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History of Air Pollution Legislation in the United States

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History is more than a chronology of the flow of events. It also includes explanation as to why these events occurred; why they occurred at the time, and in the form that they did; and what were their consequences.

This history must, of necessity, be abridged, because it would take much more than the allotted space fully to cover the history of municipal legislation in each of our hundreds of cities, county legislation in each of our numerous counties, state legislation in all of our 50 states, and our federal legislation. In this paper only the history of federal legislation is presented in detail. The history of municipal, county, and state legislation is presented only in broad brush terms. No attempt is made in this paper to cover the development of air pollution regulations.

For the first hundred years of the existence of the United States, air pollution problems were settled by litigation among the parties involved rather than by legislation. During these hundred years, problem resolution was originally by private litigation to abate air pollution as a common law nuisance, either as a private nuisance, a public nuisance, or a trespass. This was before the time (about 1881) when the first legislation was enacted specifically declaring the emission of smoke to be a public nuisance.

The next development, which occurred around the turn of the century was "the general acceptance by the courts of laws prohibiting the emission of specified levels, or quantities, of air pollutants without an accompanying declaration that such emissions constituted a public nuisance"¹ and that such action was within the police power of the state. "As air pollution control began to move away from reliance on this theory of nuisance, it became apparent that the prevention of air pollution was at least as important, if not more important, than abatement after the fact; that, under appropriate legislation, preventative action was possible."¹ Thereafter abatement of air pollution under the nuisance doctrine gradually gave way to resolution of the problem by governmental agencies created by specific air pollution control legislation.

The first municipal legislation was in 1881 in Chicago, IL and Cincinnati, OH. State legislation between 1910 and 1912 provided for smoke abatement in Boston, MA and Providence, RI. The first county legislation was for Albany County, NY about 1913, and the first comprehensive state legislation was

that of Oregon in 1952. The first federal air pollution law was in 1955. Our information on local and state air pollution legislation in the U.S. (Table I) comes mainly from publications of the Bureau of Mines of the U.S. Department of the Interior, the Manuals of Ordinances and Regulations published by the Smoke Prevention Association of America (the predecessor organization of APCA), APCA, the U.S. Environmental Protection Agency, and the chapter on legislation by Seamans in the *Air Pollution Handbook*.²

A number of jurisdictions, over the years, passed air pollution regulatory laws and ordinances which they failed to implement by not providing the organization, personnel, or fiscal means for enforcement. Because of differences of definition of whether a jurisdiction was or was not implementing its law or ordinance, Table I (and later in the paper, Table III

Table I. Development of American municipal, county, and state air pollution control legislation from 1880 to 1980.

	Municipal ^a	County ^b	State ^c
1880			
1890	2		
1900	5		
1910	23		
1920	40	1	
1930	51	2	
1940	52	3	
1950	80	2	
1960	84	17	8
1970	107	81	50
1980	81	142	50

^a Includes city-county agencies (See Table III).

^b Includes multi-county agencies, each such agency counted as one agency (See Table III).

^c See Table VII.

and VII), may differ from similar tables published elsewhere. Thus, according to my definition, in 1920 there were about 175 municipalities which had ordinances, but only about 40 operating smoke abatement agencies; and in 1940 there were about 200 municipalities with ordinances but only about 52 operating smoke abatement agencies.

In the hundred year span from 1881 to 1981 there have been leaders in each of the cities, counties, and states without whom little would have been accomplished. My personal hall of fame of deceased Americans who achieved national recognition for their pioneering efforts in smoke abatement and air pollution control is offered as Table II.

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Table II. Hall of Fame of 30 deceased American smoke abatement and air pollution control pioneers.

Name	Claim to fame in smoke abatement or air pollution control	Decades of principal activity
Harry C. Ballman	Association Executive, Washington, DC	1940-60
John F. Barkley	Engineer-Consultant, Washington, DC	1920-50
James H. Carter	Control Officer, St. Louis, MO	1940-60
Frank A. Chambers	Control Officer, Chicago, IL	1900-50
William G. Christy	Control Officer, Jersey City, NJ	1920-50
Francis G. Cottrell	Engineer-Inventor, Riverside, CA	1910-30
Ward F. Davidson	Engineer-Consultant, New York, NY	1940-60
Sumner B. Ely	Control Officer, Pittsburgh, PA	1940-60
W. Lawrence Faith	Scientist-Consultant, San Marino, CA	1950-80
Samuel B. Flagg	Engineer-Consultant, Washington, DC	1910-20
S. Smith Griswold	Control Officer, Los Angeles, CA	1950-70
Arie J. Haagen-Smit	Scientist-Administrator, Pasadena, CA	1940-80
John K. Haywood	Plant Pathologist, Washington, DC	1900-10
George R. Hill	Scientist-Administrator, Salt Lake City, UT	1940-60
Ozni P. Hood	Engineer-Administrator, Washington, DC	1910-30
Charles Howison	Association Executive, Cincinnati, OH	1940-60
Henry Kreisinger	Engineer-Research, Pittsburgh, PA	1920-40
Herbert B. Lammers	Association Executive, Cincinnati, OH	1940-60
Louis C. McCabe	Engineer-Consultant, Washington, DC	1940-70
Paul L. Magill	Engineer-Editor, Menlo Park, CA	1940-60
Frederick Mallette	Association Executive, New York, NY	1940-60
Thomas Marsh	Association Executive, Cleveland, OH	1920-40
Herbert B. Meller	Control Officer, Pittsburgh, PA	1920-40
Osborne Monnett	Control Officer, Chicago, IL	1910-30
Helmuth H. Schrenk	Scientist-Research, Pittsburgh, PA	1940-60
Robert E. Swain	Scientist-Administrator, Palo Alto, CA	1900-50
Moyer D. Thomas	Scientist-Editor, Salt Lake City, UT	1930-70
Julian E. Tobey	Association Executive, Cincinnati, OH	1930-50
Raymond R. Tucker	Control Officer-Mayor, St. Louis, MO	1930-50
Thomas C. Wurts	Control Officer, Pittsburgh, PA	1940-50

Local (Municipal and County) Air Pollution Control Legislation (Table III)

Some of the smoke abatement ordinances of the late 1800s³ required that furnaces consume the smoke produced or employ a device that would do so. These ran into trouble in the courts which ruled that there were no such furnaces or devices available. In the early 1900s, smoke defined variously as "dense," "black," or "grey," was prohibited, generally with an exception of a certain number of minutes per hour, for start-up, cleaning fires, etc. Problems with definition of "dense, black, or grey" led to the adoption, in the first quarter of the century, of definition of smoke density by Ringelmann Chart number or percent opacity. Originally almost all com-

Table III. Development of principal American municipal smoke abatement legislation prior to 1930.

Decade	Cities
1880-1890	Chicago, IL; Cincinnati, OH
1890-1900	Cleveland, OH; Pittsburgh, PA; St. Paul, MN
1900-1910	Akron, OH; Baltimore, MD; Boston, MA; Buffalo, NY; Dayton, OH; Detroit, MI; Indianapolis, IN; Los Angeles, CA; Milwaukee, WI; Minneapolis, MN; New York, NY; Newark, NJ; Philadelphia, PA; Rochester, NY; St. Louis, MO; Springfield, MA; Syracuse, NY; Washington, DC
1910-1920	Albany County, NY; Atlanta, GA; Birmingham, AL; Columbus, OH; Denver, CO; Des Moines, IA; Duluth, MN; Flint, MI; Hartford, CT; Jersey City, NJ; Kansas City, MO; Louisville, KY; Lowell, MA; Nashville, TN; Portland, OR; Providence, RI; Richmond VA; Toledo, OH
1920-1930	Cedar Rapids, IA; East Cleveland, OH; Erie County, NY; Harrisburg, PA; Grand Rapids, MI; Lansing, MI; Omaha, NE; Salt Lake City, UT; San Francisco, CA; Seattle, WA; Sioux City, IA; Wheeling, WV

Table IV. Percent of American local regulations prohibiting visible emissions of various opacities from stationary sources.³

Emission greater than percent opacity prohibited	Percent of regulations prohibiting visible emissions				
	1940	1950	1960	1965	1975
60	81	69	41	32	3
40	19	31	59	66	33
20	0	0	0	2	56
0	0	0	0	0	8

munities prohibited smoke darker than #3 on the Ringelmann scale (60% opacity). Since then there has been a progressive decrease in allowable smoke density (Table IV).⁴ In most communities, private dwellings were exempted from regulation until the 1940s. Communities with railroads or marine traffic included special regulations for smoke and cinder emission from locomotives and steamships. Ordinance provisions requiring approval of plans and specifications of installations of fuel burning equipment and the issuance of construction and operating permits developed during the first quarter of the century; those for annual inspection of instal-

Table V. Number of American communities adopting various emission standards for total solid particulate pollutants in effluent gases from the combustion of fuels.⁴

mg/m ³ STP (equivalent) ^a	Before 1949	1950-1959	1960-1965	Total
Over 1030	4	5	1	10
1030	12	24	4	40
840-1030	0	4	4	8
Under 840	0	3	6	9
Total	16	36	15	67

^a Adjusted to either 12% CO₂, 50% excess air or 6% O₂.

Table VI. Model smoke abatement ordinances.

1930	U.S. Bureau of Mines
1938	Smoke Prevention Association of America
1939	Stoker Manufacturers Association
1939	American Society of Heating and Ventilating Engineers
1949	American Society of Mechanical Engineers
1949	Coal Producers Committee for Smoke Abatement
	a) Model Smoke Abatement Ordinance
	b) Model Railway Smoke Abatement Ordinance
1950	National Institute of Law Officers

lations, solid fuel specification and testing, and dealer licensing developed during the second quarter of the century. Installations were required to meet rigidly specified furnace design specifications during the first quarter of this century. These were relaxed and more attention paid to performance specifications during the second quarter.

To understand why these events occurred, their timing, form, and consequences, it is necessary to review briefly the

technology of fuel utilization in the U.S. in the period from 1880 to date. At the start of this period, the principal fuel was bituminous coal and the principal means of firing it was by shoveling it onto an up-draft stationary flat grate, with the consequent production of dense smoke whenever a shovelful landed on the burning fuel bed. Alternatives immediately available were carefully-planned, rather than random, shoveling, down-draft, and the use of anthracite and low-volatile content bituminous coal or coke, all of which were more expensive than soft coal. Development over the ensuing decades, motivated in part by the desire to abate smoke, but also to increase combustion efficiency and capacity, and decrease labor, led sequentially to a variety of forms of automatic stokers, of pulverized coal firing, of oil and gas burning furnaces, and of the totally electric home. Each of these successive developments decreased the amount of smoke emitted per Btu utilized, but, all of them except oil and gas firing increased emissions of solid particulate matter so that as progress was made toward eliminating smoke emissions, a major

Table VII. State air pollution control legislation.

