

Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2



Technical Memo ANL/EES-TM-90, Vol. 2
Technical Memo ANL/EES-TM-90, Vol. 2
Technical Memo ANL/EES-TM-90, Vol. 2

The facilities of Argonne National Laboratory are owned by the United States Government. Under the terms of a contract (W-31-109-Eng-38) among the U. S. Department of Energy, Argonne Universities Association and The University of Chicago, the University employs the staff and operates the Laboratory in accordance with policies and programs formulated, approved and reviewed by the Association.

MEMBERS OF ARGONNE UNIVERSITIES ASSOCIATION

The University of Arizona
Carnegie-Mellon University
Case Western Reserve University
The University of Chicago
University of Cincinnati
Illinois Institute of Technology
University of Illinois
Indiana University
The University of Iowa
Iowa State University

The University of Kansas
Kansas State University
Loyola University of Chicago
Marquette University
The University of Michigan
Michigan State University
University of Minnesota
University of Missouri
Northwestern University
University of Notre Dame

The Ohio State University
Ohio University
The Pennsylvania State University
Purdue University
Saint Louis University
Southern Illinois University
The University of Texas at Austin
Washington University
Wayne State University
The University of Wisconsin-Madison

NOTICE

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government or any agency thereof, nor any of their employees, make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represent that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, mark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This informal report presents preliminary results of ongoing work or work that is more limited in scope and depth than that described in formal reports issued by the Energy and Environmental Systems Division.

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue
Argonne, Illinois 60439

ANL/EES-TM-90, Vol. 2

IN PURSUIT OF CLEAN AIR:
A DATA BOOK OF PROBLEMS AND
STRATEGIES AT THE STATE LEVEL

Volume 2: Federal Regions I, II, and III

by

D.B. Garvey and D.G. Streets

Integrated Assessments and Policy Evaluations Group
Energy and Environmental Systems Division

February 1980

prepared for

U.S. DEPARTMENT OF ENERGY
Assistant Secretary for Environment
Office of Technology Impacts
Policy Analysis Division and Environmental Impacts Division

Volume 2

TABLE OF CONTENTS

	<u>Page</u>
PREFACE	v
LIST OF ABBREVIATIONS	vii
INTRODUCTION.	1
1 State Title Page	2
2 Revised SIP Outline.	2
3 Maps of Nonattainment Areas, As Designated	3
4 SAROAD Data.	4
5 SAROAD Data Maps	4
6 Power Plant Data	5
7 Power Plant Maps	5
8 County Maps.	5
FEDERAL REGION I: CONNECTICUT.	9
MAINE.	33
MASSACHUSETTS.	57
NEW HAMPSHIRE.	81
RHODE ISLAND	105
VERMONT.	127
FEDERAL REGION II: NEW JERSEY	149
NEW YORK	171
FEDERAL REGION III: DELAWARE	209
MARYLAND	225
PENNSYLVANIA	251
VIRGINIA	283
WEST VIRGINIA.	309

CONTENTS

PREFACE

The Clean Air Act Amendments of 1977 reaffirmed a national commitment to clean air, setting up rigorous requirements intended to achieve and maintain the National Ambient Air Quality Standards in all areas of the country. The solutions to air quality problems, however, must take place at the state and local levels. This five-volume report provides a state-by-state summary of air quality, nonattainment areas, and attainment strategies, based, in part, on the revised State Implementation Plans submitted in response to the 1977 Amendments. The report is designed to provide useful information for policy analysis in the Department of Energy, especially for the examination of possible areas of conflict between the implementation of a national energy policy calling for the increased use of coal and the pursuit of clean air. The report provides an initial basis of information and will be updated as SIPs for nonattainment areas are altered and as the designations of areas are changed.

Major funding for this project was provided by the Policy Analysis Division of the Office of Technology Impacts, DOE/EV, with additional support from the Environmental Impacts Division of OTI. Project direction was provided by Doug Carter of PAD/OTI and John Wilson of EID/OTI.

The report was prepared by the Energy and Environmental Systems Division (EES) of Argonne National Laboratory (ANL), with the assistance of the ANL Applied Mathematics Division in digitizing the maps of designated nonattainment areas by use of the ALICE system. Mary Snider (ANL/EES) prepared the computer maps and D. Seymour (ANL/EES) provided the computer data. Additional contributions to the report were provided by R. Kotecki, former staff member of EES.

