropriation	\$14,100	\$18,139	\$22,526	\$26,056	+\$3,530
Permanent Positions	573	786	922	942	+20

Budget Request

An appropriation of 26,055,300 is requested for 1977. This represents an increase of 3,529,300 over 1976.

Program Description

The municipal waste water treatment facility construction program derives its legislative authority from Title II of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500). The funding required under this Municipal Source Control subactivity covers only staffing costs such as salaries, benefits, travel, contracts, and other related costs in support of construction grants personnel. The municipal construction grant funds are included in a separate appropriation account, Construction Grants.

This subactivity is located predominantly in the EPA regional offices, where all the grant activity and associated administration of the grants program and postconstruction activities take place. The remainder of the subactivity (i.e., program policy, administrative oversight, needs estimates) resides in headquarters, primarily in the Municipal Construction Division of the Office of Water Program Operations.

The municipal source control subactivity includes two distinct functions: The administration of the grants program and the monitoring of the operation and maintenance of treatment facilities. Within these two functions are a number of activities in fulfillment of the legislative and administrative requirements outlined in the Title II regulations. They are conducted jointly by EPA and the States and are directed toward the abatement and control of municipal waste water discharges.

The first function--the administration and operation of the construction grants program--includes the following activities: (1) The technical and administrative review of grant applications, amendments, and supporting materials; (2) the review of facilities plans and construction plans and specifications; (3) an assessment of the environmental impact of proposed waste water treatment facilities; (4) the review of operation and maintenance manuals; and (5) the review of user charge and industrial cost recovery systems. It also includes various post-award management activities related to monitoring on-going construction projects: (1) The periodic review of vouchers and subsequent payments to grantees; (2) the conducting of interim and final construction inspections of treatment facilities; and (3) the analysis and processing of change orders and grant amendments. Many of the States have accepted delegation of certain parts of these activities, particularly the review of construction drawings and specifications and the review of the operations and maintenance manual. The funding requirements reflect actual and planned delegation through 1977.

The second function--the postconstruction monitoring of the operation and maintenance of treatment facilities--includes three interrelated activities:

(1) The training and certification of waste treatment plant personnel and related State and local support personnel. This includes the funding for development and demonstration grants, State training grants, the certification of operators, training facilities, operator training courses, and overall administration of the training program. Direct training in water pollution control is provided through the National Training Center in Cincinnati.

(2) The development of manpower capabilities of the State and local agencies involved in water pollution control. The EPA regional offices, in conjuction with State water pollution control agencies, develop (a) training programs for State planners, (b) systems and procedures to conduct manpower planning activities, and (c) sets of occupational definitions and staffing guides for quantification of manpower data.

(3) <u>The development and maintenance of State municipal operations programs</u>. This includes technical and programmatic assistance for development of State postconstruction monitoring programs and supporting positions, and funds to allow EPA personnel to provide guidance, initial assistance, and overview to the developing State municipal operations programs.

1975 Accomplishments

During 1975, the Environmental Protection Agency awarded 2,591 new grants, totalling \$3,615,900,000, for the planning, design, and construction of treatment facilities. The number of active projects on June 30, 1975, totaled 3,646 with a grant award total of \$10,703,200,000. Also during 1975, a total of \$1,937,575,000 in payments was made for work completed on these active projects and on projects funded under the reimbursement program. On June 30, 3,008 projects were under construction and 638 projects had received construction awards and were awaiting construction initiation. The following table summarizes these activities:

	1975				
Item	Number	Amount of dollars in millions			
New Step 1 (facility planning) awards New Step 2 (design and specification) awards New Step 3 (construction) awards	1,693 266 <i>*</i> 632	\$107.4 87.5 3,421.0			
Active New Law (P.L. 92-500) Projects: Under construction Preconstruction	932 533	3,497.4 2,517.3			
Active Section 8 (P.L. 84-660) Projects: Under construction Preconstruction	2,076 105	4,211.6 193.4			
Total Outlays (all programs)	N/A	1,937.6			

In comparing the grant activity in 1975 with 1974 (e.g. 2,591 awards vs. 1,130 awards), it is evident that the program is accelerating and that the workload under the municipal source control subactivity is increasing substantially. A number of other program accomplishments in 1975 should also be noted:

(1) The Agency initiated a second round of obligations under the reimbursement program (P.L. 93-243), resulting in obligations for 1975 of \$420,000,000. The obligations from inception to June 30, 1975, totaled \$1,735,400,000 of the \$1,900,000,000 appropriated for that purpose. These obligations cover over 5,000 eligible projects, allowing payments of up to almost 70 percent of the total project costs.

(2) The Agency construction grant outlays of \$1,937,575,000 exceeded by almost \$300 million the 1974 outlays. The 1975 total was the highest level of payment in a single fiscal year since the program began.

(3) A program management system was inititated that provided a mechanism to aid in project scheduling and performance tracking for the largest projects in each State. By providing such a mechanism, the regional offices and headquarters were able to identify serious scheduling problems in advance, set targets and monitor obligations by month, and estimate (from close analysis of the relatively few large projects) the total obligations by State by month for the foreseeable future.

(4) The regional offices began to reorganize their construction grants personnel into a "project manager" alignment, in order to more closely coordinate all the activities associated with individual projects. This "cradle to grave" approach was recommended by the <u>Administrator's Special Construction Grants Task Force</u>, which completed its report during 1975.

(5) The 1974 Needs Survey was completed and issued during 1975, which considerably revised the estimated needs derived from the 1973 Needs Survey.

(6) The Agency initiated the development of State manpower and training self-sufficiency. Included were initiation of projects that provided the State or municipality with instructional capability, specialized new methods, skills such as are required under the NPDES, new technology and innovative training projects and development of certification criteria.

(7) Through the direct training activity, a total of 20 established curriculum courses were developed and conducted for 407 trainees at the National Training Center. Fourteen regional training courses were also supported.

1976 Program

In 1976, it is estimated that 3,875 new awards, totalling approximately \$4.5 billion (including reimbursement projects), will be made for the planning, design, and construction of treatment facilities and that 6,800 projects will be in various stages of preconstruction or construction activity. The following table summarizes these activities:

	1976			
Item	Number	Amount of dollars in millions		
New Step 1 (facility planning) awards New Step 2 (design and specification)	1,800	\$250		
awards	1,000	300		
New Step 3 (construction) awards	1,075	3,850		
Active projects	6,800	13,000		

As a result of the continuing acceleration of the program and related workload increases, an increase of 407 positions (including 250 new positions and 157 reprogramed) was allocated to the construction grants program in 1976. The 1976 current estimate includes a \$6 million increase for support costs of these additional positions. The 407 position increase includes a 1976/1975 actual increase of 349 positions to the Municipal Source Control subactivity with the balance of the 407 positions included elsewhere in the budget, including EIS preparation (included in the interdisciplinary media within Abatement and Control), equal employment opportunity, contract compliance, audit, and others.

These additional resources are needed to improve the program administration in a number of areas, including: (1) increased preapplication conference and project assistance; (2) actions to ensure that projects are constructed expeditiously; (3) improve facilities planning to ensure cost effectiveness and adequate environmental assessment; (4) programs to ensure fiscal integrity; and (5) activities to improve operation and maintenance.

A number of other activities are anticipated in 1976:

-Delegations of key functions to State offices are expected to increase. The current plans for 1976 include (a) an increase of 12 States (totalling 40) for review of plans and specifications, (b) an increase of six States (totalling 38)

for review of the operation and maintenance manuals, (c) an increase of nine States (totalling 11) for bid review, (d) an increase of 12 States (totalling 36) for review of change orders, and (e) an initial delegation to seven States for interim construction inspections.

-The Agency will complete the entire construction grants manual during 1976, which will be used by the regional offices to administer the program and give technical assistance to the States.

-The second round of reimbursable obligations and payments will be completed during 1976, with over 5,000 projects funded to 70 percent of their eligible cost.

-An internal Agency study was initiated in 1976 to determine the feasibility of an expanded automated regional management system to aid in the management of the construction grants program. It is expected that implementation of the system will be under way by early 1977.

-The Agency's municipal operations program will continue to work in 1976 toward increased State and local self-sufficiency in this program area. It will expand technical assistance efforts, improve the technological base of the States, and integrate its efforts closely with the training programs. A national municipal operations program strategy will be developed during 1976 by an EPA/ State work group which will result in a program similar to construction grants, permitting, planning, etc., in scope and stature. The purpose of this strategy will be to assure a national focus on the operations of municipal waste treatment facilities built and permitted under the FWPCA. State certification programs for treatment plant operators and development of testing criteria will continue to be developed.

-The water pollution control training program will continue with increased activity in developing State capability. Administrative costs and grants to minority schools will continue at the 1975 level.

-The National Training Center will provide increased emphasis in 1976 on the development of training materials for use by State agencies and training institutions. The National Training Center will plan and conduct 21 short-term training courses for an estimated 500 students.

<u>1977 Plan</u>

In 1977, the construction grants program is anticipated to obligate a total of \$6.0 billion, comprising approximately 4,825 new awards for the planning, design, and construction of waste treatment facilities. The \$6.0 billion program will allow for a smooth, even, uninterrupted flow of construction funds to municipalities without undue delay. The active projects on September 30, 1977, will total approximately 8,000 and be increasingly concentrated in the design and construction phase of the project activity. The following table summarizes the proposed program:

4	(dollars in 1976	ı millions) 1977
Item		، بېند يې د بې .
Total obligation level	\$4,5 <u>0</u> 0	\$6,008
Total new awards	3,875	4,825
(Number of Step 1)	(1,800)	(1,000)
(Number of Step 2)	(1,000)	(2,300)
(Number of Step 3)	(1,075)	(1,525)
Active projects	6.800	8,000

The large program increase, both in dollars and in numbers of projects, is made necessary by the increased needs derived from prior year planning and design activity.

Positions will remain constant for 1976 and 1977 despite an apparent 20 position increase. These positions provide direct support, primarily Environmental Impact Statement preparation and facilities planning to the Municipal Source Control subactivity in 1976 but are not included under this subactivity for that year.

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The 1977 program will include a number of other activities that both support and supplement the anticipated award and project levels.

(1) The Agency will begin delegation of many preaward facilities planning activities upon enactment of pending legislation making allotment funds available to State operations, which is expected prior to the beginning of 1977. By the end of 1977, approximately six States are expected to take over those planning activities previously done solely by EPA.

(2) The Agency will continue to negotiate interagency agreements with the Corps of Egnineers and GSA to perform interim construction inspections. One-half of the workload associated with these interim inspections are expected to be contracted out during 1977.

(3) Additional delegation in other areas should continue to increase. The current plans are to have delegated (a) 75 percent of all plans and specifications reviews, (b) 75 percent of the review of operations and maintenance manuals, (c) 60 percent of the change orders processing, (d) 20 percent of the bid tabulation review, and (e) 15 percent of the interim construction inspections.

(4) The 1976 Needs Survey will be completed and released during 1977 and used as a basis for funds allotment as required. In addition, work on the 1978 Needs Survey will be initiated.

(5) The training and certification of treatment plant operators will be expanded to develop operator training self-sufficiency at the State and local level. This will involve seven to nine community colleges and provide comprehensive training on effluent monitoring procedures for operators.

(6) The direct training program will develop, prepare, and distribute student reference texts and instructor guides for four new courses for 144 State-agency instructors in operations and treatment technology. Fifteen short courses will be conducted at the National Training Center for 360 students. Instruction and material support will be provided for an expected 28 courses in the EPA regions for an estimated 670 students.

(7) The Agency will initiate technical assistance to 15 State and local water pollution control agencies through manpower planning courses developed by the Agency. The intent of such technical assistance will be to encourage increased State self-sufficiency in manpower planning and training.

(8) The Agency will initiate technical and programmatic assistance to the States under the national municipal program strategy developed during 1976.

The increase for 1977 includes \$2.5 million to fund an interagency agreement with the General Services Administration and the Corps of Engineers to conduct interim construction inspections. The increase also includes support costs for the 20 positions identified under this subactivity for 1977.

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Enforcement

Enforcement

	Actual <u>1975</u>	Budget Estimate 1976	Current Estimate <u>1976</u>	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Budget Authority			(dollars	in thousan	ids)
Water Quality Enforcement	\$24,284	\$21,294	\$19,793	\$21,242	+\$1,449
Permanent Positions					
Water Quality Enforcement	962	744	738	764	+26

Budget Request

An appropriation of \$21,241,900 is requested for 1977. This represents an increase of \$1,449,200 over 1976.

<u>Purpose</u>

The water quality enforcement program emphasizes the compliance monitoring, enforcement, and continuing issuance of National Pollutant Discharge Elimination System (NPDES) waste water discharge permits. Other activities include the enforcement actions necessary to achieve compliance with regulations on oil and hazardous material discharge, ocean dumping, and related requirements of the Act. Most water quality enforcement activities are conducted cooperatively with the States and maximum State assumption of these responsibilities is a primary goal.

The NPDES permit program is part of the comprehensive effort initiated by the 1972 Amendments to reduce or eliminate point source pollution from industrial, municipal, commercial, and agricultural facilities. The Act prohibits discharge of pollutants to virtually all waters of the United States unless a permit is issued by EPA or an EPA approved State program. The permit is the focal point of the tight regulatory system with precise and detailed abatement requirements, streamlined enforcement procedures, and heavy penalties for permit violation.

The permit is the mechanism for imposing on point source dischargers the uniform national effluent limitations and national performance standards which EPA is required to promulgate. These limitations and standards, set by the abatement and control function, establish the maximum amounts of various pollutants which can legally be discharged into a water body. If, at a given facility, the established national effluent limits will not reduce pollution enough to meet the ambient water quality standards set by the State or EPA, the permit will impose stricter effluent limitations as necessary to meet the water quality standards. These more stringent effluent limits are set by the permit program in coordination with pollution load allocation activities covered under the abatement and control function.

Permits are issued on condition that their pollutant reductions be accomplished according to given time schedules. Compliance with the limitations and the schedules is assured by review of permittee self-monitoring reports, routine and case preparation facility inspections, conferences with permit violators, issuance of letters and administrative orders, and development and referral of cases to the Jurtice Department for legal action.

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1975 Accomplishments

The issuance of 28,455 discharge permits by EPA and States in 1975 represented the first step in the NPDES water quality enforcement program. Most significantly, by the end of 1975, permits were issued to virtually all major dischargers. These included the 6,200 major pollution sources in the country.

The goal of turning over NPDES authority to all qualified States continued and progressed significantly this year; nine new programs were approved for a total of 24.

In 1975, the first significant results of the NPDES permit enforcement authorities were seen. While EPA found significant voluntary compliance with the permit requirements, 710 administrative orders were issued, and 72 NPDES cases were referred to U.S. Attorneys. These formal actions generally were preceded by informal compliance efforts including telephone calls, letters, and meetings. Most permit violations were identified through review of the self-monitoring reports submitted by permittees.

Implementation of NEPA requirements related to new source permits was also initiated in 1975. This involved principally the preparation of regulations and guidance for developing impact statements and negative declarations for new source permits in 1976. A memorandum of understanding between EPA and the Nuclear Regulatory Commison (NRC) was also promulgated which outlines the implementation of both agencies' NEPA and FWPCA requirements for nuclear power plants and nuclear facilities.

Enforcement also began of the Section 316(a) provision for appeal from the thermal effluent limits, holding hearings or prehearing conferences on 29 cases. Twenty-seven enforcement actions were initiated under the Refuse Act and the Marine Protection, Research and Sanctuaries Act.

In addition to permit enforcement activities, the Agency maintained its continuing program with the Coast Guard and Justice Department in enforcement of oil spill prevention and abatement authorities, resulting in approximately 1,274 referrals to the Coast Guard and 35 referrals to U.S. Attorneys for action on violations.

1976 Program

In 1976, a basic change in the water quality enforcement program has been made to significantly increase compliance monitoring and enforcement resulting from the issuance of a large number of discharge permits and the increased number of other water pollution control requirements now in effect. The primary EPA/State objective for 1976 is to assure a high degree of compliance with NPDES permits by major dischargers. Water enforcement resources that were previously dedicated to the enormous task of getting out the initial round of discharge permits are now, to a great extent, dealing with permit compliance and enforcement. Vigorous and effective enforcement of permit conditions is being established from the outset in order to maintain the integrity of the regulatory permit program. The program is concentrating compliance efforts on those dischargers who have demonstrated or have high potential for significant violations of permit conditions.

All self-monitoring reports (i.e., compliance schedule reports and discharge monitoring reports) will be reviewed for timeliness and receipt and all reports from major dischargers and many others will be reviewed for substantive compliance. In participation with States, EPA will conduct on-site facility inspections at major dischargers to review violations identified in permittee self-monitoring reports and to identify and define permit violations not indicated in the reports. Identification of violations will be followed by letters, telephone calls, conferences, and administrative orders and legal action as appropriate.

The water enforcement program will also pursue full implementation of approved State NPDES programs for issuance and compliance assurance and pursue additional State NPDES approvals. It is anticipated that 10 additional State programs will be approved in 1976.

EPA will, in 1976, issue or reissue approximately 852 major^{and} 7,136 minor permits. These will be issued to new or modified facilities, and to dischargers which had not applied, had not been issued a permit, or whose permit had expired or required modification. In addition, a review of the municipal permit policy will be initiated which will likely require modifying or reissuing many municipal permits.

In 1976, EPA will continue to monitor and enforce compliance with oil spill prevention requirements, toxic, pretreatment and marine sanitation requirements, and aquaculture and sewage sludge disposal permits. The Agency will enforce the ocean dumping regulation of the Marine Protection Research, and Sanctuaries Act of 1972, review Section 404 dredge spoil disposal site designations for possible disapproval, participate in Section 10 Refuse Act dredge spoil actions, and certify Section 8 applications for SBA loans for installation of pollution control equipment. EPA will also implement Section 504 of the Federal Water Pollution Control Act, as amended, which provides EPA with emergency power to bring suit where a pollution source presents an imminent and substantial danger to public health and welfare.

The resolution of outstanding adjudicatory hearing requests is also scheduled for 1976. The enforcement effort will include completing review and adjudication of approximately 100 Section 316 appeals dealing with thermal effluent requirements. Implementation of NEPA requirements for new source discharge permits are continuing in 1976, including preparation of environmental impact statements and negative declarations.

1977 Plan

The primary objectives for 1977 are for the water enforcement program first to continue to assure a high level of compliance schedule and final effluent limit compliance of major nonmunicipal and municipal dischargers; second, to expand and enhance overall State participation, in both approved and unapproved States; third, to complete the process of putting enforceable permits into effect with priority to (a) resolution of major adjudicated permits, (b) reissuance of major municipal permits, (c) minor but energy related initial and new source permits issuance, and (d) court ordered agricultural and storm sewer permits issuance.

Major industrial dischargers on permits will be reaching final effluent limits in 1977. Additional vigilance in compliance monitoring will be necessary during 1977 to ensure that final effluent limitations have in fact been achieved and are being maintained. This will involve an increase in the number of facility and sampling inspections conducted by EPA and States, and an increase in the number of referrals to U. S. Attorneys for civil and criminal enforcement action under Sections 309(b), (c), and (d) is also expected. It is anticipated that the cases brought in 1977 will be more resource intensive since it will be more difficult to establish a violation of a final permit effluent limitation than to establish a violation of a compliance schedule deadline.

Efforts will continue to increase State participation in the program. It is anticipated that two additional State programs will be approved in 1977. However, EPA maintains an obligation to review ongoing State programs and participate in implementing those programs that are resource constrained.

In 1977, EPA will continue efforts to resolve adjudicatory hearing requests although the expected output will be lower than for 1976. The Agency has in 1976, received requests for adjudicatory hearings in excess of the number originally estimated. Resolution of the requests and hearings has been quite resource intensive and will become even more so in 1977. Those requests will, on the average, require greater time, preparation, and resources to settle because they will involve recalcitrant dischargers intent upon employing every delay and appeal device available under the regulations. The number of permits to be issued, reissued or modified will increase to 22,000 in 1977. It is estimated that most of the 20,000 municipal permits will have to be reissued or modified by EPA in 1977. Many municipal permits were issued for a short-term and will expire in 1977, requiring reissuance. In addition, EPA objectives to prepare and issue permits which are tied to available construction grant funding and which have reasonable schedules for planning, design, and construction are expected to result in the need in 1977 to modify most, if not all, of the long-term permits that would have extended beyond 1977. The proposed modification of the secondary treatment definition regarding fecal coliform limits, issuance of the best practicable waste treatement technology information, and emerging pretreatment requirements may all be expected to contribute to the need to modify municipal permits. Virtually all municipal permits will need to be reexamined and either reissued or modified. These resource intensive efforts, which are not amendable to "batching", will result in enforceable permits that are effective in assuring the optimum utilization of readily available construction grant funds and continued progress toward meeting the national goals for pollution abatement.

The need for technical support will accelerate as adjudicatory hearing issues become more complex, and as data submissions for thermal variance requests require evaluation. Reissuance of short-term industrial permits and modification of other industrial permits to conform to court ordered changes in effluent guidelines will likewise demand heavy resources in 1977.

The issuance of new source industrial permits will be a resource intensive activity in 1977. Permits will be issued not only to new major industrial facilities but also for energy related new source discharges from such activities as coal mining, oil exploration, and uranium mining, most of which will be subject to NEPA requirements.

The 1977 increase of 26 positions reflects increased emphasis on enforcing permit conditions now in effect and the need to modify, issue, or reissue additional permits.

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Research and Development

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Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousar	Increase + Decrease - 1977 vs. 1976 nds)	Page
Budget Authority						
Health and Ecological Effects Industrial Processes Public Sector Activities. Monitoring and Technical	\$15,760 8,473 13,560	\$17,925 13,588 10,115	\$19,457 8,285 11,614	\$18,886 8,285 10,014	-\$571 -1 600	WQ-41 WQ-44 WQ-46
Support	3,356	3,264	4,584	4,584	····	WQ-48
Tota1	41,149	44,892	43,940	42,169	-1,771	
Permanent Positions						
Health and Ecological Effects Industrial Processes Public Sector Activities. Monitoring and Technical Support	233 100 130 91	268 101 121 91	272 49 118 109	272 49 118 109	•••	WQ-41 WQ-44 WQ-46 WQ-48
Tota1	554	581	548	548	•••	

Purpose

The role of research and development in EPA's water quality program is to provide the scientific information needed to support its standard setting and enforcement activities. To do this, a multifaceted research program has been established. The goals of this program include the development of efficient and cost-effective waste water treatment technology for both municipalities and industries; useful and defensible monitoring methods; criteria for water use in various aquatic environments; and the establishment of strategies for control of pollution from spills of hazardous materials. An overall goal is to provide the scientific basis for economical and socially viable environmental management.

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Research and Development

Health and Ecological Effects

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate 1977 in thousands	Increase + Decrease - 1977 vs. 1976)
Appropriation,	\$15,760	\$17,925	\$19,457	\$18,886	-\$571
Permanent Positions	233	268	272	272	

Budget Request

An appropriation of \$18,885,600 is requested for 1977. This represents a decrease of \$571,100 from the 1976 level.

Program Description

This program includes: (1) the development of criteria for the safe treatment and disposal of waste waters and sludges and health related criteria for fish and marine recreational waters; (2) research on the toxicological effects of water pollutants on aquatic organisms; and (3) research on the movement, transformation, degradation, accumulation, and fate of water pollutants.

The construction grant program calls for alternative waste treatment management techniques and systems to implement Section 201 of the Federal Water Pollution Control Act (FWPCA), as amended. One such technique is land disposal. However, many State agencies are reluctant to use land for the treatment and disposal of waste waters and sludge because of a lack of precise information on the health hazards associated with such a practice. Research on valid criteria for the safe treatment and disposal of waste waters and sludges is, therefore, of high priority.

Furthermore, although it is a national goal that water be suitable for recreation by 1983, the data base available for recreational water quality standards is still deficient. There is little scientific basis for the microbiological criteria currently used for recreational waters. It is possible that current standards are too stringent, resulting in unnecessary closing of beaches, excessive chlorination costs, and discharge of chlorinated effluents which are known to be ecologically harmful. The importance of developing valid, health related recreational water quality criteria cannot be over emphasized, since these criteria affect the multibillion dollar water pollution regulatory program through its effluent standards and ocean dumping regulations. A great deal of money may be spent on treatment plants and their operation to meet surface water standards based upon these inadequate criteria.

The EPA is also conducting research that will provide a sound scientific basis for setting effective, legally defensible standards and determining treatment and control strategies. Studies are performed concerning the effects of physical, chemical, biological, and microbiological pollutants on water use; the interaction of these pollutants within total aquatic ecosystem; and the movement, transformation, and ultimate fate of pollutants in fresh surface, ground, marine, and large lake waters. This information is required in order to relate the concentration and form of pollutants to the size, character, composition, and location of their sources.

Specific areas of concern within this area of health and ecological effects research include determining the atmospheric transport of viruses from land disposal sites and treatment facilities, the transport of heavy metals and viruses through the soil, survivability of viruses, and uptake and effects of pollutants in plants, animals, and man. Recent laboratory studies have indicated that viruses and heavy metals are usually removed in the upper few inches of soil. However, depending upon the soil condition and rate of loading, these agents have been identified in ground water at depths of 10 to 20 feet. In addition, uptake of metals into plants varies with soil type, application rate, and types of crops.

Another specific area of concern is in ocean outfalls, ocean dumping, and dredge spoil disposal research to support the setting of standards and regulatory activities. This research focuses attention on site studies of existing outfalls, examine the ecosystem response to different degrees of treated effluent, and provide information to be used in establishing legally defensible water quality standards. Ecological response is investigated in field studies of phytoplankton, attached plants, benthic invertebrates, and anomalous fish populations; and in laboratory studies using various simulations of marine conditions to study the behavior of specific pollutants. In addition, both field and laboratory investigations will emphasize the study of ecosystem perturbations caused by heavy metals, persistent synthetic organics (e.g., pesticides, PCBs), petroleum hydrocarbons, and the environmental fate of viruses discharged into the ocean.

1975 Accomplishments

The following research was accomplished in 1975:

- Development of preliminary information on asbestos (asbestiform minerals) types and concentrations in Lake Superior and devised interim procedures for determination of asbestos particle concentration in the Duluth, Minnesota, water supply source;
- Completion of evaluation of principal source of natural and man-caused ground water contamination in the northeastern, northcentral, and southeastern States in order to determine research priorities for pollutant source reduction and control methods for protecting against further ground water quality degradation;
- Publication of various reports on fates of pesticides in water, the impact of nutrients on lake quality in the eastern United States, and the <u>Upper</u> <u>Great Lakes Reference Study;</u>
- Determination of the effect of closed-cycle cooling systems on the quality of aquatic plumes from cooling towers and developed preliminary determination of the behavior of atmospheric plumes from cooling towers; and
- Completion of reports on research knowledge regarding the Nation's estuaries for the congressionally mandated National Estuary Report.

1976 Program

The 1976 water quality health and ecological effects program will emphasize:

- Identification of the health hazards associated with the treatment and disposal of waste water and sludge on land;
- Determination of human health criteria for pathogen concentrations in marine recreational waters;
- Studies on the etiology of amoebic meningoencephalitis; and
- Characterization of pollutants and assessment of their ecological impact on aquatic ecosystems.

1977 Plan

This plan reflects a decrease of \$571,100 in health and ecological effects research, due to not carrying forward the full \$2 million added by the Congress to our 1976 request.

Research initiated in 1976 with funds added by Congress to our budget will be continued; specifically, ecological effects research on ocean outfalls, ocean dumping, and disposal of dredge spoil, and health effects research on waste water and sludge treatment, disposal, and use.

Fundamental to the operation of EPA's ocean disposal permit program is the technical evaluation of permit applications to predict the ecological impact of proposed dumping operations. Research information which will aid in this technical evaluation will be developed during 1977. Emphasis will be given not only to studying the ecosystem perturbations caused by heavy metals, persistent synthetic organics, and petroleum hydrocarbons; but also to revising bioassay WQ-42

technology, establishing criteria for assessing both old and new dump sites and establishing routes, rates, and mechanisms for the recycling of materials from disposal sites.

Research in the ecological effects of dredge spoil will also be continued. Areas to be emphasized include development of monitoring techniques to determine ecological upset resulting from dredge spoil disposal, verification of a transport model of dredge spoil disposal, and development of methods to determine the diversity and viability of benthic populations impacted by dredging operations. This research will be used in the setting of standards and in regulatory activities as they relate to Section 404 of P.L. 92-500.

Widespread concern about potential health hazards exists within communities faced with the need to select sites for treatment facilities and the disposal/utilization of waste waters and sludge. In addition, as a result of ongoing litigation and formal complaints in at least six regions, millions of dollars in additional construction grant funds may be required to implement design modifications to reduce emission of aerosols from sewage treatment facilities. This area of research is critical to avoid unnecessary expenditures of construction grant funds while, at the same time, expanding community options for treatment facility and sludge disposal/utilization sites.

