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Federally Assisted Air
Pollution Control Programs In
The Chicago Metropolitan Region

B-166506

Environmental Protection Agency

*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

APRIL 20, 1971



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-166506

Dear Senator Percy:

Pursuant to your request of January 30, 1970, this is our report on the federally assisted air pollution control programs in the Chicago metropolitan region.

The matters included in this report have been discussed with officials of the city of Chicago and the Environmental Protection Agency, but written comments were not obtained.

We plan to make no further distribution of this report unless copies are specifically requested, and then we shall make distribution only after your agreement has been obtained or public announcement has been made by you concerning the contents of the report.

Sincerely yours,

A handwritten signature in black ink that reads "James B. Stacks".

Comptroller General
of the United States

cl/r
The Honorable Charles H. Percy
United States Senate

D I G E S T

WHY THE REVIEW WAS MADE

2 Senator Charles H. Percy of Illinois requested the General Accounting Office (GAO) to examine into the administration of the air pollution control program by the Department of Health, Education, and Welfare¹ and to give particular attention to the use of Federal air pollution control grant funds by the city of Chicago. 22

As requested by Senator Percy's Office, GAO did not obtain the formal comments of the city of Chicago or of the Environmental Protection Agency on the matters discussed in this report. These matters, however, were discussed with officials of the city and the Environmental Protection Agency as GAO's review progressed.

FINDINGS AND CONCLUSIONS

Financial Assistance

During fiscal years 1965-70, six local agencies within the Metropolitan Chicago Interstate Air Quality Control Region were awarded Federal air pollution control grants totaling about \$5.4 million. In addition these agencies budgeted non-Federal funds of about \$11.1 million. The city of Chicago was awarded about \$4.3 million of the Federal grants and budgeted about \$9.9 million of the non-Federal funds.

For calendar years 1965-69, the six local agencies' expenditures for air pollution control amounted to about \$11.4 million. Local agency expenditures of non-Federal funds increased from about \$600,000 in 1964 to about \$2.3 million in 1969. (See pp. 12 to 16.)

¹On December 2, 1970, in accordance with Reorganization Plan No. 3 of 1970, the air pollution control program was transferred from the Department of Health, Education, and Welfare to the Environmental Protection Agency.

Equipment and Staffing

Generally the city of Chicago's equipment purchases were made in accordance with accepted procurement practices, and the equipment was being utilized effectively. The city, however, did not maintain effective control over equipment purchased with Federal funds. The city's inventory was incomplete and did not include (1) the location of specific equipment items, (2) inventory control numbers, (3) the date of acquisition, and (4) in some cases, cost data. (See pp. 18 to 19.)

The staff of the six local agencies increased from 104 employees at January 1, 1965, to 206 employees at December 31, 1969. During that time the city of Chicago's staff increased from 88 to 153. All employees of the city's air pollution control agency must be approved by the city's Civil Service Commission, the budget office, and the office of the mayor.

Although most city employees are required to take a competitive examination to acquire permanent civil service status, temporary appointments without an examination may be made for a period of 60 days and may be extended for unlimited periods. As of July 1970, 75 of 177 staff members of the city's air pollution control agency were classified as temporary.

The city's position descriptions include "desirable minimum qualifications." GAO's review indicated that the executive management and technical professional staff generally met the requirements of the position descriptions but that many of the technicians and inspectors did not. A Civil Service Commission official told GAO that the position descriptions merely provided desirable qualifications and were not binding. Environmental Protection Agency officials stated that the Environmental Protection Agency could not control or influence State or local government personnel in the hiring of staff.

Although the city's general policy was to hire from Civil Service Commission examination lists, of 44 employees included in GAO's sample, 39 had been hired prior to taking examinations and 17 had never been certified by the Civil Service Commission. (See pp. 20 to 23.)

Air quality standards

It is the responsibility of the States to establish air quality standards for various pollutants and to adopt plans for implementation of the standards. As of December 31, 1970, the States of Illinois and Indiana had established standards for two of five pollutants for which standards were due and had submitted implementation plans for the control of the two pollutants--sulphur oxides and particulates--for Environmental Protection Agency approval. Implementation plans for the other three pollutants were not required to be submitted at that time.

There appears to be little in the way of a regional approach to air pollution control in the Chicago control region. No agency had been established for administering an air pollution control program for the entire region. Rather, a number of State and local agencies were being awarded Federal grants. Furthermore, officials of the local agencies told GAO that State personnel had not contacted them with regard to the development of the implementation plans. These officials also said that their programs had been limited to local areas of jurisdiction and that there had been little contact or coordination with other State or local agencies. (See pp. 24 to 29.)

Progress in developing
control programs

The city of Chicago had compiled emission inventories for two pollutants. Although some of the other local agencies in the Chicago control region were in the process of compiling emission inventories, none had completed any such inventory. (See pp. 30 to 32.)

The city of Chicago had an air-monitoring network of 20 stations with manual sampling equipment to monitor sulphur dioxide and particulates. Eight of the stations also had telemetered air-monitoring equipment. Data obtained from the manual equipment at the 20 stations indicated that the level of particulates in the air remained relatively constant from 1965-69. The level, however, was about 50 percent higher than the Environmental Protection Agency's criteria of 80 micrograms per cubic meter. Not only did the annual average exceed the criteria, but also the particulate readings at each of the 20 stations exceeded 80 micrograms per cubic meter.

Data indicated also that the annual average of sulphur dioxide declined from a high of .053 parts per million in 1966 to .026 parts per million in 1969. At four of the stations, however, the level of sulphur dioxide in 1969 exceeded the criteria of .04 parts per million.

Data obtained from the telemetered equipment at the eight stations for the same period indicated that the level of sulphur dioxide remained relatively constant at an annual average of from .06 to .07 parts per million. City officials said that technical difficulties had been experienced with the telemetered equipment and that telemetered information was not as reliable as that obtained from the manual equipment at the 20 stations.

Of Cook County's 16 air-monitoring stations, four are telemetered and are interconnected with Chicago's eight telemetered stations. None of the local agencies in Indiana have telemetered equipment; nor is there any interconnection of the air-monitoring stations between the Indiana agencies or between State and/or local agencies in Illinois and State and/or local agencies in Indiana. (See pp. 33 to 36.)

The city of Chicago has attempted to control air pollution by enforcing ordinances, operating a permit system for construction, and encouraging private industry to take appropriate control measures voluntarily. Enforcement activities have been directed principally toward ensuring compliance with the ordinances pertaining to particulate emissions. (See pp. 37 to 40.)

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ABBREVIATIONS

APCO Air Pollution Control Office

EPA Environmental Protection Agency

GAO General Accounting Office

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CHAPTER 1

INTRODUCTION AND SCOPE

In accordance with the request of Senator Charles H. Percy, dated January 30, 1970 (see app. I), we examined into the administration, by the Air Pollution Control Office (APCO), Environmental Protection Agency (EPA),¹ of the air pollution control program in the Metropolitan Chicago Interstate Air Quality Control Region.