LIST OF ABBREVIATIONS

APCD	- Air Pollution Control District
AQCR	- Air Quality Control Region
Btu	- British thermal unit
CAAA	- Clear Air Act Amendments
EPA	- Environmental Protection Agency
FGD	- flue gas desulfurization
FMVECP	- Federal Motor Vehicle Emissions Control Program
FPC	- Federal Power Commission
LAER	- lowest achievable emission rate
m ³	- cubic meter
MSER	- most stringent emission rate
MM	- million (10 ⁶)
MW	- megawatt (10 ⁶ watts)
µg	- microgram (10 ⁻⁶ gram)
NAAQS	- National Ambient Air Quality Standards
Pollutants	- CO = carbon monoxide
	HC = hydrocarbons
	NO _x = nitrogen
	O _x = photochemical oxidants (including ozone)
	PM = particulate matter
	SO ₂ = sulfur dioxide
	TSP = total suspended particulates
	VOC = volatile organic compounds
ppm	- parts per million
PSD	- prevention of significant deterioration
RACM	- reasonably available control measures
RACT	- reasonably available control technology
SAROAD	- Storage and Retrieval of Aerometric Data
SIP	- state implementation plan

INTRODUCTION

The actions that must be taken to achieve national air quality goals, as prescribed by federal clean air legislation and subsequent regulations promulgated by the Environmental Protection Agency (EPA) may have significant impacts on the future siting and emission control requirements for new major sources of emissions, on future patterns of fuel use, and on the success of a national energy policy designed to increase the use of coal in both the utility and industrial sectors of the economy. Since the most recent amendments to the Clean Air Act were passed by Congress in August 1977, attention has focused on the implications of various portions of the legislation for economic growth and development in general, and on the possible conflicts that might arise between energy policy goals and environmental policies for the maintenance and improvement of national air quality.

The 1977 Clean Air Act Amendments (CAAA) provided a comprehensive scheme for air quality management across the nation, covering areas where the air is currently cleaner than the levels set by the National Ambient Air Quality Standards (NAAQS) under the requirements for the Prevention of Significant Deterioration (PSD), and areas where the air is dirtier than the standards (nonattainment areas). Those sections of the Amendments, and subsequent EPA regulations, governing nonattainment areas have been a focus of particular interest to energy policy makers. The legislation required states to submit revised cleanup plans (State Implementation Plans or SIPs) outlining procedures for achieving the standards by December 31, 1982, with possible extensions to December 31, 1987, for carbon monoxide and oxidants. The deadline for submittal of the plans to EPA was set at January 1, 1979, with July 1, 1979, set as the deadline for an EPA-approved plan to be in effect. Severe sanctions -- a ban on the construction of new sources of emissions and a limit on federal funds for highway construction and sewage treatment plants -- were to be placed on any state failing to have a revised plan approved by the July 1 deadline.

Information on nonattainment areas -- for example, their location, the requirements for new sources being sited in or near such areas, the controls to be applied, and the degree of cleanup to be achieved by existing sources -- is important for an analysis of the interactions between energy

policy and air quality goals. Consequently, a project was begun in January 1979 to review all revised SIPs for nonattainment areas, to outline the causes and proposed cures, and to provide digitized maps of the subcounty areas designated as nonattainment by the states. The new source review procedures and the emission limitations for particulate matter (PM) and sulfur dioxide (SO₂) that apply to fuel combustion were summarized for each state. In order to provide additional background material for evaluating the extent of nonattainment and the possible constraints on energy development, maps have been prepared of the locations of monitors and of power plants. The maps are accompanied by information drawn from EPA and Federal Power Commission (FPC) data bases, such as the ambient concentrations recorded at specific monitors and the generating capacity of and fuel used by the utility plants.