In addition to those program activities described above, the 1977 program will:

- Continue ongoing health effects research in the disposal and use of waste water sludges;
- Continue research to determine the economic and social benefits of water pollution control;
- Continue predictive modeling efforts to permit more efficient monitoring and assessment of complex ecosystems; and
- Conduct epidemiological studies to determine whether existing marine recreational water quality standards are adequate to assure protection of bathers.

WQ-43

Research and Development

Industrial Processes

PROGRAM HIGHLIGHTS

	*	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation		\$8,473	\$13,588	\$8,285	\$8,285	• • •
Permanent Positions		100	101	49	49	• • •

Budget Request

An appropriation of \$8,285,000 is requested for 1977. There is no change to the 1976 level.

Program Description

The water industrial processes program concentrates on point sources of water pollution resulting from the industrial sector of the economy in those mining, manufacturing, service, and trade industries which must meet "best available technology" (BAT) standards of the Federal Water Pollution Control Act (FWPCA). The program develops and demonstrates new or improved cost-effective technology having industry wide applicability, short-term achievability and long-term viability. It provides the primary data for the establishment of economically and technically feasible effluent guidelines and treatment parameters for industrial liquid waste discharge permits. The toxic standards required under Section 301 are supported by research to identify best feasible technology. In addition, this program addresses technology for prevention and control of accidental spills of hazardous materials in support of Section 311 of P.L. 92-500.

1975 Accomplishments

In 1975, the water industrial processes program:

- Initiated evaluation of the feasibility of joint sludge/refuse processing and utilization, and implemented wet oxidation and pyrolysis pilot plant studies to provide additional sludge processing utilization alternatives and to more effectively utilize on-site energy resources;
- Conducted a demonstration of a cost-effective closed water cycle system in a semi-chemical pulp mill;
- Conducted a demonstration of a method to recover the valuable protein from meat packing waste water effluents;
- Demonstrated advanced membrane to provide closed cycle technology for some electroplating solutions; and
- Demonstrated a model hazardous spill clean-up system in the field.

1976 Program

In 1976, industrial processes water research is focusing on the development and demonstration of technologies for closed cycle systems, except when open cycle technology research is required for standards verification, or when closed cycle is not feasible. Roughly 32 of the total 593 regulatory categories will be impacted by the demonstration of more viable technologies. The areawide combined water research will continue to demonstrate the economic and technical viability of combined point source waste water management, with special emphasis on providing technical criteria for pending pretreatment standards.

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The hazardous incident program will continue efforts to control and minimize nazardous material spills and damages, and will initiate research to implement the new EPA spill regulations. A second clean-up system for spills will be demonstrated in the field.

<u>1977 Plan</u>

In 1977, the industrial processes water quality program will continue to respond to technology requirements of the FWPCA. Increased effort will be directed toward hazardous waste disposal and demonstrations of technology for specific critical industrial sources. Construction of the integrated regional hazardous waste disposal facility will be completed.

The following outputs are planned for 1977:

- Complete assessment of water pollution problems associated with the production of petroleum products;
- Complete assessment of water pollution and ground water problems from the production of construction materials;
- Demonstrate feasibility of several control methods for reducing pollution from the metal finishing industry;
- Demonstrate technique for removal of nitrocellulose from waste water by ultrafiltration;
- Complete pilot demonstration of new technology for recycle of treated effluents from paper and board production;
- Demonstration of technique for nitrogen removal from meat packing plant effluent; and
- Complete manual of practice for the control and removal of accidental spills of hazardous materials.

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Research and Development

Public Sector Activities

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$13,560	\$10,115	\$11,614	\$10,014	-\$1,600
Permanent Positions	130	121	118	118	

Budget Request

An appropriation of 10,014,300 is requested for 1977. This represents a decrease of 1,600,000 from the 1976 level.

Program Description

Water quality research in the public sector activities area focuses on the prevention, control, treatment, and management of pollution resulting from community, residential, or other nonindustrial activities. Program areas include municipal and domestic waste water treatment and collection systems, air pollutants associated with treatment, and land surface runoff. In addition, this program provides technical information for the Agency's programs in construction grants, comprehensive planning, and waste management.

1975 Accomplishments

In 1975, the water quality research program in public sector activities:

- Developed a low cost method for upgrading the performance of lagoons. The intermittent slow-sand filter has proven to be the most effective and potentially widely used applicable technique. A number of new full scale installations are under design and/or construction.
- Completed a nationwide characterization and evaluation of the impact from urban storm water and nonsewered urban runoff to provide an improved base for evaluating total urban runoff pollution control alternatives.

1976 Program

The municipal/technology program will continue to emphasize development of cost-effective methods of sludge processing, utilization, and disposal; soil treatment systems; alternative disinfection techniques; and consolidation of results obtained from studies on combined sewer overflow control technology and stabilization pond upgrading techniques. Evaluations will focus on the beneficial utilization of waste water sludges, including sludge pasteurization, sludge composting, refuse/ sludge pyrolysis, wet oxidation, spray irrigation and infiltration-percolation soil treatment systems, and nitrogen control systems. These projects increase the availability of cost-effective technologies for waste water management. New programs include development efforts such as the use of rotating biological contactors to upgrade primary treatment to secondary levels, evaluation of aerated lagoon technology, evaluation of ultraviolet disinfection and evaluation of septage treatment technology.
In the area of urban nonpoint pollution control, limited research was conducted in the past on storm water control, but a comprehensive evaluation of nonpoint sources and pollution effects from the urban-suburban area is needed and will be undertaken. Current management systems are being investigated for both urban and suburban areas, and methods are being developed for predicting the quality and quantity of pollutants which will result from development and hydrologic changes.

As a result of a \$1.6 million increment added by Congress to our 1976 budget request, research will be conducted to develop/demonstrate/evaluate the following:

- Specific ocean discharge treatment technologies as alternatives to extant secondary treatment technology;
- Ozone and ultraviolet radiation as alternative (to chlorine) disinfection technologies; and
- Sludge processing, sludge treatment and/or beneficial utilization and land application of sludge.

1977 Plan

A reduction of \$1,600,000 is reflected in this area of research as compared to 1976, representing the effect of not carrying forward the \$1,600,000. nonrecurring congressional increment to our 1976 budget request.

The program in sludge treatment and utilization will be continued. Emphasis will be placed upon further development of a sludge pasteurization process utilizing the high energy electron process; completion of work and issuance of guidelines for disposing of sludge on forestland, mine wasteland, and to the extent possible on nonfood crop land.

In the effort addressing urban runoff, the evaluation of storm and combined sewer technology and preparation of a users manual will be initiated and increased effort will be placed upon determining impacts of urban runoff.

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Research and Development

Monitoring and Technical Support

FROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$3,356	\$3,264	\$4,584	\$4,584	
Permanent Positions	.91	91	109	109	

Budget Request

An appropriation of \$4,583,600 is requested for 1977. There is no change from the 1976 level.

Program Description

The water quality monitoring and technical support program supports two activities: (1) the development and adaptation of equipment and techniques to measure pollutants contained in surface and ground waters, sludges and soils, and the effluents from municipal, industrial, and nonpoint sources, and (2) the provision of technical support by which the results of research and development programs and the expertise of researchers are made available for Agencywide use. This technical support activity provides resources to respond to both continuing and emergency requests for laboratory and monitoring support.

1975 Accomplishments

Accomplishments in equipment and techniques research in 1975 include:

- Development and improvement of methods and instruments to measure pollutants in fresh water, marine water, sludges, dredge spoils, soils, and sediments;
- Development of nonpoint source measurement techniques;
- Continued development of automated laboratory techniques and data handling systems;
- Completion of an interim analytical methods manual for EPA's ocean disposal permit program; and
- Completion of the first year of monitoring of an eutrophic lake after nutrient source reduction by advanced water treatment, and development of a preliminary mathematical model for the recovery process.

In the technical support area, accomplishments include airborne monitoring of the trophic condition of a large number of lakes as part of the national lake survey program, and airborne thermal mapping of industrial and municipal discharges.

1976 Program

The 1976 objectives of the techniques and equipment development portion of this program include development of sampling and analytical techniques for identification and measurement of organic and inorganic chemical constituents needed for assessing, improving, and maintaining water quality; development of methods for identification of biological and microbiological pollution indicators; development of bioassay techniques; improvement of candidate and reference methods for monitoring water quality; and further development of automated laboratory systems.

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During 1976, research and development technical support has been identified separately as a program activity in order to improve the responsiveness of the research and development program to the scientific and technical needs of the Agency. Under technical support, the knowledge and expertise which results from the conduct of research is made available to the Agency for use in solving scientific and technical problems and in developing environmental standards and regulations. During 1976, a resource data base will be developed and a unified planning and management system will be implemented for technical support. The exact nature of this technical support can only be partly documented because requirements cannot be completely predicted. However, the type of support to be provided includes:

- Conducting routine chemical analyses of samples from water pollution sources, drinking water supplies, and industrial discharges, and
- Providing expertise to assist in the preparation and defense of industrial effluent limitation guidelines and NPDES permits.

1977 Program

In 1977, the monitoring and technical support program will continue development and evaluation of monitoring and measurement methodologies, techniques, and instrumentation which support both the water quality and water supply programs. Areas of focus will include: (1) advanced monitoring systems for determining the state of the marine environment; (2) techniques for sampling preconcentrating, and identifying potentially toxic organic and inorganic constituents and viruses; and (3) developing guidelines for ground water monitoring.

The 1977 water quality technical support program will continue the technical support provided to the Agency, including support to the regions on thermal pollution monitoring and source identification.

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Construction Grants

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WATER QUALITY

Construction Grants

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976 (do	Current Estimate 1976 llars in th	Transition Quarter ousands)	Estimate 1977
Authority Appropriation Contract Authority	\$7,666,230* (7,666,230)	*	••• ••••	• • • • • • • g.•	•••
Funds Available Appropriation, at end of year Contract Authority, at end of year	11,576,420 (168,070) (11,408,350)	\$2,058,088 (2,058,088	\$7,076,420 (68,070) (7,008,350)) \$6,076,420) (68,070))(6,008,350)	\$68,070 (68,070)
Obligations Appropriation Contract Authority	4,226,936 (581,037) (3,645,899)	5,200,000 (5,200,000	4,500,000 (100,000)(4,400,000) 1,000,000))(1,000,000)	6,008,350 (6,008,350)
Outlays Appropriation Contract Authority	1,937,575 (874,158) (1,063,417)	2,300,000 (700,000 (1,600,000	2,350,000) (580,000)(1,770,000) 600,000)) (110,000))) (490,000)	3,770,000 (400,000) (3,370,000)
Liquidation of Contract Authority	1,400,000	500,000	500,000	600,000	4,100,000

*Excludes \$1,333,770 of funds previously reserved by court order to total \$9,000,000 in 1975.

SUMMARY OF BUDGET ESTIMATES

Summary of Budget Request

An appropriation of \$4.1 billion is requested for 1977 for the liquidation of obligations incurred pursuant to authority contained in Section 203 of the Federal Water Pollution Control Act, as amended.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	Current Estimate 1976 (dollars	in	Estimate 1977 thousands)
Prior year obligations	\$4,226,936		\$4,500,000
Nonrecurring awards	-4,226,936		-4,500,000
Estimated awards in 1976 (3,875)	+4,400,000		N/A
Projects funded under reimbursable program	+100,000		• • •
Estimated awards in 1977 (4,825)	N/A		6,008,350
Total estimated obligations	4,500,000		6,008,350

Program Description

This program provides grants to municipal, intermunicipal, State and interstate agencies to assist in financing the planning, design, and construction of municipal waste water treatment facilities. Amounts approved from authorizations for contract authority are allotted to each State on the basis of formulas set forth

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in the Federal Water Pollution Control Act Amendments of 1972 and subsequent legislation. Within these allotments, grants are awarded on a priority basis for individual projects. Each project is eligible for 75 percent Federal assistance.

The Federal Water Pollution Control Act Amendments of 1972 substantially altered methods of funding the construction grants program and the methods of providing assistance to inidvidual projects. Under the Amendments, both the percentages of Federal grants and the annual amount of monies authorized and appropriated have been increased in several steps. The current percentage of Federal assistance is 75 percent of total eligible costs. Rather than awarding a grant to the applicant for the Federal share of a project, EPA is authorized to enter into a contractual obligation for payment of the eligible proportional costs of the separate elements of each project. Under this authority, a new three step approach to funding projects has been adopted. The first step is development of the facilities plan which includes a preliminary description of the project, a cost effectiveness analysis, an environmental assessment, an infiltration/inflow analysis, and identification of effluent discharge limitations. The second step is the development of design plans and specification. The third and final step is to fund the actual construction of the treatment work. Grants are made for each of these steps with more than one grant possible during the construction phase. Payments against these contractual obligations will be made to the applicant as all or portions of each of these elements are completed. Under this contractual method of providing financial assistance, EPA is obliged to estimate each year the amount of payments that are required to meet all contractual obligations and to seek appropriations to cover these payments.

1975 Accomplishments

During 1975, EPA awarded 2,591 new grants totaling \$3.6 billion. An additional \$.6 billion of reimbursable funds were obligated resulting in a total of \$4.2 billion of obligations. Total outalys for this program, the reimbursement program, and projects under authority of P.L. 84-600 exceeded \$1.9 billion. This level exceeded the 1974 outlay level by almost \$400 million, and was the highest level of payments in a single fiscal year since the program began. The Agency also initiated a second round of obligations of \$528 million under the reimbursement program (P.L. 93-243), resulting in cumulative obligations of \$1.7 billion against the \$1.9 billion appropriated for this purpose.

1976 Program

It is expected that 3,875 new awards totaling about \$4.4 billion will be made for the planning, design, and construction of waste water treatment facilities, and the projects will be in various stages of preconstruction or construction activity. Additional projects totalling almost \$80 million will be reimbursed.

Total outlays for 1976 for all portions of this program are estimated to be nearly 2.4 billion.

1977 Program

In 1977, the construction grants program is anticipated to obligate a total of \$6.0 billion, comprising approximately 4,825 new awards. This reflects the increased needs derived from prior year planning and design activity. The total outlays for 1977 for all portions of this program are estimated to be nearly \$3.8 billion.

CONSTRUCTION GRANTS

f.	Actual 1975	Current Estimate 1976	Transition Quarter	Estimate 1977
PROGRAM LEVELS		1 A		
New Awards				
Step I Step II Step III	1,693 266 <u>632</u>	1,800 1,000 1,075	400 300 200	1,000 2,300 1,525
Tota1	2,591	3,875	900	4,825
Active Projects	3,646	6,800	7,500	8,000

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Water Supply

SECTION TAB

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WATER SUPPLY



PROGRAM HIGHLIGHTS					
	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in t	Estimate <u>1977</u> housands)	Increase + Decrease - 1977 vs. 1976
Abatement and Control: Appropriation Permanent Positions Transition Quarter	\$3,155 96 N/A	\$19,861 175 5,427	\$19,840 175 5,427	\$30,449 210 N/A	+\$10,609 +35 N/A
Enforcement: Appropriation Permanent Positions Transition Quarter	 N/A	100 5 21	80 4 21	81 4 N/A	+1 N/A
Research and Development: Appropriation Permanent Positions Transition Quarter	4,559 73 N/A	12,364 75 3,202	12,254 85 3,202	13,254 85 N/A	+1,000 N/A
Total, Water Supply					

7,714

169

N/A

5,240

23,500

32,325

8,650

21,500

54,500

255

OVERVIEW AND STRATEGY

Appropriation.....

Permanent Positions.....

Transition Quarter.....

Outlays....

Authorization Levels....

Program:

The Public Health Service Act and the Interstate Quarantine Regulations provided the original statutory authority for the Federal water supply program. At that time, the program applied to approximately 700 water supply systems serving interstate carriers, and was limited to the control of communicable diseases. The Safe Drinking Water Act of 1974, an amendment to the Public Health Service Act, increased the program coverage to include all public water systems having at least 15 service connections or regularly serving at least 25 individuals, and provided for the regulation of chemical, radiological, and bacteriological constituents of drinking water. The Act provides assurance for the safety of the drinking water through the establishment and enforcement of national drinking water regulations, specifying the maximum permissible bacteriological and chemical constituent levels required to protect the public health and welfare. In order to insure compliance with these national drinking water regulations, the Act provides for the States, with the aid of technical assistance and grants from the Federal Government, to establish public water system supervision programs to comply with the primary drinking water standards, and to establish underground injection control programs to protect the Nation's ground water sources.

To help States assume primary enforcement responsibility for the water supply programs and to build a stronger State-Federal cooperative effort, Congress authorized EPA to provide technical assistance, grant support, and training to improve State capabilities.

State participation in the program is fundamental to the successful implementation of the Safe Drinking Water Act. To achieve this participation, considerable Federal technical assistance is required if the institutional capabilities of States are to expand as necessary to fulfill the breadth of requirements of the Safe Drinking Water Act. Should a State refrain from seeking primary enforcement responsibility in either the public water system supervision or the underground injection control programs, the Federal Government is required by law to establish and enforce a program in the State.

WS-1

> +1 N/A

+11.610

+11,860

43,784

29,480

78,500

299

N/A

32,174

8,650

17,620

54,500

264

N/A

+35

N/A

EPA is responsible for the implementation and revision of (1) the national primary and secondary drinking water regulations for the protection of the public health and welfare; (2) State drinking water implementation regulations which specify minimum requirements for State public water supervision programs; (3) regulations governing the underground injection control program; (4) program grant regulations; and (5) other regulations, such as those needed to govern the allocation of water treatment chemicals. In addition, EPA conducts studies and surveys relating to carcinogens in major metropolitan drinking water supplies, the quantity and quality of rural water supplies, waste disposal practices, and means of control to protect ground water sources.

Resources available to the Agency's water supply enforcement program will be used to (1) respond to emergency situations under the authorities granted by the Safe Drinking Water Act, and (2) provide backup assistance in implementing and enforcing State regulations.

The objectives of the research and development effort will be to develop criteria for drinking water constituent limits with particular emphasis on organic and microbiological contaminants of drinking water. Research efforts will continue on: (1) the health effects of drinking water contaminants; (2) the development of analytical methods for assessing the drinking water; (3) the establishment of a quality assurance program; and (4) improved methods of protecting under ground water sources from contaminants (particularly organics), for which current techniques are ineffective, will be expanded.

One of the most pressing problems is the setting of maximum contaminant levels for organic chemicals. Additional research on the organic chemicals question is needed to improve monitoring techniques, evaluate the effectiveness of known control strategies, and evaluate the health effects of specific organic contaminants. Accordingly, EPA is directing substantial resources to the nationwide monitoring of organic chemicals, research into treatment techniques and health effects, and development of tests for surrogate groups of organic chemicals which can serve as the basis for future standards.

SUMMARY OF INCREASES AND DECREASES

(dollars in thousands)

1976 Water Supp	ly Program	\$32,174
Abatement a The inc water s contro in esta respons request	and Control crease is primarily for State grants for public system supervision and underground injection I programs. The funds are to assist the States ablishing and maintaining primary enforcement sibility. An increase in EPA manpower is also ted to assist the States in attaining these goals.	+10,609
Enforcemen The in 1975 p	t crease is for the annualization of the October ay raise.	+1
Research an The in techni	nd Development crease will expand research on treatment ques for the removal of undesirable contaminants.	+1,000
1977 Water Supp	ly Program Request	43,784

SUMMARY OF BUDGET ESTIMATES

Summary of Budget Request

An appropriation of \$43,784,100 is requested for 1977. This request, by appropriation account, is as follows:

Abatement and Control	\$30,449,200
Enforcement	81,000
Research and Development	13,253,900

This request represents an increase of \$11,610,300 from the 1976 water supply program and includes an increase to provide for the annualization of the October 1975 pay raise (+\$55,300); an increase for State grants for public water system supervision and underground injection control programs

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(+\$10,000,000); for research on treatment techniques (+\$1,000,000); an increase for the development of standards, regulations, and guidelines (+\$1,662,000); and an increase for additional staff to assist the States in meeting their goals which is offset by a decrease in program implementation and technical assistance activities (-\$1,107,000).

2. Changes from Original 1976 Budget Estimate

Changes from the original budget are as follows:

(dollars in thousands)

Original estimate	\$32,325
Transfer of Enforcement position to General Counsel	-20
Transfer of Cincinnati NFIC functions	+30
Transfer to regional construction grants administration.	-60
Establish central ADP system	+38
Operating plan adjustments	-229
Miscellaneous increases and decreases	+90
	32,174

All of the changes to the water supply program have been relatively small shifts with little impact on program content or priorities. One position and funds were shifted to the Office of General Counsel to permit that office to hire an attorney specializing in drinking water problems. Similarly, a small function and associated resources formerly carried under the water quality program were shifted to water supply with the closing of the Cincinnati National Field Investigation Center. These changes are offset by the transfer of \$60,000 out of water supply headquarters programs to regional construction grants activities in order to help accelerate the construction grants program. Subsequent to these changes, a total of \$38,000 was added to water supply to assist in the development of an ADP system needed in the implementation of the new Safe Drinking Water Act. Finally, adjustments to actual operating conditions required a net transfer from water supply of \$229,000.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	Current Estimate <u>1976</u> (dollars in	Estimate 1977 n thousands)
Prior year obligations Additional cost of program increases Change in amount of carryover	\$7,714 +19,400	\$32,281 +10,309
funds available	+5,205	-107
Miscellaneous increases and decreases	-38	+111
Total estimated obligations	32,281	42,594
(From new obligation authority)	(26,864)	(37,284)
(From prior year funds)	(5,417)	(5,310)

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

With the passage of the Safe Drinking Water Act in December 1974, EPA responsibilities for water supply programs were greatly increased. The 1976 budget included major increases in both Abatement and Control (\$16.8 million) and Research and Development (\$7.6 million). Most of these increases will be obligated in 1976, resulting in major growth in obligations from 1975 to 1976. At the same time, the Agency expects to obligate over \$5 million in prior year funds carried forward to 1976, of which \$4 million is for a demonstration project in Duluth, Minnesota.

The amount of obligations for this program will increase in 1977 primarily due to the increases being requested for the grants to States and for the development of standards, regulations, and guidelines. The change in the amount of carryover estimated to be available creates a reduction to the estimated obligations which is offset by minor miscellaneous changes in the program.

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WATER SUPPLY

	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
PROGRAM LEVELS			
State applications for Public Water System Supervision grants	40	50	+10
States applying for primary enforcement responsibility for Public Water System Supervision programs		40	+40
Value of Grants Awarded: Underground Injection Control Public Water System Supervision	\$2.5 million \$7.5 million	\$5 million \$15 million	+\$2.5 million +\$7.5 million

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Abatement and Control

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WATER SUPPLY

Abatement and Control

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)	Page
Budget Authority Criteria, Standards,						
and Guidelines	\$1,194	\$3,232	\$3,299	\$4,973	+\$1,674	WS-6
Assistance Strategy Implementation	1,961	10,000 6,629	10,000 6,541	20,000 5,476	+10,000	WS-7 WS-9
Total	3,155	19,861	19,840	30,449	+10,609	
Permanent Positions						
and Guidelines State Program Resource	36	48	49	48	-1	WS-6
Assistance Strategy Implementation	60	127	126	162	+36	WS-7 WS-9
Total	.96	175	175	210	+35	

Purpose

The Safe Drinking Water Act of 1974 requires EPA to promulgate primary and secondary drinking water regulations designed to protect the public health and welfare, State public system supervision and underground injection control program regulations which specify minimum State program requirements, and State program grant and sole source aquifer designation regulations. EPA is also required to conduct several special studies.

The Safe Drinking Water Act places the primary responsibility for program implementation and compliance upon the States. During 1977, EPA's primary objective is to assist the States to achieve primacy through the revision of existing statutes, regulations, and procedures, the development of State supervision programs, the conduct of inventories, the assessment of compliance with the regulations, expert technical advice on special problems and the determination of the eligibility for variances and exemptions.

In 1977, EPA will begin to monitor the performance of the States having primary enforcement responsibility to ensure compliance with the regulations. In those States which do not have primary enforcement responsibility, EPA will establish a program, with State cooperation, to enforce the regulations as required by the Act.

Simultaneously, EPA will devote additional resources to develop revised primary drinking water regulations which will include the maximum contaminant levels for constituents in drinking water as recommended by the National Academy of Sciences. The revised regulations will include treatment technology, site selection, operation and maintenance, and surveillance requirements. It is expected that this will be a fairly major revision of the interim primary regulations. In addition, specific treatment techniques must be developed and documented for all new contaminants added to the standards as required by the Act. Economic analyses of the impact of the revised regulations will also be required.

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Abatement and Control

Criteria, Standards, and Guidelines

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$1,194	\$3,232	\$3,299	\$4,973	+\$1,674
Permanent Positions	36	48	49	48	-1

Budget Request

An appropriation of \$4,973,300 is requested for 1977. This represents an increase of \$1,674,500 over 1976.

Program Description

The criteria, standards, and guidelines subactivity has two major programs: (1) drinking water standards and regulations development, and (2) State program guidelines and regulations development.

Section 1412 of the Safe Drinking Water Act requires the promulgation of primary and secondary drinking water regulations needed to protect public health and welfare. Interim primary regulations were promulgated in 1976; in 1977, the revised primary drinking water regulations will be promulgated based on the National Academy of Sciences (NAS) study to identify the maximum permissible contaminant levels for all substances which may be found in drinking water and the associated adverse health effects of those contaminants. These revised regulations will include requirements for operation ard maintenance, quality control, treatment, and site selection. Cost analyses on the impact of implementing these regulations at the Federal, State, and local levels will also be prepared.

The State program guidelines and regulations development program focuses on the strategies and procedures for the implementation programs, the responsibility for which is at the State, local, or regional levels.

1975 Accomplishments

Interim primary drinking water regulations were proposed in 1975.

1976 Program

During 1976, the primary objective of the criteria, standards, and guidelines program will be to promulgate the interim primary regulations and to propose and promulgate the secondary drinking water regulations, the drinking water standards implementation regulations, the underground injection control regulations, and the associated State program grant regulations. Also during this fiscal year, this program will publish a list of States requiring an underground injection control program, develop regional guidance, and propose and promulgate drinking water standards for radioactivity. EPA will complete the special organic monitoring survey to obtain data necessary to establish organic limits in drinking water.

1977 Plan

The criteria, standards, and guidelines efforts during 1977 will remain focused on the proposed revision of the primary drinking water regulations that are to be proposed in March 1977. These regulations will be based on the NAS study and will specify maximum contaminant levels for substances found in drinking water. These revised regulations will include requirements for operation and maintenance, quality control, treatment, and site selection. It is expected that this will be a fairly major revision of the interim primary regulations. In addition, specific treatment techniques must be developed and documented for all new contaminants added to the standards as required by the Act. Economic analyses of the impact of the revised WS-6 regulations will also be required.

A STATISTICS

WATER SUPPLY

Abatement and Control

State Program Resource Assistance

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (d	Current Estimate <u>1976</u> dollars in t	Estimate <u>1977</u> housands)	Increase + Decrease - 1977 vs. 1976
Appropriation	•••	\$10,000	\$10,000	\$20,000	+\$10,000
Permanent Positions	•••	•••	• • •		•••

Budget Request

An appropriation of \$20 million is requested for 1977. This represents an increase of \$10 million over 1976.

Program Description

Sections 1443 and 1444 of the Safe Drinking Water Act provide for Federal financial support to encourage and assist States in the implementation of (1) public water system supervision programs that comply with the national primary drinking water regulations, and (2) underground injection control programs for the protection of underground sources of drinking water. In addition, the Act authorized financial support for the conduct of special studies and demonstrations.

These assistance programs have been provided as a means to strengthen the cooperative relationship between the Federal and State governments. It is the intent that through this partnership and assistance, the States will be able to develop and maintain programs that enable them to assume and maintain primary enforcement responsibility.

The State program resource assistance subactivity consists of three program activities: public water system supervision grants, underground injection control grants, and special studies and demonstrations.

The public water system supervision grant program provides grants to States to carry out their drinking water programs. These grants are awarded to encourage and assist the States in the assumption of primary enforcement responsibility for the primary drinking water regulations.

The underground injection control program provides grants to States so that they may assume primary enforcement responsibilities for the protection of underground drinking water sources by the effective date of the underground injection control regulations.

The special studies and demonstration program provides financial support for the development and demonstration of new or improved methods, approaches, technology, or demonstration of the health implications of recycling, reclamation and reuse of waste waters for drinking water.

1976 Program

Program grants on the public water system supervision and underground injection control programs will be available to the States for the first time in 1976.

The States will be eligible for grants should they submit an application with a letter specifying that the State has, or will establish within the required time, an acceptable program and affirming that the State plans to assume primary enforcement responsibility within one year. The major outputs will include:

 Grant awards to those eligible States based on the formula specified in the State program grant regulations;

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- Reallocation of unobligated funds as specified by the regulations during the latter part of the fiscal year; and
- Award of a demonstration grant from 1975 appropriations to the City of Duluth for removal of asbestos fibers from the city's drinking water.