The principal cause of air pollution is the imperfect burning of fuel and other material. The sources of pollution generally are divided into five categories--transportation, power plants, space heating, refuse disposal, and industry. Air pollution from mobile and stationary sources are separate and distinct problems. The Federal Government is responsible for prescribing standards applicable to the emission of pollutants from motor vehicles.

APCO has established standards for certain pollutants, with which the automobile manufacturers must comply by 1975. In addition APCO is trying to develop feasible and economical testing procedures to be used by the States in enforcing the standards. We currently are reviewing APCO's program for controlling air pollution from motor vehicles. We expect to complete our review by about December 1971.

Consequently, this review dealt only with the administration of the air pollution control program for stationary sources and was primarily concerned with (1) the financial and technical assistance provided the Chicago control region by APCO, (2) the manner in which the local agencies utilized APCO grant funds, and (3) the progress made in the Chicago control region in preventing and controlling air pollution.

¹EPA became effective on December 2, 1970, in accordance with Reorganization Plan No. 3 of 1970. Prior to that date APCO was in the Department of Health, Education, and Welfare.

We reviewed the city of Chicago's efforts in compiling emission inventories, establishing air-monitoring networks, and enforcing air pollution control laws; we reviewed also the manner in which the city accounted for APCO grant funds. We also made a limited review of the activities of other air pollution control agencies within the region.

We visited APCO headquarters in Rockville, Maryland, and Durham, North Carolina; the APCO regional office in Chicago; the air pollution control agencies in Chicago and Cook County, Illinois, and Gary, East Chicago, Hammond, and Lake County, Indiana; and State air pollution control agencies in Springfield, Illinois, and Indianapolis, Indiana.

We reviewed legislation and regulations and examined records at APCO headquarters, at APCO's Chicago regional office, and at State and local agency offices. We also discussed the air pollution activities with APCO and EPA headquarters and regional officials and State and local air pollution control agency personnel.

LEGISLATION

The Clean Air Act of 1963 (42 U.S.C. 1857) provided that the responsibility for the control of air pollution rested primarily with State and local governments but that the Federal Government was to aid State and local governments in the development and execution of their control programs and was to stimulate an increased level of air pollution control activity. The act authorized grants to air pollution control agencies to develop, establish, and improve programs for the prevention and control of air pollution.

The act authorized also higher rates of Federal grant support to intermunicipal or interstate air pollution control agencies than it authorized to single States or municipalities. In 1966 the Clean Air Act was amended (Pub. L. 89-675) to authorize grants for maintaining programs for the prevention and control of air pollution.

The Air Quality Act of 1967 (Pub. L. 90-148) amended the Clean Air Act and provided for a regional approach to air pollution control. The act directed the Administrator, EPA, to (1) define the broad atmospheric areas of the Nation, (2) designate specific air quality control regions, (3) develop and publish air quality criteria for pollutants, and (4) establish a time table which States must follow in developing air quality standards and plans for implementing such standards within designated regions.

METROPOLITAN CHICAGO INTERSTATE
AIR QUALITY CONTROL REGION

The Metropolitan Chicago Interstate Air Quality Control Region was established in December 1968 and includes six counties in northeast Illinois--McHenry, Lake, Kane, Cook, Will, and DuPage--and two counties in northwest Indiana--Lake and Porter. The region covers about 4,650 square miles and has a population of about 7.5 million. It is highly industrialized with steel mills, petroleum refineries, and steel and petroleum support industries. The following chart shows the source, by major categories, of particulates, carbon monoxide, and sulphur dioxide emissions in the Chicago control region. The data was compiled by APCO in 1967 and was the most recent information available.

Sources of Emissions in the
Chicago Control Region

	<u>Particulates</u>		<u>Carbon monoxide</u>		<u>Sulphur dioxide</u>	
	<u>Tons per year</u>	<u>Per-centage</u>	<u>Tons per year</u>	<u>Per-centage</u>	<u>Tons per year</u>	<u>Per-centage</u>
Fuel combustion:						
Residential	24,110	4.1	46,310	1.7	183,900	10.3
Commercial	81,750	14.0	81,300	3.0	165,690	9.3
Industrial	120,260	20.5	7,630	.3	349,000	19.6
Power plants	<u>48,430</u>	<u>8.3</u>	<u>3,980</u>	<u>.1</u>	<u>1,021,500</u>	<u>57.4</u>
Total	274,550	46.9	139,220	5.1	1,720,090	96.6
Industrial process	266,650	45.5	66,800	2.5	49,000	2.8
Refuse disposal	25,910	4.4	58,380	2.1	2,905	.2
Transportation	<u>18,860</u>	<u>3.2</u>	<u>2,461,500</u>	<u>90.3</u>	<u>8,320</u>	<u>.4</u>
Total	<u>585,970</u>	<u>100.0</u>	<u>2,725,900</u>	<u>100.0</u>	<u>1,780,315</u>	<u>100.0</u>

Within the region, four county and four municipal air pollution control agencies were established in Illinois, and two county and three local agencies were established in Indiana. As of June 30, 1970, the city of Chicago and five other agencies within the region had been awarded Federal air pollution control grants totaling about \$5.4 million. (See p. 13.)

CHAPTER 2

TECHNICAL AND FINANCIAL ASSISTANCE

PROVIDED TO CHICAGO CONTROL REGION

TECHNICAL ASSISTANCE

The Clean Air Act of 1963 directs the Administrator, EPA, to provide technical assistance to State and local governments in connection with their air pollution control programs. APCO's policy is to provide such technical assistance upon request, to the extent that resources are available. APCO has provided assistance for such things as development of air-monitoring programs, compilation of emission inventories, and development of State and local laws and regulations.

The city of Chicago received extensive Federal technical assistance in the development of an air pollution control program. In October 1962, prior to enactment of the Clean Air Act of 1963, the city of Chicago entered into a 5-year cooperative agreement with APCO's predecessor agency, the Public Health Service, Division of Air Pollution.

Under the agreement Public Health Service personnel were assigned to the city and provided assistance related to (1) the type and placement of air-monitoring equipment, (2) the compilation of an emission inventory, (3) air pollution control legislation, and (4) training. The Public Health Service also provided some laboratory analysis services. This assistance began to decline about 1965. APCO personnel told us that they provided little technical assistance to Chicago since 1967. They stated that the decline was due to (1) a reduction in APCO technical support staff (most of the staff was reassigned to work related to the designation of air quality control regions) and (2) the fact that the city was considered to have a more advanced program than many other local agencies.

In June 1968 Department of Health, Education, and Welfare internal auditors reviewed the expenditures of the city of Chicago's air pollution control agency for the period

November 1964 through November 1967. This was the only such audit made of agencies within the Chicago control region.

The auditors reported deficient accounting and administrative practices, including (1) discrepancies in travel expenses charged to grants, (2) failure to establish separate fund accounts for Federal and non-Federal expenditures for each project, and (3) failure to reconcile the air pollution control agency expenditure records with records maintained by the city comptroller's office. In August 1969 city officials told APCO that they had made a number of changes in their accounting and administrative practices to comply with the internal auditors' recommendations.

In May 1970 four APCO technical staff members made a 2-day visit to the city of Chicago to review the control agency's operations to determine areas of program weakness and to make recommendations to improve program effectiveness.