This information was gathered for all 48 contiguous states, and is presented in Volumes 2 to 5 of this report, which are organized by Federal Region. For each state (placed in alphabetical order within the Federal Region) the following material is provided:

1 STATE TITLE PAGE

A summary of air quality data is presented to enable the reader to judge the general condition of a state at a glance. The summary lists the number of discrete (i.e., noncontiguous) nonattainment areas for each pollutant, the number of monitors with valid readings for a particular averaging time for a pollutant, and the number of monitors that recorded a violation of the standard. (Note that the monitors that have adequate data to be used for determining an annual average are a subset of the monitors that are valid for the 24-hour averages.) To complete the quick survey of a state, the numbers of fossil-fueled and nuclear power plants are included on the title page.

2 REVISED SIP OUTLINE

This brief examination of the contents of the revised SIP covers the sources of the problems, the proposed strategies for achieving attainment, and the new source review procedure the state intended to follow in the nonattainment areas. The version of the SIP used (e.g., draft or final and date) is indicated. The comprehensiveness of the coverage of these outlines varies, reflecting the version available when the report was prepared and the com-

pleteness of the documentation by the state. (In general, the states submitted revised plans in a piecemeal fashion, area-by-area and pollutant-by-pollutant.) The outlines attempt to draw the separate submissions into a comprehensible picture for the state as a whole.

Section I of the outline describes the sources of nonattainment in the state. Section II outlines the strategies the state proposed for attaining the standards. Since the report concentrates on those pollutants most likely to affect an energy policy directed at increased coal use, the strategies for attaining the SO₂, total suspended particulates (TSP), and nitrogen oxides (NO_x) standards are examined more closely than those for carbon monoxide (CO) and oxidant (O_x) standards.

SO₂ problems are usually the result of emissions from individual major point sources (frequently out of compliance with existing SIP requirements) and attainment strategies address cleaning up those particular sources. TSP problems are more frequently blamed on fugitive dust. The attainment strategies are often somewhat vague indications that possible controls will be examined and required, as appropriate. Most states requested the 18-month extension that was available for the submittal of a plan to attain the secondary TSP standard. EPA granted the extension, if the state had demonstrated that reasonably available control technology (RACT) was already required for all stationary point sources and that controls on fugitive process emissions and on nontraditional sources (such as road dust) would be necessary for attainment.

The attainment strategies for CO and O_x depend on the reduction of emissions from motor vehicles, through the projected effects of the Federal Motor Vehicle Emissions Control Program (FMVECP) combined with general estimates of vehicle turnover, i.e., rates of replacement of older vehicles. States requesting the statutory extension of the deadline for attainment to December 31, 1987, were required to include RACT on point sources (as specified in EPA's control techniques guidances for 11 stationary sources of volatile organic compounds or VOC), traffic control measures (as outlined in EPA's guidelines), and an inspection and maintenance program for motor vehicles.

Section III of the outline briefly describes the new source review a state planned to follow in nonattainment areas, noting in each case whether a new source effect rule or a growth allowance would be used. Section IV lists

the PM and SO₂ emission limitations required by the SIP for fuel combustion in existing sources. (Note that standards for ambient air quality are expressed in terms of TSP, whereas emissions limits on sources are expressed in terms of PM.)

3 MAPS OF NONATTAINMENT AREAS, AS DESIGNATED

In order to determine the areas for which revised SIPs would be needed, the 1977 Amendments to the Clean Air Act required a formal list of areas where the standards were being violated. The original designations were made in March 1978. A number of changes in the designations were made as additional air quality data became available. The maps in this report are based on designations as of May 1979.

Additional changes in the attainment status of a number of areas have been made since May 1979. The majority of the changes have occurred in the designations for the oxidant standard. As a result of EPA's revision of the standard, many areas could be redesignated as in attainment of the less stringent level. Few changes have been made in the CO nonattainment areas. The areas were already drawn to be quite small, often around a central business district. Minimal changes have been made since May 1979 in SO₂ nonattainment areas. Two areas in Ohio have become attainment (as noted in the outline) and New Mexico has drawn even smaller nonattainment areas around sources (in one case, a circle of one-mile radius). TSP areas have been subject to considerably more redesignation activity -- areas are drawn smaller; areas formerly exceeding the primary standard are proposed as exceeding only the secondary standards; areas that were violating the secondary standard are redesignated as attainment.