1977 Plan

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The primary drinking water regulations will become effective in 1977 The States will require financial assistance to implement their programs. The major output will include:

- Issuance of the tentative grant allocations to each State based on the grant formula. With the aid of grant monies, State activities will include: enforcement of the primary drinking water and underground injection control regulations; keeping records and reports on chemical, radiological, and bacteriological analyses; monitoring and inspection of water supply systems; and granting variances and exemptions as prescribed by law.

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WATER SUPPLY

Abatement and Control

Strategy Implementation

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (o	Current Estimate 1976 dollars in t	Estimate <u>1977</u> housands)	Increase + Decrease - 1977 vs. 1976	
Appropriation	\$1,961	\$6,629	\$6,541	\$5,476	-\$1,065	
Permanent Positions	60	127	126	162	+36	

Budget Request

An appropriation of \$5,475,900 is requested for 1977. This represents a decrease of \$1,065,200 from the 1976 program.

Program Description

The Safe Drinking Water Act places primary responsibility for the implementation and enforcement of the primary drinking water regulations and of the underground injection control regulations upon the States. The water supply program activities are directed toward providing technical assistance to those States with primary enforcement responsibility, establishing Federal programs in those States without primary enforcement responsibility, providing technical advice in emergency situations, compliance monitoring to ensure an acceptable level of performance, reviewing grant allocations, and certifying grant eligibility. The strategy implementation subactivity encompasses the activities and outputs related to the implementation of regulations, the review and evaluation of State and local programs on specific drinking water problems, assistance to other Federal agencies in areas which have an impact on drinking water activities, and the review of federally financed projects in aquifer areas designated as the sole or principal source of drinking water.

The strategy implementation subactivity consists of two programs: (1) Federal activities and EIS review, and (2) drinking water management implementation. The Federal activities and EIS review program covers EPA's responsibilities to provide assistance to other Federal agencies, to review federally financed projects in areas in which the aquifer has been designated the "sole or principal" source of drinking water, and to review EIS's to determine project impact on drinking water supplies.

The drinking water management implementation program consists of the activities and outputs related to the implementation of primary drinking water regulations and underground injection control regulations. It includes the review of State programs to insure that the basic requirements for primary enforcement responsibility are satisfied, assistance to States in developing acceptable State programs, the certification and award of grants to eligible States, and the administration of programs in those States which do not have primary enforcement responsibility.

1975 Accomplishments

Published the initial draft of the water supply strategy describing the step-by-step approach to implementing the program.

1976 Program

Some of the major program outputs in 1976 are to:

 Review State applications for primary enforcement responsibility for the public water system supervision and underground injection control programs, and

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 Issue determinations on petitions for sole source aquifer designations after a technical review of available data.

1977 Plan

EPA will provide technical assistance to those States with primary enforcement responsibility and will continue to encourage the remaining States to assume primary enforcement responsibility for both the public water system supervision and underground injection control programs. The Agency will also establish and enforce programs required by the Act. The significant program outputs will include:

- Technical assistance to those States with primary enforcement responsibility. Primary drinking water regulations will be effective in 1977. The States and EPA must implement the monitoring and enforcement provisions of the Act. Since existing State capabilities are severely limited by budget constraints, the initial years of the program will require significant EPA technical assistance and shared responsibilities as the States assume primary enforcement responsibility. EPA will assist the States in the review of statutes and procedures, the establishment of record keeping and ADP systems, the development of the capability to conduct sanitary surveys, and the review of technical information for the issuance of variances and exemptions;
- Compliance monitoring in those States with primary enforcement responsibility to ensure compliance with regulations;
- Establishment of programs in those States which do not have primary enforcement responsibility. EPA will assume the major program requirements with State cooperation;
- Review of federally financed projects in aquifer areas designated as the sole or principal source of drinking water; and
- Review of State applications for primary enforcement responsibility for the public water system and underground injection control programs.

The reduction of \$1,065,200 results from the reprogramming of contract funds to Criteria, Standards and Guidelines to support the revision of the primary drinking water regulations. This reduction is partly offset by the addition of salary and support costs for the 36 positions to be added to this subactivity and funds to cover the cost of the October 1975 Federal pay raise.

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WATER SUPPLY

Enforcement								
ctual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate 1977 in thousan	In De <u>197</u> ds)				
•••	\$100	\$80	\$81					
•••	5	4	4					

r Act provides that the States are to have g the drinking water regulations, with Fed tates fail to act. The regulations are no This basic relationship is also true for u

encouraging the highest level of State pro requested resources will support (1) devel implementing regulations; (2) the provisio egard to the enforcement elements of their enforcement as may be required.

r water supply enforcement in 1977 remain a supply enforcement demands for 1977 are hig er of State programs approved and the genera s primary objective is to encourage States t ibility, we do not forecast a large Federal

1,000 is requested for 1977. This represent 5.

enforcement program supports EPA regional ring emergency situations; (2) in the impleme water regulations and underground injection egard to records, monitoring, and inspection orts technical assistance to States relating ir programs.

ources support the development of the enforce i procedures relating to the following:

oval of programs for State primary enforcement

testing procedures to assure compliance with ations;

records, reports, monitoring, and informat rements;

ions;

of failure to comply with drinking water regul

Enforcem

SECTION TAB

Research and Development

WATER SUPPLY

Research and Development

	Actua1 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousa	Increase + Decrease - <u>1977 vs. 1976</u> nds)	Page
Budget Authority Public Sector Activities	\$4,559	\$12,364	\$12,254	\$13,254	+\$1,000	WS-14
Permanent Positions Public Sector Activities	73	75	85	85	• • • •	<u>WS-14</u>

Purpose

The research and demonstration effort in this program area supports implementation of P.L. 92-523, the Safe Drinking Water Act. Research, studies, and demonstrations are conducted relating to (1) the causes, diagnosis, treatment, control, and prevention of diseases and other impairments of man resulting directly or indirectly from contaminants in water, and (2) the provision of dependable safe supplies of water.

The products of these activities include: (a) improved methods to identify and measure the existence of contaminants in drinking water and to identify the source of such contaminants; (b) improved methods to identify and measure the health effects of contaminants in drinking water; (c) new or improved methods of treating raw water to prepare it for drinking, so as to improve the efficiency of water treatment and remove contaminants from water; (d) improved methods for providing a dependable safe supply of drinking water, including improvements in water purification and distribution, and methods of assessing the health related hazards of drinking water; and (e) improved methods of protecting underground water sources of public water systems from contamination.

Research is also conducted to develop and implement quality assurance procedures and protocols for water supply laboratories to assure that data is accurate and legally defensible. Resources for this effort are included under the interdisciplinary activity as part of a comprehensive quality assurance program for all environmental media.

1976 Program

Water supply research during 1976 has three areas of concentration: health effects, water treatment and systems management, and ground water management.

The objectives in the health effects area are to:

- Determine the nature and concentrations of organic, inorganic, and microbiological contaminants present in water supplies;
- Evaluate through literature searches the health effects of drinking water contaminants; and
- Derive concentration limits necessary for the protection of the public health.

In the technology and system management area, efforts are directed toward:

- Developing technologies for removal of infectious agents and potentially toxic or aesthetically displeasing contaminants, so that municipal water supplies will be able to achieve compliance with present and future drinking water quality standards, and
- Developing and demonstrating improved methods of operating both new and existing water supply facilities.

The ground water management program is directed at protecting existing and potential underground drinking water. The 1976 objectives include:

- Determining the extent of ground water contamination;
- Identifying sources of pollutants in the underground environment;
- Establishing waste disposal site selection criteria;
- Developing management technology for underground drinking water basins; and
- Investigating deep well injection and other waste disposal technology in terms of underground drinking water contamination.

1977 Plan

In 1977, work will continue in the health effects area to determine tolerances to a variety of drinking water contaminants. Research will be conducted to determine the nature and concentration of organic compounds present in a variety of water supplies, and to determine the long- and short-term health effects of these organic compounds, both individually and in combination. Information obtained from this research will be used to derive operational and scientifically valid criteria for organics in drinking water. In addition, investigations will be undertaken to determine the toxicity of the reaction by-products of the leading disinfectants, chlorine and ozone.

Efforts in the control technology area will continue to emphasize the development of methods for detecting and measuring low level concentrations of pollutants, and the development of cost-effective techniques for the control of drinking water contaminants during storage, treatment, and distribution. In this area, increased by \$1 million over the 1976 level, the main problem is to reduce the concentration of organic compounds present in drinking water to a safe level. Methods that will be thoroughly investigated include removal of organics by adsorption (e.g., activated carbon) or by oxidation (e.g., ozone). Disinfection process modifications to minimize or eliminate the formation of halogenated organics will also be researched, such as the removal of the organic precursors, substitution of another disinfectant for chlorine, removal of the halogenated organics after their formation, control of water treatment parameters (e.g., pH, free residual chlorine) that are found to influence the rate of formation of these halogenated organic compounds. In addition, treatment techniques applicable to small water supplies will be studied, such as the use of ultraviolet radiation and perhaps ozone as promising substitutes for chlorine in the disinfection of small systems. Finally, economical and effective treatment technology will be investigated for the removal of natural and man-made radioactive contaminants of water supplies.

Solid Wastes

SECTION TAB

SOLID WASTE

PROGRAM HIGHLIGHTS

	,	Budget	Current		Increase	+
	Actual	Estimate	Estimate	Estimate	Decrease	<u></u>
	1975	1976	1976	1977	1977 vs. 1	976
			(dollars	in thousands))	
Abatement and Control:			• • •			
Annropriation	\$12,810	\$11.623	\$11,619	\$11,671	+52	
Permanent Positions.	151	161	161	16 1		
Transition Quarter	N/A	3,185	3,185	N/A	N/A	
Research and Development:						
Appropriation	7,374	3,997	4,066	4,066	• • •	
Permanent Positions.	23	23	22	22		
Transition Quarter	N/A	1,275	1,275	N/A	N/A	
Total, Solid Waste						
Program:						
Appropriation	20,184	15,620	15,685	15,737	+52	
Permanent Positions.	174	184	183	183	• • •	
Transition Quarter	N/A	4,460	4,460	N/A	N/A	
Outlays	11,623	14,000	13,800	13,200	-600	
Authorization Levels	76,000	-	20,957	* 20,949*		

OVERVIEW AND STRATEGY

Solid waste management nationwide presents a spectrum of problems, from generation of health and environmental hazards to inefficient waste management. The basic solid waste management problem is improper waste disposal practices. These practices cause adverse environmental and economic impacts, such as ground and surface water pollution, air pollution, problems associated with uncontrolled dumping, decreased land values, and resource wastage. Aesthetic damages (e.g., litter), which have varying impacts on human health or animal life, are easily visualized and usually are the focus of public concern. However, problems associated with improper waste management practices are not always visible and therefore are not easily understood. For example, ground water contamination (which is not visible) can result if the engineering practices for siting, constructing, and operating a land disposal site are not understood and applied.

*Authorization pending.

Environmental problems exist for a number of interrelated reasons. Some States do no regulate disposal effectively and most do not enforce regulations vigorously due to lack of resources. Municipalities do not always devote required resources to ensure environmentally sound disposal and efficient management. Since litter and ugliness are typically the most obvious targets of popular displeasure, often municipalities manage disposal "cosmetically" but not environmentally (i.e., no blowing paper, no odor, but allow leachate to seep into the ground water). Especially acute is the absence of regulation in the industrial sector and, above all, the 'hazardous wastes area where the problem is due to the cost differential between dumping and proper treatment. Operation of inexpensive disposal systems also affects the economics of resource recovery.

Absence of regulatory control (environmental standards, strictly entorced) is due to the fact that recognition of the special nature of potentially hazardous wastes is recent and the potential of ground water contamination from land disposal of vastes by leachate wastes or effluents is not a well known phenomenon. In addition, public resistance to the siting of a new disposal site often eliminates viable alternatives. All of these factors contribute to perpetuating the status quo by preventing the application of urban planning priciples, and thwarting enforcement of regulations where they are in force. In the case of hazardous wastes, the absence of proven disposal technology and available disposal sites are additional contributing factors. For example, although it is known that 60 percent of the hazardous wastes are organic and that they can be burned, it is not known how effective the burning of these wastes will be in disposing of them or reducing the hazards associated with them. It is also difficult to mandate the disposal of pesticides in landfills which are not connected to aquifers unless such sites exist. Establishing such sites requires engineering and testing programs to identify appropriate designs and to ascertain their viability. SW-1

SUMMARY OF BUDGET ESTIMATES

1. Summary of Budget Request

An appropriation of \$15,736,400 is requested for 1977. This request, by appropriation account, is as follows:

Abatement and Control..... \$11,670,400 Research and Development..... 4,066,000

This represents an increase of 51,800 over the 1976 solid waste program and includes funds for annualization of the October 1975 pay raise (+\$41,800) and a minor operating program increase (+\$10,000).

2. Changes from Original 1976 Budget Estimate

Changes from the original budget are as follows:

(Dollars in thousands)
\$15,620
+26
+39
15,685

There have been no major changes to the 1976 budget for solid waste programs. The net change from operating adjustments made in applying the budget to actual needs at the beginning of the fiscal year amounts to only \$26,200. Minor miscellaneous adjustments amount to only \$39,000, making the total change less than one percent.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	Current Estimate 1976	Estimate 1977
Prior year obligations	\$20,184	\$16,213
Reduction of costs due to program decrease	-2,200	
Change in amount of carryover funds available	-1,719	-528
Miscellaneous increases and decreases.	-52	+661
Total estimated obligations	16,213	16,346
• (From new obligation authority)	(11,375)	(12,036)
(From prior year funds)	(4,838)	(4,310)

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

Solid Waste obligations will decline in 1976 as the result of a congressional increase of \$5.2 million to the 1975 budget for energy recovery which was not continued in 1976 and a reduction of the amount of prior year funds available for obligation in 1976 in comparison to 1975. The accelerated obligation rate which reduced the carryover of prior year funds into 1976 will continue through 1976 and 1977. The carryover of prior year funds will continue to decrease with a corresponding decline in obligations. This decrease will be offset, however, by a faster rate of obligation of current year funds. These factors, along with a small budget increase for the partial annualization of the October 1975 pay raise, will produce a small increase in obligations in 1977.

SOLID WASTE

Abatement and Control

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars i	Estimate 1977 n thousand	Increase + Decrease - 1977 vs. 1976 s)	Page
Budget Authority			•••••			
Waste Management Practices, Procedures, and Guidelines Waste Management	\$5,550	\$4,380	\$4,420	\$4,442	+\$22	SW -6
Implementation Resource Conservation	4,299 2,961	4,968 2,275	4,924 2,275	4,946 2,283	+22 +8	SW-8 _ SW-10
Total	12,810	11,623	11,619	11,671	+52	
Permanent Positions		·-				
Waste Management Practices, Procedures, and Guidelines Waste Management	40	47	47	47	•••	\$W-6
Strategies Implementation Resource Conservation	82 29	85 29	85 29	85 29	••••	SW-8 SW-10
Total	151	161	161	161	4. ⁵ • • •	

Purpose

The Abatement and Control appropriation encompasses the activities of the solid waste program devoted to the development of waste management strategies, the translation of the strategies into guidelines and management tools, interaction with Federal, State, and local agencies, and the demonstration of energy and materials recovery systems. The activities included differ from those covered under the research and development appropriation in that they are related to implementation of solid waste management practices for specific problems rather than the development of knowledge on environmental problems or on the development of control technologies.

The hazardous waste program activities in 1975-1977 focus on problem characterization; this includes contract work which leads to the identification of hazardous waste materials and their sources, and the assessment of technology alternatives for handling these wastes. These data are then used for the development of guidelines which include information on the incineration, landfill, treatment, transportation, and recycling of hazardous waste materials.

"Other" waste program activities focus on the demonstration of environmentally acceptable waste management practices for dealing with mixed municipal waste streams, e.g., various sludges, residues, and urban waste often disposed of in a single site. Information in this area is inadequate, particularly in relation to the availability of proven technology for collecting and treating leachate in landfills, and the methodologies for handling sewage treatment sludges in landfills. Evaluations of landfill practices and demonstrations of landfill technologies are being conducted to provide the basis for guidance to Federal, State and local agencies. Specific emphasis in 1975-1977 is being directed towards the development of information on the effects of leachate generated from disposal sites and disposal of sewage sludges. The approach to natural resource conservation is through recovery of resources from wastes and waste reduction. The primary barriers to resource recovery implementation are institutional constraints. The program concentrates on Federal evaluation and provision of **consult**ant services, dissemination of information about existing systems to reduce perceived risk, and providing front-end planning funds to communities to facilitate implementation of resource recovery systems.

The abatement and control activities are categorized under the following subactivities:

<u>Waste Management Practices, Procedures, and Guidelines</u>. This subactivity includes the work related to the development of strategies for the management of solid waste problems having nationwide applicability, the reassessment and modification of these strategies, and the translation of these strategies into appropriate guideline documents.

<u>Waste Management Strategies Implementation</u>. This subactivity includes work related to the implementation of requirements for which the Federal Government has primary responsibility (i.e., the management of solid waste at Federal facilities in accordance with published guidelines), review of EIS's for their solid waste management impact, and the development of State program capability to implement solid waste management activities. Included are the development and delivery of management tools and technical information for use by Federal, State, and local governments, the review and evaluation of State programs, consultation with State and local governments on specific waste management problems, and financial assistance for State solid waste management programs.

<u>Resource Conservation</u>. This subactivity includes work related to the evaluation, demonstration, and implementation of energy and material recovery systems and waste reduction techniques. This program promotes energy and materials recovery (including utilization of secondary materials) through demonstrations of new technology and waste management practices, providing front-end planning funds and disseminating information.

SW-5

The "other" waste program focuses on wastes primarily related to solid waste disposal problems of municipalities. In 1975-1977, emphasis is being placed on finding solutions to problems associated with leachate from landfills and with the disposal problems associated with landfilling of sewage treatment sludges. Included are demonstrations of technology for the collection and treatment of leachate, and evaluations of existing landfill sites to determine the site criteria and engineering practices required to design landfills that will minimize the attenuation and flow of leachate from the fill.

Sewage sludge is the chief residual of sewage treatment activities; it is currently produced at the rate of about seven million tons per year (dry weight). Sludges are disposed of in a variety of ways--by incineration, land spreading, in sludge-only landfills, and in combination with municipal solid wastes in sanitary landfills and dumps. The principal tasks leading to a sludge disposal guideline are assessment of current practices, assessment of the heavy metals problem associated with sludges (which dictates type of control on land or underground), and assessment of the adequacy of current methods of disposal. Evaluations of methodologies for handling sewage sludges in a landfill, alternatives to land filling (e.g., utilizing sewage sludge for fertilizers), and current sewage sludge disposal practices are carried out.

1975 Accomplishments

Potentially hazardous wastes generated by two industries (batteries and inorganic chemicals) were defined and published. An interim assessment indicating the adverse effects of leachate from landfills, based on 1968 data, and an in-depth assessment of five land disposal sites indicating chemical characteristics, attenuation, and flow of leachate were published. A summary report on the role of heavy metals in sludges and a policy statement on disposal of nonmunicipal sludges were published.

1976 Program

Potentially hazardous wastes generated by eight industries (petroleum, pharmaceutical, paint and allied products, metals mining, organics, pesticides and explosive, electroplating and metal finishing, primary metals, textiles) will be defined. Damage incidents from improper waste management and detailed damage reports will be published. Engineering and design of the chemical waste landfill will be completed and construction will be initiated. Individual hazardous waste technology assessments and guidance documents for disposal of significant potentially hazardous materials will be published. Interim recommended procedures for hazardous waste transportation will be published. A leachate damage assessment report and investigations of environmental damages from sludge utilization practices (e.g., heavy metals uptake, etc.) will be published. A cost analysis workbook on sludge utilization and disposal will be completed. The first draft of the sludge utilization and disposal decision guide will be available. Section 209 Guidelines for collection and resource recovery will be published in the Federal Register.

1977 Plan

An analysis of treatment alternatives for specific hazardous wastes will be completed. An evaluation of incineration of organic hazardous wastes, development of standard soil attenuation procedure for hazardous wastes applied to land disposal sites, and a feasibility study of energy recovery from industrial wastes will be completed. Hazardous waste management guidelines for North Atlantic Treaty Organization/Committee on the Challenge of Modern Society will be completed. Recommended procedures for State permit programs for hazardous waste management will be available. A report on sludge disposal damage assessment will be published. Leachate technology demonstrations will be completed. A sludge utilization and disposal decision guide will be published. 1977 Plan

Final reports on results of waste streams energy recovery potentials will be published. A manual of disposal site acquisition strategies, for use by local government officials, will be published. The third edition of the Decision Maker's Guide, with methods for updating all costs on an annual basis, will be published. COLMIS will be installed in 15 communities.

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1975 Accomplishments

Construction of the Baltimore, Maryland demonstration facility was completed. A national conference on waste reduction was held. A study of the implementation and enforcement of other agencies' product regulations was completed. A study on the economics of recovering waste oil was completed.

1976 Program

The St. Louis demonstration and publication of the final evaluation report will be completed. Routine operation of the Baltimore pyrolysis demonstration facility will begin. The San Diego facility will be constructed. The demonstration of the glass/aluminum recovery subsystem at Franklin, Ohio, will be completed. The first year of operation of the multimaterial separation and collection demonstrations in Massachusetts will be completed. A new separate collection vehicle will be evaluated. A resource recovery plant implementation guide will be published. The third annual Report on Resource and Waste Reduction will be submitted to Congress.

1977 Plan

The Baltimore demonstration will be completed and the final evaluation report will be issued. The construction and shakedown of the San Diego facility will be completed and operation will begin. Evaluation of the glass/aluminum subsystem at the Franklin facility will be completed. The waste oil closed-loop demonstration will be completed. The Fourth Annual Report to Congress on Resource Recovery and Waste Reduction will be published.
SOLID WASTE

Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars i	Estimate 1977 n thousand	Increase + Decrease - <u>1977 vs. 1976</u> s)
Budget Authority					
Public Sector Activities	\$7,374	\$3,997	\$4,066	\$4,066	
Permanent Positions					
Public Sector Activities	23	23	22	22	••••

Purpose

EPA's research and development efforts in the solid waste program are directed toward the development of improved solid waste management, disposal technology. and resource recovery technology. These technological advances will enable local agencies to handle their solid waste problems in an effective and economical manner. In addition, the program is developing the scientific base for the possible establishment of standards for hazaroud wastes disposal. Information on the fate and processes of such materials in ground water systems is also being developed and formulated into criteria documents.

Budget Request

An appropriation of \$4,066,000 is requested in 1977, the same level as appropriated for 1976.

Program Description

The major thrust of the solid waste research program includes the preparation of comprehensive effects documents which are designed to support development of a regulatory program for the treatment and disposal of pesticides and other toxic chemicals, investigations to determine the potential for migration through soils of hazardous industrial wastes, studies to evaluate the environmental effects of sanitary landfills, and the development of resource recovery systems.

1975 Accomplishments

In 1975, the solid waste research and development program:

- Provided assessments and interpretations of effects data and initiated effects research on an expanded list of substances, including arsenic, asbestos, beryllium, cadmium, chromium, copper, cyanides, lead. mercury, selenium. zinc, aldrin/dieldrin, benzidine, DDD/DDE/DDT, endrin, polychlorinated biphenyls and toxaphene. These assessments provide scientific criteria documents for the Office of Solid Waste regulatory decision making;
- Conducted transport process investigations on the migration of hazardous materials through soils;
- Completed a major portion of the research on the environmental effects of sanitary landfill effluents;
- Investigated the movement and retention, transformation, and volatilization
 of pesticides, polychlorinated biphyenyls, and hexachlorabenzene in soils.
 Criteria for safe disposal by thermal destruction have been developed for some
 pesticides.

Investigated the retention of hazardous substances by soils from effectroplating, chlorine production, nickel-cadmium battery production, inorganic pigment manufacturing, and water-based paint production in industrial waste streams;

- Assessed environmental effects of current disposal practices for polyvinyl chlorides;
- Conducted experimental incineration studies to establish time-temperature relationships for acceptable decomposition of various pesticides;
- Conducted investigations of chemical treatment and degradation methods for pesticides, including the establishment of safe procedures for using caustic soda, hypochlorite, peroxides, and acids;
- Investigated new hazardous waste treatment technologies, including chlorinolysis, wet air oxidation, decomposition by acids and bases, chemical oxidation, biological degradation, ion exchange, photochemical, low temperature microwave discharge, osmosis/ultrafiltration, and activated carbon absorption;
- Initiated an evaluation of unit processes for resource recovery. Results may be used by municipalities contemplating the use of resource recovery technology;
- Conducted a test program to evaluate promising organic and inorganic processes for fixing and coating pesticides, soluble organics, and heavy oil residues. Sample of various toxic wastes fixed by various techniques will undergo longterm field and laboratory testing; and
- Conducted a test program to evaluate landfill liners of clay, cement, asphalt, and plastic membranes to test resistance to acids, bases, solvents, and physical impact. Results will provide criteria for safe disposal of various classes of wastes, both hazardous and nonhazardous.

1976 Program

The objectives of the research in 1976 include:

- Identifying any adverse health and welfare effects due to the release of hazardous materials present in solid waste in the environment, and developing methods to eliminate such effects;
- Developing and applying new and improved methods of collecting and disposing of solid waste, and of processing and recovering usable resources from solid waste;
- Identifying solid waste components and potential usable resources recoverable from such waste components;
- Establishing data to support the Agency's efforts in developing guidelines for solid and hazardous waste management;
- Evaluating several leachate treatment methods and determining kinetic parameters, technical feasibility and costs;
- Developing and evaluating methods for stabilizing landfills so that settlement will be minimized; and
- Publishing a compendium of analytical methods used by researchers and State regulatory officials in characterizing leachate.

1977 Plan

In 1977, efforts will continue in the identification and elimination of adverse health and welfare effects due to solid and hazardous wastes, and the development of cost-effective techniques for collecting and disposing of waste, and for recovering usable resources from waste.

Research and Development

Abatement and Control

SECTION TAB

Pesticides

SECTION TAB

PESTICIDES

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> Iollars in 1	Estimate <u>1977</u>	Increase + Decrease - 1977 vs. 1976
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Abatement and Control:			· · ·		
Appropriation	\$20,294	\$29,552	\$29,492	\$24,175	-\$5,317
Permanent Positions	665	671	671	639	-32
Transition Quarter	N/A	8,083	8,083	N/A	N/A
Enforcement:					
Appropriation	3,238	3,583	3,911	4,745	+834
Permanent Positions	149	153	166	156	-10
Transition Quarter	N/A	1,011	1,011	N/A	N/A
Research and Development:					
Appropriation	10,190	11,198	10.887	10,887	
Permanent Positions	151	148	157	157	
Transition Quarter	N/A	2,726	2,726	N/A	N/A
Total, Pesticides Program:					
Appropriation	33,722	44,333	44,290	39,807	-4,483
Permanent Positions	965	972	994	952	-42
Transition Quarter	N/A	11,820	11,820	N/A	N/A
Outlays	29,016	33,000	35,520	34,880	-640
Authorization Levels	*	47,868	47,868	43,335**	

*Specific authorization required only after 1975. **The 1977 level is only through March 31, 1977.in amount of \$23,600. Authorization pending for balance.

OVERVIEW AND STRATEGY

The 1972 amended Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) becomes fully effective on October 21, 1977. New regulations published in 1974 and 1975 reflect broad new responsibilities and authorities given EPA under the new Act. States either have or will have promulgated new pesticides legislation in order to reflect many new responsibilities and cooperative efforts not previously required of them. Not withstanding the significant start already made on the FIFRA requirements in the areas of reregistration, classification, certification and training of pesticide applicators and monitoring, there are substantial mandated program efforts that need to be completed during 1977 and will be determining factors in overall pesticides operations. Thus, 1977 is the key year for the completion of all reregistration actions and the certification of applicators. This will dictate four major approaches in 1977:

1. <u>Supply control</u> to keep highly hazardous chemicals off the market through the registration process including labeling and classification. EPA must complete reregistration actions on the estimated 35,000 previously federally registered pesticides.

2. Use control to prevent the misuse of pesticides and thereby minimize related local health and environmental problems. This will be achieved by: (a) certification of applicators of "restricted use" pesticides, which was started in 1976 and must be completed in 1977; (b) better packaging and labeling; (c) more extensive and timely enforcement; (d) extensive applicator training; and (e) dissemination of information to the consumer and interested public.

3. <u>Hazard evaluation</u> through human effect monitoring, ambient residue monitoring, and accident surveillance. This serves to provide data and prompt alerts on use problems and provides supporting data for decisions on administrative actions to remove from the market registered products whose use has the potential for or causes unreasonable adverse effects.