The report of the APCO staff members recommended that the city (1) reevaluate the existing organization and functional activities for the purpose of avoiding duplication of activities, (2) initiate procedures for program planning, (3) develop a program of continuing education and training to keep the staff abreast of program and technological changes, (4) review and upgrade field service position qualifications and requirements to increase the level of capability of staff, (5) make a major effort to complete and update emission inventories, (6) develop additional use of telemetered air-monitoring network data to justify the time, money, and effort devoted to this operation, and (7) maintain an inventory of equipment and location and maintenance records.

APCO officials told us that the report was for the purpose of assisting the city in improving the administration of its program and that no formal response was required from the city.

APCO officials stated also that APCO had provided some technical assistance to other agencies within the Chicago control region, primarily related to determining sources of emissions and developing air pollution control ordinances. APCO also assisted the Illinois and Indiana State agencies in developing emission inventories and diffusion models.¹

¹A diffusion model mathematically describes the relationship between pollutant emissions and air quality by simulating the effect of atmospheric elements on the transport and dispersion of pollutants emitted into the atmosphere.

FINANCIAL ASSISTANCE

The Clean Air Act authorizes the Administrator, EPA, to award grants to State and local air pollution control agencies for part of the cost of planning, developing, establishing, improving, and/or maintaining programs for the prevention and control of air pollution. These grants are categorized by APCO as either project or maintenance, according to the purpose that they are intended to serve.

APCO guidelines to applicants state that, to be eligible for project grants, an air pollution control agency must plan, develop, or have an acceptable "workable program." The workable program should include information on the need for an air pollution control program, its objectives and goals, its legal authority, and what has been and is proposed to be done to accomplish program objectives and goals.

The guidelines provide for project grants in three stages. In the first stage grants may be awarded for planning or developing a workable program. They generally are expected to be completed in 2 years or less and must be designed to lead to the establishment of an air pollution control program.

In the second stage grants may be awarded for "establishment" projects for activation of an air pollution control program for up to 3 years after a program has been obtained.

In the third stage grants may be awarded for "improvement" projects for up to 3 years for the purpose of bettering a program, when a workable program is in operation. Grants may be awarded to applicants for any or all stages.

The guidelines state that maintenance grants are intended to provide air pollution control agencies with continuing Federal financial assistance for the maintenance of effective workable programs which are capable of accomplishing appropriate air quality objectives within appropriate time schedules. APCO awards maintenance grants for a maximum of 1 year at a time; once support has been provided to a grantee agency, however, it can plan on continuing support

as long as satisfactory progress is made in the execution of the program for which the support has been provided, subject to the availability of funds.

Information pertaining to funding, expenditures, and staffing for the local agencies within the Chicago control region is presented below.

Funding

During fiscal years 1965-70, six local agencies within the region were awarded air pollution control grants totaling about \$5.4 million. In addition these agencies budgeted about \$11.1 million of non-Federal funds, as shown below.

	Fiscal years grants <u>awarded</u>	Federal grant funds <u>awarded</u>	Local funds budgeted	Total funding
Illinois:				
Chicago	1965-70	\$4,261,300	\$ 9,919,053	\$14,180,353
Cook County (exclusive of Chicago)	1965-68	469,218	522,411	991,629
Indiana:				
Gary	1965-70	324,644	395,267	719,911
East Chicago	1965-70	121,220	165,160	286,380
Hammond	1967-70	133,000	97,592	230,592
Lake County (exclusive of above three cities)	1969 and 1970	<u>46,150</u>	<u>28,200</u>	<u>74,350</u>
Total		<u>\$5,355,532</u>	<u>\$11,127,683</u>	<u>\$16,483,215</u>

Grant awards to the city of Chicago included project grants during fiscal years 1965-70, totaling about \$2 million, and maintenance grants during fiscal years 1968-70, totaling about \$2.3 million. The other agencies were awarded project grants.

In addition to the project and maintenance grants, the city of Chicago was awarded Federal demonstration grants totaling about \$294,000 during fiscal years 1967-69. These grants were for projects to demonstrate new or improved methods of air pollution control or abatement, such as testing control devices for fuel-fed incinerators.

Illinois and Indiana State agencies were awarded project grants totaling about \$731,000 and \$340,000, respectively, during fiscal years 1965-70. State officials told us that the State agencies did not provide financial assistance to local agencies within the Chicago control region. We did not ascertain to what extent, if any, the Illinois and Indiana State agencies contributed to the air pollution control program within the region.

Expenditures

A distinction is made by APCO between those non-Federal funds required to match the Federal grant funds and additional non-Federal funds to meet the maintenance-of-effort requirement. The law specifies that no agency shall receive any project grant during any year in which its program expenditures for other than nonrecurrent expenditures will be less than its expenditures were for such programs during the preceeding year. Also, no agency shall receive a maintenance grant unless the Administrator, EPA, is satisfied that such grant will be used to supplement and, to the extent practicable, increase the level of State, local, or other non-Federal funds.

Local agencies in the Chicago control region were first awarded APCO grants in fiscal year 1965. Local agency expenditures of non-Federal funds increased from about \$600,000 in 1964 to about \$2.3 million in 1969, as shown below.

<u>Agency</u>	<u>Year of initial grant</u>	<u>Local expenditures in 1964</u>	<u>1969 expenditures</u>		
			<u>Federal grant funds</u>	<u>Local funds</u>	<u>Total</u>
Chicago	1965	\$573,094	\$894,349	\$2,175,168	\$3,069,517
Cook County	1965	8,500	(a)	(a)	(a)
Gary	1965	12,020	17,068	70,528	87,596
East Chicago	1965	11,325	21,402	31,752	53,154
Hammond	1967	-	19,543	21,007	40,550
Lake County	1969	-	13,093	12,471	25,564
Total		<u>\$604,939</u>	<u>\$965,455</u>	<u>\$2,310,926</u>	<u>\$3,276,381</u>

^aNo Federal grant in 1969; local expenditures not determined.

For calendar years 1965-69, total expenditures for air pollution control reported by the six local agencies within the Chicago control region amounted to about \$11.4 million. These expenditures included \$8.5 million for personnel, \$1.1 million for equipment, and \$1.8 million for other necessities. The following summary shows the total expenditures reported by each agency.