State	Date of original law	Number of original law	Dates of amendments
Alabama	1969	Title 22, Chapt. 28, Act. 1135, S 520	1971, 1980
Alaska	1969	Title 44, Chapt. 46; Chapt. 86 (1969)	1971, 1972, 1973, 1976, 1977, 1978
Arizona	1967	Title 36, Chapt. 6, Art. 8; Chapt. 2 (1967)	1969, 1970, 1971, 1972, 1973, 1974 1975, 1976, 1977, 1978
Arkansas	1965	Sec. 81-1901 et seq., Act 183 (1965)	None
California	1956	Div. 1, Part I, Chapt. 2, Art. 9, Div. 26	1960, 1967, 1968, 1979, 1980
Colorado	1966	Title 25, Art. 7, Senate Bill 69 (1970)	1969, 1973, 1974, 1977, 1978, 1979
Connecticut	1967	Title 22a, Chapt. 360; Chapt. 439 (1971)	1971, 1973, 1974, 1975, 1977, 1978, 1979
Delaware	1966	Title 7, Chapt. 60; Chapt. 442, Vol. 55, Title 29, Chapt. 80 (1966)	1969, 1974, 1975, 1977, 1979
Florida	1957	Chapt. 403 Part I; Chapt. 88-9 (1957)	1967, 1969, 1970 thru 1978
Georgia	1967	HB 1545 (1978); Chapt. 88-9 (1967)	1978
Hawaii	1957	Chapt. 342 (1972); Chapt. 47 part V (1957)	1972, 1973, 1974, 1977, 1979
Idaho	1959	Title 39, Chapt. 1	1967, 1972, 1973, 1975, 1976, 1978
Illinois	1963	PA76-2429 (1970); House bill 3788 (1963)	1970, 1977, 1978, 1979, 1980 1981
Indiana	1961	Title 13, Art. 1, Chapt. 1; Chapt. 171 (1961)	1969, 1978
Iowa	1967	Title 17, Chapt. 445B (1977); Chapt. 162 (1967)	1971, 1977
Kansas	1967	Chapt. 65, Art. 30; Chapt. 347 (1967)	1970, 1973, 1974, 1975, 1976, 1978
Kentucky	1966	Chapt. 224, Revised Statutes	1968, 1972, 1974, 1976, 1978
Louisiana	1964	Title 30, Chapt. II (1979); Chapt. 12 Title 40 (1964)	1979, 1980
Maine	1969	Title 38, Chapt. 4; Chapt. 474 (1969)	1971, 1972, 1973, 1975, 1976, 1977, 1979, 1980
Maryland	1967	Article 43, Sec. 690-706.	1970, 1979
Massachusetts	1954	Chapt 111, Sec 31C (insert Chapt. 672)	1959, 1963, 1967, 1969, 1971, 1974, 1975, 1979
Michigan	1965	Act. 348 (1965)	1967, 1972, 1976
Minnesota	1967	Vol. 9, Chapt. 116; Chapt. 882 (1967)	1969, 1971, 1973, 1974, 1976, 1979, 1980
Missouri	1965	Title 12, Chapt. 203; pp. 335 et seq. (1965)	1967, 1972, 1979
Mississippi	1966	Title 49, Chapt. 17; Chapt. 258 (1966)	1968, 1970, 1971, 1974, 1977, 1978, 1980
Montana	1967	Title 75, Chapt. 2; Chapt. 313 (1967)	1974, 1975, 1977, 1979
Nebraska	1969	Chapt. 81, Art 15	1971 thru 1977, 1979, 1980
Nevada	1967	Title 40, Chapt. 445	1971, 1973, 1975, 1979
New Hampshire	1967	Chapt. 125C, Art. 433	1979
New Jersey	1954	Chapt. 212, Title 26	1962, 1967, 1970
New Mexico	1967	Chapt. 277 (1967)	1970 thru 1974, 1979
New York	1961	Book 44, Sec. 1264 to 1299	1970, 1972 thru 1979
North Carolina	1967	Chapt. 892 (1967) (Rewriting Art. 21, Chapt. 143)	1969, 1971, 1973, 1975, 1977, 1979
North Dakota	1969	Title 23, Chapt. 23-5; Chapt. 260 (1969)	1971, 1975, 1979
Ohio	1967	Title 37, Chapt. 4; Vol. 132-H689 (1967)	1971, 1972, 1973, 1975, 1979
Oklahoma	1967	Title 63, Art 18; Chapt. 801 (1967)	1971, 1975, 1978, 1981
Oregon	1952	Chapts. 181, 184 and 353 (1979)	1961, 1969, 1977, 1979
Pennsylvania	1960	Title 35, Chapt. 23; PL 2119 (1960)	1968, 1970, 1972, 1976, 1978
Rhode Island	1966	Title 23, Chapt. 23; PL 256 (1966)	1970, 1971, 1974, 1977, 1978, 1979, 1980
South Carolina	1965	Title 70, Chapt. 3, Secs. 70-123	1970, 1971, 1973, 1974, 1975
South Dakota	1970	Chapt. 203, Senate Bill No. 8, Chapt. 34-16A	1973
Tennessee	1967	Title 53, Chapt. 34, Sect 3408-22; Chapt. 367 (1967)	1969, 1970 thru 1975, 1977 thru 1979
Texas	1965	Title 71, Chapt. 4A, Art. 4477-5, Sect. 1-19	1967, 1969, 1971, 1973
Utah	1967	Title 26, Chapt. 24; Chapt. 47 (1967)	1969, 1971, 1973, 1975, 1979
Vermont	1968	Title 10, Chapt 15, Nos. 351-37; Chapt. 47 (1967)	1971, 1972, 1974
Virginia	1966	Title 10, Chapt. 1.2	1970 thru 1973, 1975 thru 1979
Washington	1967	Title 70, Chapt. 70.94; Chapt. 238 (1967)	1969, 1970 thru 1975, 1977, 1979
West Virginia	1961	Chapt. 16, Art. 20; Chapt. 63 (1961)	1963, 1967, 1971, 1979
Wisconsin	1967	Chapt. 83	1977, 1979
Wyoming	1967	Cumulative Supplement, Chapt. 9	1973, 1974, 1975, 1977, 1978

cinder and fly ash problem was created. This was coped with, legislatively, by incorporation in municipal ordinances, starting in the 1930s, of gravimetric emission limits for solid fuel combustion, expressed as grams per cubic foot (STP) of effluent gas, or as pounds per thousand pounds of gas (Table V). In the 1940s, gravimetric limits for solid particulate matter from sources other than solid fuel combustion, and, in the 1950s, standards for the emission of gases, began to be incorporated into ordinances.

During the two decades before 1950, a number of organizations published model smoke abatement ordinances to help communities in the drafting of their legislation (Table VI).

The development of municipal ordinances reached their zenith in the period from 1945 to 1950, with the St. Louis, MO ordinance the exemplar. The exemplar for county ordinances which occurred in the next decade was Allegheny County, PA. Prior to 1958, 18 cities had limitations on the volatile content of coal to be burned. By 1966 there were about 6 communities with limits on the sulfur content of fuel.

In 1946 there were 2 cities; in 1956, 3 cities and 2 counties, and by 1966, 53 cities, and 12 counties with regulations on solid particulate matter emissions from solid fuel combustion sources, including 7 cities and 4 counties with regulations specific for incineration of refuse. By 1966 fifteen cities and 6 counties regulated solid particulate matter emissions from sources other than solid fuel combustion, including two each which regulated metallurgical operations emission. Also 3 cities and 5 counties regulated SO₂ emissions and 2 counties limited organic chemical emissions.

By 1974, there were 40 county ordinances with ambient air quality limits for 19 substances, and 21 municipal ordinances with ambient air quality standards for 13 substances.⁵ There were emission standards in over 50 city and county regulations for 29 substances.

State Air Pollution Legislation

The earliest state legislation regulating air pollution that has come to my attention is the Ohio law passed before 1897 requiring that every steam boiler in any city of the first grade of the first class (which most likely meant Cleveland and Cincinnati) shall be constructed or altered "to prevent the production and emission of smoke so far as the same is possible" and that these furnaces be so operated "on pain of fine to the operator." In 1910 and 1912, respectively, the Massachusetts and Rhode Island legislatures passed smoke control laws for Boston and Providence. By the time state agencies proliferated in the 1950s and 1960s, the black smoke problems of the first half of the century had largely disappeared because of the changes in the methods of fuel utilization previously discussed. The first state law to tackle air pollution other than black smoke was the California law of 1947 authorizing counties to regulate air pollution. The first state law to provide state-wide authority to a state air pollution control agency was in Oregon in 1951 (California did not do so until 1957 and only with respect to motor vehicles). The sequence of adoption of state air pollution control legislation is given in Table VII. Although Table I lists only 8 states with air pollution control laws in 1960, there were 9 other states that carried on some state-wide air pollution activities under the authority of their general public health law, and 8 states had enacted legislation authorizing local air pollution control agencies to transcend municipal boundaries i.e. to form city-county or multiple county control agencies.

There has been great reluctance by the states to set air quality standards until forced to do so by the promulgation of National Ambient Air Quality Standards. Prior to 1960 there were no state air quality or deposited matter standards. By 1966, ten states, California, Colorado, Delaware, Missouri, Montana, New York, Oregon, Pennsylvania, South Carolina, and Texas had adopted Ambient Air Quality standards for a

total of 14 substances, and for deposited matter. By 1976, nine additional states, Idaho, Kentucky, Louisiana, Minnesota, New Hampshire, New Mexico, North Dakota, Tennessee, and Washington, had adopted such standards but for only two additional substances, but all fifty states had to adhere to the ambient air quality or deposited matter standards for the substances for which EPA had adopted such standards (Table VIII).

Since federal fiscal support of state (and local) agencies, and federal regulatory authority in interstate air pollution, did not start until 1963, there was only the relatively brief period from 1951 to 1963 during which other states could follow the lead of Oregon without federal involvement. It was not until 1967 that there was federal preemption of control of pollution from new motor vehicles, except for California. Prior to 1967, although this area of legislation was open to all the states, only California took advantage of it by adopting state new vehicle regulations in 1960. Prior to the Clean Air Act Amendment of 1970, which set a completely new set of federal-state relations in air pollution control, there were several provisions of federal legislation in which states could have become involved but in which the states unanimously elected not to become involved. These included the opportunity to associate with one another in interstate compacts (1963), to form interstate air quality control agencies to operate in federally designated interstate air quality control regions (1967), and to set air quality standards for these regions.

The only federal legislative provisions from 1955 to 1970 that were favorably responded to by the states were federal research funds available to their academic institutions, federal training programs available to their staffs, and federal technical assistance available to them after 1955, and the various forms of fiscal aid offered them starting in 1963. The increase in municipal and county programs between 1960 and 1970 (Table I) was in part due to the fact that local programs were eligible for federal fiscal aid separate from that available to the states in which they were located. At least one state provided fiscal aid to its cities and counties for this purpose. During the 17-yr period from 1952 to 1970, all the states adopted state-wide air pollution control legislation (Table VII), some of which substituted state for local control; others of which supplemented existing local control with state control in areas without effective local control; and still others of which reorganized existing local control so as to provide local control for all areas of the state.

From Table VII, it is apparent that prior to the passage of PL88-206 "The Clean Air Act of 1963," which made grants-in-aid available to the states, only 11 states had adopted air pollution control legislation but in the six years after the

Table VIII. State air quality and deposited matter standards.^{3,4}

Pollutant	Number of states having such standards	
	1966	1976
Air quality		
Total suspended particulate matter	9	50
Oxidant (ozone)	4	50
Carbon monoxide	3	50
Oxides of nitrogen	2	50
Hydrocarbons	0	50
Hydrogen sulfide	6	8
Fluorides	3	6
Beryllium	4	5
Sulfuric acid	3	3
Sulfates	3	3
Lead	2	3
Lime (CaO)	1	1
Asbestos	0	1
Heavy metals	0	1
Ethylene	1	0
Deposited matter	5	10

availability of grant funds, all the remaining states adopted such legislation, presumably to take advantage of federal grant support for programs in their states. In this author's opinion, this eventual development of viable state air pollution control agencies in every state has been the most significant result of federal air pollution control legislation to date.

The Clean Air Act Amendment of 1970 made all the areas of all the states air quality control regions, so that each state had to review its legislation to insure that it provided coverage of all areas of the state. In so doing, many states elected to form single county, multi-county, and city-county air pollution control agencies. As a result, some pre-existing municipal air pollution control agencies were incorporated in these newer units and lost their earlier identity. This accounts for the decrease of municipal programs and increase in county programs between 1970 and 1980 (Table I).

In the 1970s, federal policy was to encourage states to assume as much as possible of the regulatory burden of the 1970, 1974, and 1977 federal air pollution acts. This has required of the states wishing to do so whatever alignment of state legislation that was necessary. In 1956 no state had regulations covering stationary source emissions. By 1966, 6 states had regulations on solid particulate matter emissions, all 6 for incinerators; 3 each for other combustion sources, hot-mix asphalt plants and metallurgical operations; and 2 for cement plants. By 1976, all states had regulations covering particulate matter emissions from all the above processes and some states

regulated 52 other industrial operations. By 1966, 3 states had regulations on SO₂ emissions, 2 on H₂SO₄ emissions, and one each on fluoride, hydrocarbon, and NO_x emissions. By 1976, all states had regulations covering SO₂, H₂SO₄, and NO_x emissions, 6 covered HC and 5 covered F and all states regulated CO and H₂S emissions. Fifty-one other substances were covered in at least one state.

Since 1976 the issuance of additional federal new source performance standards by EPA has increased the number of processes regulated by essentially all states as state regulations have kept pace with federal regulations.

There were no state standards for the sulfur content of fuels prior to about 1968, at which time, three states adopted such standards. By 1976, 8 states had adopted sulfur content limits for liquid fuel and 6 for solid fuel.

Federal Air Pollution Legislation (Table IX)

Public Law 84-159, The Air Pollution Control Act (1955)⁶⁻⁸

Air pollution hit the national headlines in the 1940s with the Donora, PA episode and Los Angeles smog. The former caused a ripple of concern but was soon forgotten, but the latter continued, grew in intensity, and precipitated the expenditure of millions of dollars for research as to its cause and cure—first by the City and County of Los Angeles, and by local industry, and later by the State of California.

Table IX. Principal federal air pollution control legislation.^a

Public Law	Name of law	Date of signature	Congressional bill	Statutory designation	Codification	Table no. of legislative history
84-159	Air Pollution Control Act	6/14/55	S928	69 Stat 3221		
86-365	Air Pollution Control Act, Extension	9/22/59	HR7476	73 Stat 646		
86-493	The Motor Vehicle Exhaust Study Act of 1960	6/8/60	HR3238	74 Stat 162		
87-761	Air Pollution Control	10/9/62	S455	76 Stat 760		
88-206	The Clean Air Act of 1963	12/17/63	HR6518	77 Stat 392	42 USC 1857 <i>et seq.</i>	X
89-272	The Motor Vehicle Air Pollution Control Act	10/20/65	S306	79 Stat 992	42 USC 1857 <i>et seq.</i>	
89-675	The Clean Air Act Amendments of 1966	10/15/66	S3112	80 Stat 954	42 USC 1857 <i>et seq.</i>	
90-148	The Air Quality Act of 1967	11/21/67	S780	81 Stat 485	42 USC 1857 <i>et seq.</i>	XI
91-604	The Clean Air Act Amendments of 1970	12/31/70	HR17255	84 Stat 1676	42 USC 7401 <i>et seq.</i>	XII
92-157	The Comprehensive Health Manpower Training Act of 1971 (Technical Amendments to PL 91-604)	11/18/71				XII
93-15	Clean Air Act, Extension	4/9/73	HR5445	87 Stat 11	42 USC 7401 <i>et seq.</i>	
93-319	Energy Supply and Environmental Coordination Act of 1974	6/24/74	HR14368	88 Stat 246		XIII
95-95	The Clean Air Act Amendments of 1977	8/7/77	HR6161	91 Stat 685	42 USC 7401 <i>et seq.</i>	XV
95-190	The Safe Drinking Water Act of 1977 (Technical Amendments to PL 95-95)	11/16/77				XV

^a Congressional documents are identified by the number of the Congress and its session. Each Congress lasts two years. The first sessions are the odd years; the second session the even years. The Congresses over the period of this narrative run from the 81st (1950) through the 86th (1960), 91st (1970) and 96th (1980). Congressional documents, reports and public laws are given sequential numbers prefixed by the number of the Congress, e.g. 91-26. Bills introduced in the Senate are designated "S;" those in the House of Representatives "HR." They are separately numbered sequentially in each Congress, starting with "1" for the first bill introduced in each house in each Congress. A bill can emerge from a subcommittee or committee with the same number as a bill considered by the committee or, if the committee makes substantial changes on bills it considered, with a new number. When bills passed by both houses differ, they go to a conference committee of members of both houses to prepare a compromise bill. The committee can give the bill reported out either a Senate or a House number before returning it to both houses for final approval. The Congress can order the preparation and publication of the legislative history of any of its laws and has done so for many of the air pollution control laws.