SUMMARY OF INCREASES AND DECREASES

	(in thousands of_dollars)
1976 Pesticides Program,	\$44,290
Abatement and Control	-5,317
The decrease is due to a partial completion of pesticide applicator training through the Department of Agriculture Extension Service cooperative training program, partially offset by an increase for the annualization of the October 1975 pay raise.	
Enforcement	+834
The increase is for the establishment of new Federal- State cooperative enforcement agreements and for the annualization of the October 1975 pay raise, offset by a reduction of staff and related support costs.	
1977 Pesticides Program	39,807

SUMMARY OF BUDGET ESTIMATES

1. Summary of Budget Request

An appropriation of \$39,807,100 is requested for 1977. This request, by appropriation account, is as follows:

Abatement and Control	\$24,175,000
Enforcement	4,745,100
Research and Development	10,887,000

This represents a decrease of 4,483,200 from the 1976 pesticides program and includes a funding decrease made possible by the expected 75 percent completion of pesticide applicator training through the U.S. Department of Agriculture -Extension Service cooperative training program (-4.8 million); the decrease in staff will be accomplished by phasing out headquarters activities in the accident control and certification programs by the end of 1977 and by the reduction of laboratory services support on enforcement sample analyses (-484,000). These decreases are offset by an increase for the annualization of the October 1975 pay raise (+204,400). An increase is also requested for the establishment of new Federal-State cooperative enforcement agreements under the authorities of Section 23(a)(1) of FIFRA; however, with the increased levels of State enforcement activity supported by these grant funds, it will be possible to net this increase by the reduction of 10 positions and associated salary and support costs (+796,400).

2. Change from Original 1976 Budget Estimate

Changes from the original budget estimate are as follows:

	(in thousands of dollars)
Original estimate	\$44,333
Transfer to Interdisciplinary	-1,492
Increase to support research needs	+1,182
Transfer ADP funds	-158
Increase registration and technical support Expand National Environmental Investigations Center	+52
Pesticides capability	+50
Operating plan adjustments	+37
Miscellaneous increases and decreases	+286
	44,290

PROGRAM	LEVELS

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	Actual 1975	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Complete registration actions on product base	15,000	13,500	19,000	+5,500
Complete reregistration and classification of previously registered products		6,000	32,000	+26,000
States/Territories applicator certification plans:				
Approved Operational		56 45	56 56	;;; +ii
States/Territories with applicator training programs in operation		56	56	•••
Producer establishment inspections.	2,226	1,718	1,480 (2,380)	-238 (+662)
Use and reentry investigations	593	791	600 (3,600)	-191 (+2,809)
Number of product samples collected	5,037	5,000	4,360 (7,360)	-640 (+2,360)

() indicates level including State activity under cooperative enforcement agreements.

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- To ensure products are better used and thereby effectively reduce acute and chronic effects from work and accidental exposure to pesticides; and
- To have developed sufficient data, methodologies, and systems for assessing hazards from pesticides and providing the bases for more effective control and regulatory programs and decisions.

1977 objectives and priorities are to complete reregistration actions on previously registered products by October 21, 1977; to keep current on registration actions on all new chemicals, new product uses, and amendments; to substantially complete applicator certification by the States by the 1977 growing season; and to have an integrated comprehensive hazard evaluation system.

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1976 Program

During 1976, EPA expects to complete reregistration and classification decisions on 6,000 registered products. Previously unforeseen issues on Section 3(c)(1)(D) have been the primary cause for the delayed start on reregistration. The key to meeting this objective will be the call-in of batches of products, by chemical and broad use pattern, for which registrants are given a detailed label guidance package. Call-ins for full reregistration will be made for batches with a full supporting data base, or for which unfulfilled requirements for short-term studies exist but can be satisfied by the deadline. If there are unsatisfied requirements for long-term data (over 12 months studies), temporary reregistrations will be granted pending submission of data.

Interaction between registration and suspect chemical review program reviews now has critical significance under the new situation of rebuttable presumptions during the registration process. Because of the more stringent use restrictions resulting from Section 12(a)(2)(G) of the Act, EPA will be issuing a new crop grouping plan for case-by-case consideration of tolerances for minor food uses. Many States will also be submitting interim requests (pending issuance of final Section 24(c) regulations) for approval to register products to meet special local needs. The Agency will be working closely with States in the preparation of their submissions and subsequent review actions so as to expedite implementation of programs under Section 24(c) of the Act.

1976 Objectives

- To complete reregistration and classification of an estimated 6,000 products by June 30, 1976;
- To complete registration and classification of a product base of 500 new chemicals and/or new uses, 5,000 new products, and 8,000 amendments;
- To complete review action on 40 State submissions for interim certification to register pesticides for local use and to review an estimated 500 State registrations;
- To complete scientific studies on 12 suspect chemicals;
- Final Publication of Regulations:

Section 3 (Registration of	
Pesticides)	July 3, 1975 (actual)
Section 3(c)(1)(D) (Use of another	
applicant's data in support of a	
registration application) (Proposed)	March 1976
Section 24(c) (State Registration for	
Special Local Needs) and 5(f)	
(Experimental Use Permit)	September 3, 1975 (actual)
	July 1976 (final)

1977 Plan

The key factor in 1977 registration operations will be meeting the full scope of new and expanded responsibilities under the 1972 amended FIFRA and particularly meeting the amendment of the 94th Congress deferring the effective date to October 21, 1977. Decisions on Federal reregistrations and intrastate registrations are expected to be completed by October 21, 1977. The Agency will also be starting to receive some of the feed-back of long-range data referrals (presently estimated at 35 percent of the Federal reregistration product base) on temporary nonrenewable reregistrations, certain rebuttable presumptions, and probably a portion of deferred 1976 base workload, in addition to the normal base input of new registration applications. Since needed long-range studies cannot be completed before the end of the reregistration period, affected products will be granted temporary nonrenewable reregistrations to allow continued marketing while missing data are developed. Such data will be submitted for review during the period 1977-1979, entirely independent of the base load of new registrations, and will demand timely review actions. Also, during 1976, 1977, and the ensuing three years, there is expected to be a need to resolve rebuttable presumptions against registration and objections arising over classification decisions. Present estimates are that upwards of 15 percent of present pesticide registrations may fall into restricted use categories; a significant number of these ľ can be expected to be appealed by the registrant. Rebuttable presumptions are expected to arise against registration of about three percent of P-9

PESTICIDES

Abatement and Control

Hazard Evaluation

PROGRAM HIGHLIGHTS

•	Actual 1975	Budget Estimate <u>1976</u> (d	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$4,942	\$5,179	\$5,078	\$4,890	-\$188
Permanent Positions	105	103	103	93	-10

Budget Request

An appropriation of \$4,890,200 is requested for 1977. This represents a decrease of \$188,000 over 1976.

Program Description

EPA's pesticides monitoring programs feed into the hazard evaluation system. Included are the epidemiologic field studies on acute and chronic long-term human effects; pesticide accident reporting; monitoring of pesticide residues in air, water, soils, and other media to determine levels and trends as well as to anticipate the development of hazardous conditions and establish alert levels; and analyses of samples of pesticide products taken from processing establishments and market place. The integration of these operations into a comprehensive hazard evaluation system is expected to provide more valid information on evironmental and human health hazards and means for evaluating pesticide hazards in the environment and for establishing an early alert system.

1975 Accomplishments

As part of the National Monitoring Program, the ambient networks for monitoring water, soil, estuaries, and human tissue provided samples needed to establish baseline levels of pesticides in components of food and feed, humans, wildlife, fish, soil, and water. A pilot monitoring program of irrigation waters was initiated jointly by the Department of the Interior and EPA late in the year. Cropland soil samples were taken from over 2,000 sites in 45 States. Urban monitoring included eight cities selected to coincide with collection sites for human monitoring. Water monitoring was conducted cooperatively with the U.S. Geological Survey and presently covers 153 sampling sites located in 17 major basins. Estuarine monitoring covering 113 estuaries provided samples for residue levels in shellfish and fin fish.

Long-term epidemiologic studies were conducted in 12 States on acute pesticide poisonings and to determine the short-and long-term chronic health effects on a cohort of persons exposed to organophosphastes and/or chlorophenoxy compounds. A six State pilot pesticide usage study was completed as a basis for getting an expanded program under way.

1976 Program

The hazard evaluation system design is to be completed early in 1976 and implementation of the system will be immediately accelerated so as to provide a quick response and alert system on pesticide problems, and to ensure better riskbenefit evaluations on effects of pesticide use. Implementation of the system will call for extensive interaction between present national pesticide monitoring programs and States and other organizations for data acquisition and will require more extensive and organized catologing of hazard data. EPA is encouraging (through its regions) increased State participation in reporting and follow-up on pesticide accidents, as well as promoting better inputs from other Federal agencies with related programs. Until there is a fully integrated hazard evaluation system designed in 1976, pesticide monitoring programs will continue to provide data through present-channels. The epidemiologic studies program will carry on efforts to obtain data on acute pesticide poisoning by investigating hospital admission records and coordinating findings with regional-State accident

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PESTICIDES

Abatement and Control

Federal and State Program Support

PROGRAM HIGHLIGHTS

• •	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> dollars in 1	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$7,752	\$16,259	\$15,901	\$11,035	-\$4,866
Permanent Positions	176	161	180	175	-5

Budget Request

An appropriation of \$11,035,000 is requested for 1977. This represents a decrease of \$4,865,800 from the 1976 level.

Program Description

The major direction of EPA's pesticides Federal and State program support is to cooperate with States in the development and full scale implementation of applicator certification and training programs. EPA believes that the use of pesticides will be greatly improved with the training and certification of applicators, resulting in better control of pests, fewer episodes of misuse and accidents, and, where overuse of pesticides now exists, less cost to the applicator due to a higher level of expertise. This is the key approach in the implementation of the Agency's use control strategy. EPA has every expectation that States will fully cooperate to ensure applicators being certified by the beginning of the 1977 growing season, or by October 1977. There is no mandated date by which applicators must be certified, only a requirement that the individual who uses a "restricted use" pesticide must be a certified applicators" were published in the Federal Register in October 1974, and regulations on "State Certification Plans" were issued in March 1975. An EPA policy paper which was given wide State distribution in March 1975, outlined various methods of determining competency that would not require examination. Training is only mandatory where a State makes it so.

Although the major part of EPA's Federal and State program support will be directed to certification and training in 1976 and 1977, States will need guidance and assistance in other areas of new responsibilities under the Act, including State registration of pesticides for special local needs, State issuance of experimental use permits, improved accident reporting, and adequate understanding of EPA's reentry standards.

1975 Accomplishments

Key regulations issued:

Standards for Applicators.....October 1974 Regulations on State Certification Plans.....March 1975

Key guidelines issued:

Preliminary listing of Restricted Use Pesticides....February 1975 State Options for Certification of Private Applicators.....March 1975 (Updated June)

EPA/USDA Sponsored State Intrastate Service Agreement.....June 1975

An EPA/USDA interagency agreement on applicator training was completed in December 1974, and supplementals to the basic agreement were completed in April and December 1975.

certify applicators might be a problem with some States, EPA can make accommodations between October 1977, and March 1978, to complete certification as long as applicators are certified prior to use of a "restricted use" pesticide. Although faced with a manpower reduction in this program area in 1977, the Agency will continue to assist States meet the October 1977 effective date.

Assuming that by mid-1977 most States will have substantially completed immediate needs for certification and training of applicators, EPA regions will move into a monitoring phase of State performance, and the State cooperative extension services will undertake the maintenance of applicator training programs. Regional operational attention will be increasingly redirected to misuse, reentry, integrated pest management, the surveillance of State activities under Section 24(c) and 5(f) and participating States in the integration of their systems into a nationwide comprehensive hazard evaluation system. In addition to soliciting public participation in the Agency decision process, EPA will coordinate with farmer and other agricultural users, applicator groups and industry, State officials, USDA, and other Federal agencies to establish various media to better inform these groups and to develop better understanding of the Office of Pesticides Programs' policies, functions, and responsibilities.

Within the requirements of having substantially met the October 1977 effective date, some budgetary costs can be phased down in 1977. The remaining funds will provide support to States in maintaining effective operating levels for certification and other nonenforcement control programs through 1977 as well as supporting a strong level of EPA staff guidance and assistance for State programs. The five position decrease will result from a reduction in the level of technical support to regions and States on certification and training and on public relations activities with consumer groups and the interested public.

Enforcement

SECTION TAB

PESTICIDES

Enforcement

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate 1977 in thousan	Increase Decrease 1977 vs. 1 ds)	+ - 976
Budget Authority						
Pesticides Enforcement	\$3,238	\$3,583	\$3,911	\$4,745	+\$834	·
Permanent Positions						
Pesticides Enforcement	149	153	166	156	-10	

Budget Request

An appropriation of \$4,745,100 is requested for 1977. This represents an increase of \$834,000 over 1976.

Purpose

The EPA pesticides enforcement program includes the registration and inspection of pesticide producing establishments; the surveillance of pesticides on the marketplace, imported pesticide products, experimental use permits and pesticide uses; and the initiation of enforcement actions including civil actions, criminal prosecutions, stop sales, and injunctive actions as required to implement the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended. The major goal of the enforcement program is to ensure compliance with the FIFRA through the use of these tools.

EPA's pesticide enforcement program supports both the supply control and use control strategies. Supply control is achieved by registration and inspection of producer establishments, and sampling and analysis of pesticide products at the producing establishment, in the marketplace, and, for imported products, at the port of entry. Use control is achieved by making use and reentry inspections to determine whether pesticide users are complying with label directions for use and EPA's regulations regarding minimum times for reentering areas after pesticide treatment.

To make the Federal pesticides regulatory program more effective, the Agency has begun development of Federal-State cooperative enforcement agreements pursuant to the authority of Section 23 (a)(1) of the FIFRA, as amended. Through these agreements, which involve the participation of States in inspections, sampling, marketplace surveillance, use investigations, and laboratory analyses, the program can be extended to a level which Agency manpower alone could not attain.

1975 Accomplishments

During 1975, significant accomplishments were realized in the pesticides enforcement program. In the producer and product compliance area, 2,226 producer establishments were inspected, 5,037 samples were obtained, and 480 port visits were made; in addition, 1,493 intrastate establishments were registered. In the use compliance area, there were 593 use and reentry investigations.

As a result of these efforts, the following enforcement actions were taken: 224 civil actions and 101 stop sale, use, or removal orders or seizures resulting from marketplace inspections; 847 notices of warning to producers for minor violations; 70 recalls; 134 import detentions and 37 warnings to private applicators of violations of the Act under the civil penalty provisions; 4 civil actions, 8 criminal prosecutions, and 8 stop sale, use, or removal orders or seizures resulting from use and reentry investigations. During 1975, 676 Federal-State cooperative enforcement efforts were undertaken, and regions prepared profiles on State enforcement capabilities. Furthermore, national Federal-State cooperative enforcement guidance was issued with the aid of State enforcement capability reports; guidance for establishment books and records inspection was issued; guidance was issued for investigating incidents where a registered pesticide has allegedly been used in a manner inconsistent with its labeling; and guidance for surveillance of products suspected of presenting hazards to human health and the evnironment was issued.

1976 Program

In 1976, the pesticides enforcement program is focused on three major activities. The first is final implementation of a pesticides use compliance program. In accordance with the FIFRA prohibition of pesticide use in a manner inconsistent with its labeling, the Agency is developing a comprehensive use surveillance and misuse follow-up strategy. In this area, regions have committed themselves to 403 experimental use investigations and 791 use and reentry investigations.

The second component of the program is continued assurance of product and producer compliance through producer establishment inspections, market survejllance, and import investigations. The Agency plans to make over 1,700 producer establishment inspections, nearly 500 import investigations, and over 1,700 marketplace investigations in 1976.

Finally, the Agency is engaged in developing Federal-State cooperative agreements and expects to accomplish 14 nonmonetary agreements in 1976. Although such agreements cannot provide reliable participation without grant support, it is hoped that by involving States in the enforcement of the FIFRA, regulatory presence can be furthered to an extent not attainable by Agency manpower alone.

1977 Plan

The emphasis in 1977 will be to develop and implement additional Federal-State cooperative agreements with grant-in-aid. These agreements will involve State participation in existing regulatory activities. Through the performance of these activities, individual State efforts will be channeled into the Federal program and create a comprehensive and uniform administration of pesticides enforcement.

In combination with the States in 1977, we expect to conduct 2,380 establishment inspections, obtain 7,360 establishment inspections, marketplace and use samples, and perform 3,600 use and reentry investigations.

Research and Development

PESTICIDES

Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)
Budget Authority					
Health and Ecological Effects	\$10,190	\$11,198	\$10 , 887	\$10,887	•••
Permanent Positions	•				
Health and Ecological Effects	151	148	157	157	•••

Purpose

This program supports the Agency's pesticide programs, including the development of data required to support administrative reviews and litigation; monitoring; development of new methods of pest controls; and development of long-term pesticides strategy. Major areas of ongoing research include: (1) determination of human health effects; (2) development of pesticide residue analytical methods; (3) development of model ecosystems; (4) determination of ecological effects; and (5) investigations of substitute chemicals as alternatives for those pesticides under litigation or review as potentially detrimental.

Budget Request

An appropriation of \$10,887,000 is requested for 1977. There is no change from the 1976 level.

Program Description

Pesticide research must be conducted to investigate the potential health and ecological effects of the major classes of pesticides now registered by EPA and in common use and also of those chemicals considered as possible substitutes; to evaluate the safety of the "new generation" pest control agents such as insect viruses and pathogenic bacteria, sterility agents, attractants, and insect hormones; to develop and validate new toxicological methods which can be used for registering pesticides; and to develop and apply analytical methods for determination of these agents in tissues and environmental media.

These research efforts are essential to the administration of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) because they are used to assist the reregistration process and the formulation of policies on registering new classes of pest control agents; to improve the protocols required in registering pesticides; to support the human monitoring, substitute chemicals, and integrated pest management programs; and to provide health and ecological information in public hearings. Pesticide research is also used to support toxic effluent standards and issuance of permits, water quality criteria for estuarine and coastal waters, and ocean disposal permits. Analytical methods developed are useful to the monitoring programs of EPA, State, and local governments. In addition, valuable technical assistance is supplied to EPA regional and program offices by pesticide research through provision of special studies, consultation, and expert testimony in legal proceedings.

1975 Accomplishments

In 1975, this program:

Completed a study of agricultural workers which verified a direct correlation between exposure to organophosphate pesticides and urinary metabolites, as measured by a new method developed at EPA laboratories;

- Determined that people accidentally poisoned with a chlorinated organophosphate pesticide exhibit symptoms as long as tissue residues persist, and that the effects last much longer than with nonchlorinated organophosphates;
- Developed methods for determining hexachlorobenzene in air and human tissue;
- Reported that malathion inhibited the population growth of marine protozoa;
- Revised the bioassay procedures for EPA's ocean disposal permit program; and
- Investigated the suitability of registered pesticide chemicals as substitutes for 2, 4, 5-T, EBDC, DDT, chlordane, heptachlor, and aldrin-dieldrin.

1976 Program

In 1976, toxicological studies are being conducted to determine the acute effects of pesticides on mammals, the identification of pesticide metabolites, the distribution and effects of pesticides and their metabolities in animal tissues, their biochemical effects on metabolic activity and central nervous function, their ability to cause birth defects and other reproductive malfunctions, and their potential for causing gene mutations and cancer. Inhalation toxicology studies are being initiated to assess the importance of inhalation, as compared with ingestion and skin contact, in the toxicity of pesticides. These health effects studies will yield determination of the acute effects of at least eight pesticide aerosols of controlled particle sizes, and measurement of the distribution of the parent compound and its metabolities in body tissues, urine and feces.

Studies are being completed on the effect of Mirex and heptachlor in marine ecosystems. In addition, studies are being undertaken to refine and report the effects of pesticide pollutants on estuarine and coastal environments and on the impact of pesticide applications on terrestrial ecosystems. These ecological processes and effects studies will result in production and evaluation of preliminary microcosm work on chemical, photochemcial, and microbial degradation of trifluralin, endosulfan, and hexachlorobenzene; bioassays on acute and chronic toxicity and residual build-up for 20 major pesticides in fresh water ecosystems; development of an evaluative model for predicting the distribution and half-life of pesticides among the various substrates of fresh surface water ecosystems; model calibration for malathion, atrazine, and trifluralin; completion of chronic egg to egg bioassay on toxaphene; and, determination of the effects of selected organic and inorganic pesticide compounds on marine species and ecosystems.

In the area of analytic techniques, attention will be given to developing a sensitive, specific detector for pesticides containing chloride, sulfur and/or nitrogen; and efficient system for collecting and determining pesticides in air; and analytic methods for determining dioxins in tissues, environmental media, and pesticide formulations. Other objectives include completing a manual for analysis of pesticides in water and waste water, incorporating carbamate and organophosphate pesticides into a more inclusive multiresidue analytic procedures, and establishing standardized procedures for identification of insect viruses in tissue.

In 1976, the substitute chemical program intends to complete about 24 initial scientific reviews and eight bio- and socioeconomic reviews of substitutes for problematic pesticides.

1977 Plan

The proposed 1977 pesticide research program will:

- Expand analytic methodology research to develop and improve quality control activities and to detect new generation and other pesticide agents in tissue, environmental samples, and ambient air;
- Continue study of the toxicological effects of commonly used pesticides on laboratory animals and cell cultures, the toxicological effects of substitute chemicals, inhalation toxicology, and the potential hazards of new generation pesticides;

Radiation

SECTION TAB

RADIATION

PROGRAM HIGHLIGHTS

х	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
		(d	ollars in th	nousands)	<u></u>
Abatement and Control:					
Appropriation	\$4,620	\$4,337	\$4,487	\$4,022	-\$465
Permanent Positions	190	174	184	174	-10
Transition Quarter	N/A	1,227	1,227	N/A	N/A
Research and Development:					
Appropriation	2,450	1,640	1,679	879	-800
Permanent Positions	72	57	50	30	-20
Transition Quarter	N/A	403	403	N/A	N/A
Total, Radiation Program:					
Appropriation	7,070	5,977	6,166	4,901	-1,265
Permanent Positions	262	231	234	204	-30
Transition Quarter	N/A	1,630	1,630	N/A	N/A
Outlays	9,574	5,700	6,100	5,270	-830
Authorization Levels	Author	zation is b	by virtue of	the Approp	priation Act.

OVERVIEW AND STRATEGY

Exposure to ionizing radiation results from natural background, medical and industrial applications of x-rays and radioactive materials, from various aspects of the nuclear power industry, from processing of certain raw materials (phosphates, for example), and from fallout due to weapons testing. Exposure to "natural" sources can be substantially increased through man's intervention with mining or manufacturing processes. Low-level radiation health effects are carcinogenesis and genetic damage. EPA accepts, as a prudent public health assumption, the concept that any radiation exposure results in some adverse health effects and believes that while public exposure is inevitable, no avoidable risk due to radiation exposure should occur to individuals, the population at large, or the environment without the existence of off-setting benefits. The bases for this judgment are recommendations of the National Academy of Sciences Report on "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation" (Report of the Advisory Committee on the Biological Effects of Ionizing Radiation).

The current annual incidence of serious health effects from natural, medical, and occupational exposures are estimated to be about 11,000, 10,000, and 100 respectively - a total of about 21,000 effects per year. Almost all of the potential health effects from natural exposure result from uncontrollable background levels. However, an estimated 100 to 500 health effects resulting from increased exposure above usual background levels due to industrial processes can be avoided through various control measures. Previous efforts to reduce unnecessary exposure to x-rays have been in the form of performance standards for equipment; improved medical practices in the use of x-rays could avoid an additional, 000 health effects each year. The health effects impact of improved occupational exposure control has not been quantified.

Although the potential health impact from the existing nuclear energy sector is low, EPA has estimated that projected nuclear energy growth could greatly increase this problem. The estimates indicate that as many as 13,500 serious health effects could be committed by a combination of krypton, tritium, iodine-129, and carbon-14 releases from nuclear industry activities by the year 2000, given no additional controls beyond those currently in effect. EPA has held hearings on the need for an environmental plutonium standard and, as result of these hearings, is developing Federal radiation guidance setting out clean-up and decontamination criteria. The health impact of this and other possible plutonium controls has not yet been fully quantified.

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regulations (this is set out in NRC's Appendix I to 10CFR50 of May 5, 197 some overview is maintained to insure that established standards and guic followed. Enforcement of drinking water standards and effluent discharge navigable waters is, of course, carried out by appropriate EPA offices.

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SUMMARY OF INCREASES AND DECREASES

	(in thousands of
1976 Radiation Program	\$6,166
Abatement and Control The decrease is associated with a reduction of technical assistance support to the States.	-465
Research and Development The decrease is associated with a redirection of emphasis upon the health effects of nonionizing radiation and a phase-out of health and ecological effects research in ionizing radiation.	-800
1977 Radiation Program	4,901

SUMMARY OF BUDGET_ESTIMATES

1. Summary of Budget Request

In 1977, a total of \$4,901,300 is requested to be appropriated. represents a decrease of \$1,264,400 from the 1976 appropriation.

2. Changes from Original 1976 Budget Estimate

Changes from the original budget estimate are as follows:

(dollars in thouse

Original estimate	\$5,977
Operating adjustments	+160
Miscellaneous increases and decreases	+29
Current 1976 estimate	6,166

The principal change in the 1976 estimate occurred in operating adjust early in the year. The 1976 budget required reductions of 12 percent in 17 percent in funding. In order to make a smooth transition to a lower pr level, especially in the regional offices which had radiation program staf only one or two positions, a small amount of relief was essential. Reduct will contine in 1977.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS	(<u>dollars</u>	in thousa
	Current Estimate 1976	Estima 1977
Prior year obligations	\$7,070	\$6,24
Reduction of costs due to program decrease Change in amount of carryover funds	-650	-1,18
available	-150	-7

RADIATION

Abatement and Control

Criteria, Standards, and Guidelines

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> dollars in t	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$1,150	\$1 ,196	\$1,241	\$1,254	+\$13
Permanent Positions	48	48	51	51	

Budget Request

An appropriation of \$1,254,000 is requested for 1977. This represents an increase of \$13,200 over the 1976 program.

Program Description

Activities are related to the development and promulgation of standards and guidelines for the protection of the general environment from radioactive materials. Environmental standards established for materials in nuclear fuel cycles are enforced by the Nuclear Regulatory Commission (NRC) at licensed facility sites; EPA is responsible for enforcement of radiation limits established under the Federal Water Pollution Control Act (FWPCA) and the Safe Drinking Water Act.

Water quality criteria and drinking water standards are established to control radioactivity in water pathways, including domestic water supplies. Effluent guidelines remit the discharge of radioactive materials under the Federal Water Pollution Control Act. Application of this authority to discharges from NRC licensed facilities will be determined by the Supreme Court of the United States (COPRIG vs. Train).

Federal radiation guidance (Section 204 of the Atomic Energy Act) directs the Administrator to advise the President with respect to radiation matters directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards. EPA has the responsibility to assess the impact of radiation sources, develop policies for their control, and to document radiation levels and exposures that occur. Selection of areas requiring guidance is based on the extent to which the source contributes to the total public exposure to radiation, anticipated growth in sources, or development of new information on control techniques or health effects. For example, the Agency is currently revising the present Federal Radiation Council (FRC) occupational standards based on an anticipated growth in exposure and information indicating that the present standards are not sufficiently comprehensive.

1975 Accomplishments

In 1975, EPA published its proposed environmental standard for the uranium fuel cycle in the <u>Federal Register</u>, completed technical analysis of existing data, and held hearings on the need for development of standards or guidelines for plutonium. Initial criteria for ocean disposal of radioactive wastes was completed. The proposed Federal standard for radioactivity in drinking water was completed. Effluent criteria for release of radioactive discharges from the phosphate industry under the National Pollutant Discharge Elimination System permit programs was developed. EPA also established an interagency working group for the purpose of developing guidance regarding medical uses of x-rays and radioactive materials. Basic information on trends, risks, and benefit perspectives of occupational exposure to radioactivity were analyzed. An interagency working group to develop revised occupational exposure guidance was established. Draft protective action guides (under FRC Authority) for evacuation, decontamination, and reentry in the event of radioactive gaseous and particulate releases as a result of accident were completed.

RADIATION

Abatement and Control

Environmental Impact Assessment

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (de	Current Estimate 1976 ollars in t	Estimate 1977 housands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$3,470	\$3,141	\$3,246	\$2,768	-\$478
Permanent Positions	142	126	133	123	-10

Budget Request

An appropriation of \$2,768,400 is requested for 1977. This represents a decrease of \$477,600 from the 1976 program.