	Federal grant funds	Non-Federal funds		Total
		Matching	Other	
Chicago:				
Project grants:				
Personnel	\$1,102,831	\$ 728,348	\$3,340,319	\$ 5,171,498
Equipment	285,370	20,171	149,440	454,981
Other	328,624	125,374	728,177	1,182,175
	<u>1,716,825</u>	<u>873,893</u>	<u>4,217,936</u>	<u>6,808,654</u>
Maintenance grants:				
Personnel	611,547	1,115,653	415,325	2,142,525
Equipment	295,246	30,693	1,382	327,321
Other	193,245	87,010	157,467	437,722
	<u>1,100,038</u>	<u>1,233,356</u>	<u>574,174</u>	<u>2,907,568</u>
Cook County:				
Project grants:				
Personnel	284,394	294,566	103,820	682,780
Equipment	128,089	-	23,662	151,751
Other	37,314	39,439	25,257	102,010
	<u>449,797</u>	<u>334,005</u>	<u>152,739</u>	<u>936,541</u>
Gary:				
Project grants:				
Personnel	93,914	102,614	87,821	284,349
Equipment	34,730	11,936	16,366	63,032
Other	37,486	17,194	9,465	64,145
	<u>166,130</u>	<u>131,744</u>	<u>113,652</u>	<u>411,526</u>
Hammond:				
Project grants:				
Personnel	16,963	51,424	6,000	74,387
Equipment	39,515	-	-	39,515
Other	14,663	-	-	14,663
	<u>71,141</u>	<u>51,424</u>	<u>6,000</u>	<u>128,565</u>
East Chicago:				
Project grants:				
Personnel	51,197	44,466	56,800	152,463
Equipment	16,935	3,905	8,206	29,046
Other	19,042	1,479	10,512	31,033
	<u>87,174</u>	<u>49,850</u>	<u>75,518</u>	<u>212,542</u>
Lake County:				
Project grants:				
Personnel	361	8,250	4,221	12,832
Equipment	8,817	-	-	8,817
Other	3,915	-	-	3,915
	<u>13,093</u>	<u>8,250</u>	<u>4,221</u>	<u>25,564</u>
Total	<u>\$3,604,198</u>	<u>\$2,682,522</u>	<u>\$5,144,240</u>	<u>\$11,430,960</u>

Although these agencies' expenditures increased, APCO considered the programs in northwest Indiana to be undermanned and lacking in sufficient professional talent to do much more than a minimal job of abating air pollution. On the other hand, APCO considered the city of Chicago to have a comprehensive program.

Grant administration

Prior to January 1970 administration of the grant program, which included review and approval of applications and awards of funds, was centralized in the APCO Bureau of Abatement and Control, Division of Control Agency Development, in Raleigh, North Carolina. Beginning in January 1970 the responsibility for review and approval of grant applications was decentralized to EPA regional offices.

In applying for APCO grants, an agency must show the relationship of its project to its workable program. APCO operating personnel told us, however, that project grants, considered to be for the purpose of stimulating local control activities, were awarded with little reliance on the relationship of the project to a workable program.

Our review showed that APCO had no manuals or written policies or procedures for review and approval of applications. APCO officials told us that initial grant applications were reviewed by program advisors and centralized technical support staff to ensure that the proposed programs met APCO requirements. With regard to continuing grant applications, however, we found that grants were awarded on the basis of the judgement and experience of program advisors who used the data provided by the grantee without extensive verification. An APCO Chicago regional office official told us that, after the responsibility for awarding grants had been delegated to the regions, his staff also reviewed all grant applications.

As discussed on page 12, APCO guidelines state that grant support of improvement projects may be provided for up to 3 years. We found that APCO had awarded grants to local agencies in the Chicago control region for improvement projects for substantially more than 3 years.

APCO officials told us that, even though State and local agencies had made progress in developing and implementing more effective air pollution control programs, the agencies, generally, had not progressed to the point of qualifying for maintenance grant support. Consequently, APCO's policy was to award such agencies additional improvement grants.

We found that during the period 1965-70, APCO awarded grants to the East Chicago, Gary, and Hammond agencies for two improvement projects for 6 consecutive years. Furthermore, Gary applied for and was awarded a grant of \$55,009 for a third improvement project for 1971. APCO officials told us that they would not approve the East Chicago and Hammond agencies' applications for 1971 improvement grants unless they submitted more comprehensive programs for air pollution control activities.

CHAPTER 3

EQUIPMENT AND STAFFING

EQUIPMENT

The local agencies in the Chicago control region expended about \$1.1 million for equipment from 1965-69; the city of Chicago's expenditures accounted for about 73 percent of such expenditures. The following table shows the expenditures for the purchase of equipment, classified by major equipment category, as reported by the six agencies. The table does not include equipment expenditures of \$118,085 by Chicago because a detailed breakdown of this amount was not readily available, and the city's inventory records were incomplete (see p. 19).

	<u>Air</u> <u>moni-</u> <u>toring</u>	<u>Labo-</u> <u>ratory</u>	<u>Tech-</u> <u>nical</u>	<u>Vehi-</u> <u>cles</u>	<u>Other</u> <u>(note a)</u>	<u>Total</u>
Chicago	\$287,949	\$47,557	\$17,528	\$ 82,438	\$228,745	\$664,217
Cook County	114,247	15,758	846	4,638	16,262	151,751
Gary	19,341	7,598	2,421	16,053	17,619	63,032
Hammond	21,197	-	-	8,184	10,134	39,515
East Chicago	6,317	4,316	585	12,798	5,030	29,046
Lake County	<u>6,192</u>	<u>-</u>	<u>-</u>	<u>2,625</u>	<u>-</u>	<u>8,817</u>
Total	<u>\$455,243</u>	<u>\$75,229</u>	<u>\$21,380</u>	<u>\$126,736</u>	<u>\$277,790</u>	<u>\$956,378</u>

^aConsists primarily of furniture and office equipment.

We reviewed Chicago's procurement procedures and found that equipment purchases generally were made in accordance with accepted procurement practices. Our examination of selected equipment items showed that the equipment generally was being utilized effectively. (See pp. 33 to 36 for a discussion on the utilization of air-monitoring equipment.)

APCO regulations require that grantees maintain records in sufficient detail to show the exact nature of expenditures and the identity and location of all property

purchased in whole or in part with grant funds. In addition the regulations specify that, when equipment purchased with grant funds is disposed of or transferred to another activity, an amount equal to the current value of the equipment is to be deposited in the grant account or returned to APCO.

We found that the city of Chicago did not maintain effective control over equipment purchased with Federal financial assistance for use by the city's air pollution control agency. Both the city's air pollution control agency and the comptroller's office maintained records of expenditures for equipment. These records were not, however, reconciled periodically, and we noted discrepancies in the items of equipment listed and the value assigned to specific pieces of equipment.

The city of Chicago was unable to provide us with a complete inventory of air pollution control equipment purchased prior or subsequent to inception of Federal financial assistance. In addition to being incomplete, the city's inventory did not include (1) the location of specific items of equipment (although the air pollution control agency's equipment was located at about 30 sites throughout the city), (2) inventory control numbers, (3) date of acquisition, and (4) in some cases, cost data.

We brought this matter to the attention of city and APCO officials. Subsequently, in its report to the city on the results of its May 1970 review of the city's air pollution control program (see p.), APCO recommended that the city maintain an inventory of equipment and location and maintenance records. As of December 1970 the city was compiling an equipment inventory.

In view of APCO regulations, the amount of funds expended, and the diverse location of equipment, we believe that APCO should require the city to maintain an up-to-date inventory of equipment.

STAFFING

Air pollution control is a highly technical field and, as such, requires highly trained technical, scientific, and professional personnel. One of the primary problems currently faced by air pollution control agencies is the acquisition and retention of capable staff. As shown in the following table, the staff of the agencies in the Chicago control region increased from 104 employees as of January 1, 1965, to 206 employees as of December 31, 1969.