Congressional hearings and reports are separately published by the Senate and the House. Their contents, debates and related matters are also published in the Congressional Record.

In December 1949 President Truman instructed his Secretary of the Interior to create a federal interdepartmental committee to organize the *First U.S. Technical Conference on Air Pollution*, which was held in Washington, DC in May 1950 with over 750 people in attendance.

The California delegation in Congress felt that air pollution research efforts and cost should be borne nationally rather than just by California, so they initiated federal legislative action in 1950 that has continued to this day. Resolutions to this effect were introduced in the House in 1950 but died in committee, and in 1952, when they passed the House on July 2, 1952 but died in the Senate on July 4, 1952, because of an objection by a conservative Republican senator during a Senate session that could pass bills only by unanimous consent. Similar resolutions were introduced in Congress in 1953 but not acted upon. Senators Thomas H. Kuchel (R.-Calif.) and Homer E. Capehart (R.-Ind.) on August 5, 1954 unsuccessfully tried to add funds for air pollution research to a housing bill. They then recommended that President Eisenhower form an Interdepartmental Committee on Air Pollution. As a result, in the fall of 1954, the Secretary of Health, Education and Welfare appointed an ad-hoc Interdepartmental Committee on Community Air Pollution. The Surgeon General of the Public Health Service was appointed Chairman and there were representatives on the committee of the Secretaries of Defense, Agriculture, Commerce, and Interior, the Atomic Energy Commission, and the National Science Foundation. [NOTE: Hereafter in this text, when the words "the Secretary" are used, they mean the "Secretary of Health, Education and Welfare."]

On January 6, 1955, in his State of the Union message, President Eisenhower asked the Congress to give its attention to the air pollution problems of the nation. In his special message on Health Programs, on January 31, he asked for increased Public Health Service appropriations to be used for air pollution studies. This led to the introduction in the Senate by Senators Kuchel and Capehart of S928, "The Air Pollution Control Act." There being no Senate or House committee charged with responsibility for air pollution legislation, the Senate Subcommittee on Flood Control-Rivers and Harbors, of the Committee on Public Works assumed responsibility and included air pollution in its hearings on Water and Air Pollution Control in April 1955. Although Senator Robert S. Kerr (D.-Okla.) was the subcommittee chairman, he allowed Senator Kuchel to chair the air pollution part of the hearings on the subcommittee bill. S928 was reported out on May 3, 1955, passed the Senate, authorizing \$3,000,000 annually for 5 years for air pollution research, training, and technical assistance. When the House committee reported out the bill in June it increased the authorization to \$5,000,000 annually for five years. (The actual 1956-60 appropriation was \$16,500,000). The House passed the bill on July 5, 1955 by voice vote after making some amendments. On the next day the Senate agreed without debate, to the bill as amended by the House. It was signed by President Eisenhower on July 14, 1955 as P.L.84-159 (69 Stat. 322). The law authorized the Secretary to assist state and local air pollution control agencies by research, training, and technical assistance. The Secretary assigned the responsibility to the Division of Sanitary Engineering Services of the Public Health Service, which had anticipated congressional action by starting these activities at the Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio on January 1, 1955, using its previously appropriated general funds.

**Public Law 86-365—Air Pollution Control Act, Extension
(1959)⁶⁻⁸**

There was no legislative activity in 1956 or 1957, although in 1957 the Surgeon General of the Public Health Service appointed a national advisory committee on community air pollution. Also in 1957, at the urging of the California House delegation, Rep. L. A. Fountain (D.-N.C.) took his Subcom-

mittee on Intergovernmental Relations of the House Committee on Government Operations, to Los Angeles, CA for one day of hearings.

On March 11, 1958, the Special Subcommittee on Traffic Safety of the House Committee on Interstate and Foreign Commerce, with Kenneth Roberts (D.-Ala.) as chairman, held hearings on "Unburned hydrocarbons," after which Rep. Paul F. Schenck (R.-Ohio) introduced HR9368, a bill to require the Surgeon General of the Public Health Service to publish standards on the amount of unburned hydrocarbons from motor vehicles that are safe to human health. The bill was opposed by the Department of Health, Education and Welfare because of the inability of the Public Health Service to define what concentration of hydrocarbons should be considered "dangerous." The bill died in subcommittee. [NOTE: Hereafter in this paper when the word "Department" is used, it means the "Department of Health, Education and Welfare"]. Later in 1958, the above noted House Subcommittee on Intergovernmental Relations touched on air pollution matters in a hearing at which Surgeon General Leroy E. Burney stated that the Department opposed being given air pollution enforcement power because of their inability to prescribe control technology.

On November 18-20, 1958, the Public Health Service held the first National Conference on Air Pollution in Washington, DC. On December 1, 1958 the Secretary (Arthur S. Flemming) recommended that the Federal Government be allowed to hold hearings, and make recommendations on air pollution problems, despite the fact that the Public Health Service was still opposed to assuming more than its then limited apolitical role of research, training, and technical assistance. In April 1959, still without the support of the Public Health Service for these same reasons, Secretary Flemming had his staff draft a bill to incorporate his views on the Department's role in air pollution control. Part of the Public Health Service's concern was that asking the Congress for greater authority might endanger the extension of its existing air pollution authority under the 1955 act which was due to expire, and which the Public Health Service wished to have extended without a date limitation or a limitation on authorized funding. What the Public Health Service really wanted at this stage of air pollution legislation development was not a separate air pollution law but rather incorporation of its air pollution authority in a revision of the organic Public Health Service Act.

In considering the extension of the 1955 act, the Senate Public Works Committee bill retained date and fiscal authorization limits, but changed them to a 4-yr further extension and a \$7,500,000 annual authorization. In April 1959 the bill passed the Senate as reported out by the committee. In May and June 1959 the House Interstate and Foreign Commerce Committee Subcommittee on Health and Safety, with Kenneth Roberts (D.-Ala.) as its new chairman, held two days of hearings on the proposal to extend the Air Pollution Control Act of 1955. The committee's report recommended an annual authorization ceiling of \$5,000,000 and only a 2-yr extension to allow the next Congress (the 87th) to reconsider the whole matter of air pollution legislation. The Committee's bill, HR7476, with these limits passed the House with little debate. The conference committee agreed on a 4-yr extension (which is what the Senate passed) and a \$5,000,000 annual authorization (which is what the House passed). The Conference Committee bill HR7476 passed both houses of Congress as the Air Pollution Control Act Extension and was signed by President Eisenhower on September 22, 1954 as PL 86-365 (73 Stat 646). The actual appropriations for the years 1961-3 were \$25,800,000.

It should be noted that the initiatives by the Senate Committee on Public Works and the House Committee on Interstate and Foreign Commerce resulted in these committees retaining thereafter responsibility for air pollution legislation, although the subcommittees these committees have used for this purpose have kept changing over subsequent years.

(Henceforth, in this paper, the phrases "Senate Committee" and "House Committee" mean these committees. [The Senate Committee changed its name to the "Committee on Environment and Public Works" in 1977]). Thus the House Committee used its Subcommittee on Health and Safety to hold hearings on July 8, 1959 on "Motor Vehicle Safety," that

included testimony relating to automotive air pollution. Following these hearings, Rep. Schenck introduced a revision of his 1958 bill prohibiting the use of motor vehicles in interstate commerce if their emissions were dangerous to health, and, this time, calling for National Uniform Automotive Exhaust Standards. This bill was opposed by both the Public

Table X. Legislative history of PL 88-206, "The Clean Air Act of 1963."

1963		
Jan 17	President Kennedy's Budget Message to Congress asked for an increase in air pollution funds.	to resolve problem before requesting the Secretary to ask the U.S. Attorney General to bring suit.
Jan 23	S 432 "The Clean Air Act" introduced in the Senate by Senator Abraham Ribicoff (D.-Conn.) former Secretary, with 19 co-sponsors, including Senator Thomas Kuchel (R.-Cal.), Mike Mansfield (D.-Mont.), Hubert H. Humphrey (D.-Minn.). Included 10 year/\$74 million grant-in-aid program for $\frac{2}{3}$ cost of establishing and maintaining air pollution control programs, grants allocated on basis of population, extent of air pollution control problem and financial need of recipient agency; special financial incentives for multi city, county, or state (i.e. regional) programs; allow the Secretary to request the U.S. Attorney General to bring suit on behalf of the U.S. to secure abatement of both interstate and intrastate pollution, with written permission of the Governor to initiate intrastate action.	July 9 Report on HR 6518 (Report 88-508).
		July 16 Open rule from Ways and Means Committee for one hour debate on HR 6518.
		July 24 Debate on HR 6518—9 speakers favorable and 4 opposed; move to recommit by Rep. Ralph Harvey (R-Ind.) rejected 41/29. Bill passed on roll call 272-102.
Jan. 23	S 444 Introduced in Senate by Senator Clair Engle (D.-Calif.) and Maurine Neuberger (D.-Ore.), with 9 co-sponsors, including three who were also co-sponsors of S-432.	Sept 9-11 Hearings, "Air Pollution Control," Special subcommittee on Air and Water Pollution, Senate Committee in Washington, DC, on S 432, S 444, S 1009, S1040, S 1124, and HR 6518. 25 persons testified during 14 hours of hearings including Secretary Celbreze and Vernon G. MacKenzie of the Department; the Mayors of Chicago and Pittsburgh, representatives of Los Angeles; associations representing city, county and state governments and industry; as well as four senators supporting the legislation.
Feb 7	President Kennedy's Special Message on Health to Congress endorsed the concepts included in S-432.	Oct 31 Report by Special Subcommittee reporting out S 432 and HR 6518.
Feb 28	HR 4415 introduced in House by Rep. Roberts (D.-Ala.) Included a 5 year/\$30 million grant-in-aid program for $\frac{2}{3}$ cost of establishing and maintaining air pollution control programs. Federal enforcement of interstate pollution and state enforcement of intrastate pollution.	Nov 7 Senate Committee reports (Report 88-638) out bill approved by Special Subcommittee on Air and Water Pollution after rejecting two amendments by voice vote. Bill included 5 year/\$182 million grant-in-aid program (\$25 million for FY 65 to \$50 million for FY 69), 12 $\frac{1}{2}$ % limit on funds to any one state. Retained $\frac{2}{3}$ and $\frac{1}{4}$ limits on federal matching funds for grants. Secretary to pay attention to population, extent of air pollution problem and financial need of recipient agency in awarding grants. To be eligible for grants, an agency could not reduce its nonfederal funding of programs in previous year. State approval required of local requests for federal grants. The Secretary to have flexibility as to percent of grants to be reserved for interstate and inter-municipal programs; develop air quality criteria; undertake research on sulfur oxides and automobile exhaust; the Secretary to issue permits to federal installations for emission discharge. Written consent of Governor required before initiation of suit by U.S. Attorney General. Written reports from industry to be based on existing data thereby not requiring new tests to be made.
Mar 18-19	Rep. Seymour Halpern (R.-N.Y.) introduced bill identical to HR 4415. Rep. Peter Rodino (D.-N.J.), James G. Fulton (R.-Pa.) introduced bill almost identical to S432 except that it limited authorization for grants to 5 years and \$30 million.	
Mar 18-19	Hearings "Air Pollution" on HR 4415, HR 4750, HR 3507 and HR 4061, Subcommittee on Public Health and Safety, House Committee. 28 witnesses including Undersecretary Ivan Nestingen, Surgeon General Luther Terry, Vernon G. MacKenzie, Dr. Richard Prindle of the Public Health Service, the Mayors of Chicago and Pittsburgh, representatives from Los Angeles, Florida and the N.Y./N.J. and Conn. Interstate Sanitation Commission, of organizations representing city, county, state and industry.	Nov 19 Senate debate and passage of S 432, accepted by voice vote after accepting two amendments by Sen. Jacob Javits (R.-N.Y.) to require consultation with state agency before approving grant to a municipality in that state, and giving State Governors choice of requesting federal technical assistance or requesting the Secretary to ask U.S. Attorney General to file a suit for air pollution enforcement.
Apr 30	New Chairman of Senate Committee (Pat McNamara (D.-Mich.)) creates Special Subcommittee on Air and Water Pollution, with Edmund Muskie (D.-Me.) as chairperson. (Members—Democrats—Jennings Randolph (W.Va.), Frank Moss (Utah), Lee Metcalf (Mont.), Birch Bayh (Ind.), Gaylord Nelson (Wis.); Republicans—Caleb Boggs (Del.), Josh Miller (Iowa), James B. Pearson (Kansas).	Dec 5 Conference Committee report (HR 6518)—(House Report 88-1003). Conferees accepted Senate bill except to change grant authorization from \$182 million over 5 years to \$95 million over 3 years.
June 27	House Committee unanimously votes out an amended version of HR 4415—HR 6518. Amendments included limitation of grant authorization to \$5 million for fiscal year with an additional \$5 million for FY 64 and thereafter \$20 million for FY 65, \$30 million for FY 66 and \$35 million for FY 67. Assurances required by Governor that a good faith effort had been made	Dec 10 Conference report adopted by Senate by voice vote and by house, after some debate—273/109.
		Dec 17 President Johnson signs PL 88-206 "Clean Air Act of 1963" (HR 6518) (77 Stat 392) (42 USC 1857 <i>et seq.</i>).