Program Description

Data collection and analysis provide the basis for identifying the need for standards and determining conformance with established standards. In addition to information processed through the Environmental Radiation Ambient Monitoring System (ERAMS), EPA collects and analyzes data from specialized sources to determine the scope of a problem, the need for remedial action, and effectiveness of the applied remedy. Many industries disturb, distribute, or redistribute naturally occurring radioactive materials. The mining industry which produces phosphate fertilizer and elemental phosphorus also increases the potential for population exposure to radon and its daughters found in the mined materials.

A major focus of the EPA radiation protection program is the review of Environmental Impact Statements (EIS's) prepared for the design, construction, and organization of facilities to Federal regulation or operated by other Federal agencies as required by the National Environmental Policy Act. The ability to make intelligent reviews and judicious comments on EIS's requires maintenance of a base level of information acquired through engineering studies of new and developing technologies, such as new types of power reactors, designs of fuel reprocessing plans and waste disposal facilities.

The primary focus of the State program support activity is working with States in the development phases of their radiation control programs, including technical information and assistance on localized problems. Much of this assistance is provided through small staffs located in regional offices. This effort also includes the provision of laboratory support for radiochemical analysis of air, water, soil, food, or milk samples. Support of ionizing radiation control activities will be reduced in 1977.

1975 Accomplishments

In 1.75, the Agency supported two technician training courses (total of 60 students). Sample analysis in special situations (such as the Mound Laboratories, Ohio, plutonium leak) was provided. The inventory on instrumentation available to States for use in emergencies was completed. Operation of the radium disposal facility continued.

EPA continued to operate the ERAMS (Environmental Radiation Ambient Monitoring System) which involved collection and analysis of data on radioactivity in air, water, and milk. The air/water pathway model for incorporation into the Comprehensive Dose Computational System (CDCS), a system designed to estimate source related exposures to radiation was developed. Environmental pathways were validated through field studies at the General Electric fuel fabrication facility at Wilmington, North Carolina; the H. B. Robinson, South Carolina, plant; and uranium mill tailings sites in eight western States. Surveys to obtain data on levels of nonionizing radiation in various geographic locations were initiated.

Research and Development

RADIATION

Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate 1977 in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)
Budget Authority					
Health and Ecological Effects	\$2,450	\$1,640	\$1,679	\$879	-\$800
Permanent Positions					
Health and Ecological Effects	72	57	50	30	-20

Purpose

The radiation research and development program provides EPA with an information base for standards setting and regulatory actions. The program currently consists of two parts: studies of the health effects resulting from exposure to radiation and studies of the transport of radiation through the environment. In the future, it is planned to concentrate on determining the health effects of nonionizing radiation.

Budget Request

An appropration of \$878,900 is requested for 1977. This represents a decrease of \$800,000 from the 1976 level.

Program Description

The health effects of radiation are studied by epidemiological and toxicological methods. Adverse health effects can result from exposure to ionizing radiation such as radionuclides emitted by nuclear power reactors or from high dose exposure to nonionizing radiation, as found in close proximity to high power transmitting antennae. The scope of the radiation program in health effects of ionizing radiation is narrow, being restricted to support epidemiological studies by the Atomic Bomb Casualty Commission and to limited laboratory studies of the radiation is directed toward animal studies with some support for population studies relative to effects from radar frequencies and frequencies associated with electric power transmission. Transport studies are concerned with describing the pathways by which selected radionuclides can reach man. The radiation pathways: research is an integral part of the program to understand human exposure and consequent health effects. The problem is one of describing the transport of radionuclides through the biosphere by the various pathways which govern their movement, chemical and physical change, and ultimate fate. The program has been focused on the most important radionuclides from the point of view of the long range problems associated with the fast breeder reactor program.

One additional aspect of the program is the radiological surveillance EPA performs for the Energy Research and Development Administration (ERDA) in the areas adjacent to ERDA's Nevada Test Site. The program is organized around three kinds of surveillance-routine, special, and test oriented. In the routine surveillance program, sampling (air, milk, and water) and radiation exposure measurement networks are maintained to record existing environmental radiation levels and their variations. "Special" surveillance includes monitoring for possible migration of test related radioactive debris in ground water on and around the site, and soil sampling programs. The test oriented program involves positioning radiation monitoring teams in the areas most likely to be affected by a release of radioactive material to the atmosphere, and includes sampling by aircraft and long range tracking of debris in the event of a radioactive release. Personnel performing these functions are included in the Agency's reimbursable account.

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Abatement and Control

NOISE Abatement and Control

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976	Page
Budget Authority					·	
Strategies and						
Standards	\$3,337	\$8,329	\$8,319	\$8,342	+\$23	N-9
Program Implementation	1,315	1,263	1,225	1,234	+9	N-11
Total	4,652	9,592	9,544	9,576	+32	
Permanent Positions						
Environmental Noise						
Strategies and						
Standards	29	49	49	49	• • •	N-9
Program Implementation	26	26	25	25	•••	N-11
Total	55	75	74	74	•••	

Purpose

The Abatement and Control appropriation provides for regulation development activities necessary to implement the Noise Control Act of 1972. These activities include the regulation of interstate rail and motor carriers, specifically required by the Act. The Act further requires the identification of major sources of noise and subsequent new product regulations. These noise emission standards are intended to protect the public health and welfare through the application of the best available technology, taking into account the cost of compliance. Labeling regulations are required for products which emit noise capable of adversely affecting the public health and welfare and for which new product regulations are unnecessary or insufficiently protective. Labeling is also required for products which are sold on the basis of their effectiveness in reducing noise.

The Abatement and Control appropriation also provides for technical assistance to other Federal agencies and to State and local governments for the development and implementation of their noise control programs. In addition, it also provides for technical assistance to the States in preparation for their complementary in-use enforcement role both in areas where new product regulations have been established and in localized problem areas more susceptible to State than Federal enforcement.

Abatement and control activities carried out through the regional offices are direct guidance to State and local agencies, environmental assessments relating to defining the noise problem and provision of environmental sources data for use in developing new product regulations, and advice and assistance to regional programs of other Federal agencies which have noise control implications.

The Noise portion of the Abatement and Control appropriation includes the following two subactivities:

Environmental Noise Strategies and Standards. This subactivity includes activities and outputs related to the development and updating of control strategies for various sources of noise, and the translation of those strategies into appropriate regulatory actions. The major regulatory thrusts of this program involve establishing noise emissions standards for newly manufactured products which are major sources of noise, designating products for labeling as to noise levels, development and implementation of standards for interstate rail and motor carriers, and development and follow-up of EPA proposed standards for the control of aircraft and airport noise to the Federal Aviation Administration.

NOISE

Abatement and Control

Environmental Noise Strategies and Standards

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (d	Current Estimate 1976 Iollars in t	Estimate 1977 thousands)	Increase + Decrease - 1977 vs, 1976
Appropriation	\$3,337	\$8,329	\$8,319	\$8,342	+\$23
Permanent Positions	29	49	49	49	•••

Budget Request

An appropriation of \$8,342,100 is requested for 1977. This represents an increase of \$22,700 over 1976.

Program Description

The development and promulgation of regulations for products which are noise sources involves three discrete types of effort: (1) supportive studies of products (or classes of products) to determine noise emission levels, technology for controlling such noise, costs associated with controls, and health and welfare benefits derived from noise reduction and impact on environmental noise levels; (2) publication of a report in the Federal Register identifying products to be regulated as major noise sources; and (3) promulgation of emissions standards and/or labeling criteria for these products. With respect to aircraft and airport noise it includes EPA recommendations for, and review of FAA aircraft and airport noise control strategies.

Development and promulgation of regulations requiring labeling of protective and control devices involves the identification of products sold wholly or in part on the basis of effectively reducing noise and analysis for that capability. Once the effectiveness (or lack of same) is established, regulations will be developed requiring manufacturers to label those products.

1975 Accomplishments

In 1975, program accomplishments include the promulgation of a final rulemaking action for interstate motor carriers, notices of proposed rulemaking for new medium and heavy-duty trucks and portable air compressors and an advance notice of proposed rulemaking for the labeling of hearing protectors. The Noise program proposed five noise abatement regulations to the FAA: minimum altitude, small propeller-driven aircraft, retrofit, fleet noise level reporting, and limits for supersonic aircraft. Extensive economic and technology studies were performed on a number of products to determine their suitability for formal identification as major sources of noise. These efforts culminated in May 1975, with the publication of the second Identification of Major Noise Sources Report which identified motorcycles, buses, wheel and track loaders and dozers, truck mounted solid waste compactors, and truck mounted refrigeration units as candidates for immediate regulation (within 24 months of identification as required in the Noise Control Act).

1976 Program

Planned activities include promulgation of final regulations on new medium and heavy-duty trucks, new portable air compressors, interstate rail carriers, and the labeling of hearing protectors. Regulations for take-off procedures, approach and landing procedures, and airport noise control will be proposed to the FAA and follow-up actions will be taken on regulations proposed to the FAA in 1975.

EPA's responsibility for "Special Local Conditions" determinations under Section 17 (Interstate Rail Carrier) and Section 18 (Interstate Motor Carrier) of the Noise Control Act will begin in 1976 and will continue in the future.

Extensive preidentification studies will be continued in the construction and surface tranportation equipment areas and will expand to encompass small engine-

N-9

NOISE

Abatement and Control

Program Implementation

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976 (de	Current Estimate <u>1976</u> Dilars in t	Estimate 1977 housands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$1,315	\$1,263	\$1,225	\$1,234	+\$9
Permanent Positions	26	26	25	25	• • •

Budget Request

An appropriation of \$1,234,300 is requested for 1977. This represents an increase of \$9,500 over 1976.

Program Description

This subactivity includes programs related to the implementation of regulatory and statutory requirements for which the Federal Government has responsibility. It includes the development of State and local capability to implement noise abatement activities, including the development of guidelines and information, model codes or model legislation, consultation with State and local control programs on specific control or planning problems, and assistance in the interpretation of Federal regulations and guidelines.

The Federal agency coordination function incorporates: (1) the coordination of other Federal agencies' activities in implementing Section 4 of the Noise Control Act (which requires that other Federal agencies comply with Federal, State and local noise regulations); (2) the responsibilities for monitoring other Federal facilities' noise abatement activities; and (3) the review of other Federal agency environmental impact statements insofar as their noise impacts are concerned.

Strategy evaluation encompasses the evaluation of noise program effectiveness in reducing the levels of noise, including environmental assessments and the evaluation of data to determine noise reduction trends. It also includes assisting State and local noise programs in the evaluation of localized problems.

1975 Accomplishments

Technical assistance was provided to State and local governments in identifying problems and developing noise control programs. This assistance included preparation of ordinances, selection of equipment, training of personnel, and community noise level measurements. Noise control workshops were held to provide demonstrations on measurement techniques and information on the development and implementation of local programs.

Advice and consultation were made available to other Federal agencies in the development of their noise control programs and a report was submitted to Congress on the status of Federal noise control and research programs.

A cooperative noise reduction program was implemented to inform interstate motor carriers of noise regulations applicable to them and to encourage early, voluntary compliance.

1976 Program

Technical assistance to develop State and local programs will continue, as will training of State and local personnel through workshops and seminars. Further data and survey information will be collected in order to assist State and local governments in identifying and defining their noise problems.

A "Community Noise Workbook", developed by EPA, will be published by the National Institute of Municipal Law Officers and will aid communities in establishing noise programs. A model community noise ordinance will be published and work will be initiated on the development of noise guidelines for local building codes. N-11

Enforcement

SECTION TAB

NOISE

Enforcement

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousand	Increase + Decrease - <u>1977 vs. 1976</u> ds)
Budget Authority Noise Enforcement	\$21	\$522	\$1,030	\$709	-\$321
Permanent Positions Noise Enforcement	1	10	21	21	•••

Purpose

The noise enforcement program is designed to implement the noise enforcement strategy developed pursuant to the Noise Act of 1972. The program will provide Federal enforcement of new product emission standards developed by the Office of Noise Abatement and Control, establish the Federal in-use activity, and produce enforcement related assistance to the States and localities. The Noise Enforcement Test Facility will provide the necessary Federal testing capability to support the noise enforcement program.

Budget Request

An appropriation of \$708,600 is requested for 1977. This represents a decrease of \$320,700 from the 1976 program.

1975 Accomplishments

In 1975, emphasis was placed on locating and developing a noise test facility site, and developing policy and regulations for achieving compliance with Federal noise standards and labeling requirements for new products. Activities included promulgation of regulations for implementing the enforcement strategy for new product noise emission standards (medium and heavy-duty trucks and portable air compressors), development of the strategy for Federal enforcement of such standards in-use, and participation in finalization of labeling requirements for new products.

A noise test facility was selected and EPA began development of the means for carrying out enforcement of new truck, new compressor, and motor carrier standards. Initial policies were developed for assisting State/local enforcement authorities in regulating products in-use.

1976 Program

The new product noise emission standards for medium and heavy-duty trucks and portable air compressors have been promulgated. These new truck noise emission standards are to be effective October 1, 1977; the new compressor standards will also be effective in 1977. These standards are enforced as soon as manufacturers notify EPA that they wish to begin production verification. Manufacturers have indicated that they desire the flexibility to verify production models before the regulations are effective. This verification will require evaluation and monitoring by EPA.

The strategy for enforcement of new product noise emission standards for medium and heavy-duty trucks and portable air compressors consists of two parts: (1) auditing noise emission performance of new products, and (2) production verification. Program activities include the development of an EPA standard test capability. This capability is essential to support the enforcement activity for enforcement of new products subject to noise emission standards by audit and for new product verification.

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Research and Development

NOISE

Research and Development

·	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousand	Increase + Decrease - 1977 vs. 1976 s)
Budget Authority Health and Ecological Effects	•••	\$45	•••		
Permanent Positions Health and Ecological Effects	• • •	1		•••	•••

Explanation of Change in Program

The \$45,000 contained in the budget estimate for 1976 has been transferred to the monitoring and technical assistance subactivity under the interdisciplinary media. That activity will continue to support EPA's mandated function as Federal coordinator of noise research. In 1977, it is intended to integrate the noise coordination function with the other activities of the office of noise abatement.

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Interdisciplinary

SECTION TAB

INTERDISCIPLINARY

PROGRAM HIGHLIGHTS

		Budget	Current		Increase +	
	Actual	Estimate	Estimate	Estimate	Decrease -	
	1975	1976	1976	1977	1977 vs. 1976	
	(dollars in thousands)					
Abatement and Control:		•		• • • • •		
Appropriation	\$3,911		\$8,789	\$10,665	+\$1,876	
Permanent Positions	50		130	129	-1	
Transition Quarter	N/A	•••	2,061	N/A	N/A	
Research and Development:						
Appropriation	21,042	20,776	28,155	25.355	-2.800	
Permanent Positions	263	252	204	214	+10	
Transition Quarter	N/A	4,570	4,570	N/A	N/A	
Total, Interdisciplinary						
Program:						
Appropriation	24,953	20,776	36,944	36.020	-924	
Permanent Positions	313	252	334	343	+9	
Transition Quarter	N/A	4,570	6.631	N/A	N/A	
Out]avs	18,197	22,472	26,140	26,500	+360	
Authorization Levels	Authoriz	ations are	contained w	vithin amour	its authorized	
	for Federal Water Pollution Control Act, Clean Air Act, Solid Waste Disposal Act, Federal Insecticide, Fungicide and Rodenticide Act, as well as certain portions by virtue					
	of the Appropriation Act.					

OVERVIEW AND STRATEGY

Effective management of environmental programs frequently requires cutting across the usual media lines. Although most problems are best approached directly by specific media programs, there are frequently cases where either the problem, skill, or technique for addressing it is not readily assignable to a particular media. A multimedia or interdisciplinary approach is consequently the most efficient and effective vehicle for Agency action. EPA applies this concept primarily in the research and development area where both the problems and tools are frequently multidisciplinary. Consequently, the restructuring of EPA's research and development program which was implemented in 1976 has resulted in the expansion of the multimedia research category in this medium. A multimedia or interdisciplinary approach is also being applied to the preparation of environmental impact statements. Although this activity is often media specific, the focus is continually shifting from problem to problem and media to media. Accordingly, it can be managed more effectively and efficiently from an interdisciplinary stance than by assigning resources to each media and reprogramming every time a change occurs.

SUMMARY OF INCREASES AND DECREASES

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support to the National Center for

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	(dollars in thousands)
1976 Interdisciplinary Program	\$ 36,944
Abatement and Control The requested increase will provide for additional environmental impact statements for construction grants and new source discharge permits. This program has been transferred from the Agency and Regional Management appropriation.	+1,876
Research and Development The decreased funding request for interdisciplinary research and development is due to a \$2 million reduction in	-2,800

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(2) \$4,777,000 from the water quality media for the renewable resources program which is concerned with developing the methods and management practices for abatement and control of pollution from agriculture and silviculture; and

(3) \$45,000 for noise research coordination.

Other minor program adjustments resulted in an increase of \$64,700.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	Current Estimate 1976 (dollars	Estimate 1977 in thousands)
Prior year obligations	\$24,953	\$37,743
Change in amount of carryover funds available	+1,968	-798
Congressional add-on	+1,000	-800
Transfer of EIS function from Agency and Regional Management	+5,061	+1,700
Programmatic increases from other media	+4,700	
Miscellaneous increases and decreases	+61	• • •
Net change of 1977 program increases and decreases	<u> </u>	1,455
Total estimated obligations (From new obligation authority) (From prior year funds)	37,743 (32,825) (4,918)	36,390 (32,270) (4,120)

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

<u>Change in amount of carryover funds available</u>--the funds brought forward into 1975 exceed the amount obligated in 1975 and will therefore increase the amount of obligations. The 1976 funds to be carried forward into 1977 are estimated to be somewhat lower than those experienced in 1976, hence the decrease in obligations in 1977.

<u>Congressional add-on</u>--the increase of \$1 million in obligations in 1976 is as a result of the add-on for multimedia research. In 1977, only a portion of these funds will be utilized.

<u>Transfer of EIS function from Agency and Regional Management</u>--This transfer was addressed in the previous section. The obligation increase in 1976 reflects the funding increase for this program. The further increase in 1977 reflects the program increase reflected for this activity.

<u>Programmatic increases from other media</u>--These transfers were discussed in the preceeding section and are a result of the restructuring of the research and development program which was implemented in 1976. These transfers will result in an increase to 1976 obligations of approximately \$4.7 million.

<u>Miscellaneous increases and decreases</u>--Obligations are slightly increased due to minor program adjustments.

<u>Net change of 1977 program increases and decreases</u>--As discussed previously, the reduction of funds for the National Center for Toxicological Research and in Monitoring and Technical Support will result in a net decrease in 1977 obligations of approximately \$1.3 million.

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Abatement and Control

INTERDISCIPLINARY

Abatement and Control

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - 1977 vs. 1976 ds)
Budget Authority					
Environmental Impact Statement Preparation	\$3,911	*	\$8,789	\$10,665	+\$1,876
Permanent Positions					
Environmental Impact Statement Preparation	50	*	130	129	-1

 * 1976 budget estimate was included under Agency Management and Support and is identical to 1976 current estimate.

Purpose

With certain exceptions, the National Environmental Policy Act of 1969 requires that all Federal agencies prepare environmental impact statements on all of their proposed major actions which would significantly affect the environment. Accordingly, EPA has undertaken the preparation of EIS's (or negative declarations in instances where no significant environmental impact is involved) for municipal waste water treatment plant grants and for the issuance of new source discharge permits (NSDP). In addition, the Agency has announced a policy of voluntarily preparing EIS's for major regulatory actions even though they are not required by law.

Budget Request

An appropriation of \$10,664,400 is requested for 1977. This represents an increase of \$1,875,500 over 1976.

1975 Accomplishments

1975 was the first full year in which a significant amount of resources were specifically allocated for EIS preparation. Primary emphasis was on the preparation of construction grant EIS's and new arrangements involving the use of contract consultants working in conjunction with EPA staff were developed. The 20 EIS's prepared covered 42 construction grants, or about five percent of the 1975 grants which were subject to NEPA requirements. Work leading toward the development of regulatory and NSDP EIS's was also initiated.

1976 Program

In 1976, the number of construction grants to be awarded is expected to increase by 200 percent and EIS preparation is expected to increase accordingly from 20 to 63 EIS's, covering about five percent of all grants issued. The NSDP program will be underway in 1976 and it is expected that more than 20 EIS's will be prepared covering approximately seven percent of the permits to be issued. Interim EIS's on five ocean dumping sites and draft EIS's on approximately 30 regulations are also planned for 1976.

Research and Development

INTERDISCIPLINARY

Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)	<u>Page</u>
Budget Authority						
Health and Ecological						
Effects	\$4,912	\$8,763	\$7,573	\$5,573	-\$2,000	I8
Industrial Processes.	4.121		6.416	6.416		I-10
Public Sector				-,		
Activities	1.403	1.359	1.794	1.794		I-13
Monitoring and Technical	1,100	1,000	1,75,1	13751	•••	1 10
Support	10 606	10 654	12 372	11 672	900	115
Suppor	10,000	10,034	12,572	11,372	-000	1-15
Tota1	21,042	20,776	28,155	25,355	-2,800	
Permanent Positions						
Health and Ecological						
Effects	21	46	14	14		I-8
Industrial Processes.	25		31	31		T-10
Public Sector			•		•.••	
Activities	13	13	12	12		1-13
Monitoring and Technical	15	15	12	14	•••	1-10
Support	204	102	1/7	157	+10	T 16
Juppercontension	204	193	14/	10/	71V	1-15
Total	263	252	204	214	+10	

Purpose

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EPA is responsible for making and implementing decisions concerning the use of common property environmental resources, i.e., the air, water, wilderness, etc., and must consider the interrelationship of these resources and our social and economic well-being. Thus, EPA functions in many ways as an environmental manager. This function requires the use of a wide range of assessment vehicles--theoretical, operational, and managerial. The interdisciplinary research program is designed to supply these vehicles through conduct of multidisciplinary, multimedia research activities in health and ecological effects, socioeconomic impacts of environmental policies, monitoring, and other areas of concern. The program also develops quality assurance procedures for use in regional and State programs, provides standard setting methodologies, and produces assessment documents on pollutants for which standards may be established. The Science Advisory Board is administratively housed under this program.

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<u>1977 Plan</u>

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In 1977, the socioeconomic research will continue work on the benefits of water pollution control, develop a system for ranking pollutants, and produce reports and analyses on new pollutants and pollution problems. NCTR support will return to the 1975 level of \$4,000,000 for long-term, low-level exposure work aimed at providing data on the possible carcinogenic, teratogenic, and mutagenic effects of various pollutants on man.

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(d) locations; and (e) ecosystems. in the following areas: in 24 States. and national levels; activities; and sources;

- (b) Provide tools for the planner/decision makers to determine the consequences of the major agricultural and forestry pollutants, including appropriate predictive methods;
- (c) Provide tools to evaluate both the pollution and cost-effectiveness of individual and combined management systems;
- Develop methods that minimize agricultural and forestry related pollution by implementing different systems at different
- Develop ecologically sound integrated pest management strategies, tactics, and models applicable to at least six major crop

In order to achieve these objectives, studies will be undertaken in 1976

- Animal production--land application of wastes from confined animal production, management of animal wastes from non-National Pollution Discharge Elimination Systems (non-NPDES) operations, and waste disposal where land application is not feasible;
- Irrigated crop production--irrigation system management methods and predictive methods for management and reduction of mass emission of pollutants in irrigation return flow systems;
- Nonirrigated crop production--agricultural chemicals/sediment management systems, predictive modeling, and long-term trends;
- Forestry activities--the development of forestry practices management systems and techniques to predict and control environmental consequences; and
- Integrated pest management--continuation of interagency agreements and other studies in progress on eight crop ecosystems

An assessment of long- and short-term trends in agricultural and forestry production, as they impact environmental quality, will be initiated to:

- Develop the capability to assess and predict the environmental effects of existing and advanced approaches necessary for increased production of renewable resources at the local, regional,
- Develop prediction capability to allow projections of the environmental impacts of renewable resource production
- Develop cost-effective alternative technological, management, and institutional approaches to assure increased production with minimal environmental impact.

During 1976, the renewable resources programs will also:

Complete a national assessment of pollutant discharges from nonpoint sources, including a compilation and evaluation of readily usable methods for estimating discharges from nonpoint

INTERDISCIPLINARY

Research and Development

Public Sector Activities

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (4	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$1,403	\$1,359	\$1,794	\$1,794	•••
rermanent Positions	1,3	1.3	12	12	• • •

Budget Request

An appropriation of \$1,794,100 is requested for 1977. There is no change from 1976.

Program Description

The objective of this program is to provide State, regional, and local environmental planners and managers with methods to determine feasible alternative solutions for specific environmental problems and to provide techniques for selecting the best solutions. The research focuses on the development of improved multimedia planning techniques, improved methods for the collection and analysis of environmental quality and economic information, evaluation of alternative institutional arrangements, and development of comprehensive analysis and evaluation methodology. Important efforts involve:

- Investigation of the linkages among various residuals (solids, liquids, and gases) generated by and discharged from community activities;
- (2) The design of integrated environmental management systems, including analytic planning techniques, alternative implementation techniques, and administrative and institutional considerations; and
- (3) The evaluation of the impacts (both positive and negative) on all media (air, water, land) of single-media pollution control strategies.

1975 Accomplishments

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Major accomplishments during 1975 include:

- Publication of a practical guide for local administrators on performance controls for sensitive lands, including aquifer recharge areas and wetlands;
- (2) Completion of a major study of the efforts and techniques of State governments to integrate environmental programs with other resource management programs;
- (3) Analysis of the cost-effectiveness of several alternative transportation control strategies for reducing mobile source air pollution;
- Preparation of a handbook to aid planners in the selection of appropriate water quality simulation models for various types of plans;
- (5) Development of procedures to assist administrators in designing a costeffective discharge permit compliance enforcement program; and
- (6) Description of a broad range of economic incentives for environmental protection with an analysis of legal, political, and administrative aspects.

INTERDISCIPLINARY

Research and Development

Monitoring and Technical Support

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease ~ 1977 vs. 1976
Appropriation	\$10,606	\$10,654	\$12,372	\$11,572	-\$800
Permanent Positions	204	193	147	157	+10

Budget Request

An appropriation of \$11,571,900 is requested for 1977. This represents a decrease of \$800,000 from the 1976 program.

Program Description

The components of this program activity include: (1) measurement techniques and equipment development; (2) monitoring quality assurance, methods, and procedures preparation; (3) technical support; (4) technical information and technology transfer; (5) the Science Advisory Board; and (6) the Minority Institutions Research Support (MIRS) program.

The basic objectives of the measurement, techniques, and equipment development activity are to assist EPA and related State operational monitoring programs in the identification of present and future measurement techniques, and the development of the most efficient and effective monitoring systems for meeting their needs. This includes the modification and adaptation of measurement and monitoring technology to meet specific requirements of EPA and State operational monitoring programs.

Quality assurance serves all environmental monitoring activities of the Agency. The quality assurance programs standardizes the monitoring methods, provides quality control procedures for operational use, supplies standard reference materials, and performs quality control audits. These services are needed by the Agency's operational monitoring programs so that their environmental data will be accurate and legally defensible. The program includes development of quality control guidelines and manuals, on-site evaluations of all regional laboratories, laboratory performance tests, laboratory certification, studies for automation of laboratory instruments and data handling, and participation in regional quality control workships. Thus, the quality assurance program is responsible for the development and implementation of procedures and protocols to assure that the data generated from the use of measurement systems by different persons in different locations and at different times is valid and intercomparable.

The technical support program is responsible for assuring that the expertise of R&D personnel is made available to Agency operating programs. This program, in conjunction with similar elements in the air and water quality media, plans for and provides resources to respond to requests from the Agency for technical expertise or assistance from staff scientists throughout the research and development organization. The interdisciplinary technical support program also provides support for the EPA airborne monitoring capability.

The combined technical information and technology transfer program was recently identified separately to provide increased emphasis and support for assuring the timely and cost-effective dissemination and exchange of scientific and technical information within EPA and from EPA to the environmental R&D user community. Major support activities performed within this program include: the acquisition of technical data; provision of automatic data processing planning, coordination, and support services; operation of technical information search, retrieval, and referral services, including responses to requests for technical information

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1976 Program

In 1976, the measurement techniques and equipment program objectives include: (1) completion of the strategy for Agencywide monitoring; (2) the development of a detector for airborne mercury (mercury is one of three air pollutants designated as hazardous and is to be closely controlled); (3) automation and improvement of in-situ and remote monitoring techniques; and (4) improvement or correction of deficiencies in methods used for regulatory measurements.

The 1976 objectives of the quality assurance program include: (1) continuing validation of measurement methods for ambient air, mobile source, and stationary source pollution measurement; (2) continuing development of standard reference materials and samples; (3) further development of guidelines and procedures to evaluate and certify laboratories performing environmental quality measurement; (4) development of a quality assurance regulation to implement part of the requirements of the Safe Drinking Water Act of 1974; (5) finalizing amendments to EPA's regulations implementing the requirements of Section 304(g) of the Federal Water Pollution Control Act Amendments of 1972; (6) continuing quality control audits of EPA monitoring systems; and (7) development of a measurement methods equivalency program for the NPDES permit program.