	<u>Techni- cal and profes- sional</u>	<u>Labo- ratory</u>	<u>Inspec- tors</u>	<u>Execu- tive manage- ment</u>	<u>Clerical, custodial, and other</u>	<u>Total</u>
January 1965:						
Chicago	14	9	44	3	18	88
Cook County	1	-	5	3	4	13
East Chicago	-	-	<u>1</u>	<u>1</u>	<u>1</u>	<u>3</u>
Total	<u>15</u>	<u>9</u>	<u>50</u>	<u>7</u>	<u>23</u>	<u>104</u>
December 1969:						
Chicago	34	20	59	4	36	153
Cook County	6	1	16	3	6	32
Gary	-	1	2	1	4	8
Hammond	-	-	3	1	1	5
East Chicago	-	-	3	1	1	5
Lake County	-	-	<u>2</u>	<u>1</u>	-	<u>3</u>
Total	<u>40</u>	<u>22</u>	<u>85</u>	<u>11</u>	<u>48</u>	<u>206</u>

Technical and professional personnel include chemists, engineers, and meteorologists; laboratory personnel include weather, electronic, engineering, and environmental-sampling technicians; and inspectors include combustion engineers who perform annual inspections of fuel and refuse burning equipment and personnel who patrol the city in vehicles to detect emissions and investigate complaints. Because of Senator Percy's expressed interest, we examined into the staffing policies and practices of Chicago's air pollution control agency.

The city of Chicago has a Civil Service Commission that classifies positions, administers examinations, and

maintains the official personnel records of all city employees. Applications for employment in air pollution control activities may be made to either the Civil Service Commission or to the Department of Environmental Control (the city's air pollution control agency). Although the Department hires its own personnel, all applications must be approved by the Civil Service Commission, the budget office, and the office of the mayor.

With the exception of elected and certain appointed employees, all city employees are required to take a competitive examination to acquire permanent civil service status. Temporary appointments without an examination, however, may be made for a period of 60 days, and these appointments may be extended for unlimited periods. Our review showed that 75 of 177 staff members of the Department of Environmental Control were classified as temporary employees as of July 1970, including the Deputy Commissioner who was originally hired in 1962.

To evaluate the hiring practices of the city, we reviewed the policies and procedures of the Civil Service Commission and the Department of Environmental Control, interviewed commission and department officials, and reviewed personnel files of several Department of Environmental Control employees, selected on the basis of a random sample of departmental staff, excluding clerical personnel. Our sample included 44 employees--25 percent of the executive management and technical professional personnel and 50 percent of the inspectors.

A Civil Service Commission official told us that there were no formal written procedures for the hiring of personnel. In addition the personnel files of both the commission and the department were incomplete. Consequently, much of our information was obtained orally.

Civil Service Commission position descriptions include "desirable minimum qualifications." To ascertain the qualifications of department personnel, we compared the information we obtained from the personnel files and interviews with the employees' position descriptions. Our comparison indicated that the executive management and technical professional staff generally met the requirements of the

position descriptions. On the other hand, our comparison indicated that six of eight weather equipment and environmental-sampling technicians and 17 of 23 inspectors included in our sample did not meet the desired minimum qualifications for their current positions.

For example, one individual who had worked as a city highway timekeeper for 24 years was hired in 1967 as an inspector III and later became an equipment technician. The position description for an inspector III includes the following desirable minimum qualifications:

- Graduation from high school.
- Three years of experience as an inspector II, or 6 years of experience as an inspector I, or an equivalent combination of training and experience.
- Knowledge of fuel-burning and combustion-control equipment.
- The ability to instruct operators in the proper operation of fuel-burning equipment.

The individual was not a high school graduate, had no experience as an inspector I or II, and apparently had no knowledge of fuel-burning and combustion-control equipment. Furthermore, the individual had not taken a Civil Service Commission examination for inspectors, although such an examination had been given subsequent to his employment as an inspector.

Several of the employees in our sample held positions with other city of Chicago or Cook County agencies prior to employment by the Department of Environmental Control as inspectors III. One was a municipal court assistant office supervisor, another a clerk in the Cook County Recorder of Deeds Office, and a third a public works cashier and a municipal court clerk. We found no indication that any of these individuals had experience as inspectors I or II or that they had knowledge of, or experience with, fuel-burning and combustion-control equipment.

A Civil Service Commission official told us that the position descriptions merely provided desirable qualifications and were not binding. He stated that, when a position was to be filled and the candidates did not meet the desired qualifications, the department could hire someone and train him for the position.

Civil Service Commission personnel told us that the general policy was to hire personnel from commission examination lists. We found, however, that 39 of the 44 employees in our sample were hired prior to taking civil service examinations. Furthermore, 17 of the employees have never been certified by the Civil Service Commission.

We reviewed activities of the inspectors and found that (1) they were performing their assigned duties, (2) records were maintained of their activities, (3) supervisors evaluated the work of the inspectors, and (4) there was followup on reported violations. We were not, however, able to evaluate the effectiveness or efficiency of the work performed by the inspectors.

Because many of the Chicago staff members did not meet the qualifications included in the position descriptions, we examined into the extent of training provided to air pollution personnel. We found that neither the city of Chicago nor APCO maintained sufficiently detailed records which provided information on the type and extent of training. Limited data available indicated that training was primarily for executive management and technical and professional staff rather than for inspectors or engineering technicians.

We found also that the turnover of the Chicago staff for all positions, including clerical, averaged about 15.4 percent from 1965-69.

In May 1970, APCO personnel evaluated the city of Chicago's air pollution program and made recommendations related to the qualifications and training of field personnel (see p. 10). APCO officials told us, however, that APCO could not control or influence State or local government personnel in the hiring of staff.

CHAPTER 4

AIR QUALITY CONTROL STANDARDS

AND IMPLEMENTATION PLANS

The Clean Air Act, as amended by the Air Quality Act of 1967, provides for an intergovernmental system for the prevention and control of air pollution on a regional basis. The act requires that the Administrator, EPA, designate air quality control regions and issue air quality criteria and control techniques for various pollutants. The act requires also that air quality control regions be designated on the basis of jurisdictional boundaries, urban-industrial concentrations, and other factors including atmospheric areas necessary to provide adequate implementation of air quality standards. As of December 31, 1970, 100 air quality control regions had been designated.

EPA is responsible for developing and issuing air quality criteria reflecting available scientific knowledge of the adverse effects of various air pollutants on public health and welfare. Air quality criteria documents summarize available information on the relationship between exposures to air pollutants and their effects on man and his environment. As of December 31, 1970, air quality criteria for five air pollutants--sulphur oxides, particulates, carbon monoxide, hydrocarbons, and photochemical oxidants--had been issued. Reports on control techniques were issued simultaneously with the criteria. These reports provided information on the availability and applicability of techniques for the prevention and control of air pollutants at their sources and on the cost and effectiveness of such techniques.

The States were then required to establish, for application in the designated air quality control regions, air quality standards for each of the pollutants for which air quality criteria and control techniques were issued. Standards are the desired limits on levels of the pollutants in the air.