Health Service (for the same reason they opposed the previous bill) and the automobile industry, and died in subcommittee.

The Motor Vehicle Exhaust Study Act of 1960⁶⁻⁸

On February 23, 1960 the Subcommittee on Health and Safety of the House Committee again held hearings, this time on "Air Pollution Control Progress," after which Rep. Schenck introduced a bill, the Motor Vehicle Exhaust Study Act of 1960 (HR 3238), requiring the Secretary to report to Congress in two years on "Motor Vehicles, Air Pollution and Health." This bill passed in the House on August 17, 1959 and was referred to the Senate Committee on Labor and Public Works, which reported it out. The bill was passed by the Senate in May 1960. It was signed by President Eisenhower as PL 86-493 on June 8, 1960.

In 1960 the House Subcommittee on Health and Safety, with Rep. Kenneth Roberts as chairman, held hearings on automobile exhaust, and in June 1960 the Senate Committee on Public Works reported out a bill introduced by Senator Kuchel to allow the Surgeon General of the Public Health Service to hold hearings on air pollution problems. This bill passed the Senate, but, despite the fact that Rep. Roberts introduced a similar bill in the House, it died in the House Committee.

In January 1961, Senator Kuchel reintroduced his 1960 bill. In September 1961, the Senate again passed the bill only to have it again die in the House Committee.

In February 1961, President Kennedy in his Special Message to Congress on Natural Resources proposed new air pollution authority be given the Public Health Service. In November 1961, the House Subcommittee on Health and Safety held one day of hearings in Birmingham, AL at which the representative of the Public Health Service reiterated the desire of the Service to limit its air pollution responsibility to research, training, and technical assistance.

In his Special Message to Congress on Health Care on February 27, 1962 President Kennedy asked the House to pass the bill that had passed the Senate the previous year but which had died in the House. In February 1962, the Secretary, Abraham Ribicoff, announced that the *Second National Conference on Air Pollution* would be held in Washington in December.

Throughout 1961 and 1962 there was much internal debate on the federal role in air pollution, within the Department, the Bureau of Budget, the Bureau of Mines of the Department of the Interior, and the Bureau of Standards of the Department of Commerce. There was also debate with representatives of the organizations acting as spokesmen for city, county, and state governments, and of industry, about how deeply the Department should get involved in the elements of actually controlling air pollution; i.e. standard setting and enforcement of standards in both interstate and intrastate pollution problems. These discussions have been written up by Ripley⁶ in greater detail than can be afforded in this paper.

In 1961 the Public Health Service combined the previously existing Air Pollution Engineering Program of the Division of Sanitary Engineering Services and the Air Pollution Medical Program into a new Division of Air Pollution.

Public Law 87-761—Air Pollution Control Act, Extension (1962)⁶⁻⁸

To accommodate the President, on March 1, 1962 Rep. Kenneth Roberts (D.-Ala.) Chairman of the Subcommittee on Health and Safety of the House Committee introduced an Administration bill which eliminated time and fiscal authorization limits on air pollution research; called for a conference procedure to resolve problems of interstate air pollution; and provided fiscal grants-in-aid to develop, establish, and im-

prove state and local air pollution control programs. The bill died in committee, forcing the introduction of a bill to extend the life of the Air Pollution Control Act of 1955 (PL 84-159) which was again due to expire. This was done by the passage of S455 "Air Pollution Control Act Extension" by the congress in June 1962, which was signed by President Kennedy on October 9, 1962 as PL 87-761 (76 Stat 760). It provided a 2-yr extension at \$5,000,000 annual authorization and required the Surgeon General to make the Public Health Service study of motor vehicle exhaust a permanent part of its program.

In June 1962, the Secretary delivered to the Congress the report, "Motor Vehicles, Air Pollution and Health" (House Document 87-489) required by PL 86-493.

In October and November of 1962 somewhat similar bills were introduced in the Senate by Clair Engle (D.-Calif.) and in the House by George M. Rhodes (D.-Pa.) which conferred more authority for air pollution control on the Department than had any previous bills, but neither of these bills was acted upon in 1962.

Public Law 88-206—The Clean Air Act of 1963⁶⁻⁸

Prior to 1963, air pollution had not engendered much national concern. Four events in 1962 that may have given impetus to the considerable ferment of air pollution legislative activity in 1963 were: a) the publication of Rachel Carson's *Silent Spring*;⁹ b) the London Smog Disaster of 1962; c) an air pollution episode in Birmingham, AL, the constituency of Rep. Roberts; and d) the previously noted Second National Conference on Air Pollution held by the Department in Washington, DC on December 10-12 with an attendance of about 1500 people. By this time the Department had finally decided to seek to have its air pollution authority strengthened. The principal architects of the planning which led to this decision were Vernon MacKenzie of the Public Health Service, (assisted by Sidney Edelman and Samuel Rogers) and Wilbur Cohen, Assistant Secretary. A major spokesman for strengthening federal air pollution authority was Hugh Mields, representing the U.S. Conference of Mayors.

Patrick McNamara (D.-Mich.) who had just become chairman of the Senate Committee created a Special Subcommittee on Water Pollution, with Edmund Muskie (D.-Me.) as chairman. Later in the year this subcommittee was also given jurisdiction over air pollution legislation. Thus the principal Congressional leaders in 1963 became Roberts, Schenck, and Muskie. Rep. Roberts left the House in 1964. His role was assumed by Rep. Paul Rogers (D.-Fla.). Roger's importance was not because he was initially Chairman of the Subcommittee on Health and Welfare but because the Chairman (John Jarman (D.-Okla.)) allowed Rogers to have primacy in air pollution legislative matters, which he retained until he left the House in 1978. Mr. Muskie retained his primacy until he left the Senate in 1980 to become President Carter's Secretary of State. Senator Muskie's principal associates in the early years of the several Senate subcommittees were Thomas Eagleton (D.-Mo.), Caleb Boggs (R.-Del.) and Howard Baker (R.-Tenn.).

The detailed legislative history of the Clean Air Act of 1963 is given in Table X. However Table X does not reveal the internal interplay among the staffs and officials of the Department, the members of Congress and their staff members, the Bureau of the Budget, and the lobbyists for organizations representing both nonfederal governmental agencies and industry, that occurred in 1963 and resulted in this landmark legislation. Ripley⁶ is our best source of insight into this interplay.

President Kennedy's February 7 special message on health recommended the same features as Kenneth Roberts' Bill of 1962 (S432) i.e. grants-in-aid to develop, establish and improve state and local air pollution control programs; a conference procedure to resolve problems of interstate air pollution; and elimination of time and fiscal authorization limits

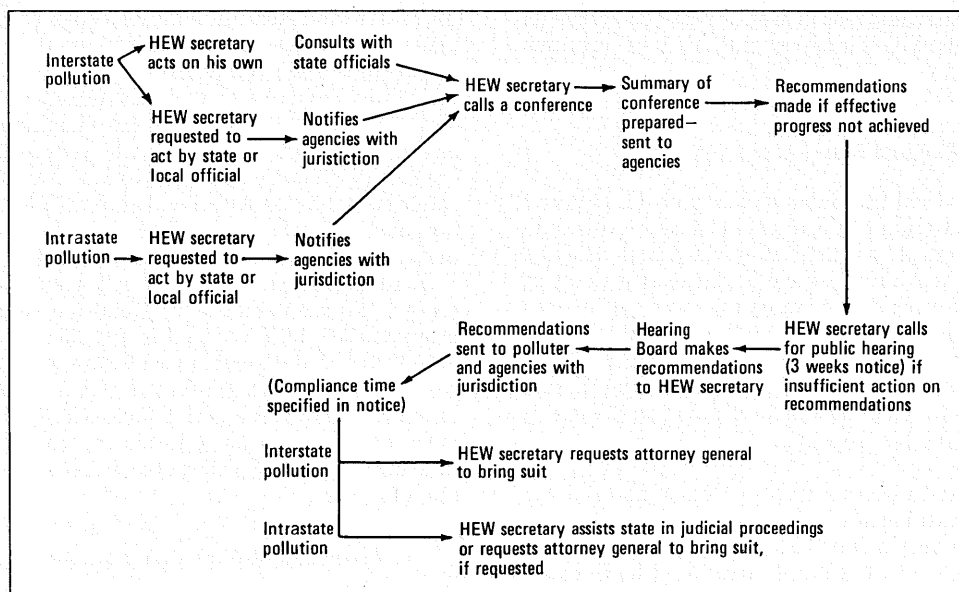


Figure 1. Air pollution abatement procedure of "Clean Air Act of 1963" (PL 88-206).^{8 a}

^a This figure is reprinted with permission from *Clean Air: The Policies and Politics of Pollution Control*, Charles O. Jones, University of Pittsburgh Press, 1975.

on air pollution research. The bill as signed by President Johnson contained these features, made permanent the air pollution authority of the Department; required semi-annual reports to the Congress from the Surgeon General of the Public Health Service on Motor Vehicle Emissions; established a technical committee to evaluate progress, and authorized appropriations of \$65,000,000. Over the next three years, the actual appropriations for the period 1964-66 were \$60,700,000. The conference procedure included for the control of air pollution is that of Figure 1.

By the time of the next major revision of the Clean Air Act in 1967, there had been no request to the Secretary for intrastate pollution abatement and only three requests for federal intervention in interstate pollution abatement. The Secretary initiated five interstate abatement actions on his own recognizance. Very little air pollution abatement was actually accomplished by these procedures, which were later abandoned.

The large increase in fiscal authorization was for the initiation of fiscal grants-in-aid to state and local air pollution control agencies.

Public Law 89-272-The Motor Vehicle Air Pollution Control Act (1965)^{6-8,10-12}

In 1964 the Special Subcommittee on Air and Water Pollution of the Senate Committee held hearings on "Clean Air" and in October published a Staff Report "Steps Toward Clean Air."

In January 1965, the Surgeon General of the Public Health Service submitted his first semi-annual report on "Automotive Air Pollution" as required by P.L. 88-206, and Senator Muskie introduced S306. The Special Subcommittee on Air and Water Pollution of the Senate Committee held hearings on "Air Pollution Control" in Washington, D.C., Los Angeles, Denver, Chicago, Boston, New York, and Tampa. S306, among other things allowed the Secretary to set emission standards for new motor vehicles. This was opposed by James Quigley, Assistant Secretary, speaking for the Johnson Administration, in testimony April 6, 1965. The public reaction to this testimony was so adverse that the Administration reversed its position and allowed Mr. Quigley to testify on April 9 in support of S306, provided its language was improved.

The Motor Vehicle Air Pollution Control Act PL 89-272 (79 Stat 992) (42 USC 1957 *et seq.*) resulted from the passage of

S306, and was signed by President Johnson on Oct. 20, 1965. The law allowed the Secretary to set emission standards for new motor vehicles but set no deadline for his so doing. However, in the hearings, the Department agreed to set standards for the 1965 model year. (They actually were set the same as the California standards for the 1967 model year.) The law also contained provisions for the control of international air pollution between the US, Canada and Mexico, and called for additional research into problems of sulfur dioxide and motor exhaust.

Public Law 89-675—The Clean Air Act Amendments of 1966⁶⁻⁸

The Surgeon General of the Public Health Service submitted his second, third, and fourth semi-annual reports to Congress on "Automobile Air Pollution" required by PL 88-206 in 1965 and 1966. Also in 1966 the Public Health Service created the National Center for Air Pollution Control to replace its Division of Air Pollution. It was one of five units in a new Bureau of Disease Prevention and Environmental Control. The Clean Air Act of 1963 (PL 88-206) was due to expire in 1966. Its life was extended by S3112 which was passed by both houses of Congress and signed into law by President Johnson as PL 89-675, the "Clean Air Act Amendments of 1966" (80 Stat 954) on October 15, 1966. PL 89-675 in addition to extending PL 88-206, also gave the Department the authority to make grants-in-aid to state and local agencies to maintain existing pollution control programs. This had not been covered by previous authority for grants to develop, establish and improve such programs. The appropriation authorized for 1965-66 was \$55,500,000. The actual appropriations were \$47,700,000.

Public Law 90-148—The Air Quality Act of 1967^{7,8,10-15}

By 1966, Jennings Randolph (D-W.Va.) had become chairman of the Senate Committee. He was personally interested in air pollution legislation and had appointed himself to the subcommittee. Most of the same people who had been influential in drafting and passing the 1963 legislation were still on the scene and active in developing new legislation; particularly MacKenzie, Cohen, Coston for the Department. A new actor was Joseph Califano, Special Assistant to President Johnson.