The 1976 technical support program includes airborne monitoring and mapping activities as well as aerial surveillance for purposes of delineating land use patterns and pollution sources, investigating sources of nonionizing radiation, surveying strip mine areas to determine causes and sources of acid mine wastes and effects of rehabilitation practices, studying sanitary landfills, and determining the movement of leachate.

The principal technical information and technology transfer program objectives for 1976 will be to develop a comprehensive program plan for the dissemination and exchange of scientific and technical information to both EPA components and the environmental R&D user community, and to establish an initial operational capability for centralized managerial oversight of EPA R&D technical information activities. Major anticipated accomplishments in support of this objective include: review and assessment of existing technical information policies, procedures, and support systems; development of a five-year ADP support plan; establishment of centralized publication and information search, retrieval, and referral services; and conduct of special studies to determine the form and desired content of R&D outputs. The technology transfer program will conduct approximately 20 seminars in the areas of land treatment, advanced waste treatment, industrial pollution control, multimedia pollution control for small businesses, monitoring of industrial waste water, water supply treatment processes, and analytical methodology. In addition, a variety of specialized reports and design manuals will be developed and widely distributed. Special emphasis will be placed on the development of publications designed to assist policy and decision makers at the State and local government level to investigate available options for solving municipal waste water treatment problems.

<u>1977 Plan</u>

For 1977, an increase of 10 positions and a decrease of \$800,000 is requested from the 1976 level. The net decrease is due to carrying forward \$200,000 of the \$1 million added by the Congress in 1976.

Toxic Substances

SECTION TAB

TOXIC SUBSTANCES

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (c	Current Estimate <u>1976</u> Iollars in t	Estimate 1977 chousands)	Increase + Decrease - 1977 vs. 1976
Abatement and Control: Appropriation Permanent Positions Transition Quarter	\$3,834 39 N/A	\$6,850 45 1,880	\$6,850 45 1,880	\$6,012 45 N/A	-\$838 N/A
Research and Development: Appropriation Permanent Positions Transition Quarter	1,054 11 N/A	1,209 11 500	1,355 7 500	1,355 7 N/A	 N/A
Total, Toxic Substances Program: Appropriation Permanent Positions Transition Quarter Outlays Authorization Levels	4,888 50 N/A 2,445 Authori the Fed Act, th Fungici	8,059 56 2,380 8,200 zations are eral Water e Safe Drin de, and Rod	8,205 52 2,380 4,100 contained Pollution C king Water enticide Ac	7,367 52 N/A 5,100 within auth ontrol Act, Act, and th t.	-838 N/A +1,000 orizations under the Clean Air e Federal Insecticide.

OVERVIEW AND. STRATEGY

Today there are more than 30,000 chemical substances being produced in the United States for commercial purposes, with 1,000 new chemicals introduced into the marketplace each year. Many of these are toxic under certain conditions and a considerable number are sufficiently hazardous to cause environmental concern. A number of these chemical compounds, such as vinyl chloride, arsenic, polychlorinated biphenyls, asbestos, and others, have been involved in incidents which have created widespread public attention. These factors and others led EPA to create its toxic substances program and led to the introduction of legislation which is aimed at regulating the production and use of these chemicals.

EPA's current toxic substances program is carried on under the authorities granted in the Agency's major legislative mandates, such as the Clean Air Act, the Safe Drinking Water Act, the Federal Water Pollution Control Act, and the Federal Insecticide, Fungicide, and Rodenticide Act. Major program activities include: development and coordination of Agency efforts under these authorities to address the problems of toxic materials which cross traditional media lines; use and development of predictive techniques for early identification of substances most likely to pose a hazard to man or the environment; implementation of methods for monitoring air, water, and soil for selected toxic chemicals; and development of strategies under a variety of Federal authorities to control multimedia toxic pollutants. Research is being conducted into the health effects of selected toxic substances and their metabolites to provide data on chemicals of current concern.

The Agency is also preparing to implement the proposed Toxic Substances Control Act which, if enacted, would authorize development of reporting and data processing systems, development of standards for test protocols, and imposition of regulatory restrictions on the importation, production, use, and disposal of toxic substances where needed to protect health or the environment. Until a Toxic Substances Control Act is passed, EPA will continue to deal with toxic substance problems by relying on other legislative authorities, either singly or in combination, to mitigate as much of the hazard as possible. In addition, the Agency is increasingly encouraging the major chemical producers to take more substantive voluntary steps to reduce chemical risks and contribute to environmental goals. to determine the validity of a quick, cheap test using the octanol/water coefficient to measure bioaccumulation potential.

- <u>Environmental Prediction</u>. This early warning activity is directed to identifying and prioritizing chemicals, previously unsuspected of entering the environment, which may pose a hazard in the near future.
- <u>Data System</u>. This activity will improve the ready availability in a usable form of authoritative information concerning the manufacture, use, distribution, and disposal of chemical substances. This information base will assist in identifying those new chemical substances entering commerce which deserve in-depth analyses to determine whether they pose a threat. Current work involves examining many existing data bases to determine how they might best be used to support the toxic substances program.
- <u>Strategy Development and Coordination</u>. This effort emphasizes identification of interrelationships and common purposes in the toxic substances area; regulatory strategies and standards required under different authorities; multiple applications and transferability of principles used in setting standards on the same or similar substances under different authorities; and multiple sources of the same toxic substances, their accumulation in different media, their routes through the environment, and their pathways to human exposure. Also of concern is the interface between EPA activities and the authorities and interests of other agencies, including the Food and Drug Administration, the Occupational Safety and Health Administration, the National Cancer Institute and the Consumer Product Safey Commission. Issuance of a formal strategy for the toxic substances program is scheduled for 1977.
- <u>Response to Crises</u>. Considerable resources will continue to be committed to coordinating EPA responses to unexpected national crises involving toxic substances. During 1977, efforts will be heavily committed to the polychloranated biphenyl, ethylene dibromide, asbestos, and arsenic problems.
- <u>Chemical and Economic Assessment</u>. EPA analyzes classes of chemicals as the basis for determining the risks associated with new products in these classes which are likely to appear on the market in the near future. Central to consideration of options is the balancing of risks and benefits.

1977 Plan

During 1977, the Toxic Substances program will:

- Continue review and evaluation of testing methods;
- Continue development of criteria and techniques for early warning through identification of toxic substances which may pose a hazard;
- Complete development of a data system that will enable quick identification of chemicals of concern; and
- Continue analysis of chemical classes as the basis for determining the risks associated with new products.

Research and Development

TOXIC SUBSTANCES

Research and Development

	Actual <u>1975</u>	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)
Budget Authority				·	
Health and Ecological Effects	\$1,054	\$1,209	\$1,355	\$1,355	••••
Permanent Positions					
Health and Ecological Effects	11	11		7 °.	

Purpose

The purpose of this program is to conduct research on the effects of toxic substances (and their metabolites) on human health and the ecosystem. This research produces protocols for testing substances to determine the potential hazards of their release into the environment; provides information on the transport and persistence of toxic substances, as well as their health and ecological effects; and develops analytical chemistry methods to measure and identify these pollutants.

Budget Request

An appropriation of \$1,355,000 is requested for 1977, the same level of funds as appropriated for 1976.

Program Description

A program of research on the effects of toxic substances (and their metabolites) on human health is being undertaken. Protocols for premarket testing of toxic substances are being developed and validated, and criteria are being established for deciding which toxic substances should be declared hazardous to human health.

A program to determine the ecological effects of pollutants designated as toxic substances is underway. Data are collected to provide a sound scientific basis for the establishment of water quality standards related to toxic substances for such uses as protecting public water supplies, recreation, fish and wildlife propagation, agricultural supply and industrial purposes. Information is developed to relate the concentration, form, transport processes, and acute and chronic effects of toxic substances to the size, character, composition, and location of these sources.

1975 Accomplishments

In 1975 the toxic substances program:

- Discovered in a chronic feeding study that hexachlorobenzene accumulates to more toxic levels in the second generation;
- Discovered that cadmium is a moderately strong agent in inducing birth defects; and
- Published an interim analytical method for asbestos in water.

1976 Program

In 1976, the program includes:

- Evaluating the hazards of human contact with toxic substances by conducting animal toxicology studies of specific compounds;
- Developing laboratory methods for toxicological screening of toxic substances to identify which compounds are likely to persist in the environment or have adverse effects on man or aquatic and terrestrial life;
- Evaluating mammalian effects of toxic compounds; and
- Evaluating the ecological effects of toxic compounds by testing them in model ecosystems designed to study particular characteristics.

1977 Plan

In 1977, rapid assessments of total body burdens and total exposure to potential health damage from organic and inorganic chemicals will be continued, as will studies of the sources, transport, and biological effects of toxic substances in terrestrial ecosystems.

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Energy

SECTION TAB

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ENERGY

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (c	Current Estimate <u>1976</u> Iollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Energy Research and					
Development:				A	to 570
Appropriation	\$88,339	\$112,000	\$100,000	\$96,427	-\$3,5/3
Permanent Positions		40	123	123	• • •
Transition Quarter	N/A	21,000	20,885	N/A	N/A
Outlays	23,204	113,000	120,000	120,000	
Authorization Levels	Authori	zation is by	virtue of	the Appropr	iation Act.

OVERVIEW AND STRATEGY

A major mission of the Agency is to protect the public health and welfare from the adverse effects of energy systems. Research and development efforts toward this end are mandated by the Clean Air Act, the Federal Water Pollution Control Act, and the Resources Recovery Act. Such protection must be accomplished through a multimedia approach so that the control of one form of pollution does not result in an unacceptable impact on another media (e.g., control of air pollution resulting in solid waste problems). Also, this mission must be accomplished at reasonable and acceptable cost in order that national concerns such as defense, food supply, energy supply, and individual liberties are not adversely impacted.

Several approaches have been proposed in attempts to meet the Nation's energy needs. These include:

- (a) the increased use of coal through direct burning and coal derived synthetic fuels;
- (b) the use of alternate sources of energy such as waste, solar, geothermal, and nuclear; and
- (c) more efficient energy extraction and utilization processes.

Each approach will have some impact upon the environment.

Because of the potentially acute health and ecological effects associated with the traditional, as well as the new, technologies for fuel processing, conversion, and utilization, the Environmental Protection Agency (EPA) has a major responsibility in this area to ensure that the environment and human health are protected. EPA must have programs under way now to develop the health and technical data base necessary to support new source performance standards and ambient air quality standards when new technologies "come on-line". This becomes guite apparent when the lead times for health and control technology efforts are considered.

Several long-term problem areas are anticipated for the regulatory and enforcement components of the Agency. The increased reliance on substitute fuels from coal and oil shale, requiring cleaning, gasification, liquefaction, and other techniques can generate new pollutants whose effects are not known and must be defined. Another problem area concerns the potentially cumulative chronic health and ecological effects of new and emerging sources (nuclear, geothermal, solar, etc.). For example, the nuclear fuel cycle presents potential problems associated with plutonium dispersion in the biosphere and with the indefinite storage of highly radiactive wastes. <u>_</u> 17

The conversion, utilization, and technology assessment program is composed of the following subareas: utility and industrial power technology, energy conservation, and integrated assessment.

Emphasis is focused on the identification, characterization, assessment, and development of control technology for pollutants associated with utility and industrial combustion sources. Attention will be focused on generating information which can be used to help set environmental standards and guidelines, and develop economical control technology so that such standards can be achieved.

The objectives of the energy extraction and processing technology program are to enable a rapid increase in extraction and processing of domestic energy resources, and to enable these energy sources to be utilized effectively in an environmentally compatible manner. The program is divided into two subareas: energy resource extraction and fuel processing.

The energy related health and ecological effects R&D program is designed to identify all adverse environmental effects (leading to regulatory and control technology requirements) associated with energy extraction, conversion, and use. Major goals include: (1) adequate protection of human health and the human ecosystem, and (2) assurance of environmental protection with expanded use of domestic energy supplies.

The expertise developed through the R&D program provides the basis for technical support to EPA's regional and program offices. A multitude of different mechanisms, ranging from cooperative regionally oriented R&D projects, to baseline condition monitoring the development of scientific data for regulatory functions, and the provision of expert witness testimony are utilized.

For the short-term, primary efforts are responsive to the Agency's regulatory requirements. A sound technical base is provided to support the establishment of standards and regulations, and to assure a strong Agency defense in the event of litigation.

In the intermediate term, research is directed toward problem identification and assessment. Early knowledge of adverse energy system health and ecological effects are required prior to system implementation, thus avoiding the need for costly retrofit controls. This work leads to the setting of priorities for later work and, where possible, to the avoidance of environmental insults.

The long-term research program is based, to a large extent, on a strategy of prevention rather than a purely regulatory approach. Hence, research is undertaken to better understand environmental processes and to identify the effects of broad social goals and energy policy on environmental quality. Avoidance of all yet unrecognized hazards is the ultimate major objective.

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

<u>Change in amount of carryover funds available</u> -- in 1976, obligations are estimated to be \$45.7 million from carryover funds which is an increase to 1975 obligations. In 1977, the amount of carryover funds estimated to be available greatly decreases.

Reduction due to program decrease -- the 1977 budget estimate is o realignment of the government-wide energy-related environmental research program

<u>Cost of new positions and related expenses</u> -- represents the increased obligations as a result of the new positions in 1976.

Change due to rate of contractual obligations -- it is estimated that 1977 obligations will be reduced by \$8.6 million due to a change in the rate of obligations and nonrecurring awards.

- A comprehensive plan based on a multidimensional matrix to classify program content and resources has been developed to assure that the entire range of Federal energy/environmental R&D is woven together into a manageable framework;
- Mag-Ox Flue Gas Desulfurization (FGD) was successfully demonstrated on both oil and coal-fired generating stations and results to date indicate few discernible differences between oil or coal-fired boiler applications;
- The FGD prototype at the TVA Shawnee Power Station successfully concluded 2,300 hours of continuous trouble-free operation. Data obtained from this demonstration indicates that the objective of six months continuous operation without reliability problems is achievable;
- The portotype double alkali FGD installation at Gulf Power Company's 20 MW Sholz Station steam generator attained 100 percent availability during June 1975 and demonstrated sulfur oxide removal of 90 to 99 percent;
- The Chemfix sludge fixation process pilot demonstration at Shawnee was completed in December 1974. Results to date indicate the material is physically stable and is suitable for use in land-fills and similar reclamation projects;
- Successful demonstration of retrofit combustion control technology for the control of NOx from coal-fired tangential boilers was completed; and
- A mathematical model for the design of electrostatic precipitators (ESP) was completed. This will allow the cost-effective design for specific particulate control technology applications.

1975 Accomplishments

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Extraction and Processing Technology

- Evaluated physical and chemical properties of western coal. Mining techniques and transportation modes for exploitation of this domestic energy source were assessed. This study determined and reported the effects of western coal properties on combustion equipment operation and atmospheric emissions. The evironmental impact of expanded western coal production and utilization were analyzed;
- Initiated a comprehensive, multimedia environmental assessment of the development of a domestic oil shale industry. This assessment program will pull together the available data base on shale oil recovery technology environmental problems, and will identify major environmental problems and data gaps. Achievement of project objectives is critical for the orderly commercialization of oil shale technologies;
- Completed a preliminary environmental evaluation of underground mining methods;
- Completed a user's manual on environmental protection and surface mining of coal; and
- Total characterization of seven ESPs operating on a number of sources ranging from power plants to aluminum plants was completed. Results show that ESPs can collect particles of all sizes with high efficiency when dust resistivity is not a problem.

Health and Ecological Effects

- Commenced studies to determine health implications of fossil fuel extraction and conversion, including studies on air and water pollution effects resulting from coal liquefaction and gasification activities;
- Initiated studies to determine the types and amounts of organic and inorganic pollutants, metals, complex effluents, dissolved and suspended solids and dissolved gases which may impact the fresh water environment due to increases in coal production, oil shale development, oil and gas extraction, and coal gasification and liquefaction;

1976 Program

Extraction and Processing Technology

- Publish a report on the assessment of high temperature/pressure particulate control methods. Such techniques are necessary for pollution control from second generation energy systems such as fluidized bed combustion and coal gasification processes;
- Publish an updated report on the sulfur reduction potential of United States coal. Recent studies have indicated that physical coal cleaning and combinations of physical coal cleaning and flue gas desulfurization may be the most cost-effective strategies for meeting emission regulations. Data contained in the updated report will allow selection of the most economical methods of meeting air pollution regulations;
- Initiate construction of the Meyers Process test facility for coal cleaning (desulfurization). This process, if successfully scaled-up, would release up to 40 percent of Appalachian Basin coal for direct combustion in new stationary sources without the need for flue gas desulfurization. The process would be especially appropriate for application to small utility and industrial/commercial boilers. Data from a test facility operation would provide the basis for scale-up to demonstration size;
- Complete design manual for physical coal cleaning technology. The manual will make available to plant operators and regulatory agencies the best of existing technology in physical coal cleaning operations;
- Complete a simple field method to analyze overburden pollution potential prior to mining; and
- Complete the evaluation of the long-term effectiveness of reclamation practices.

Conservation, Utilization, and Technology Assessment

- Initiate FGD evaluation phase of Louisville Gas and Electric test program. The objective is to understand and apply the unique chemistry of this successful installation to other installations;
- Complete pilot/prototype double alkali FGD test program and publish final report. This process has shown potential cost, reliability and sludge disposal advantages over lime and limestone scrubbing systems;
- Initiate Wellman-Lord regenerable FGD test program at the NIPSCO coalfired utility sites. This process has demonstrated reliability and effectiveness on oil-fired units in Japan and will now be demonstrated on this full-scale unit;
- Issue final report on sludge conversion (regeneration) pilot studies. Successful technology development, would help solve the FGD sludge disposal problem by allowing conversion and reuse as an alternative to disposal;
- Issue annual report on assessment of Japanese flue gas treatment technology for NOx control. Such technology, which is capable of high-efficiency NOx removal, is advancing rapidly in Japan and is being applied to several large installations; and
- Complete fine particulate charged droplet scrubber demonstration. Such technology has potential for enhanced fine particulate removal from a variety of combustion and industrial sources.

<u>1977 Plan</u>

Extraction and Processing Technology

- Complete the environmental testing of operating eastern and midwestern coal cleaning plants to support setting of standards for new plants;
- Identify (lab scale) novel technologies for removal of sulfur, nitrogen and hazardous trace materials from coal and coal cleaning wastes;
- Test the demonstration of deep physical coal cleaning of utility coal and subsequent combustion to meet State and new source standards;
- Operate the EPA/USBM physical coal cleaning test facility;
- Operate Exxon miniplant in support of ERDA pressurized Fluidized Bed Combustion (FBC) program and EPA environmental assessment program;
- Complete development of pollutant sorbent regeneration and alternate sorbents for FBC systems;
- Complete development of high temperature/high pressure granular bed filter fine particulate control technology for support of NSPS for pressurized FBC and gasification processes;
- Demonstrate energy and environmental benefits of the Chemically Active Fluid Bed process for residual oil gasification/cleanup at a utility boiler;
- Complete bench scale development of oil desulfurization/denitrification/ demetallization technologies;
- Complete environmental testing and manuals of control technology practice preliminary in support of standards for coal gasification, coal liquefaction, residual oil cleanup, and oil shale processing;
- Complete a manual of control technology practice to support effluent guidelines for acid mine drainage, sediment runoff and other discharges from eastern coal mining and handling;
- Complete assessment of pollution potential of coal and oil shale mining in western United States;
- Complete a demonstration and manuals of practicie for cleanup of oil spills on water; and
- Complete a manual of practice for protection and restoration of ocean, estaurine river and cold climate shorelines due to oil contamination.

Conservation, Utilization, and Technology Assessment

- Complete Shawnee/RTP advanced lime/limestone test program and publish final report. This program aims at identifying improved process variations capable of yielding improved SO₂ removal, economics, reliability, and sludge characteristics;
- Complete the Shawnee sludge demonstration evaluation program. This involves pilot testing of three commercially offered sludge fixation processes with subsequent environmental evaluations;
- Complete Bahco test program for lime scrubbing on coal-fired industrial boiler and publish final report. This program will evaluate a sulfur control option for the smaller combustion sources;

- Perform studies to evaluate the cost/risk/benefit trade-offs of energy production, conservation, and pollution control alternatives;
- Document the application of staged combustion NOx control technology for tangentially-fired coal field boilers; and
- Conduct technology assessments which evaluate both alternative energy technologies and approaches for implementing energy development and conservation in order to prevent environmental damage and secure related benefits.

Health and Ecological Effects

In order to meet EPA legislative mandates, near term objectives of the energy health and ecological effects program have been designed to permit an assessment of the effects of exposure to various substances distributed in the air, land, and water as a result of energy technologies--especially coal, oil shale and synthetic fuels. In 1977:

- Data obtained on the health effects of waterborne pollutants associated with present and emerging processes and production will specifically address heavy metals and organic chemicals, with emphasis on the toxicological, biological, genetic, and other biomedical aspects of subchronic and chronic exposures;
- Health effects information will be developed on multiroute exposure from metallic pollutants, both singly and in combination resulting from fossil fuel, extraction, combustion, and fuel development alternatives;
- Air pollutant transport and transformation research will be emphasized to determine the chemical/physical processes associated with the conversion of sulfur and nitrogen oxides to sulfates and nitrates and to continue study of photochemical oxidant transport;
- Studies of the effects of energy technologies in the marine area include development of standardized baseline data in cooperation with other agencies to study the impact of deep water ports, floating power plants, and offshore oil drilling. Current plans are designed specifically to utilize other agencies; ships already engaged in support sampling for thorough baseline community assessment and to establish background levels for relevant contaminants in organisms and habitats;
- The watershed ecosystem program will address the impact of oil shale and coal extraction technologies, as well as coal gasification and liquefaction, on fresh water biota;
- A report will be completed comparing the pharmacokinetics and toxicity in mammals of metals consumed in diet through contaminated shellfish vs. drinking water; and
- A report will be completed summarizing observed transport data and regional atmospheric transport model analysis for power plant emission in the Tennessee Valley region.

Technical Support

- Produce extensive analysis, based upon actual monitoring data and close contact with the Regions and other EPA expertise, of probably shortmedium- and long-term impacts of energy development activities in the western U.S.; and
- Provide, in cooperation with the EPA Regions IV and V, preliminary analysis
 of environmental, social, economic, and other impacts of energy activities
 in the Ohio River Basin area.

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Program Management and Support

SECTION TAB

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976		
		(dollars in thousands)					
Abatement and Control:							
Appropriation	\$31,350	\$35,976	\$33,695	\$34,692	+\$997		
Permanent Positions	188	195	170	167	-3		
Transition Quarter	N/A	9,285	9,124	N/A	N/A		
Enforcement:							
Appropriation	12,334	15,644	15,431	16,032	+601		
Permanent Positions	149	169	177	177			
Transition Quarter	N/A	4,116	4,047	N/A	N/A		
Research and Development:							
Appropriation	22,405	18,536	15,587	15,915	+328		
Permanent Positions	240	177	142	142			
Transition Quarter	N/A	5,304	5,227	N/A	N/A		
Energy Research and							
Development:							
Appropriation		• • •	550	546	-4		
Permanent Positions							
Transition Quarter	N/A		115	N/A	NZA		
Total, Program Management							
and Support Program:							
Appropriation	66,089	70,156	65,263	67,185	+1,922		
Permanent Positions	577	541	489	486	-3		
Transition Quarter	N/A	18,705	18,513	N/A	N/A		
Outlays	68,200	67,800	69,295	65,150	-4,145		
Authorization Levels	Authori	zation is by	y virtue of	the Approp	riation Act.		

OVERVIEW AND STRATEGY

This media encompasses the overall management of the action oriented programs described in the foregoing media sections. Resources for the Assistant Administrators, their principal deputies, office directors and their immediate staffs are provided directly through the program management and support media, rather than through charges to each of the program media. Management functions covered include the development of program policies and strategies, planning of media activities, monitoring and review of program performance, including that performed in the regions, and the direction of program activities carried out in headquarters. In the enforcement area, program management also includes the staffing and funds for EPA's Office of General Counsel at headquarters and Offices of Regional Counsel in the 10 regions. This media also includes support costs for program activities not otherwise covered by centralized agency support.

SUMMARY OF INCREASES AND DECREASES	(in thousands of dollars)
1976 Program Management and Support Program	\$65,263
Abatement and Control This increase is primarily to fund this appropriation's share of increased GSA space rental charges, penalty mail, and new ADP system for the Safe Drinking Water Act. Also included in the increase are funds for the annualization of the October 1975 pay raise.	+997

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<u>Construction grants auditing.</u> An Agency study found that \$2,382,000 formerly used for support costs could be made available for other priority purposes. The funds were shifted to the Office of Audit to help meet the rapidly growing workload in construction grants auditing. Of the total, \$1,905,000 was transferred from program management and support (PMS). The remaining \$476,000 was transferred from Agency support.

<u>Change in contract funding.</u> Contracts totaling \$939,000 have been shifted from support accounts to management accounts. The PMS share of the reduction in support costs is \$751,000.

<u>Congressional reduction for space costs.</u> The PMS share of this reduction is \$1,304,000.

Transfers to cover administrative costs. \$228,000 was provided to the Office of Administration to cover the costs of administrative functions transferred from the Office of Public Affairs. An additional \$663,000 was transferred to the Office of the Administrator to cover base costs, establish a small Land Use staff, and meet increased needs.

<u>Region X increased costs</u>. Because of nearly 100 percent staffing, the base budget for Region X was inadequate to cover everyday costs. A total of \$297,700 was transferred from headquarters program support to cover the regions's needs.

<u>Intergovernmental relations transfer</u>. The small staff and \$183,000 formerly included under Abatement and Control, program management, has been transferred to Agency management consistent with the nature of its function.

<u>Construction grantscongressional increase</u>. \$588,000 of the congressional increase for construction grants administration has been added to PMS. The funds are used to directly support the construction grants program.

<u>Transfer program management positions to media programs</u>. The Office of Air and Waste Management and the Office of Water and Hazardous Materials reclassified 18 positions and \$214,000 from program management to other media. The positions moved were used for direct program efforts rather than overall management.

<u>Miscellaneous increases and decreases.</u> The net effect of numerous minor changes is an increase of \$65,000.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS	<u>(dollars in</u>	<u>thousands)</u>
	Current Estimate 1976	Estimate 1977
Prior year obligations	\$66,089	\$67,572
Change in the amount of carryover funds available	+4,187	-2,309
Net change of program increases and decreases, transfers to other media, and annualization	-2,762	+237
Miscellaneous increases and decreases	+58	-115
		\boldsymbol{v}^{\prime} and the second second second \boldsymbol{b}_{i}
Total estimated obligations (From new obligation authority) (From prior year funds)	67,572 (61,163) (6,409)	65,385 (61,285) (4,100)

PMS-3

Abatement and Control

SECTION TAB

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PMS-5

Abatement and Control

·	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate 1977 in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)	Page
Budget Authority						
Program Management Program Support	\$5,876 25,474	\$6,398 29,578	\$5,838 27,857	\$6,022 28,670	+\$184 +813	PMS-6 PMS-7
Tota1	31,350	35,976	33,695	34,692	+997	
Permanent Positions						
Program Management Program Support	188 	195	170	167	-3	PMS-6 PMS-7
Tota]	188	195	170	167	-3	

Purpose

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This subactivity provides the resources for management of each of the media programs funded through the Abatement and Control appropriation and for unique support services not otherwise covered by centralized Agency support.

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Abatement and Control

Program Support

PROGRAM HIGHLIGHTS

Appropriation	Actual 1975	Budget Current Estimate Estimate <u>1976</u> 1976 (dollars in		Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976	
Appropriation	\$25,474	\$29,578	\$27,857	\$28,670	+\$813	
Permanent Positions						

Budget Request

An appropriation of \$28,670,300 is requested for 1977. This represents an increase of \$813,700 over 1976.

Program Description

This subactivity includes the prorated share of EPA's total funding requirements of common support services. These funding requirements cover certain Agencywide and regional leases, communications, and other common service costs which are managed through a single headquarters and 10 regional accounts. These requirements are fully described in the section covering Agency and Regional Management. The prorated share charged under this element represents that portion required to support the programs funded and conducted under the Abatement and Control appropriation account.

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Enforcement

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - 1977 vs. 1976 ds)	Page
Budget Authority						
Program Management Program Support	\$4,337 7,997	\$4,305 11,339	\$4,699 10,732	\$4,687 11,345	-\$12 +613	PMS-9 PMS-11
Tota1	12,334	15,644	15,431	16,032	+601	
Permanent Positions						
Program Management Program Support	1 49	16 9	177	177	•••	PMS-9 PMS-11
Tota1	149	169	177	177		

Purpose

This activity encompasses the overall management of media programs funded under the Enforcement appropriation. It also provides for the staffing and funding of EPA's Office of General Counsel in headquarters and the Office of Regional Counsel in the 10 regions.