The States were required also to adopt plans for implementation of the air quality standards. APCO guidelines specified that implementation plans were to describe the steps that would be taken to ensure attainment of air quality standards within a reasonable time. The air quality standards and implementation plans were to be submitted to EPA for review and approval.

The act required that the States act in accordance with the following timetable. The States had 90 days in which to notify the Administrator, EPA, in writing of their intent to adopt air quality standards for those pollutants for which air quality criteria had been issued by EPA, 180 additional days in which to establish air quality standards, and 180 additional days to develop an implementation plan to achieve these standards.

The various requirements of an implementation plan must be enforceable by State action. This does not mean that the States cannot utilize the capabilities of city, county, and regional air pollution control agencies. States may elect to assign such agencies responsibility for conducting enforcement, air-monitoring, and other activities, but the States (1) should oversee and coordinate activities to insure uniformity, (2) should provide technical assistance and financial support, and (3) must have legal authority broad enough to permit the State to enforce requirements for the application of control techniques in accordance with the implementation plan's timetable.

METROPOLITAN CHICAGO INTERSTATE
AIR QUALITY CONTROL REGION

In regions that include parts of two or more States, the establishment and implementation of air quality standards requires cooperation and coordination among the States involved. Because the Chicago control region included six counties in northeast Illinois and two counties in northwest Indiana, the States of Illinois and Indiana were required to establish air quality standards for five pollutants (see p. 24) and to adopt implementation plans for such standards.

The Secretary of Health, Education, and Welfare issued air quality criteria for sulphur oxides and particulate matter in February 1969 and criteria for photochemical oxidants, hydrocarbons, and carbon monoxide in March 1970. The following table shows the status, as of December 31, 1970, of the States of Illinois and Indiana in establishing air quality standards and implementation plans for the Chicago control region.

	<u>Illinois</u>			<u>Indiana</u>		
	<u>Date due</u>	<u>Date submitted</u>	<u>Date approved</u>	<u>Date due</u>	<u>Date submitted</u>	<u>Date approved</u>
Sulphur Oxides and Particulates:						
Standards	11-10-69	11- 3-69	3-27-70	11-10-69	11-10-69	3-27-70
Implementation plan	5- 7-70	12-23-70	-	5- 7-70	12-14-70	-
Photochemical Oxides, Hydrocarbons and Carbon Monoxide:						
Letter of intent	6-19-70	6-10-70	N/A	6-19-70	6- 1-70	N/A
Standards	12-14-70	not submitted	-	12-14-70	not submitted	-
Implementation plan	6-14-71	-	-	6-14-71	-	-

The States of Indiana and Illinois coordinated their efforts in developing air quality standards for sulphur oxides and particulates. State officials told us also that there was some coordination in developing the implementation plans and strategies for the control of these pollutants.

Although the States of Indiana and Illinois were to submit to APCO implementation plans for the control of sulphur oxides and particulates by May 7, 1970, they did not submit the plans until December 14 and 23, respectively. Indiana submitted an introduction to its plan on May 12, 1970, and an interim plan on July 29, 1970.

APCO officials reviewed the plan and concluded that the plan lacked information on local regulations, time schedules for adoption of proposed regulations, time schedules for compliance, interstate cooperation, and an adequate emergency episode plan. APCO concluded also that the State did not have adequate authority in certain areas. APCO provided the State technical assistance in revising its plan which was submitted on December 14, 1970. This plan contained provisions for intergovernmental cooperation.

On May 5, 1970, the State of Illinois submitted a status report on its plan, which summarized the provisions of the State's plan. APCO reviewed the report and, in July 1970, concluded that the plan should be revised substantially if it were to be approved. Revisions were needed with regard to provisions for (1) additional State legislation, (2) more effective interstate cooperation, and (3) more effective plans for emergency episodes. APCO requested that the State advise it as to when a plan would be submitted.

By letter dated September 8, 1970, Illinois State officials told APCO that they could submit an implementation plan by December 31, 1970, and enact the necessary statutes to enforce the plan by February 1, 1971. They attributed the delay in submitting the implementation plan to a major reorganization of the State agencies responsible for environmental matters. The implementation plan was submitted on December 23, 1970. This plan did not contain provisions for intergovernmental cooperation.

We discussed the State standards and implementation plans with local agency officials who told us that State air pollution control personnel had not contacted them with regard to the development of the implementation plans. Local officials also stated that their programs had been limited to local areas of jurisdiction and that there had been little contact or coordination with other State or local agencies. No agency had been established for the purpose of administering an air pollution control program for the entire region. Rather, a number of State and local agencies were being awarded Federal grants. Thus, although air quality control regions have been established to control pollution on a regional basis, there appears to be little in the way of a regional approach to air pollution control in the Chicago control region.

CLEAN AIR AMENDMENTS OF 1970

The Clean Air Amendments of 1970 (Pub. L. 91-604), enacted on December 31, 1970, revised substantially the Clean Air Act as it related to air quality control regions, standards, and implementation plans. The principal revisions follow.

- Within 90 days after enactment of the act, the Administrator, EPA, would designate the remaining interstate and major intrastate air quality control regions.
- Within 30 days after enactment of the act, the Administrator would publish a list of air pollutants for which air quality criteria were to be issued.
- Within 12 months after the pollutants are listed, the Administrator must issue air quality criteria documents and reports on control techniques.
- The requirement that States were to develop ambient air quality standards for each pollutant for each air quality region was abolished.
- Within 120 days after enactment of the act, the Administrator would promulgate national ambient air quality standards for the five pollutants for which air quality criteria had been issued.
- The States are to submit implementation plans for each pollutant to the Administrator within 9 months after promulgation of the standards.
- The Administrator is to approve or disapprove the States' plans within 4 months after they are received.
- Requisites of an implementation plan were codified in the act.
- If the States do not submit an implementation plan within 6 months after the time prescribed, or the Administrator determines within this time that the States' plan did not meet the requirements of the act, the Administrator will promulgate appropriate emission control regulations for those States.
- Implementation plans adopted and submitted by the States as of December 31, 1970, were to be approved if they met the requirements of the amendments to the act.

These amendments will affect the Illinois and Indiana programs to the following extent. State standards for photochemical oxides, hydrocarbons, and carbon monoxide, which were to be submitted to EPA by December 14, 1970, will not be required. Rather, the Administrator, EPA, is to promulgate standards for these pollutants by April 30, 1971. The States will have 9 months after the standards are promulgated to submit plans to EPA for implementing the standards. Prior to enactment of the Clean Air Amendments of 1970, Illinois and Indiana had only until June 14, 1971, to submit implementation plans for the three pollutants.

CHAPTER 5

PROGRESS ACHIEVED BY LOCAL AGENCIES IN

ADMINISTERING AIR POLLUTION CONTROL PROGRAMS

The primary objective of air pollution control programs should be the enhancement of the quality of the air. APCO guidelines for the development of air quality standards and implementation plans state that, in developing a program, a control agency should (1) have an inventory of the sources of emissions of each pollutant, (2) maintain an air-monitoring network to obtain data on the concentration of each pollutant at strategically located points, and (3) have and enforce effective laws and regulations. The following sections discuss the efforts made and progress achieved by local agencies in the Chicago control region in compiling emission inventories, establishing air-monitoring networks, and enforcing laws and regulations.