William B. Spong (D-Va.) had become active on the Senate Subcommittee and the important influence of the Senate

Table XI. Legislative history of PL 90-148, "The Air Quality Act of 1967."

1967	
Jan 30	Message to Congress "Protecting our Natural Heritage" by President Johnson (House Document 90-47).
Jan 31	HR 4279 introduced by Staggers (D.-W. Va.).
Jan 31	S 780 introduced by Muskie (D.-Me.).
Feb 13, 14, 20, 21	Hearings "Automotive Air Pollution—1967—Part I". Subcommittee on Air and Water Pollution, Senate Committee.
April 3, 4 (Feb 8)	Hearings "Air Pollution—Part 2." Subcommittee on Air and Water Pollution, Senate Committee.
April 6	Amendment 154 to S 780 (Randolph—D.-W. Va.).
April 24	Amendments 174 and 175 to S 780 (Randolph—D.-W. Va.).
May 1	HR 4509 introduced by Staggers (D.-W. Va.).
May 2	Amendment 181 to S 780 (Randolph—D.-W. Va.).
July 15	Senate Committee Report on S 780 (Senate Report 90-403).
July 18	Senate debate and passage of S 780 (80-0).
Aug 15	Hearings "Air Quality Act of 1967," House Committee (8 days of hearings).
Oct 3	House Committee report on S 780 (House Report 90-728).
Nov 2	House Debate and Passage of S 780 (362-0).
Nov 9	Senate insists on its amendments, requests conference and appoints conferees (Muskie, Randolph, Bayh, Boggs, Cooper).
Nov 13	House insists on its amendments, agrees to conference and appoints conferees (Staggers, Jarman, Rogers (Fla.), Springer, Nelson).
Nov 13	Conference report on S 780 (House Document 90-916).
Nov 14	Debate and passage of Conference Report (Voice Vote)—Both houses.
Nov 21	Signing of PL 90-148 "The Air Quality Act of 1967" (S 780) (81 Stat 485) (42 USC 1857 <i>et seq.</i>) by President Johnson.
1974	
Jan	Section-by-section Index of PL 90-148 and 91-604 (In "Legislative History of Clean Air Amendments of 1970" pp. 1575-1596, Vol. 2—See reference at the beginning of Table XII.)

Subcommittee staff, particularly of Leon Billings, was beginning to be felt. A key event that helped set the stage of the 1967 legislation was the third National Conference on Air Pollution held by the Public Health Service in Washington on December 12-14, 1966. Also in 1966 the Subcommittee on

Air and Water Pollution of the Senate Committee held hearings—"Air Pollution—1966"

President Johnson sent a message "Protecting our National Heritage" to Congress on January 30, 1967, in which he recommended legislation incorporating national emission standards for stationary sources, regional air quality commissions to enforce regulations, federally financed and operated regional airsheds, federal assistance to initiate state automobile exhaust inspection, federal regulations on fuel additives, and increased research. The detailed legislative history of PL 90-148 "The Air Quality Act of 1967" (91 Stat 485) that was developed in 1967 is given in Table XI.

In the hearings, industry opposed national emission standards. The bill reported out by Senate Committee deleted national emission standards from the bill but instead required a report from the Department in two years on national emission standards. The bill as reported allowed California to set its own motor vehicle emission standards and included regional commissions as part of a stationary source enforcement process relying on state initiative. The House Committee report accepted the Senate position on national emission standards, deleted the waiver allowing California to set its own automobile emission standards and reduced the level of funding authorized in the Senate bill. During House floor action on the acceptance of the House Committee report, the California waiver was restored.

The law, as signed by President Johnson on November 21, 1967, added authorization for grants-in-aid to states and local air pollution control agencies to plan air pollution control programs, in addition to the previous authority for development, establishment, improvement, and maintenance grants. It provided for interstate air pollution control agencies or commissions, and expanded research provisions relating to fuels and vehicles. It also required the Department to define the atmospheric areas of the nation, to publish Air Quality Criteria and Control Technology Documents from which the states were to set air quality standards for the air quality control regions that were required to be established. States which set air quality standards were required to submit to the Department plans for their implementation (Figure 2). The Department was given power to seek federal injunctions in air pollution episode situations, was required to reconsider the SO₂ criteria document previously issued, to establish a fuel additive registration program and financial assistance to states for motor vehicle inspection programs. During 1967 the fifth and sixth semi-annual reports on "Automotive Air Pollution" were submitted to the Congress by the Surgeon General of the Public Health Service as required by PL 88-206.

The Department reorganized in 1968, abolishing the Public Health Service as an organizational unit but still retaining its

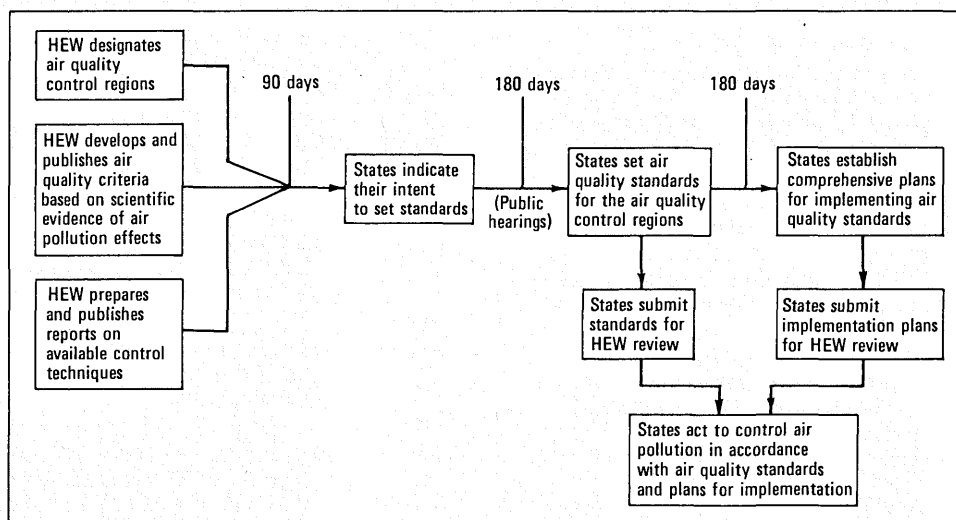


Figure 2. Air pollution abatement procedure of "Air Quality Act of 1967" (PL 90-148).¹⁶

commissioned corps. The National Center for Air Pollution Control was replaced by the National Air Pollution Control Administration which was one of the three units in a new Consumer Protection and Environmental Health Service. On June 28, 1968, the Department submitted to Congress the first annual report, "Progress in Prevention and Control of Air Pollution" (Senate Document 90-92) required under Section 306 of PL 90-148.

Early in 1969, President Nixon requested his Presidential Advisory Council on Executive Reorganization (Roy Ash, Chairman) to study whether federal pollution control programs should be reorganized. The Council recommended to the President in April 1970 that the several federal programs should be brought together under either a new Department of Natural Resources, or a special pollution control agency.

The President adopted the latter recommendation and, on July 9, 1970 sent to Congress Reorganization Plan #3, creating, on December 2, 1970, a U.S. Environmental Protection Agency (EPA). Since Congress did not exercise its right to rejection of the plan by September 9, EPA was created on schedule. It absorbed the National Air Pollution Control Administration of the Department, which became the Air Pollution Control Office of EPA, with its staff reduced from 1000 to 300 employees. The remaining 700 employees were spread throughout the other offices of EPA.

This digression about the formation of EPA gets us a year ahead of our story, so to get back to other events of 1969, first it was necessary to pass legislation in 1969 to extend the research provisions of the previous acts. In May, the President created a cabinet level Interagency Environmental Quality

Table XII. Legislative history of PL 91-604, the "Clean Air Act Amendments of 1970."

Reference—Legislative History of Clean Air Amendments of 1970—2 vol. with section by section index prepared by Environmental Policy Division of Congressional Research Service of the Library of Congress for the Committee on Public Works, U.S. Senate, 93rd Congress, 2nd Session, Government Printing Office, Washington, D.C. 1974—Serial 93-18, Superintendent of Documents Y4 P 96/10:93-18, Vol. 1 and 2.

1969		June 10	House debate and passage (335-40) of House Resolution 1069 permitting amendments to HR 17255 and allowing two hours of debate—this had been objected to by Leonard Farbstein (D.-N.Y.) on basis of too short notice.
	Hearings "Air Pollution," Subcommittee on Air and Water Pollution, Senate Committee.	June 10	Debate and passage (374-1) of HR 17255, all floor amendments including one for more stringent automobile emission standards having been defeated.
Dec 8	Ad-hoc Hearings "Automotive Pollution", New York City, Rep. Leonard Farbstein (D.-N.Y.) <i>et al.</i> Printed in Congressional Record (daily ed.) Feb. 5, 1970 pp. 640-661.	Aug 25	Subcommittee on Air and Water Pollution reported S 4358 to Senate Committee.
Dec 8-9	Hearings, "Air Pollution Control and Solid Wastes Recycling," Subcommittee on Public Health and Welfare, House Committee.	Sept 17	Report on S 4358 (Report 91-1196), "National Air Quality Act of 1970," by Senate Committee, contains dissenting views of Dill (R.-Kans.), who preferred congressional rather than judicial review of one year extension of automobile exhaust standards, if granted, and of Gurney (R.-Fla.) who preferred a two year rather than a one year extension. Bill, as reported, includes national ambient air quality standards, emission standards for stationary sources, state implementation plans to achieve national ambient air quality standards by 1975, 90% reduction in automobile emissions by 1975, citizen suits allowed and higher appropriation authority.
Dec 10	S 3229, "Air Quality Improvement Act," introduced by Edmund Muskie (D.-Me.) Introductory remarks in Congressional Record. (Extends emission standards to vessels, aircraft and other vehicles.)	Sept 21-2	Senate debate on S 4358. Substitution of S 4358 for HR 17255 and passage (73-0) of S 4358. Both Dill and Gurney dissenting views rejected.
1970		Oct 8	Conference Committee recessed to end of November because of mid-term elections.
Jan	Message of President Nixon, "State of the Union."	Nov 17	Letter to Conference Committee from Secretary Richardson recommending relaxation of CO and HC automobile emission deadline (1975) and NO _x deadline (1976).
Feb 10	Special message of President Nixon on the environment—calls for national ambient air quality standards and emission standards for hazardous materials.	Dec 17	Conference Committee report (H 91-1783) to accompany HR 17255.
Feb 10	HR 15848 Administration Bill, introduced by Harley O. Staggers (D.-W. Va.) and Wm. L. Springer (R.-Ill.) Calls for same as noted above, fuel and fuel additive registration. Same automobile exhaust standard setting as in 1965.	Dec 18	House and Senate agree to Conference report—Automobile companies allowed to request extension in 1972 rather than 1973 to allow lead time for model changes.
Feb 17	Report of Farbstein, <i>et al.</i> ad-hoc meetings (see Dec. 8, 1969, above)—Congressional Record (daily ed.) pp. H900-3.	Dec 31	PL 91-604, "Clean Air Amendments of 1970" (HR 17255) (84 Stat 1676) (42 USC 7401 <i>et seq.</i>) signed by President Nixon.
Feb 18	S 3466 Administration Bill, introduced by Hugh Scott (R.-PA), Jennings Randolph (D.-W. Va.) <i>et al.</i> (Same as HR 15848, above).	1971	
Mar 4	S 3546—Federal/State Air Quality Standard Setting—introduced by Edmund Muskie (D.-Me.) <i>et al.</i>	Nov 18	Technical Amendments to PL 91-604 made by PL 92-157 "Comprehensive Health and Manpower Training Act of 1971."
Mar 5-16 (7 days)	Hearings "Air Pollution Control and Solid Waste Recycling," Subcommittee on Public Health and Welfare, House Committee.	1974	
Mar 16-22 (10 days)	Hearings "Air Pollution—1970" Parts 1-5, Subcommittee on Air and Water Pollution, Senate Committee.	Jan	Section-by-section Index of PL 90-148 and 91-604 (In "Legislative History of Clean Air Amendments of 1970" pp. 1575-1596, Vol. 2—See reference at the beginning of this table.)
Mar 20	Report on S 3072 by Senate Commerce Committee, The Federal Low Emission Vehicle Procurement Act—Report 91-745.		
Mar 26	Senate debate and passage of S 3072.		
Apr 27	HR 17255 Administration Bill, introduced by Rogers (D.-Fla.) <i>et al.</i> Each state made an air quality control region, attainment deadlines shortened, control of emissions from aircraft and federal facilities added.		
June 3	Report on HR 17255 by House Committee (Report 91-1146).		

Council. Later in the year Congress passed legislation, approved by the President (42 USC 4341), creating the Council on Environmental Quality. Also the second annual report under Sec. 306 (Senate Document 91-11) and the report on "National Emission Standards" (Senate Document 91-63), both required by PL-148 were submitted to Congress by the Department. Another important action was a consent decree by Chrysler, Ford, and General Motors to cease actions which might have impeded progress on automotive air pollution control. Congressional hearings held in 1969 are a part of the detailed legislative history of the Clean Air Amendments of 1970 which are outlined in Table XII. Appropriation authority for 1967, 1968, and 1969 was \$340,000,000. Actual appropriations were \$193,000,000.

During 1970, the Department submitted to Congress its third annual report required under Sec. 306 and a report on "Manpower and Training Needs for Air Pollution Control" required by PL 90-148.