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Enforcement

SECTION TAB

Enforcement

Program Management

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$4,337	\$4,305	\$4,699	\$4,687	-\$12
Permanent Positions	149	169	177	477	

Budget Request

An appropriation of \$4,687,300 is requested for 1977. This represents a decrease of \$11,500 from the 1976 level.

Program Description

This subactivity provides for the overall management of the Office of Enforcement, including the development of program policies and strategies, the overall planning of enforcement activities, the monitoring and review of the program including those activities performed in the regions, and the direction of the program activities performed in headquarters. It also covers the staffing of the Office of General Counsel and Regional Counsel which serve the legal needs of all components of the Agency. This activity is responsible for the achievement of management-by-objective (MBO) items which involve enforcement activities and through legal review contributes to the improved management of the construction grants program.

To carry out these functions, positions are allocated as follows:

	1976	<u>1977</u>
Office of Enforcement	38	35
Office of General Counsel	85	88
Offices of Regional Counsel	54	54
Total	177	177

1975 Accomplishments

Activities in 1975 by the Offices of General Counsel and Regional Counsel included more stringent legal review of the expanded number of construction grants; expanded legal support for the reregistration of pesticides under FIFRA; increased workload in review of new legislation, particularly drinking water; and increased workload due to administrative penalties and public hearings requirements of the pesticides and water legislation.

1976 Program

The growing role and importance of the Offices of Regional Counsel are reflected in the 1976 plan. As EPA has moved to decentralize its many activities, the Regional Administrator has looked to his Regional Counsel for legal support. This is particularly true in the construction grants program where legal review of grant documents is critical. As the grant program has grown in size and complexity, so has the resultant Agency responsibility for adequate overview. Another area of related concern in 1976 is the legal review of environmental impact statements related to grant issuance. Litigation activity is also expected to increase in 1976 related to the construction grant program, the permit issuance process, the adequacy of effluent guidelines and decisions as to the need to prepare environmental impact statements.

Enforcement

Program Support

PROGRAM HIGHLIGHTS

s.	Actua] 1975	Budget Estimate <u>1976</u> (c	Current Estimate 1976 dollars in t	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation Permanent Positions	\$7,997	\$11,339	\$10,732	\$11,345	+\$613

Budget Request

An appropriation of \$11,344,600 is requested for 1977. This represents an increase of \$612,100 over 1976.

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Program Description

This activity constitutes the prorated share of EPA's total funding requirements for common support services. These funding requirements cover certain Agencywide and regional leases and communication and other common service costs which are managed through the Agency and Regional Management account. The prorated share charged under this element represents that portion required to support the programs funded and conducted under the Enforcement appropriation account.

Abatement and Control

Research and Development

	Actual 1975	Budget Estimate 1976	Current Estimate <u>1976</u> (dollars	Estimate 1977 in thousan	Increase + Decrease - 1977 vs. 1976 ds)	Page
Budget Authority						
Program Management Program Support	\$7,729 14,676	\$4,876 13,660	\$4,456 11,131	\$4,456 11,459	+\$328	PMS-13 PMS-14
Tota1	22,405	18,536	15,587	15,915	+328	
Permanent Positions						
Program Management Program Support	240	177 	142	142	····	PMS-13 PMS-14
Tota1	240	177	142	142	•••	

Purpose

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This activity provides the resources for management of the media programs funded through the Research and Development appropriation and for unique support services not otherwise covered by centralized Agency support.

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PROGRAM MANAGEMENT AND SUPPORT

Research and Development

Program Management

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (d	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$7,72 <u>9</u>	\$4,876	\$4,456	\$4,456	•••
Permanent Positions	240	177	142	142	

Budget Request

An appropriation of 4,455,800 is requested for 1977. There is no change from the 1976 level.

Program Description

Resources for the overall management of the Office of Research and Development, including regional research assignments, are provided through the program management category. These functions include the development of program policies and strategies, long-range planning of research and development, and review of program activities. These functions are performed at the headquarters and the laboratories. This activity also provides for the regional research representatives.

To carry out these functions, positions are allocated as follows:

	<u>1976</u>	<u>1977</u>
Program Management	99	99
Regional Representatives	43	43
Total	142	142

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Energy Research and Development

PROGRAM MANAGEMENT AND SUPPORT

Energy Research and Development

Program Support

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u> (d	Current Estimate 1976 dollars in t	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation		• • •	\$550	\$546	-\$4
Permanent Positions	•••	• • •		•••	• • •

Budget Request

An appropration of \$546,000 is requested for 1977. This represents a decrease of \$4,300 from 1976.

Program Description

This subactivity includes the prorated share of EPA's total funding requirements of common support services. These funding requirements cover certain Agencywide and regional leases, communications, and other common service costs which are managed through a single headquarters and ten regional accounts. These requirements are fully described in the section covering Agency and Regional Management. The prorated share charged under this element represents that portion required to support the program funded and conducted under the Energy Research and Development appropriation account.

Agency and Regional Management

SECTION TAB

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate <u>1976</u> (dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Agency and Regional					
Appropriation	\$55,051	\$67,359	\$62,083	\$67,572	+\$5,489
Permanent Positions	1,773	1,837	1,822	1,798	-24
Transition Quarter	N/A	17,000	16,923	N/A	N/A
Outlays	50,140	54,300	59,300	66,000	+6,700
Authorization Levels	Authoriza	tion is by	virtue of	the Appropria	ation Act.

OVERVIEW AND STRATEGY

This program covers Agencywide policy direction and administration as it is carried out at both EPA headquarters and the 10 regional offices. It also covers certain common services and functions which serve Agencywide requirements. A useful way to classify the activities covered by this appropriation is in terms of those which involve management as contrasted to those which are supportive in nature.

Agency management activities are personnel related in that they include the salaries and related expenses of the Administrator and his immediate staff offices, the 10 Regional Administrators and their staffs, and the various organizational components which provide centralized management and administrative services. These include program planning and evaluation, budgeting and financial management, personnel, contracts and grants management, audit, legislative liaison, and similar functions which are required for the effective management of all Agency programs.

Agency support activities do not involve personnelcosts but consist of a wide assortment of common service requirements such as office and laboratory services, guard and janitorial services, facilities lease costs, building alterations and maintenance, communications, and ADP. These support services are managed centrally and, in most instances, they cannot be readily associated with a specific organization or program. However, it is important that these costs in some way be associated with the programs which benefit from them. To accomplish this, the total costs are allocated on a pro rata basis to the various appropriations where they are included under the budget activity Program Management and Support. The Agency and Regional Management appropriation includes only the pro rata share of these support costs which can be allocated to Agencywide management activities.

The scope of these Agencywide management and support activities is, of course, set by the programs which they serve; consistent with this, the amounts requested under this appropriation are confined to the amounts required for specific services considered to be essential to Agency operations or to mandatory increases. The Agency's administrative and support activities have been subjected to a close review and despite the need for increases for certain functions discussed below, it is planned to shift a net total of 24 positions from administrative operations to meet the critical staffing needs of the operating programs.

SUMMARY OF INCREASES AND DECREASES	(dollars in thousands)
1976 Agency and Regional Management Program	\$ 52,083
To provide for increased costs in areas such as audit, civil rights, program evaluations; the full-year cost of the October 1975 pay raise; and for support requirements such as rent, ADP services, and penalty mail	+5,439
1977 Agency and Regional Management Program	67,572

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new needs. The final \$60,000 of this increase was used to establish a small land use staff in the Office of the Administrator. The third increase for administrative functions was a \$70,400 transfer to support the executive development program initiated in 1975. As the construction grants program grows and the number of grant awards increases, the audit program must be correspondingly increased to assure that the Government's interests are protected. In early 1976 Agency reviews identified \$2,382,000 which could be transferred from support accounts to the Office of Audit. This is offset by a \$476,000 decrease in Agency support. The remainder of the \$1,906,000 decrease in support is reflected in the Program Management and Support media. The accounting change on contracts is required to support the shift of some Public Affairs and Planning and Evaluation contracts from support funds to Agency management funds. total change amounts to \$939,000, which is partially offset by a \$188,000 decrease in Agency support. The remaining \$751,000 decrease in support is shown in Program Management and Support. This change does not affect the original planned use of the funds. The \$326,000 decrease for GSA rental charges is the Agency and Regional Management share of the total \$1,630,000 reduction directed by the Congress. Finally, the \$147,000 decrease for miscellaneous charges reflects the operating adjustments needed to fit the budget to actual operating requirements at the beginning of the fiscal year as well as several other minor changes.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS	(dollars in thousands)			
	Current Estimate 1976	Estimate 1977		
Prior year obligations	\$55,051	\$62,083		
Additional cost of management program increases: Office of AuditRegional Management	+2,606 +150	+2,600		
Annualization of man-years and/or pay raise Office of Administration and training programs Planning and evaluation studies	+675	+500 +850 +500		
Miscellaneous increases and decreases	-182	-109		
Agency and regional support costs	+1,703	+1,148		
Transfers from other media discussed in pre- vious paragraph	+1,329			
Change on contract funding	+751			
Total estimated obligations (From new obligation authority) (From prior year funds)	62,083 (62,083)	67,572 (67,572)		

EXPLANATION OF INCREASES AND DECREASES TO OBLIGATIONS

1976 Agency and Regional Management obligations will increase by \$7 million over actual 1975 obligations. The principal factors in the change are increases in the 1976 budget, transfers from other media, and operating plan adjustments. Obligation increases related to 1976 budget additions total \$1,525,000, of which \$700,000 is for an increased audit program, \$395,000 for annualization of the 1974 pay raises, \$150,000 for regional management, and \$280,000 for the annualization of 14 additional positions. Budgeted increments for support costs (space, utilities, telephones, ADP, etc.) total \$1,703,000, after a \$326,000 adjustment for the reduction in GSA rental charges required by the Congress. Resources transferred from other media will result in an additional \$1,329,000 in obligations for Agency and Regional Management. These cover transfers of specific functions as well as resource reallocations to meet essential needs.

Agency Management and Support

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - 1977 vs. 1976 ds)	Page
Budget Authority						
Agency Management Agency Support	\$36,148 7,789	\$44,264 11,771	\$40,074 10,177	\$44,408 11,325	+\$4,334 +1,148	ARM-6 Arm-9
Total	43,937	56,035	50,251	55,733	+5,482	
Permanent Positions						
Agency Management Agency Support	1,287	1,346	1,314	1,292	-22	ARM-6 Arm-9
	1 207	1 246	1 214	1 202		Anny 2
10ta1	1,20/	1,340	1,514	1,292	- 22	

Purpose

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The agency management and support activity covers the top level policy direction of Agencywide programs provided by the Administrator and his immediate staff and staff offices, the Agencywide management functions provided by the Office of Planning and Management, and the centralized administrative services and support activities which are provided to all operations located in Washington, D.C.. Research Triangle Park, North Carolina, and Cincinnati, Ohio. It also provides for certain support costs budgeted and managed on an Agencywide basis.

ARM-5

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Office of International Activities	24	769.2	23	795.3	-1	+26.1
Office of Civil Rights	14	408 .9	19	436.4	+5	+27.5
Office of Federal Activities	40	1,233.7	38	1,175.5	-2	-58.2
Office of Regional and Intergovernmental Operations	10	461.1	10	480.2	ja a is	+19.1
Administrative Law Judges	3	273.3	2	282.9	-1	+9.6
Total	252	8,779.7	251	8,927.5	-]	+147.8

The Office of Planning and Management performs the Agencywide management functions involved in planning and implementing EPA programs and also provides the administrative services required by the headquarters and the two major field installations at Research Triangle Park, North Carolina, and Cincinnati, Ohio. The major organizational components within the Office of Planning and Management include the Office of Administration which provides services in the areas of personnel administration, contracts, facilities and support services, data systems, general management and organization, and security at each of the three locations named above; the Office of Resources Management which includes Agencywide program reporting, accounting and budgeting operations, grants management, and program analysis; the Office of Planning and Evaluation which provides an Agencywide resource for economic analysis, program evaluations, and the coordinated review of standards and regulations; and the Office of Audit which is responsible for the Agency's comprehensive audit program.

In 1977, significant increases are proposed for the Offices of Administration, Planning and Evaluation, and Audit.

An increase of \$1,035,900 for the Office of Administration provides for tuition and other training costs which are associated with the Agency's recently established Executive Development Program. It also provides additional funds which are required to cover the salaries and expenses of the existing staff of that Office.

Essentially all of the increase of \$536,300 in the Office of Planning and Evaluation is related to the initiation of studies of the construction grants program aimed at assessing the effectiveness of selected aspects of that program. The studies will consider matters such as the initial planning for sewerage treatment plant construction projects when many of the basic design decisions are made, the potential for the application of value engineering techniques to plant design, and plant operations and maintenance practices.

An increase of nine positions and \$2,632,900 for the Office of Audit is related to the construction grants program. In 1975, EPA began a program of conducting interim audits of construction grant projects after it became apparent that this form of audit was the most effective means of detecting mismangement and inefficiencies in this type of major public works program. The increase will enable the audit staff to further expand this effort so that interim audits will be conducted on a sample of up to five percent of the projects which will be underway during 1977. It will also permit the staff to undertake the increasing number of audits on user charge and industrial cost recovery systems required by the Federal Water Pollution Control Act, and to perform final audits on about 1,000 construction grant projects. In order to accommodate these major workload increases in the construction grant area, other types of audits will be held to a minimal level. Additionally, a substantial part of the construction grant audit workload will be undertaken through contracts with independent certified public accounting firms in order to hold the in-house staff to the lowest practical level. The increase of nine positions is required for the management of the CPA contracts.

Agency Support

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976(Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$7,789	\$11,77]	\$10,177	\$11,325	+\$1,148
Permanent Positions		• • •	• • •		• • •

Budget Request

An appropriation of \$11,324,900 is requested for 1977. This represents an increase of \$1,148,100 over 1976.

Program Description

The Agency support subactivity covers the costs necessary to support all program operations at EPA headquarters, Research Triangle Park, North Carolina (RTP), and Cincinnati, Ohio. It also includes certain Agencywide support costs which are managed and budgeted for at the headquarters level. These support activities, and their associated costs can be summarized as follows:

- Office Services. Common services requirements for laboratory and office supplies, maintenance of office equipment, printing and duplicating, audio visual equipment and contracts, motor pool, etc.
- <u>Building Services</u>. Utilities, local telephone service, purchase and rental of equipment, building alterations and space relocations, building maintenance contracts, guard and janitorial service, employee health service contracts, etc.
- <u>Library Services</u>. Books, journals, equipment, and services contracts for the branch libraries at headquarters, RTP, and Cincinnati as well as specialized ADP services literature searches, technical reports processing, etc. for the EPA-wide library system.
- <u>ADP Services</u>. Agencywide ADP services which are provided through time sharing contracts or by in-house computer facilities and associated systems development/evaluation contracts.
- Nationwide Costs. Agencywide costs for facilities rental, U.S. Postal Service charges, Federal telecommunications service, payments to the Civil Service Commission for security investigations, reimbursements to the Federal Employees Compensation Fund, and payments to the U.S. Public Health Service for personnel administration services for Commissioned Officers detailed to EPA, and payments to the U.S. Geological Survey for payroll services.

Since Agency support costs are prorated to the various EPA appropriations according to their personnel levels, the amount requested above is reflective only of that portion of the total Agency support which is allocated to the Agency and Regional Management appropriation. However, in order to provide a more complete explanation of the total scope of the Agency's supporting activities the following discussion deals with the overall costs of providing support services.

Regional Management and Support

	Actual 1975	Budget Estimate 1976	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousan	Increase + Decrease - <u>1977 vs. 1976</u> ds)	Page
Budget Authority						
Regional Management Regional Support	\$10,371 743	\$10,612 712	\$11,007 825	\$11,028 811	+\$21 _14	ARM-12 ARM-13
Total	11,114	11,324	11,832	11,839	+7	
Permanent Positions						
Regional Management Regional Support	486	491	508 	506	-2	ARM - 1 2 ARM - 1 3
Total	486	491	508	506	-2	

Purpose

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The regional management and support activity provides for both the top level direction of program operations and the general administrative/management functions which are carried out in each of the Agency's 10 regional offices. It also includes those support activities required by the regional offices which are not covered by Agencywide common services costs described in the previous section covering the Agency support subactivity.

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Regional Support

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate () ()	Current Estimate 1976 dollars in	Estimate <u>1977</u> thousands)	Increase + Decrease - 1977 vs. 1976
Appropriation	\$743	\$712	\$825	\$811	-\$14
	• • •	•••	· · · ·		• • •

Budget Request

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An appropriation of \$811,300 is requested for 1977. This represents a decrease of \$13,500 from the 1976 level.

Program Description

This subactivity covers the common services which are provided in all of the regional offices. These include local telephone service, office supplies and equipment, guard and housekeeping services and similar services required to operate regional offices. As in the case of Agency support, the total cost of the support services required by the regional offices is prorated to the various EPA appropriations on the basis of personnel strength and the amount requested above is only that which is allocated to the Agency and Regional Management appropriation. The distribution of the total amount budgeted for regional support costs to the various EPA appropriations is as follows:

	Current Estimate 1976	Estimate <u>1977</u> {dollars in thousa	<u>Change</u> nds)
Abatement and Control	\$2,969.4	\$2,920.8	-\$48.6
	1,649.6	1,523.7	-125.9
Research and Development	21.0	54.1	+33.1
Agency and Regional Management	824.8	<u>811.3</u>	-13.5
Total	5,464.8	5,309.9	-154.9

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ARM-13

Buildings and Facilities

BUILDINGS AND FACILITIES

PROGRAM HIGHLIGHTS

	Actual 1975	Budget Estimate 1976(de	Current Estimate <u>1976</u> ollars in th	Estimate <u>1977</u> nousands)	Increase + Decrease - 1977 vs. 1976
Buildings and Facilities:	\$247	¢2 100	\$2 100	\$2 100	
Appropriation	\$34T	φ ζ ,100	φ2,100	22,100	• • •
Permanent Positions	•••	···		• • • •	· · ·
Iransition Quarter	N/A	500	500	N/A	NZA
Outlays	3	1,500	612	2,000	+\$1,388
Authorization Levels	Authori	zation is by	y virtue of	the Approp	priation Act.

OVERVIEW AND STRATEGY

This appropriation covers design and construction of all new EPA owned facilities as well as necessary repairs and improvements to all federally owned installations which are occupied by EPA.

Estimates for 1977 do not contemplate the construction of new facilities nor major expansion to existing facilities.

Existing federally owned facilities occupied by EPA include 23 separate installations, most of which are laboratories or other special purpose facilities. During the period covered by these estimates, primary attention will be given to repair and improvement projects which are required to protect the health and safety of EPA employees and to enable the Agency to meet applicable standards including those established by the Department of Labor under the Occupational Health and Safety Act of 1970. However, in 1977 as the more critical health and safety needs are met, it will be possible to give greater attention to a growing backlog of projects of other types. These include maintenance projects which are intended to protect the Federal Government's investment in these facilities as well as those which improve the facilities' usefulness for program purposes.

SUMMARY OF BUDGET ESTIMATES

Summary of Budget Request

An appropriation of \$2,100,000 is requested for 1977. There is no change from the 1976 appropriation.

ANALYSIS OF INCREASES AND DECREASES TO OBLIGATIONS

	Current Estimate 1976 (dollars	Estimate <u>1977</u> in thousands)
Prior year obligations	534]	\$2,959
program increase	+600	
Change in amount of carryover funds available	+1,188	-859
Increase due to accelerated rate of obligations	+830	+36
Total estimated obligations (From new obligation authority) (From prior year funds)	2,959 (1,771) (1,188)	2,186 (1,857) (329)

BUILDINGS AND FACILITIES

	Actual 1975	Budget Estimate 1976 {}	Current Estimate 1976 dollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Budget Authority					
New Facilities Repairs and Improvements	\$341	\$2,100	\$2,100	\$2,100	•••
Total	341	2,100	2,100	2,100	
Permanent Positions					

Budget Request

An appropriation of \$2,100,000 is requested for 1977. There is no change from the 1976 level.

Program Description

The repairs and improvements activity covers necessary repairs and improvements to federally-owned installations which are occupied by EPA. Modifications and repairs to leased facilities, to the extent that they are paid for directly by EPA, are covered under the Agency support activity under the Agency and Regional Management appropriation.

1975 Program

In 1975, \$1.4 million was appropriated for repairs and improvement projects. Of this amount, \$625,000 can be associated with 17 relatively small projects required to correct health and safety conditions; \$516,000 has been allocated for 21 repair and preventive maintenance projects, and the remaining \$259,000 has been assigned to eight projects which will improve the usefulness of various facilities for program purposes. These projects are in various stages of planning, design or construction and all are expected to be completed in 1977.

1976 Program

Projects financed with 1976 funds will be almost exclusively for health and safety purposes. Twenty projects of this type have been identified including three major projects which involve improvement to the ventilation systems in areas of high risk by laboratory operations. Other work will be limited to four small projects which are critically needed to prevent further deterioration of existing structures.

1977 Program

1977 repair and improvement requirements are based upon a recently completed survey of the physical condition of EPA facilities. These requirements also reflect the fact that the most urgently needed health and safety requirements are being met and it will be possible in 1977 to give greater attention to the backlog of projects of other types. The work to be carried out involves 61 specific projects at 11 separate locations. Included are 27 health and safety projects at an estimated cost of \$765,000; 23 projects estimated at \$885,000 for preventive maintenance, replacement and similar purposes, and 11 projects at \$450,000 which will permit the more effective use of existing facilities. These projects will include work such as: installation of fire suppression systems;

Scientific Activities Overseas

SCIENTIFIC ACTIVITIES OVERSEAS

PROGRAM HIGHLIGHTS

	Actual	Budget	Current	Estimato	Increase +
	Loze		LSU male	LStimate	Decrease -
	1975	1976	1976		<u>19// vs. 19/6</u>
1. A		(.c	dollars in t	housands)	
Scientific Activities					
Overseas:					
Appropriation	\$1,243	\$6,000	\$4,000	\$6,000	+\$2,000
Permanent Positions					
Transition Quarter	N/A	1,000	670	N/A	N/A
Outlays	3,512	4,000	5,000	5,000	
Authorization Levels	Authori	ization is b	y virtue of	the Approp	riation Act.

OVERVIEW AND STRATEGY

Scientific Activities Overseas (SAO), developed and implemented under the Special Foreign Currency Program (SFCP), are funded from excess foreign currencies accruing to the United States under various U.S. programs. The use of these currencies enables EPA to capitalize on unique research opportunities and does not create a balance of payments deficit or contribute to domestic inflation. Currently, there are 55 cooperative programs, two-thirds of which are concerned with air and water pollution, and one-third of which relate to energy, radiation, noise, pesticides, solid waste management, the use and disposal of sludge, and interdisciplinary efforts. These studies are carried out in Poland, Yugoslavia, Egypt, Tunisia, India and Pakistan by outstanding foreign scientists and engineers in conjunction with their U.S. counterparts.

SAO activities in the participating countries are funded after scientific evaluations are made of each activity to determine its merit and relevance to EPA's domestic goals. Such evaluations by EPA's scientists and experts are done to insure maximum benefit to EPA from its foreign investment in manpower and funds. EPA also uses consultants from industry and the academic community to insure high quality technical evaluation and management of the programs. EPA consults with and is advised by the U.S. Department of State regarding foreign policy considerations in program development and implementation.

SUMMARY OF INCREASES AND DECREASES

1976 Scientific Activities Overseas	\$4,000
Special Foreign Currency Program To restore support for energy related studies and research in Poland.	+2,000
1977 Scientific Activities Overseas	6,000

SUMMARY OF BUDGET ESTIMATES

1. Summary of Budget Request

It is requested that \$6 million be appropriated for the Scientific Activities Overseas under the Special Foreign Currency Program.

2. Changes from Original 1976 Budget Estimate

The original budget estimate was \$6 million; the current budget estimate is \$4 million. The \$2 million reduction was made by the Congress. This same reduction also resulted in a decrease of \$330,000 to the transition quarter original estimate.

SCIENTIFIC ACTIVITIES OVERSEAS

Special Foreign Currency Program

	Actual 1975	Budget Estimate <u>1976</u>	Current Estimate 1976 Hollars in	Estimate 1977 thousands)	Increase + Decrease - 1977 vs. 1976
Program Level					
SAO Projects	4	28	22	24	+2
Seminars	1	2	2	4	+2
Budget Authority					
Poland Egypt Pakistan Tunisia India Yugoslavia	\$1,190 4 3 4 39	\$3,500 1,000 500 250 750	\$1,500 1,000 500 250 750	\$2,464 1,500 800 100 1,136	+\$964 +500 +300 -150 +386
Tota]	1,243	6,000	4,000	6,000	+2,000

Budget Request

An appropriation of \$6 million is requested. The increase of \$2 million will provide support for energy related environmental studies and research in Poland pursuant to the U.S./Polish Agreement under which the Polish government has agreed to match all SAO expenditures on a one-to-one basis. As a result of the U.S. Treasury decision to terminate the excess currency designation for Poland two years earlier than anticipated (from December 31, 1978 to December 31, 1976), provision of \$2 million in 1977 is needed if EPA is to fulfill the terms of the U.S./Polish agreement.

1975 Accomplishments

- Completed report on EPA/Polish senior level project review conducted in cooperation with representatives from the Polish Ministry of Administration, Land Economy and Environmental Protection. This project review has resulted in more effective and coordinated management of SAO research in waste water treatment and sludge disposal/utilization;
- Published report on the SFCP strip mining seminar held at the Denver Research Institute, Denver, Colorado, for Polish and American project principals and representatives from the U.S. mining industry. The seminar demonstrated that Polish methods for reclaiming strip-mined lands may assist the U.S. in developing coal reserves in the western States;
- Arranged visitation of 45 Polish scientists to the United States to consult with their EPA counterparts and to observe pollution control progress. EPA project officers and 15 consultants from U.S. universities and industries made site visits to environmental research centers in the participating countries; and
- Held research training seminar in Egypt on water quality and treatment technology in connection with SFCP water quality project on the Nile River and Lake Nasser.

1976 Program

Based on the early termination of the excess currency designation for Poland, attention will focus on program development in that country. It is anticipated that four to six research projects will be funded in Poland. These projects will range from health effects research to water and air pollution studies to an analysis of land use practices. For example, in the heavily industralized Silesian region, an SA()-3 For several years, Polish research in flue gas cleaning has focused on the use of sulfur oxide neutralization processes in place of desulfurizing technology. The Poles have experimented with ammonia as the active neutralizer. This research will assist EPA in studying not only a control technology, but it will provide dose response data on health relationships which are unavailable in the U.S.

Community health and environmental surveillance studies in the U.S. have been difficult due to the mobility of the population, the lack of central health records and the variety of pollutants from a number of indistinguishable sources. Polish studies of Benzopyrene in coking plants offers a unique opportunity to analyze a less mobile population in a high exposure community. The prolonged and specific exposure levels will allow EPA to study health effects such as ambient loading and commensurate human body burden from specific pollutants and sources.

Preparation and dissemination of reports on projects completed in 1976 will be emphasized to inform the U.S. scientific, academic, and industrial communities, of the results of the SAO program.

Egypt (\$1,500,000)

U.S. and Egyptian environmental priorities are closely related in the control and abatement of water pollution; health hazards from pesticides; utilization and disposal of sludge; air pollution and land use management resulting from population growth in urban areas. EPA's association with environmental leaders in Egypt ministries, universities and the Egyptian Academy of Sciences has been beneficial in the development of eight cooperative projects. Studies initiated cover a broad range of environmental problems including air and water pollution, safe use of pesticides, and the use and disposal of sludge on land. These projects are producing data which will improve our understanding of ecological problems and potential pollution problems in arid lands of the western U.S., and will assist in determining control strategies and river basin management practices.

In 1977, cooperative projects are planned in several new areas of mutual interest including:

- Studies of water recycling/reuse in the poultry processing industry designed to evaluate the public health, technological and economic aspects of the problem of multiple water reuse in food processing. In-depth studies will be made on the physical, chemical, bacteriological, and virological characteristics of processing plant effluents; the effects of water recycling and reuse on the shelf-life, hygiene and nutritional qualities of processed poultry; and the cost-benefit factors of water reuse in this industry. These projects will complement EPA's domestic research efforts in evaluating the safety of recycled water in the food processing industry and in developing technology toward the goal of zero discharge of pollutants.
- Investigations of the health effects of sewage disposal into marine ecosystems to examine the ecological impact and health effects resulting from the disposal of sewage via an ocean outfall, and to assess waterborne diseases transmitted to persons using recreational ocean beaches. Data from these studies will be useful to EPA in testing predictive models for pollution transport and could produce data needed to develop health criteria for marine recreational waters.
- Studies of transmission of viral disease through drinking water, designed to extend existing knowledge of virus removal from water supply systems and to determine bacteriological or chemical indicators of virus pollution in drinking water.
- Studies of the health effects of sewage irrigation systems to determine the health effects among workers caused by the application of waste water and sludge to the land, and the transport of pollutants to crops and ground waters. Increasing attention is being given by EPA to these environmental problems, particularly to the health effects of such disposal practices.