EMISSION INVENTORIES

An ideal emission inventory should include all sources of air pollutants within a specified area. Because it is not economically feasible to obtain emission data from every source, however, it is the general policy of APCO and State and local agencies to obtain data on the major sources (point sources) and to combine lesser sources into groupings (area sources). The inventory should contain such information as the name and location of the source; type of pollutants emitted; and magnitude, frequency, and duration of the emissions.

APCO considers a point source as any stationary source that emits more than 10 tons per year of any pollutant. Point sources include major fuel users, incinerators, open burning dumps, and industrial plants. Information on point sources is usually obtained through mailed questionnaires, personal contacts with source officials, and visits to the sources.

APCO considers area sources to be stationary sources that emit less than 10 tons of pollutants per year and mobile sources, regardless of size. Area sources include residences,

small buildings, and vehicles. According to APCO these sources should be divided into groupings by type and geographic location and estimates of emissions calculated by the use of various mathematical techniques.

APCO has divided air pollution sources into four categories.

1. Fuel combustion (residential, commercial, industrial, and utility).
2. Industrial process losses (losses from manufacturing processes).
3. Solid waste disposal.
4. Transportation.

We examined into the city of Chicago's development of detailed emission inventories for sulphur dioxide and suspended particulates, the two major sources of pollutants from stationary sources. With the assistance of APCO personnel, the city completed, in 1965, an emission inventory from fuel combustion sources. The emission data is summarized below.

<u>Source</u>	<u>Sulphur dioxide</u>		<u>Suspended particulate</u>	
	<u>Tons</u>	<u>Percent</u>	<u>Tons</u>	<u>Percent</u>
Industrial	65,400	10.5	44,700	30.8
Utilities	426,700	68.6	20,100	13.8
Commercial	47,300	7.6	18,800	12.9
Residential	<u>83,000</u>	<u>13.3</u>	<u>61,700</u>	<u>42.5</u>
Total	<u>622,400</u>	<u>100.0</u>	<u>145,300</u>	<u>100.0</u>

In 1966 a power company submitted updated estimates that showed that sulphur dioxide and particulate emissions from the utilities had been reduced to 373,100 and 18,000 tons, respectively. Beginning in 1967 the city distributed about 35,000 questionnaires requesting updated information for emissions from fuel-burning equipment. City officials told us that responses to the questionnaires had been

received and that the results should be tabulated and summarized in February 1971.

From 1966 to 1969 the city compiled data on particulate emissions from other sources. A 1966 study indicated that about 15,200 tons of suspended particulates were emitted annually from sources used for solid waste disposal. In 1967 the city estimated that about 13,700 tons of particulates were emitted annually from transportation sources. Also in 1967 the city completed an inventory of particulate emissions from industrial process losses, which has been updated annually, as follows:

Particulate Emissions From
Industrial Process Losses

<u>Year</u>	<u>Tons</u>
1967	90,000
1968	110,000
1969	84,300

Although some of the other local agencies in the Chicago control region were in the process of compiling emission inventories, none had completed any such inventory.

AIR MONITORING

APCO guidelines for the development of implementation plans provide that a system for surveillance of air quality is necessary to assess progress being made in implementing air quality standards within a region and to identify potential high pollutant concentrations in time to take preventive action.

An air-monitoring system is the means by which data is obtained on the nature and extent of pollution in the atmosphere. Such a system consists of a network of air-sampling and meteorological instruments located to provide representative coverage of an area. The devices in the network range from simple static devices, such as dustfall jars, to sophisticated equipment that automatically samples and analyzes pollutants and telemeters the data to a central receiving station for immediate interpretation. Generally separate equipment is required for each pollutant.

The following table shows the air-monitoring stations for sulphur dioxide and particulates for each of the agencies within the Chicago region.

<u>Agency</u>	<u>Number of Air-monitoring Stations</u>		
	<u>Total</u>	<u>Sulphur dioxide</u>	<u>Particulates</u>
Illinois:			
Chicago	20	20	20
Cook County	16	8	15
Indiana:			
Gary	6	3	6
Hammond	4	3	4
East Chicago	5	5	5
Lake County	8	8	8

In 1963 the city of Chicago established an air-monitoring network of 20 stations with manual sampling equipment to monitor sulphur dioxide and/or particulates. In 1965 telemetered air-monitoring equipment was installed at eight of the stations to monitor sulphur dioxide. By July 1970 the eight telemetered stations also monitored particulates.

APCO criteria for particulates states that adverse health effects are noted when the annual geometric mean level of particulate matter in the atmosphere exceeds 80 micrograms per cubic meter. Data obtained by the city from the manual equipment at the 20 stations indicated that the level of particulates in the air had remained relatively constant since 1965. As shown by the following table, the annual average has been about 50 percent higher than APCO's criteria of 80 micrograms per cubic meter.

<u>Year</u>	<u>Micrograms per cubic meter</u>
1965	123
1966	133
1967	115
1968	123
1969	120

Not only did the annual average exceed APCO's criteria, but also the particulate readings at each of the 20 stations exceeded 80 micrograms per cubic meter.

APCO criteria for sulphur dioxide states that adverse health effects are noted when the annual arithmetic mean level of sulphur dioxide in the atmosphere exceeds .04 parts per million. Data obtained by the city from the manual equipment at the 20 station network indicated that the annual average of sulphur dioxide had declined from a high of .053 parts per million in 1966 to .026 parts per million in 1969. At four of the stations, however, the level of sulphur dioxide in 1969 exceeded .04 parts per million.

Data obtained from the telemetered equipment at the eight stations for the same period indicated that the level of sulphur dioxide remained relatively constant at an annual average of .06 to .07 parts per million. City officials told us that they had experienced technical difficulties with the telemetered equipment and that the telemetered information was not as reliable as that obtained from the manual equipment at the 20 stations. City officials stated that data on overall trends in air quality was obtained from the manual equipment at the 20 stations and that data from the telemetered system was used primarily for predicting

adverse conditions that might necessitate the activation of an emergency episode plan.¹

In commenting on the telemetered air-monitoring system, APCO technical staff members who had reviewed the City's program in May 1970 stated that:

"The maintenance and servicing of this network has proven to be a serious problem. Some of the problems are associated with location (accessible only during 8 to 5 working hours), lack of space, nonrepresentable areas (severe influence of local sources), etc. As a result the system has not provided the quality and quantity of data expected."

Four of the Cook County air-monitoring stations are telemetered and are interconnected with Chicago's eight telemetered stations. None of the local agencies in Indiana have telemetered equipment, and local agency officials told us that they had no plans for installing telemetered equipment. The officials also stated that there was no interconnection of air-monitoring stations between the Indiana agencies; nor was there any interconnection between State and/or local agencies in Illinois and State and/or local agencies in Indiana.

As part of its surveillance program, the city desired to install "eye in the sky" cameras at strategic locations throughout the city. These cameras were to revolve and have the capability of detecting areas of intensive pollution. The city purchased, with non-Federal funds, one eye-in-the-sky camera in 1966 at a cost of \$5,500.