Public Law 91-604—The Clean Air Act Amendments of 1970^{7,8,10-12,17-19}
(Technical Amendments in Public Law 92-157—The Comprehensive Health Manpower Training Act of 1971)

By 1970, air and water pollution had climbed to top ranking in public concern and had thus become a very important political issue. The environmental activist organizations held an "Earth Day" convocation in Washington, DC that attracted both a large attendance and large media coverage.

When preparations were being made for 1970 legislation, responsibility had moved increasingly to Dr. John T. Middleton, who had become the Chief of the Public Health Services' air pollution activities in 1967, and to his staff. The chairmanship of the House Committee had devolved on Harley O. Staggers (D-W.Va.). The ranking Republican was William L. Springer (Ill.) but Mr. Rogers still held the subcommittee reins. Senator Muskie still held the reins of the Senate committee and was running for the Democratic Presidential nomination.

The roles of both Senate and House subcommittee and committee staffs had become much stronger, lobbying by both industrial and environmental groups had both intensified and become more sophisticated.

The Administration Bill (HR 15848) (Table XII) called for the Secretary to set ambient air quality standards within 6 months; for state and interstate agencies to adopt plans within 9 months to implement these standards; for the Secretary to establish technologically feasible stationary source emission standards (for both new and existing sources), fuel and fuel additive standards, regulations, and registration; and authorized him to test automobiles and engines for certification (and to revoke such certification) using the same emission standards as 1965. After hearings and committee action, the house reported out a revised bill (HR 17255) which added several additional authorizations—the establishment of standards for aircraft emissions by the Secretary after consultation with the Federal Aviation Administration; a requirement that federal facilities comply with federal, state, and local air pollution control regulations; authorization for assembly line testing of motor vehicles; and each state was made an air quality control region. HR 15848 noted above was amended to require the setting of national ambient air quality standards within 30 days instead of 6 months, and submission of implementation plans in 8 rather than 9 months; to allow states to adopt ambient air quality standards more stringent than national standards; and to relax the HR 15848 provisions on fuels and fuel additives.

After hearings and committee action, the Senate reported out S4358, which concurred with HR 17255 in the setting of national ambient air quality standards, the required compliance of federal facilities and the setting of aircraft emission standards. It added new provisions for authorization of citizen

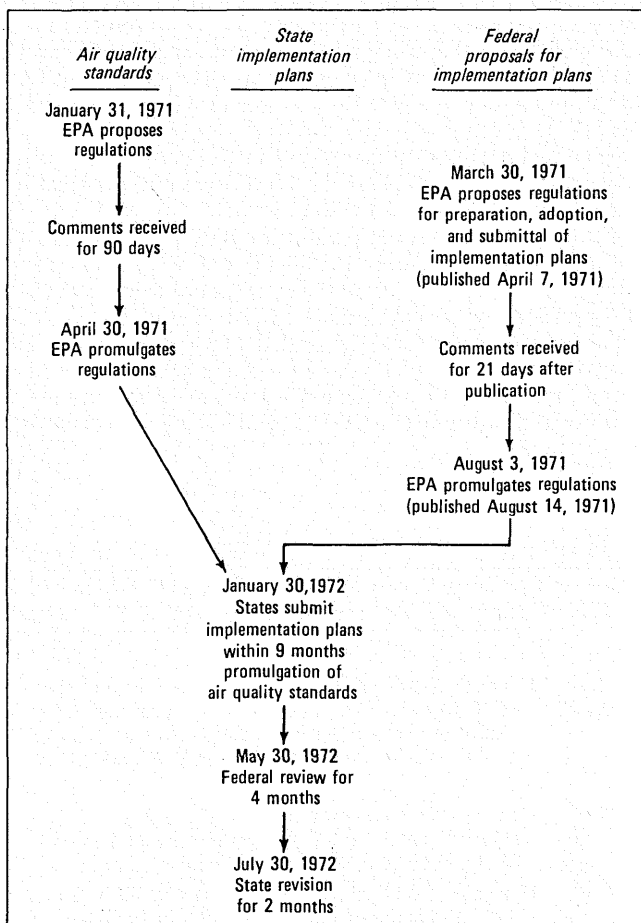


Figure 3. Implementation plan procedure of "Clean Air Act Amendments of 1970" (PL 91-604).^{8 a}

^a This figure is reprinted with permission from *Clean Air: The Policies and Politics of Pollution Control*. Charles O. Jones. University of Pittsburgh Press. 1975

suits for violation of standards, for authorization of aircraft engine testing by the Department of Defense and for judicial review of actions by the U.S. Court of Appeals. It offered a different approach than the House bill on several other issues. It gave the states 9, rather than 8, months for implementing plan adoption, with the requirement that the plan achieve standards within 3 years; limited stationary source emission standards to new sources, but allowed such standards to be set for existing sources of hazardous substances to be designated by the Secretary. It made the regulation, registration, and sale of fuel and fuel additives more stringent than HR 17255. Instead of making each state an air quality control region, it required the Department to expedite its prior program of air quality control region creation.

The most important new provisions of S4358 were those covering automobile emission standards, testing and certification. 1975 model year vehicles (with a possible extension to 1976) were required to have CO and HC emissions 90% less than 1970 models, warranted to provide such reduction for 50,000 miles. The Secretary was also authorized to set standards for used vehicle emission control devices.

The bill that was passed was signed by President Nixon on December 31, 1970 and became PL 91-604 "The Clean Air Act Amendment of 1970." It largely followed the Senate bill (S4358) except that the House bill requirement making each state an air quality control region was retained, and automobile companies were allowed to request an extension of the date of applicability of the stipulated standards in 1972, rather than 1973, to allow them more lead time for model changes. Most of the lobbying and in-fighting in the Conference Committee had been on the matter of the dates of applicability of the automobile emission standards and how (and for

how long) extensions of this date could be obtained. The section of the act that will have the greatest long range impact on air pollution control in the U.S. was the requirement for the promulgation of New Source Performance Standards (NSPS).²⁰

Some technical amendments to PL 91-604 were made on November 18, 1971 in PL 92-157, "The Comprehensive Health Manpower Training Act of 1971."

Although Table XII lists under the date January 1974 a section by section index of PL 90-148 and PL 91-604, this index is much less useful than the corresponding index to the 1977 act listed under date August 1978 in Table XV.

The state implementation plan (SIP) procedure (Figure 3) set up by PL 91-604 quickly ran into problems caused by litigation, much of which was on the issue of "Prevention of Significant Deterioration (PSD)." Since I have previously

recorded in JAPCA the history of PSD from its origin until it was codified in the Clean Air Act Amendments of 1977 (PL 95-95)(21), I will not repeat it here.

Because EPA came into being just as the Clean Air Act Amendments of 1970 were being finalized, all planning for air pollution legislation during the 1970s was the responsibility of the Administrators of EPA, first William D. Ruckelshaus (1970-1973); then Russell Train (1973-1977) and finally Douglas Costle (1977-1981). During the decade, the matter of air pollution legislation was much more important to these administrators, for whom it was but one of three issues of concern—air, water and wastes—than it had been to the Secretaries for whom it had a much lower priority among their many more numerous areas of concern.

Some of the new EPA names in legislative development in the 1970s were the several assistant administrators with re-

Table XIII. Legislative history of PL 93-319 "The Energy Supply and Environmental Coordination Act of 1974."

Reference: Legislative History of Energy Supply and Environmental Coordination Act of 1974. 2 vol., Government Printing Office, Washington, DC 1976—Superintendent of Documents—Y4.P96/10: 94-7, vol. 1 and 2.

1972		Dec 14	House debate on and passage of HR 11450 (265-112)—Amendments by Adams, Wyman, Eckhardt.
Mar 25– May 22	Hearings, "Implementation of Clean Air Amendments of 1970" parts 1–3, Subcommittee on Air and Water Pollution, Senate Committee—Los Angeles, CA (3/25/72), Washington, DC (3/27-8 and 5/22/1972).	Dec 17	Senate debate and passage of S 2772 (85-0) (Amendment-Scott-rejected (19/67)).
1973		1974	
April 16	Hearings "Implementation of Clean Air Act Amendments of 1970," Subcommittee on Air and Water Pollution, Senate Committee	Jan 22	Conference report to accompany S 2589 (Report 93-763).
Sept 18	Hearings, "Nondegradation Policy of the Clean Air Act," Subcommittee on Air and Water Pollution, Senate Committee.	Jan 21–4	Senate debate on Conference report.
Oct 18	Introduction of S 2589, Jackson, Randolph, Magnuson.	Jan 23	House agreement to Conference report (145/71)
Nov 7	Introduction of Committee Print # 1, Amending S 2589.	Jan 29	Senate agreement to Conference report (57/37).
Nov 9	Introduction of S 2680, Muskie, Randolph, Baker, Buckley, Biden, Burdick, Clark, Domenici, Gravel, McClure, Scott, Stafford.	Feb 6	Second Conference Report (Report 93-681) Jackson, to accompany S 2589.
Nov 12	Administration Testimony on S 2680, Russell Train and Robert Sansom, EPA.	Feb 7 & 18	Senate debates on Second Conference Report.
Nov 13	Report to Senate Committee on Interior and Insular Affairs to accompany S 2589, "National Energy Emergency Act of 1973" (Report 93-498) Jackson.	Feb 19	Senate agreement to Second Conference Report (67-32); Amendments by Buckley, Abourez, Fannin.
Nov 13	Introduction of HR 11450, "National Energy Emergency Act," Staggers.	Feb 27	House agreement to Second Conference Report (258/151)—Amendment by Staggers.
Nov 15	Senate debate on S 2589 and S 2680—Amendments by Haskell, Eagleton, Buckley, Muskie.	March 6	President Nixon vetos S 2589 (Senate Documents 93-61).
Nov 16	Senate debate on S 2589—Amendments by Nunn, <i>et al.</i> , McIntyre, Bentsen, Jackson, Mondale, Bartlett, Stevenson, Buckley, Proxmire.	April 2	Senate failure to override veto (58/40); lacked 2/3 majority.
Nov 19	Senate debate and passage of S 2589 (78-6), Amendments by Mathias, Javits, Helms, Ribicoff, Hansen, McClellan, Fannin, Jackson.	April 2	Administration Bill (S 3267) introduced in Senate by Baker, Buckley
Dec 4	Introduction of S 2772, to amend the Clean Air Act	April 2	Hearings, on HR 13834 and S 3267, House Committee—Administration Testimony, Russell Train, Roger Strelow, Eric Stork, Michael Levin, EPA.
Dec 4	Senate Committee report on S 2772, "Automobile Emission Standards," (Report 93-598), Muskie.	April 11	Statement by Sen. Jackson on S 3267 "Standby Energy Emergency Act."
Dec 10	House report to accompany HR 11450 (Report 93-710), Staggers.	April 19	Senate report to accompany S 3267 (Report 93-785).
Dec 11	Introduction in House of HR 11882, Staggers.	April 24	Introduction in House of HR 14368, Hastings.
Dec 12	Introduction in House of HR 11450 substitute amendment for HR 11882—Staggers. Rule to consider HR 11450 agreed to—Amendments by Vigorito, Staggers, Murphy (NY), Nelsen, Eckhardt, Broyhill.	April 26	House report to accompany HR 14368 (Report 93-1013) Staggers.
Dec 12	House consideration of S 921 "The Wild and Scenic Rivers Act (HR 12128)" Energy Emergency Act.	April 29	House report to accompany HR 13834 (Standby Energy Emergency Authority Act" (Report 93-1014).
Dec 13	House debate on HR 11450—Amendments by Carter, Dingell, Staggers, Broyhill, Moss, Nelsen, Hastings.	May 1	House debate and passage of HR 14368 (349/43); Amendments by Wyman, Moss, Broyhill, Bayh.
		May 14	Senate debate and passage of substitute amendments to HR 14368—Unanimous
		June 6	Conference report to accompany HR 14368 (Report 93-1085), Staggers.
		June 11	House agreement to Second Conference Report—unanimously approved.
		June 12	Senate agreement to Second Conference Report.
		June 26	Signed by President Nixon—PL 93-319-(HR 14368) (88 Stat 246).

sponsibility for air pollution: Roger Strelow, Edward F. Turek, David Hawkins, and Eric Stork, Deputy Asst. Admin. for Mobile Source Air Pollution Control. Also important were the representatives of the Natural Resources Defense Council and the Sierra Club, lobbyists and members of Congress from automobile manufacturing, coal mining, metal smelting, and petroleum producing constituencies. No longer were legislative positions developed *de novo* by a small handful of Washington bureaucrats and lobbyists, but instead, they were distilled from numerous massive reports by EPA offices, consultants, trade associations, and environmental organizations from all over the nation.

Although the Department had had to promulgate a relatively small number of regulations in the 1960s, concerning grants-in-aid, interstate air pollution control, the designation of air quality control regions, etc., none of them were controversial nor engendered any important litigation. The situation altered in the 1970s, when EPA was required to promulgate a large number of controversial regulations arising from the 1970 Act and to have them changed and delayed time and again by litigation.

The matter of extension of dates for applicability of automobile emission standards became the focus of litigation in 1972 after EPA denied the automobile manufacturers' request for an extension. In June 1972, the manufacturers appealed this decision to the U.S. Court of Appeals, which on December 19, 1972 remanded decision to EPA. On December 30, 1972, the administration reaffirmed this denial of an extension, after which the manufacturers asked the Court to grant the requested extension.