<u>Pakistan (\$800,000)</u>

EPA representatives met with governmental officials and directors of environmental research centers and were encouraged by their interest in conducting cooperative projects.

Special Analyses

SECTION TAB

U.S. ENVIRONMENTAL PROTECTION AGENCY



Summary of Resources

	Actual	Current Estimate	Estimate	Increase + Decrease - 1977 vs 1976
	1973			<u>1977 v3, 1970</u>
Abatement and Control Budget authority	\$291,831,400	\$383,577,200	\$329,574,000	-\$54,003,200
Contract authority Obligations	150,000,000 271,362,992	405,925,000	330,549,000	-75,376,000
Contract authority Outlays Contract authority End-of-year employment	262,955,832 6,121,708 3,703	308,700,000 92,000,000 4,232	260,000,000 45,000,000 4,230	-48,700,000 -47,000,000 -2
Enforcement				
Budget authority Obligations. Outlays. End-of-year employment	51,095,700 50,747,320 51,637,269 1,662	52,743,700 52,856,000 53,000,000 1,568	56,551,500 56,551,500 56,000,000 1,604	+3,807,800 +3,695,500 +3,000,000 +36
Research and Development				
Budget authority Obligations Outlays End-of-year employment	166,531,547 166,674,207 166,608,248 1,810	166,465,400 170,463,000 177,000,000 1,688	159,422,000 152,101,000 160,000,000 1,678	-7,043,400 -18,362,000 -17,000,000 -10
Energy Research and Development				i i i i i i i i i i i i i i i i i i i
Budget authority Obligations Outlays End-of-year employment	134,000,000 88,338,714 23,204,206	100,550,300 136,156,000 120,000,000 123	96,973,000 88,333,000 120,000,000 123	-3,577,300 -47,823,000
Agency and Regional Management				
Budget authority Obligations Outlays	55,348,500 55,051,236 50,139,019	62,083,400 62,083,400 59,300,000	67,571,500 67,571,500 66,000,000	+5,488,100 +5,488,100 +6,700,000
End-of-year employment	1,773	1,822	1,798	-24

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Consolidated Working Fund				м. — А
Obligations	530,454		• • •	•••
Outlays	487,304	337,000		-337,000
Total, Environmental Protection Agency				and the second
Budget Authority	700,363,915	771,529,000	718,192,000	-53,337,000
Contract authority	7,816,230,000			
Obligations	1,226,421,465	1.024.728.400	713.392.000	-311.336.400
Contract authority	3,795,875,636	4.331.930.000	6.076.420.000	+1.744.490.000
Outlavs	1 650 415 359	1 331 000 000	1 084 950 000	-246,050,000
Contract authority	880,279,842	1,862,000,000	3,415,000,000	+1.553.000.000
End-of-year employment	9,160	9,550	9,550	•••
Outlays Contract authority End-of-year employment	1,650,415,359 880,279,842 9,160	1,331,000,000 1,862,000,000 9,550	1,084,950,000 3,415,000,000 9,550	-246,050,00 +1,553,000,00

Note: Includes comparative transfer of Environmental Impact Statement activities from Agency and Regional Management to Abatement and Control:

Budget authority	5,015,800	8,788,900
Obligations	3,728,500	8,788,900
Outlays	3,728,500	8,700,000
End-of-year employment	50	130

End-of year employment = permanent positions.

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End-Of-Year Employment and Budget Authority By Media and Appropriation 1977 (dollars in thousands)

		` ~	4			· · ·	- ,					
	Res	earch and	Aba	atement	4		Agency	and Regional	Energ	y Research		
	De	velopment	and	Control	Enf	orcement	Ma	Management		evelopment	Ť	otal
	EOY	Amount	EOY	Amount	EOY	Amount	EOY	Amount	EOY	Amount	EOY	Amount
Air	473	\$45,942.2	815	\$83,139.0	482	\$13,743.0	• • •	· . • • •	•••	• • •	1,770	\$142,824.2
Water Quality	548	41,7 6 8.5	1,816	115,172.9	764	21,241.9	• • •				3,128	178,183.3
Water Supply	85	13,253.9	210	30,449.2	4	81.0		• • •			299	43,784.1
Solid Wastes	22	4,066.0	161	11,670.4					÷ • •		183	15,725,4
Pesticides	157	10,887.0	639	24,175.0	156	4,745.1					952	39,807.1
Radiation	30	878.9	174	4.022.4		· · · ·					204	4,901.3
Noise		• • •	74	9,576.4	21	708.6	• • •				95	10,285.0
Interdisciplinary	214	25,355.4	129	10,664.4		·	• • •	•••			343	36,019.8
Toxic Substances	7	1,355.0	45	6.012.0			• • •				52	7.367.0
Program Management and	4	-										•
Support	142	15,915.1	167	34,692.3	177	16,031.9	•••	•••	•••	\$546.0	436	67,185.3
Management.							1,798	\$67.571.5			1.798	67.571.5
Energy									123	96.427.0	123	96,427.0
						· · · · · · · · · · · · · · · · · · ·		······································			X	
Subtota1	1,678	159,422.0	4,230	329,574.0	1,604	56,551.5	1,798	67,571.5	123	96,973.0	9,433	710,092.0
Buildings and					2							
Facilities			• • •	· · · ·	• • •	• • •	• • •	¥ • •	• • •	• • •		2,100.0
Scientific Activities												
Overseas				• • •		• • •	• • •	• • •		• • •		6,000.0
Reimbursements		• • •					• • •	• • •		• • •	105	• • •
Advances and												
Allocations	<u></u>		•••			·····	•••	·····	<u></u>	•••	12	····
Tota1	1 ,6 78	159,422.0	4,230	329,574.0	1,604	56,551.5	1,798	67,571.5	123	96 ,973.0	9,550	718,192.0

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Environmental Protection Agency

Total Funds Available, 1976

(in thousands of dollars)

	1976					
		Unobligated Balance	Unobligated Balance			
	Budget <u>Authority</u>	Brought Forward	Carried Forward	Total <u>Available</u>		
Abatement and Control	\$383,577.2	\$56,133.0	\$33,785.2	\$405,925.0		
Air	84,715.2	19,341.1	7,964.2	96,092.1		
Water Quality	174,546.7	19,805.6	11,800.5	182,551.8		
Water Supply	19,839.9	4,630.2	4,400.0	20,070.1		
Solid Wastes	11,618.6	3,938.1	3,210.0	12,346.7		
Pesticides	29,492.2	1,947.5	1,700.5	29,739.2		
Radiation	4,486.8	289.6	240.0	4,536.4		
Noise	9,544.2	307.8	250.0	9,602.0		
Interdisciplinary	8,788.9	822.2	620.0	8,991.1		
Toxic Substances	6,850.3	2,449,9	1,900.0	7.400.2		
Program Management and Support	33,694.4	2,601.0	1,700.0	34,595.4		
Enforcement	52,743.7	111.5		52.855.2		
Air	12,499.3	• • •	•••	12,499.3		
Water Quality	19,792.7	111.5	•••	19,904.2		
Water Supply	80.0	• • •	• • •	80.0		
Pesticides	3,911.1	• • •	• • •	3,911.1		
Noise	1,029.3	• • •		1,029.3		
Program Management and Support	15,431.3		e e e	15,431.3		
Research and Development	166,465.4	19,590.3	15,592.7	170,463.0		
Air	48,542.2	5,775.2	3,976,7	50,340.7		
Water Quality	43,939.6	3,677.3	3,200.0	44,416,9		
Water Supply	12,253,9	786.7	910.0	12,130.6		
Solid Wastes	4,066.0	900.3	1,100,0	3.866.3		
Pesticides	10,887.0	428.5	405.0	10,910.5		
Radiation	1.678.9	28.7		1.707.6		
Noise						
Interdisciplinary	28,155,4	4,096,0	3,500,0	28,751.4		
Toxic Substances	1.355.0	89.3	101.0	1.343.3		
Program Management and Support	15,587.4	3,808.3	2,400.0	16,995.7		

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ENVIRONMENTAL PROTECTION AGENCY

Total Funds Available, Transition Quarter (in thousands of dollars)

	Transition Quarter							
		Unobligated Balance	Unobligated Balance					
	Budget	Brought	Carried	Total				
	Authority	Forward	Forward	Available				
Abatement and Control	\$94,700.0	\$33,785.2	\$2,256.2	\$126,229.0				
Air	23,258.0	7,964.2	235.2	30,987.0				
Water Quality	37,860.0	11,800.5	442.5	49,218.0				
Water Supply	5,427.0	4,400.0	59.0	9,768.0				
Solid Waste	3,185.0	3,210.0	263.0	6,132.0				
Pesticides	8,083.0	1,700.5	146.5	9,637.0				
Radiation	1,227.0	240.0	90.0	1,377.0				
Noise	2,595.0	250.0	60.0	2,785.0				
Interdisciplinary	2,061.0*	620.0	61.0	2,620.0				
Toxic Substances	1,880.0	1,900.0	811.0	2,969.0				
Program Management and Support	9,124.0	1,700.0	88.0	10,736.0				
Enforcement	13,931.0	· · · ·		13,931.0				
Air	3,447.0	• • •	• • •	3,447.0				
Water Quality	5,245.0		•••	5,245.0				
Water Supply	21.0		•••	21.0				
Pesticides	1,011.0	• • •	• • •	1,011.0				
Noise	160.0		•••	160.0				
Program Management and Support	4,047.0	···	• • •	4,047.0				
Research and Development	42,923.0	15,592.7	2,590.7	55,925.0				
Air	13,120.0	3,976.7	686.7	16,410.0				
Water Quality	11,900.0	3,200.0	367.0	14,733.0				
Water Supply	3,202.0	910.0	462.0	3,650.0				
Solid Waste	1,275.0	1,100.0	347.0	2,028.0				
Pesticides	2,726.0	405.0	60.0	3,071.0				
Radiation	403.0	•••	• • •	403.0				
NOTSE	4 570.0	2 500.0	242.0	···				
	4,5/0.0	3,500.0	343.0	/,/2/.0				
loxic Substances	500.0	101.0	10.0	591.0				
Program Management and Support	5,227.0	2,400.0	315.0	7,312.0				

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ENVIRONMENTAL PROTECTION AGENCY

Total Funds Available, 1977 (in thousands of dollars)

		1977		
		Unobligated	Unobligated	
		Balance	Balance	
	Budget	Brought	Carried	Total
	Authority	Forward	Forward	Available
	·			
Abatement and Control	\$329,574.0	\$2,256.2	\$1,281.2	\$330,549.0
Air	83,139.0	235.2	631.0	82,743.2
Water Quality	115,172.9	442.5	162.2	115,453.2
Water Supply	30,449.2	59.0	• • •	30,508.2
Solid Wastes	11,670.4	263.0		11,933.4
Pesticides	24,175.0	146.5	• • •	24,321.5
Radiation	4,022.4	90.0	• • •	4,112.4
Noise	9,576.4	60.0	• • •	9,636.4
Interdisciplinary	10,664.4	61.0		10,725.4
Toxic Substances	6,012.0	811.0		6,823.0
Program Management and Support	34,692.3	88.0	488.0	34,292.3
Enforcement	56,551.5	• • •		56,551.5
Air	13,743.0			13,743.0
Water Quality	21,241.9			21,241.9
Water Supply	81.0		and the second sec	81.0
Pesticides	4,745.1		• *• •*	4,745.1
Noise	708.6		• • •	708.6
Program Management and Support	16,031.9		2 • • •	16,031.9
· · · · · · · · · · · · · · · · · · ·				
Research and Development	159,422.0	2,590.7	9,911.7	152,101.0
Air	45,942.2	686.7	4,033.2	42,595.7
Water Quality	41,768.5	367.0	2,267.0	39,868.5
Water Supply	13,253.9	462.0	711.0	12,004.9
Solid Wastes	4,066.0	347.0		4,413.0
Pesticides	10,887.0	60.0	151.5	10,795.5
Radiation	878.9	• • •		878.9
Noise	•••	s / 4 • •	A. S. A	5°
Interdisciplinary	25,355.4	343.0	34.0	25,664.4
Toxic Substances	1,355.0	10.0		1,365.0
Program Management and Support	15,915.1	315.0	1,715.0	14,515.1

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			ΈPA		
Positions	Βv	Grade	and	Average	Employment

Grades	Actual 1975	Estimate 1976	Estimate 1977
Executive Level II Executive Level III Executive Level IV	1 1 5	1 1 5	1 1 5
Subtotal	7	77	7
GS - 18. GS - 17. GS - 16. GS - 16. GS - 15. GS - 14. GS - 13. GS - 12. GS - 11. GS - 10. GS - 9. GS - 8. GS - 7. GS - 6. GS - 5. GS - 4. GS - 1.	7 34 101 431 770 1,104 1,093 914 35 796 147 777 536 904 636 275 79 18	7 34 101 436 777 1,120 1,138 959 45 906 207 806 536 924 636 275 79 18	7 34 101 436 777 1,120 1,138 959 45 906 207 806 536 924 636 275 79 18
Subtotal	8,657	9,004	9,004
Positions established by act of July 1, 1974 (42 U.S.C. 207): Assistant surgeon general grade, \$21,654 to \$31,565 Director grade, \$16,052 to \$27,727 Senior grade, \$12,838 to \$22,626 Full grade, \$10,825 to \$18,918 Senior assistant grade, \$10,058 to \$16,358 Assistant grade, \$8,766, to \$12,139	2 85 121 89 39 3	2 85 121 89 39 3	2 85 121 89 39 39 3
Subtotal	339	339	339

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ABATEMENT AND CONTROL

Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

	Actual 1975	Estimate 1976	Estimate 1977
Personnel Services	\$75,060	\$80,127	\$91,143
Other Objects:			
21 Travel and transportation of persons	5,530	6,418	6,277
22 Transportation of things	366	398	450
23 Rent, communications, and utilities	14,075	16,000	18,016
24 Printing and reproduction	1,690	1,584	1,800
25 Other services	56,977	93,896	64,163
26 Supplies and materials	2,733	3,001	3,036
31 Equipment	4,120	2,987	3,214
32 Lands and structures	48	• • •	• • •
41 Grants, subsidies, and contributions	260,731	201,514	142,450
42 Insurance claims and indemnities	9	•••	
Total, Other Objects	346,279	325,798	239,406
Total Obligations	421,339	405,925	330,549
Position Data:			
Average salary, GS positions	\$17,259	\$18,176	\$18,587
Average grade, GS positions	9.53	9.53	9.53

EXPLANATION OF INCREASES AND DECREASES TO OBJECT CLASSIFICATIONS

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Personnel services.	\$75,060	\$79,493	\$80,127	\$91,143	+\$11,016

The increase in the 1976 current estimate over the 1976 budget request is as a result of the current estimate being based on the 1975 actual costs, allowing increases for the October 1975 pay raise and for the congressional add-on of construction grants program positions.

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			,				·	Act _19	ual 75	Budget Estimate 1976	Current Estimate 1976	Esti	mate 77	Increase Decrease 1977 vs.	e + e - 1976
Printi	ng and re	producti	<u>on</u>	•••••	 			\$1,	690	\$1,859	\$1,584	\$1	,800	4	+\$216

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The decrease in the 1976 current estimate from the 1976 budget request is the result of a new estimate of printing service requirements to support program effort, -\$275.

The increase for 1977 is the result of anticipated increased cost of printing reports, EIS's, etc., +\$216.

	Actual _1975_	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Other services	\$56,977	\$87,391	\$93,896	\$64,163	-\$29,733

The increase in the 1976 current estimate over the 1976 budget request is due to a change in the amount of carryover funds estimated to be available and Jue to an increase in services required for the positions added-on by the Congress, offset by the funds required for absorption of the October 1975 pay raise, +\$6,005.

The decrease in 1977 is primarily the result of a change in the amount of carryover funds available in 1977, the partial absorption of some personnel services costs, and the net decrease of the operating program changes discussed in the submission, -\$29,733.

•	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Supplies and materials	\$2,733	\$2,984	\$3,001	\$3,036	+\$35

The increase in the 1976 current estimate over the 1976 budget request is the result of the additional positions added-on by Congress, +\$17.

The increase in 1977 is for the full-year cost of the supplies for the new 1976 positions.

,	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Equipment	\$4,120	\$3,432	\$2,987	\$3,214	+\$227

The decrease in the 1976 current estimate from the 1976 budget estimate is the result of applying nonrecurring items to the 1975 actual base, offset by the cost of new equipment for the increased positions, as well as replacement of equipment, where necessary, -\$445.

The increase in 1977 is the result of estimated additional equipment and replacement requirements, +\$227.

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ENFORCEMENT

Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

	Actual 1975	Estimate 1976	Estimate 1977
Personnel Services	\$29,997	\$30,227	\$33,061
Other Objects:			
2] Travel and transportation of persons	2,514	2,310	2,340
22 Transportation of things	163	175	200
23 Rent, communications, and utilities	5,970	6,500	7,378
24 Printing and reproduction	731	800	900
25 Other services	7,469	11,044	7,544
26 Supplies and materials	1,125	1,300	1,318
31 Equipment	2,462	500	610
32 Lands and structures	12	* * s	
4] Grants, subsidies, and contributions	298		3,200
42 Insurance claims and indemnities	6	••••	<u> </u>
Total, Other Objects	20,750	22,629	23,490
Total Obligations	50,747	52,856	56,551
Position Data:			
Average salary, GS positions	\$17,259 9.53	\$18,176 9,53	\$18,587 9,53

EXPLANATION OF INCREASES AND DECREASES TO OBJECT CLASSIFICATIONS

	Actual 1975	Estimate 1976	Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Personnel services	\$29,997	\$27,293	\$30,227	\$33,061	+\$2,834
The increase in the 1976 current estimate over the 1976 budget request i	s the resul	t of:			

Increase in average paid employment of permanent positions	+\$1,843
Increase of October 1975 pay raise	+1.080
Increase in overtime costs to support increased workload	+11
Tota1	+2,934

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· · · · · · · · · · · · · · · · · · ·	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Printing and reproduction	\$731	\$700	\$800	\$900	+\$100

The increase in the 1976 current estimate over the 1976 budget request is the result of additional printing costs and reflects the 1975 actual costs base, +\$100.

The increase in the 1977 estimate is the result of the program activity increases which contribute to increased printing, +\$100.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Other services	\$7,469	\$13,637	\$11,044	\$7,544	-\$3,500

The decrease in the 1976 current estimate from the 1976 budget request is the result of the absorption of the October 1975 pay raise and to a decrease in estimated contractual services, -\$2,593.

The 1977 estimate should have been increased by \$1,400 (see personnel services above) and by \$2,200 (see grants below) which would then reflect approximately the same level as in 1976.

\cdot	Actual _1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Supplies and materials	\$1,125	\$1,255	\$1,300	\$1,318	+\$18

The slight increase in the 1976 current estimate over the 1976 budget request is the result of the estimated cost increase of goods over the 1975 actual base, +\$45.

The slight increase in the 1977 estimate is also due to increasing cost of supplies, +\$18.

	Actual _1975_	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Equipment	\$2,462	\$2,610	\$500	\$610	+\$110

The decrease in the 1976 current estimate from the 1976 budget request reflects the nonrecurring equipment requirements using the 1975 actual base, -\$2,110.

The slight increase in the 1977 estimate is the result of new and replacement items, +\$110.

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RESEARCH AND DEVELOPMENT

Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

		Act _19	ual 75	Estimate 1976	Estimate 1977
Personnel Services		\$43,	086	\$40,840	\$39,901
Other Objects:					
21 Travel and transportation of persons. 22 Transportation of things. 23 Rent, communications, and utilities. 24 Printing and reproduction. 25 Other services. 26 Supplies and materials. 31 Equipment. 32 Lands and structures. 41 Grants, subsidies, and contributions. 42 Insurance claims and indemnities. Total Other Objects.		3, 7, 1, 68, 7, 30, <u>123</u> ,	013 367 543 206 295 741 308 407 702 7 589	2,748 400 7,750 1,300 77,435 4,950 6,040 400 28,600 129,623	2,770 450 8,466 1,500 52,080 4.876 5,733 500 35,825 112,200
Total Obligations		166,	675	170,463	152,101
Position Data: Average salary, GS positions Average grade, GS positions		\$17, g	259 9.53	\$18,176 9.53	\$18,587 9.53
	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Personnel services	\$43,086	\$39.615	\$40.840	\$39.901	-\$939

The increase of \$1,225 in the 1976 current estimate over the 1976 budget request is the result of the funds reprogrammed from other object classifications to absorb the October 1975 pay raise, +\$1,225.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Printing and reproduction	\$1,206	\$999	\$1,300	\$1,500	+\$200

The increase in the 1976 current estimate over the 1976 budget request is the result of a reestimate of costs using 1975 actual as a new base, +\$301.

The increase in 1977 is the result of increased printing costs, +\$200.

	Actua1 _1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Other services	\$68,295	\$71,959	\$77 , 435	\$52,080	-\$25,355

The increase in the 1976 current estimate to the 1976 budget estimate is the result of congressional add-ons for air, water quality, and interdisciplinary, as well as a change in the amount of carryover funds available for contracts, +\$5,476.

The decrease in 1977 is the result of nonrecurring congressional add-ons, a change in the amount of carryover funds estimated to be available in 1977, an absorption of some personnel services, and an underestimate in the amount of estimated 1977 obligations. The 1977 estimate should be \$67,500 which would reflect a decrease of only \$9,935.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Supplies and materials	\$4,741	\$3,886	\$4,950	\$4,876	-\$74

The increase in the 1976 current estimate from the 1976 budget request is the result of a reestimate of costs using 1975 actual as a new base, allowing for a slight increase due to the annualization of man-years.

The decrease in 1977 is the result of a slight estimated decrease in man-years and related costs, -\$74.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Equipment	\$7,308	\$1,186	\$6,040	\$5,733	-\$307

The increase in the 1976 current estimate over the 1976 budget request is due to a reestimate of costs using 1975 actual as a new base, allowing for a decrease for nonrecurring equipment, +S4,854.

The decrease in the 1977 estimate is the result of nonrecurring equipment costs, -\$307.

ENERGY RESEARCH AND DEVELOPMENT

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Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

	Actual 1975	Estimate 1976	Estimate 1977
Personnel Services	\$268	\$2,552	\$2,852
Other Objects:21 Travel and transportation of persons.22 Transportation of things.23 Rent, communications, and utilities.24 Printing and reproduction.25 Other services.26 Supplies and materials.31 Equipment.32 Lands and structures.41 Grants, subsidies, and contributions.	118 10 5 3 79,728 174 671 1 1 7,361	482 20 270 25 120,677 250 1,430 10,450	482 25 290 25 73,529 250 1,500 9,380
Total, Other Objects	88,071	133,604	85,481
Total Obligations	88,339	136,156	88,333
Position Data: Average salary, GS positions Average grade, GS salary	\$17,259 9.53	\$17,586 9.53	\$17,637 9.53

EXPLANATION OF INCREASES AND DECREASES TO OBJECT CLASSIFICATIONS

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,	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Personnel services	\$26 8	\$433	\$2,552	\$2,852	+\$300
The increase in the 1976 current estimate over the 1976 budget request is the	result o	f:			

Increase in average paid employment	+\$1,883
Increase due to October 1975 pay raise	+103
Increase in estimated overtime resulting from increased effort in this area	+133
Total	+2,119

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Printing and reproduction	\$3	\$300	\$25	\$25	•••

The decrease in the 1976 current estimate from the 1976 budget request is due to a reestimate of costs using 1975 actual as a new base, -\$275.

No change in the 1977 estimate is reflected.

	Actual _1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
<u>Other services</u>	\$79,728	\$85,529	\$120,677	\$73,529	-\$47,148

The increase in the 1976 current estimate over the 1976 budget request is due to the change in the original amount of carryover funds estimated to be made available as well as a redirection of funds from grants to contracts, +\$35,148.

The decrease in the 1977 estimate is due to a change in the estimated amount of carryover funds available, to a change in the contractual rate of obligations, and to the decrease in the funds to be transferred to ERDA, -\$47,148.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Supplies and materials	\$174	\$1,380	\$250	\$250	

The decrease in the 1976 current estimate from the 1976 budget request is due to a reestimate of costs using 1975 actual as a new base, -\$1,130.

No change in the 1977 estimate is reflected.

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	Actua1 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Equipment	\$671	\$400	\$1,430	\$1,500	+\$70

The increase in the 1976 current estimate to the 1976 budget estimate is the result of higher equipment costs of new and additional equipment necessary for the new positions, +\$1,030.

The slight increase in the 1977 estimate is to reflect estimated replacement of equipment, +\$70.

Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

	Actual 1975	Estimate 1976	Estimate 1977
Personnel Services	\$36,959	\$36,810	\$38,324
Other Objects:			
21 Travel and transportation of persons	1,690	1,770	1,893
22 Transportation of things	99	127	150
23 Rent, communications, and utilities	6,055	7,000	7,904
24 Printing and reproduction	399	666	600
25 Other services	8,050	14,314	17,523
26 Supplies and materials	622	699	704
31 Equipment	1,091	261	274
32 Lands and structures	12		
41 Grants, subsidies, and contributions	/1	436	200
42 Insurance claims and indemnities	3		·····
Total, Other Objects	18,092	25,273	29,248
Total Obligations	55,051	62,083	67,572
Position Data:			
Average salary GS positions	\$17 259	\$18,176	\$18 587
Average grade, 6S positions	9.53	9.53	9,53
	5.55	9.00	5.05

EXPLANATION OF INCREASES AND DECREASES TO OBJECT CLASSIFICATIONS

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Personnel services	\$36,959	\$34,554	\$36,810	\$38,324	+\$1,514
The increase in the 1976 current estimate over the 1976 budget request Annualization of increased man-years Absorption from other object classifications to support October 197 Total	is the resul 5 pay raise.	lt of the inc	rease in: +\$879 <u>+1,377</u> +2,256		

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Printing and reproduction	\$399	\$480	\$666	\$600	-\$66

The increase in the 1976 current estimate over the 1976 budget request is the result of increased costs primarily as a result of Freedom of Information Act requests, +\$186.

The decrease in 1977 is the result of EPA's capacity to perform more reproduction work in-house, -\$66.

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	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Other services	\$8,050	\$10,790	\$14,314	\$17,523	+\$3,209

The increase in the 1976 current estimate over the 1976 budget request is the result of renovation of additional space, alterations resulting from moves, increased employee training, and increased planning and evaluation contracts, +\$3,524.

The increase for 1977 is primarily the result of contracts related to the audit of construction grants, +\$3,209.

	Actual <u>1975</u>	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
Supplies and materials	\$622	\$620	\$699	\$704	+\$5

The increase in the 1976 current estimate over the 1976 budget request is due to the annualization costs as a result of the increase in man-years, +\$79.

The minor increase in 1977 is to support a portion of the additional costs required as a result of the average paid employment increase, +\$5.

	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
<u>Equipment</u>	\$1,091	\$109	\$261	\$274	+\$13

The increase in the 1976 current estimate over the 1976 budget request is the result of increased costs of replaced obsolete equipment, +\$152.

The slight increase in 1977 is to support the estimated requirement for new or replacement equipment, +\$13.

BUILDINGS AND FACILITIES

Classification by Objects Includes Direct Obligations Only (in thousands of dollars)

	Actual 1975	Estimate 1976	Estimate 1977
Other services:			
21 Travel and transportation of persons	•••	\$56	\$56
24 Printing and reproduction	¢220	2 000	0 105
25 Other services	\$338	2,898	2,125
26 Supplies and materials	<u> </u>	3	<u> </u>
Total obligations	341	2,959	2,186

EXPLANATION OF INCREASES AND DECREASES TO OBJECT CLASSIFICATIONS

2m	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decreas e - 1977 vs. 1976
Travel and transportation of persons	9 * *	\$51	\$56	\$56	• • •

The increase in 1976 current estimate over the 1976 budget request is the result of increased costs relating to inspections of alterations and improvements at EPA facilities, +\$5.

No change in the 1977 estimate is reflected.

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·	Actual 1975	Budget Estimate 1976	Current Estimate 1976	Estimate 1977	Increase + Decrease - 1977 vs. 1976
					×
Printing and reproduction	· • •	\$10	• • •		

The decrease in 1976 current estimate from the 1976 budget request is the result of a change in the requirements after using 1975 actual costs as a base, -\$10.

No change in the 1977 estimate is reflected.

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