In its grant application for 1969, the city requested \$75,000 to purchase and install a microwave station that included an additional eye-in-the-sky camera. APCO's grant

¹A plan for short-term control designed to protect the public against the acute effects of high concentrations of pollutants. The plan includes methods of identifying situations where corrective action should be taken and procedures and strategies for control when action is necessary to prevent further deterioration of air quality.

to the city for 1969 included the requested \$75,000. APCO advised the city, however, that, before expending Federal funds for the microwave station, APCO approval was required. The city did not purchase the station.

ENFORCEMENT

The city of Chicago has attempted to control air pollution by enforcement of ordinances, operation of a permit system for construction, and encouraging private industry to take appropriate control measures voluntarily. City ordinances prohibit open burning and burning of refuse in boilers, limit the amounts of visible and particulate emissions, and, since July 1, 1970, provide a timetable for reduction of sulphur content in fuels.

Enforcement activities have been directed principally toward ensuring compliance with the ordinances pertaining to particulate emissions. As of February 1970 the city had 37 inspectors and 20 radio-equipped vehicles used primarily to enforce ordinances pertaining to particulates. Thirty-one inspectors patrolled the city to detect emissions, and six inspectors investigated citizen complaints and odor problems.

Offenders involved in minor violations of the ordinances were ticketed and fined \$10 prior to June 1, 1970, and fined \$100 after that date. Repetitive offenders and offenders involved in major violations of the ordinances were subject to fines of from \$10 to \$200 prior to June 1, 1970, and from \$100 to \$500 thereafter. The ordinances also provided for the sealing of equipment that was in violation of emission standards. That action, however, had to be approved by the mayor.

The following statistics taken from the city's annual reports summarize the actions taken for calendar years 1965-69.

<u>Action taken</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Tickets issued	2,635	2,156	1,876	1,752	3,517
Suits originated	523	307	253	291	411
Fines levied from court action	609	291	250	302	336

The fines levied prior to June 1, 1970, in accordance with the city's ordinance, did not, in many instances, provide an effective deterrent to polluters, because they were

not commensurate with the cost of installing pollution control equipment.

For example, a smelting company had a record of violations of the ordinance since 1965 and had been fined \$10 on several occasions. Furthermore, between September 1969 and March 1970, the city filed nine suits against the company--four of which had been brought to court by June 1970. In all four cases the company was found guilty of violating the ordinance; however, the fines levied totaled only \$250 plus \$20 court costs for the four suits. City officials estimated that effective pollution control equipment for the company would cost about \$20,000.

The city used a permit system to control certain emissions--primarily particulates. Before the installation, construction, or alteration of industrial process, fuel-burning, or refuse-burning equipment, a permit had to be obtained from the Chicago Building Department. A permit was issued when an air pollution control engineer reviewed the plans and specifications of the proposed equipment and concluded that air pollution requirements were complied with.

The equipment was inspected after it had been installed to ensure that it conformed with the plans and specifications. A certificate of operation was granted if the installed equipment met the city's air pollution requirements. The equipment is inspected annually and the certificate must be renewed each year.

The city had about 20 employees who inspected facilities that burned fuel or refuse. When inspections disclosed defects that could alter the burning characteristics of the equipment, the inspectors issued defect notices to the owners of record. City regulations provided that, when owners did not respond to defect notices, second and third notices were to be sent to the owners. If the defects were not corrected after three notices were issued within a 90-day period, their certificates of operation could be revoked. City officials told us that they issued about 15,000 defect notices annually.

We found that the first defect notices were issued on a timely basis but that, in many instances, the second and

third defect notices were not sent within the prescribed 90-day period. Also, notifications of corrective action were not verified by city personnel until the following year's inspection. As a result there were no assurances that defects were in fact corrected as reported.

The city had a staff of seven engineers to inspect about 2,100 plants that had particulate emissions from industrial processes. Plants that operated in compliance with particulate emission standards were awarded certificates of operation. Plants that did not comply with the standards were denied a certificate and given the opportunity to reduce emissions to an acceptable level through engineering control programs.

City personnel provided technical assistance to plants operating under control programs and monitored the progress of the programs. The city also agreed not to initiate court action for violation of the standards against the plants while operating under the control programs. Plants were given a reasonable time to correct the deficiencies. The city's policy was to give plants a 6-month "period of grace" if the control programs could be completed within that time. If the completion of their control programs exceeded 6 months, the plants had to obtain the city's agreement to vary from the city's ordinances.

The city's policy was to review a plant's progress under its control program and to issue certificates of operation when the deficiencies had been corrected. Plants that did not make satisfactory progress or did not correct the deficiencies within the agreed period were subject to court action.

City of Chicago records showed that 107 companies that emitted an estimated 93,000 tons of particulates annually were operating under control programs as of May 1970. Of the companies, 24 substantially had completed the control programs and were awaiting inspections for the purpose of obtaining certificates of operation; 20 companies had failed to comply with their control programs and had been referred to the courts for enforcement action; 62 companies were in the process of complying with their programs; and one company had gone out of business.

Through its ordinances, permits, and plants' control programs, the city of Chicago has the means for an effective program. As part of another review, we are examining into the effectiveness of Federal, State, and local air pollution control agencies' enforcement activities. The Illinois, Indiana, and Chicago agencies have been included in that review. We expect to complete the review and issue a report to the Congress by the end of 1971.

APPENDIX

JOHN SPARKMAN, ALA., CHAIRMAN
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United States Senate

COMMITTEE ON BANKING AND CURRENCY

WASHINGTON, D.C. 20510

January 30, 1970

The Honorable Elmer B. Staats
 Comptroller General of the United States
 441 G Street, N.W.
 Washington, D.C. 20548

Dear Mr. Staats:

Please find enclosed copies of two recent CHICAGO TRIBUNE articles wherein it is alleged that Federal air pollution control funds may be misused by the City of Chicago.

One article appears to bring into question the whole concept of a State's delegation of air pollution control operations and the Federal Government's authority to sanction them. In addition, serious questions would appear to exist over the effective use of equipment acquired through Federal Financial assistance.

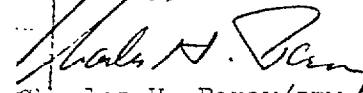
The second article raises serious concern over the contribution of Federal funds to the City of Chicago for employment of air pollution inspectors and the value the taxpayers are getting from the expenditure of such funds.

In light of these articles and with the growing incidence of air pollution in Chicago and elsewhere, I believe it would be most worthwhile if the General Accounting Office could use these alleged incidents to examine into the administration of the air pollution control program by the Department of Health, Education, and Welfare, treating Chicago as a test case.

I recognize that the General Accounting Office has a heavy workload, but your experienced investigators are ideally suited to determine how effectively this program is being managed. I know you agree that the increasing incidence of environmental pollution demands that agencies charged with pollution control perform effectively.

I appreciate your taking the time to consider this request, and hope you will have the resources to devote to it.

Sincerely,


 Charles H. Percy/zpw
 United States Senator