The Clean Air Act Amendments of 1970 (PL 91-604) had required the Department to contract with the National Academy of Sciences for specified studies on motor vehicle emissions. This required semi-annual reports to the Congress and the EPA Administrator. These reports were submitted as required in 1971, 1972 and 1973, and were invoked by the Court in again remanding the matter to EPA. The Administrator, after hearings on March 12, 1973, granted a one year extension on April 11, 1973, but established a new set of interim automobile emission standards.

A somewhat different scenario followed when on May 31, 1972, EPA granted 17 states a two year extension in meeting the CO and oxidant National Ambient Air Quality Standards, only to have the extension rescinded by the Court of Appeals on January 31, 1973.

Public Law 93-319—The Energy Supply and Environmental Coordination Act of 1974^{7,11,12,20}

PL 91-604 expired in 1973. It was extended by HR 5445 which became PL 93-15 "Clean Air Act, Extension" (87 Stat 11) when signed by President Nixon on April 9, 1973.

The hearings and actions on further amending PL 91-604 are part of the legislative history of PL 93-319, "The Energy Supply and Environmental Coordination Act of 1974" (88 Stat 246), which is outlined in Table XIII. Although this act originally dealt mainly with matters other than air pollution, as it finally developed it contained significant legislation relating to air pollution. The 1972 hearings were largely concerned with automobile emission standards problems—emission averaging and assembly line testing. The 1973 hearings were on the "Nondegradation Policy and the Clean Air Act." The 1974 Hearings were on the substance of the bills under consideration.

One element of the legislation considered in 1973 was a bill by Senator Edmund Muskie (S2772) on "Automobile Emission Standards."

Several noteworthy aspects of PL 93-319 are that it is a mixture of energy and air pollution legislation and that the Congress rejected the bill recommended by its first conference committee in 1973, but agreed to a bill recommended by a second conference committee, only to have the bill vetoed in

Table XIV. Bills introduced in Congress during 1975, 1976 and 1977 to amend The Clean Air Act.

1975		
Feb 10	HR 3118	Rogers (D.-Fla.)
Feb 17	S693, 694 and 695	Scott (R.-Pa.) <i>et al.</i>
Mar 6	HR 4369	Brown (D.-Calif.)
June 9	HR 7704	Aspin (D.-Calif.) <i>et al.</i>
July 29	S 2214	Baker (R.-Tenn.) <i>et al.</i>
Oct 31	HR 10498	Rogers (D.-Fla.) <i>et al.</i> —Major Bill
1976		
Jan 26	HR 11501	Rogers (D.-Fla.)
Feb 29	S 2895	Cannon (D.-Nev.) <i>et al.</i>
Mar 29	S 3219	Muskie (D.-ME) <i>et al.</i> —Major Bill
1977		
	HR 2633	Staggers (D.-W. Va.) <i>et al.</i>
	HR 2650	Rhodes (D.-Pa.) <i>et al.</i>
Jan 14	S 251, 252 and 253	Muskie (D.-Me.) <i>et al.</i> —Major Bill
Feb 11 (Legislative Day-Feb 1)	S 719	Hart (D.-Col.)
	S 1053	
	S 1054	Scott (R.-Pa.) and Tower (R.-Tex.)
Feb 28	HR 4151	Rogers (D.-Fla.)—Major Bill
Mar 3	HR 4444	Dingell (D.-Mich.) <i>et al.</i> —Major Bill
Mar 4 (Legislative Day-Feb 21)	S 714	Riegle (D.-Mich.) and Griffin (D.-Mich.)
	S 919	Bentsen (D.-Tex.)
Apr 6	HR 6161	Rogers (D.-Fla.) <i>et al.</i> —Major Bill

March 1974 by President Nixon, mainly because he disagreed with the energy aspects of the bill. As a result, the bill, which was developed by Congress after March 1974, passed, and was affirmed by the President on June 6, 1974, had a much stronger emphasis on air pollution than the 1973 legislation. PL 93-319 allowed EPA temporarily to suspend stationary source emission limits but put restrictions on so doing. Suspensions were to be on a case-by-case basis and were not allowed to result in a violation of National Ambient Air Quality Standards. EPA actions were exempted from the requirements by the National Environmental Policy of 1969 (42 USC 4341).

The EPA 1975 interim automobile emission standards were extended through 1976, a one year extension of the 1977 HC and CO automobile emission standards was allowed subject to EPA concurrence. New 1977 interim HC and CO standards were set and NO_x emission limited to 2 g/mi for 1977. The legislation did not touch the critical issues of Prevention of Significant Deterioration or of intermittent control of stationary sources.

Through 1975, 1976, and 1977 a number of bills were introduced in the Congress for the amendment of the Clean Air Act (Table XIV). One of the bills introduced, not listed in this table, was S1996 introduced on June 23, 1975 (Legislative day—June 6) by Jennings Randolph (D.-W.Va.), *et al.* for the extension of the Clean Air Act, as amended, to December 31, 1975, to prevent its expiration. This bill was passed and signed by President Ford.

Public Law 95-95—The Clean Air Act Amendments of 1977²²⁻²⁷ (Technical Amendments in Public Law 95-190—Safe Drinking Water Act of 1977)

The most recent piece of air pollution legislation to be enacted was PL 95-95 "The Clean Air Act Amendments of 1977,"

Table XV Legislative history of PL 95-95, "The Clean Air Amendments of 1977."

Reference: A Legislative History of the Clean Air Act Amendments of 1977—A continuation of the Clean Air Act Amendments of 1970, with a section-by-section index, prepared by the Environmental Policy Division of the Congressional Research Service of the Library of Congress for the Committee on the Environment and Public Works, Senate Serial 95-16—95th Congress 2nd Session—Committee Print for Committee on Environment and Public Works—8 volumes*—U.S. Government Printing Office, Washington, DC—1978 (Superintendent of Documents Y4 P 96 10:95-16).

* (Note: Vols 1 and 2 are the Legislative History of the Clean Air Act Amendments of 1970, which form the basis for Table XII.)

1975		by Staff of Subcommittee on Environmental Pollution, Senate Committee (Document 95-2).
Mar 3–12	Hearings, "The Energy Crisis and Proposed Solutions," House Committee on Ways and Means—"Petroleum Supply" (3/10); "Gas and other energy sources" (3/11) and "Automobile Efficiency and Conservation" (3/12).	Feb 9–15 Hearings, "Clean Air Amendments of 1977," Subcommittee on Environmental Pollution, Senate Committee, on Bills S 251, 252, and 253 (Document 95-H7) Parts 1–3, Washington, DC. (2/9–11, Part 4—Denver, CO (2/15).
Mar 12–13	Hearings, "Automobile Fuel Economy and Research and Development," Senate Committee on Commerce—on S 307, 499, 633 (and amendments), 654 and 783 (Miscellaneous Fuel Economy Bills)—(Senate Document 94-8).	Feb 28 HR 4151 introduced by Rogers (D.-Fla.).
Mar 13–26	Hearings, "Clean Air Amendments—1975," Subcommittee on Health and Environment, House Committee—Titles V and VI of HR 2633 and 2650 and other bills to amend the Clean Air Act (House Document 94-25).	March 3 HR 4444 introduced by Dingell (D.-Mich.) <i>et al.</i>
Mar 19–20	Hearings, "Implementation of Clean Air Act—1975," Subcommittee on Environmental Pollution," Senate Committee, Parts 1 and 2; Parts 3 and 4 "Automobile Emissions," (Senate Document 94-H10).	March 8–11 Hearings, "Clean Air Amendments of 1977," Subcommittee on Health and Environment, House Committee, on HR 4151, 4758 and 4444 and other identical bills (Publication 95-59).
Apr 21–23		March 21–9 Hearings, "Coal Conversion," Subcommittee on Energy Production and Supply, Senate Committee on Energy and Natural Resources on S 272, 273 and 977. Parts 1 and 2 (Publication 95-46).
May 13–15		Message to Congress from President Carter, "Environmental Protection," transmitting proposals for dealing with a variety of Environmental Issues (House Document 95-100).
May 20–21		Apr 6 HR 6161, "Clean Air Amendments of 1977," introduced by Rogers (D.-Fla.) <i>et al.</i>
Sept 8–17	Hearings, "Stratospheric Ozone Depletion," Subcommittee on Upper Atmosphere, Senate Committee on Aeronautical and Space Sciences.	May 10 Senate report to accompany S252 with amendments, Committee on Environment and Public Health, Senate debate on Report (Publication 95-127).
Oct 31	HR 10498 introduced by Rogers (D.-Fla.) <i>et al.</i>	May 12 House committee report to accompany HR 6161 (Report 95-294).
Nov 7–17	Hearings, "The Costs and Effects of Chronic Exposure to Low Level Pollutants in the Atmosphere," Subcommittee on Environment and the Atmosphere, House Committee on Science and Technology (House Document 74-49).	May Summary of HR 6161 "Clean Air Amendments of 1977," as reported by House Committee for Committee use (Committee Print 95-15).
1976		May 24–5 House debate of HR 6161.
Mar 29	S 3219 "Clean Air Amendments of 1976," (Muskie (D.-Me.) <i>et al.</i>), Report of Senate Committee (Senate Document 94-717).	May 26 House passage (326-49) of HR 6161.
May 13	S 3438 "A Bill to Authorize Appropriations for FY 1977," (Senate Report 94-873).	June 8 Agreement between United Automobile Workers and certain members of Congress on automobile emission warranty provisions of Mobile Source Control Amendments of 1977—Sen. Reigle (D.-Mich.).
May 15	House Committee report to accompany HR 10498, "Clean Air Amendments of 1976," with amendments (House Report 94-1175).	June 8 Automobile Emission Fact Sheet (Edmund Muskie (D.-Mich.)). Rebuttal to above (Sen. Reigle (D.-Mich.)).
May 25	Supplemental Committee report (Report 94-1175-Part 2) on HR 10498.	June 8–9 Senate debate on S 252 and Amendment 377.
May 28	Message to Congress from President Ford.	June 10 Senate passage (73-7) of S 252.
July 26–Aug 5	Senate Debate on S 3219 (7 days).	July 12 Side-by-side comparison of provisions of HR 6161 and S 252 ("Clean Air Amendments of 1977") and Conference report on S 3219 ("Clean Air Amendments of 1977") and Conference report on S 3219 ("Clean Air Amendments of 1976") by Maria H. Grimes and John E. Blodgett, Analysts, Environmental and Natural Resources Policy Division, Congressional Research Service, Library of Congress. (See Reference above).
Aug. 4–Sept. 15	House Debate of HR 10498 (5 days).	Aug 3 Conference report to accompany HR 6161 (Document 95-564).
Aug 5	S 3219 passed Senate (78-13) HR 10498 passed House (324-68).	Aug 4 House and Senate consider and agree, by voice vote, on Conference report, Clerk of the House authorized to make corrections in the engrossment of HR 6161.
Aug.–Sept. 2	Side-by-side comparison of HR 10498 and S 3219 (In "Legislative History of Clean Air Act Amendments of 1977," Senate Committee Print 95-16, Vol. 8, pp. 7147–7179). (See Reference above).	Aug 7 PL 95-95 (HR 6161) (91 Stat 685) (42 USC 7401 <i>et seq.</i>) signed by President Carter, President's Message on signing.
Sept. 22–29	House-Senate Conference on S3219.	Nov 16 Technical Amendments to PL 95-95 in PL 95-190 "The Safe Drinking Water Act of 1977."
Sept. 30	Conference report to accompany S 3219 (House report 94-1742).	1978
Sept 31	The compromise measure reported out did not come to a vote in the Senate due to a filibuster prior to adjournment. Consequently the House did not have an opportunity to consider or vote on it.	
1977		Aug Section-by-section Index—Comparison of Sections of PL 95-95, S 252, HR 6161, House Report 94-1742 (1976 and prior existing law) (In "Legislative History of Clean Air Act Amendments of 1977," Senate Committee Print 95-16, Vol. 8, pp. 7433–7514.) (See Reference above).
Jan 14	S 251, 252, and 253 introduced by Muskie (D.-Me) <i>et al.</i>	
Feb	Section-by-section analysis of S 252 and 253, prepared	

the legislative history of which is shown in Table XV. Its history is bifurcated because it was first developed in Congress as "The Clean Air Act Amendments of 1976," which after separate passage by the House and Senate had its conference report fail to pass because of a filibuster by Senator Jake Garn (R-Ut) on the closing day of the 94th Congress in 1976. Therefore the 95th Congress had to start anew in 1977, although it followed closely the lines developed in the 1976 bills.

In 1976, the Senate Committee was the first to report out a bill (S3219) on March 29. Between April 3 and August 2, major amendments were offered sequentially by Senators Packwood, Bentsen, Baker, Randolph, Moss, Scott, Domenici, Hart, Hatfield, Muskie, Williams, *et al.*, Tower, Inoye, *et al.*, Allen, and McIntyre.

The House Committee reported out HR 10498 on May 15, 1976. Major amendments were offered by Representatives Bumpers, Satterfield, Carter, Chappell, Macguire, Broyhill and Levitas. Preliminary and additional statements were entered into the Congressional Record sequentially, between November 10, 1975 and July 30, 1976, by Representatives

Rogers, Brown, Maguire, *et al.*, Chappell, Preyer, Symons, Koch, and Long. The Conference Committee reported out S3219 on September 30.

A side-by-side comparison of the provisions of HR 10498 and S3219 is noted under date "August-September 1976" in Table XV.

Although as noted above S3219 did not pass, it nevertheless formed the basis for the legislation considered by the next Congress.

In 1977, the Senate Committee reported out S252 on May 10. Major amendments were offered between May 18 and June 9 sequentially by Senators Garn, Cannon, Baker, Hart, Reigle, *et al.*, Anderson, Dole, *et al.*, Nelson, Metzenbaum, *et al.*, Hatch, Bartlett, Wallop and Griffin, *et al.*, Scott, and Stevens. Preliminary and additional statements were entered into the Congressional Record on June 8 by Senators Garn, Hayakawa, Culver, and McClure.

The House Committee reported out HR 6161 on May 12, 1977. Major amendments were offered by Representatives Breaux and McKay. Preliminary and additional statements were introduced into the Congressional Record of the same

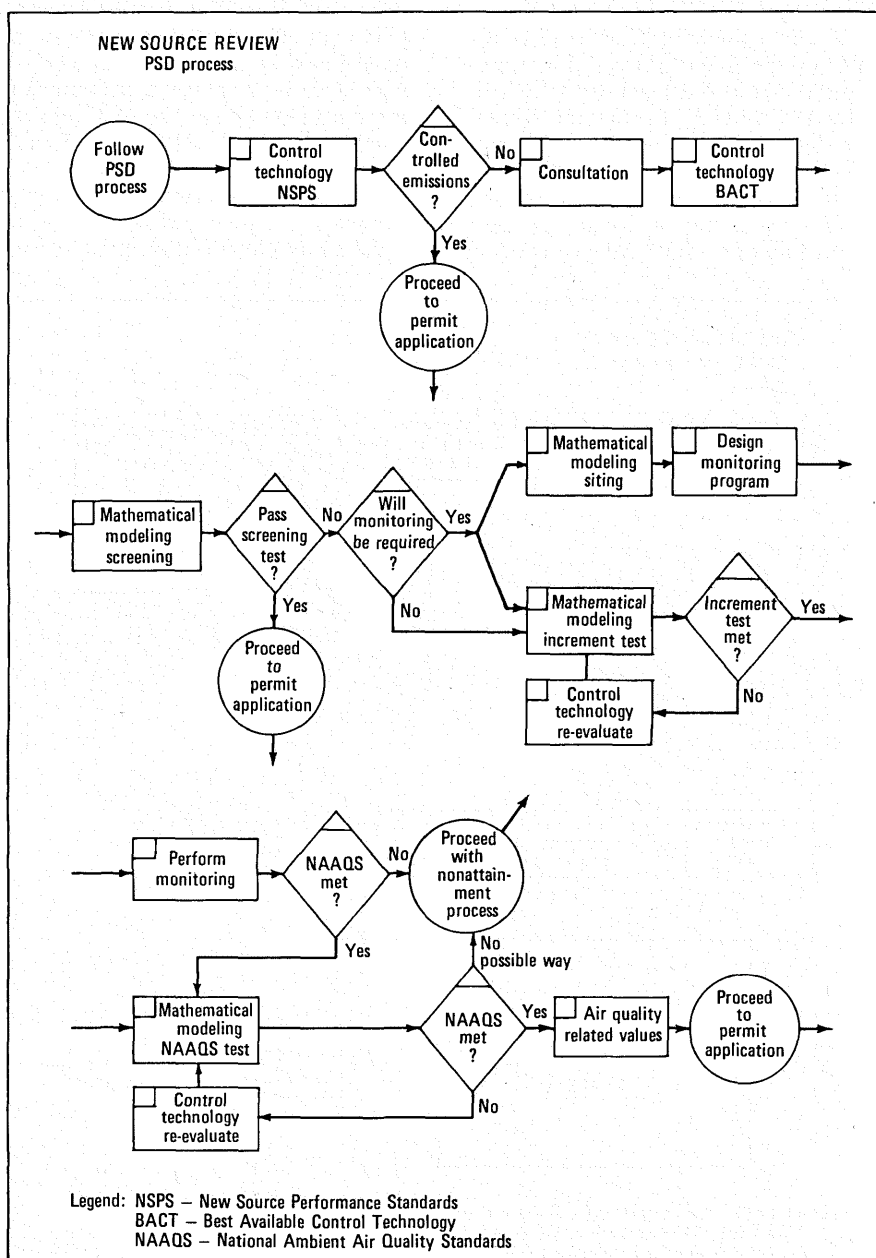


Figure 4. Prevention of Significant Deterioration (PSD) actions required by EPA regulations of August 7, 1980.²⁸

date sequentially by Representatives Brown, Holtzman, Ashley, Broyhill, Dingell, Runnels, Archer, and Rogers.

A side-by-side comparison of HR 6161, S252 and the bill reported out of conference in 1976 (S3219) is noted under date "July 12, 1977" in Table XV.

The Conference Committee reported out HR 6161 on August 3. This bill became PL 95-95 "The Clean Air Act Amendments of 1977," on August 7, 1977. Some technical amendments to PL 95-95 were made on November 16, 1977 by PL 95-190, "Safe Drinking Water Act of 1977."

During the 1970s, Congressional Hearings gave attention to stationary source pollution from both sulfur oxides and particulate matter. The matter of the use of scrubbers on power plants received some attention in the 1974 and 1975 House subcommittee hearings, but only with regard to their use on existing power plants. However when the House subcommittee drafted its 1976 air pollution legislative bill (HR 10498) it included a requirement for use of the "best technological system of continuous emission reduction which, when defined in that bill, and explained in the Committee report on the bill, meant that the use of low sulfur-low ash coal or of intermittent control would not satisfy the meaning of the bill, only scrubbing would. The committee bill, with this provision, passed the House. The bill which passed the Senate (S3219) did not have a comparable provision, but the bill that came out of the conference committee did. Although the 1976 bill failed to pass Congress, the 1977 bill (HR 6161) retained the same features and the same back-up wording in the committee reports.

These provisions were the result of lobbying by a strange coalition: eastern high-sulfur coal miners who could protect their market if required installation would remove the in-

centive of their customers to burn low sulfur coal without scrubbers; and the environmental activist groups who saw mandatory scrubbers as a means to decrease sulfur emission even when low sulfur coal is burned.^{22,24}

It was not until the passage of PL 95-95 in 1977 that provisions concerning the Prevention of Significant Deterioration (PSD) were actually a part of federal air pollution control legislation. Although the period of seven years between the passage of the 1970 and 1977 acts was one of great PSD activity by the courts and the U.S. Environmental Protection Agency, this activity was based entirely on the courts interpretation of the Congressional directive in the 1967 and 1970 acts that one of the purposes of the Clean Air Act was to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." As I noted earlier in this paper, I have previously recorded in *JAPCA* the history of PSD from its origin until it was codified in PL 95-95.²¹ I will not repeat it here. However, what I will add here are the highlights of Congressional actions on PSD in the formulation of Part C "Prevention of Significant Deterioration of Air Quality-Subpart 1" of the act.

In 1974, legislative proposals, one originating in the Department of Commerce and one in the White House, would have amended the "protect and enhance clause" of the purpose of the act to preclude its permitting air quality standards more stringent than the National Secondary Ambient Air Quality Standards. Neither of these proposals reached the floor of Congress.

In the bills reported out by Congress in 1976, the PSD provisions were somewhat stronger than the 1975 EPA regulations but followed their basic format.²¹

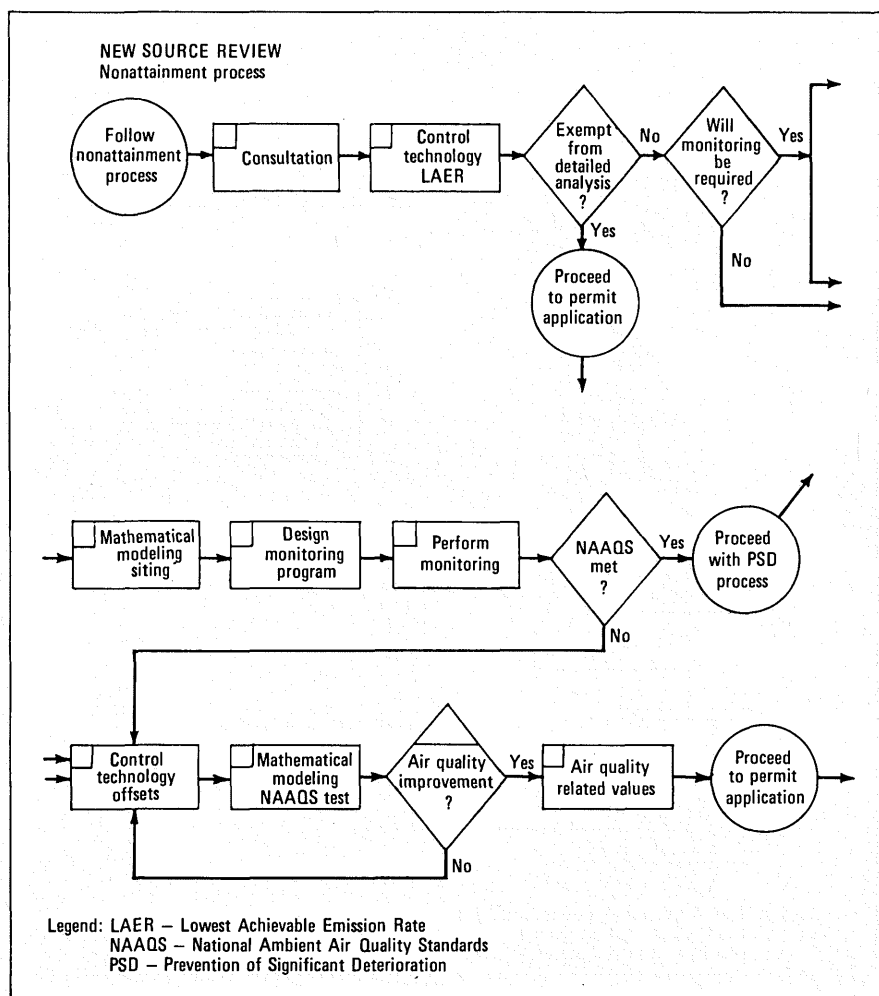


Figure 5. Plan requirements for nonattainment areas in PL 95-95.²⁸

Major amendments to these PSD provisions were offered in both 1976 and 1977 in both houses of Congress to weaken or to strengthen these basic provisions. In 1976, amendments to weaken the Senate bill were offered by Senator Moss (D-Utah), Scott (R-Va) and Allen (D-Ala), and to strengthen the bill by Senators Hart (D-Colo) and Hatfield (R-Ore). These were all rejected by the Senate. Amendments to weaken the House bill were offered by Representatives Chappell (D-Fla) and Carter (R-Ky), and to strengthen the bill by Rep. Macguire (D-NJ). These were also rejected by the House. In 1977, amendments to weaken the Senate bill were offered by Senator Stevens (R-Alaska) and Garn (R-Utah), both of which were rejected by the Senate. Amendments to weaken the House bill were offered by Rep. McKay (D-Utah), which was rejected by the House, and by Rep. Breaux (D-La) to allow state governors to permit Class I and II areas to exceed PSD limits for a specific number of days per year, which was passed by the House. The bill which emerged from the conference committee and eventually became law closely followed the 1975 EPA regulations. EPA adopted regulations on June 19, 1978 to implement its interpretation of PL 95-95. However, in a decision by the DC Circuit Court of Appeals on June 18, 1979 in the case of "Alabama Power Co. vs. Costle," many portions of the EPA 1978 regulations were invalidated to the extent that the Court felt that they went beyond the language of PL 95-95. EPA amended its regulations August 7, 1980 to conform to the Court's decision. Figure 4 shows the flow of action required by these regulations for a source that would need a permit to operate.

When this flow reaches "Proceed to permit application," the state regulatory agency or EPA, whichever receives the application, has to decide whether or not to hold a public hearing before issuing a permit to construct. It must be recognized that these regulations and Figure 4 apply only to SO₂ and particulate matter emissions, so-called Set I pollutants.

PL 95-95 also requires EPA to apply PSD regulation to the pollutants, other than SO₂ and particulate matter, for which National Ambient Air Quality Standards have been promulgated i.e., hydrocarbons, carbon monoxide, nitrogen oxide, ozone and lead—so-called Set II pollutants. As of writing this paper, EPA regulations applying to Set II pollutants had not yet been promulgated.

PL 95-95 specified that the National Academy of Sciences should conduct a study of the implementation of the PSD provisions of the Act; and also established a National Commission on Air Quality, required to report to the Congress. Both the Commission's report²⁹ which contained recommendations concerning PSD, and the Academy's report³⁰ were presented to Congress on March 2, 1981.

The amendments also include a section on "Plan Requirements for Nonattainment Areas" (i.e., areas where one or more of National Ambient Air Quality Standards are not being met), which are shown as a flow chart in Figure 5, for a source that would need a permit to operate, where flow beyond permit application is the same as noted for Figure 4.

These are but three segments of our present law of 173 pages. It also contains completely new sections; Visibility Protection for Federal Class I Areas; Ozone Protection; and extensive revisions of sections of the 1970 act in other areas. The best way to trace the evolution of a particular section of the 1977 act from its beginning in the 1963, or some subsequent act, is the section-by-section index listed under date "August 1978" in Table XV. (Note: The acts between 1955 and 1963, although vital to our understanding the history of federal air pollution control legislation, were not the basis for our present legislation. That basis was provided by the 1963 act).

Conclusion

This history ends with the 1977 act. Since 1977, there has

been much debate, litigation, hearings, and proposals as to the next major changes in our federal air pollution legislation, but, as of the writing of this paper, none of them has materialized as either new law or amendment to the 1977 law.

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