It is expected that this project will update the maps of nonattainment areas to reflect these changes. The areas currently shaded on the maps must still be viewed as potential problem areas. An area that has just become attainment or that is just outside the boundaries of a designated nonattainment area may still not be able to support new sources of emissions.

The absence of a map for a pollutant indicates either that the state was in attainment, or (in the case of oxidants only) that the entire state was designated as nonattainment. The title page for each state indicates pollutant data that were not mapped. The nonattainment maps and other maps that

follow them are numbered sequentially through this volume; these sequential numbers are preceded by a roman numeral identifying the Federal Region a given state is in.

4 SAROAD DATA

A computer print-out provides a listing of all the monitors within a state, with a number for each monitor, its latitude and longitude, and its recorded pollutant concentrations (in $\mu\text{g}/\text{m}^3$, or mg/m^3 for CO) based on 1975 data from EPA's Storage and Retrieval of Aerometric Data (SAROAD) system. The monitor readings were coded as follows:

<u>Code</u>	<u>Reading (% of standard limit)</u>
1	0-75
2	76-100
3	101-125
4	>125

Monitors that clearly had incorrect latitudes and longitudes (i.e., falling outside the state boundaries when mapped) were not plotted; they are indicated by an asterisk. The monitors were numbered sequentially in their order in the data base, and only monitors for the criteria pollutants were printed. Missing numbers in the sequence represent monitors for noncriteria pollutants.

5 SAROAD DATA MAPS

Monitors that were shown in the data base as having adequate data on a particular pollutant were mapped, with a shaded circle to indicate a monitor that recorded a violation of a particular standard (reading codes 3 and 4) and an unshaded circle to indicate a monitor that did not record a violation in 1975 (reading codes 1 and 2). Maps were provided for each pollutant and each averaging period of the NAAQS, and appear in the following order: 24-hour SO_2 , annual average SO_2 , 24-hour average TSP, annual average TSP, 8-hour average CO, 1-hour average O_x , and annual average NO_x . Pollutants or standard averaging periods for which a state had no valid monitor reading are not represented by monitor maps, and the absence of a map is noted on the title page for the state. A key map identifies each monitor by its unique number. Where monitors are clustered and their numbers cannot be read, the range of monitor numbers is indicated for reference to the monitor listing.

6 POWER PLANT DATA

On the basis of 1975 FPC data (as contained in EPA's Energy Data System), power plants within each state are listed and assigned a number. The printout contains the plant name, latitude and longitude, operating capacity, and convertible capacity as estimated by EPA's Strategies and Air Standards Division. Plants for which specific locations are not given in the data base or which have clearly incorrect latitude and longitude are noted as "not plotted." Information on fuel use for each plant is also provided, listing the amount of coal (1000 tons per year), oil (1000 barrels per year), and gas (1000×10^6 cubic feet per year) burned in 1975, and the average percentage of sulfur in the coal and oil. The absence of fuel use data indicates that the information for the particular installation was not available in the data base. In many cases, such a plant is a proposed or new facility which was not operating in 1975.

7 POWER PLANT MAPS

The power plants in each state are mapped according to the following scheme: a shaded square represents a fossil fuel-fired facility of 1000 MW capacity or more; an unshaded square, a fossil fuel-fired facility smaller than 1000 MW; and a triangle represents a nuclear facility. In addition, a key map identifies the power plants by location and number.

8 COUNTY MAPS

Finally, for general information, a map of each state showing county boundaries and county names is provided.

Federal Region I
Covering the States of:

Connecticut

Maine

Massachusetts

New Hampshire

Rhode Island

Vermont

REGION I: CONNECTICUT

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr }	0 ^b	0	55	0
	1 yr }			31	0
TSP	24 hr }	1	1	83	1
	1 yr }			51	1
NO _x	1 yr	0 ^b	-	31	0
CO	8 hr	1	-	13	7
O _x	1 hr	Whole state ^b		17	14

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	8
Nuclear	2
Total	10

CONNECTICUT: Draft SIP, 6/79

I. SOURCES OF THE PROBLEM

Connecticut has nonattainment areas for TSP, CO, and O_x. The entire state is designated as nonattainment for O_x, and as violating either the primary or the secondary TSP standard. TSP emissions are the result of vehicles (47%), fuel combustion (19%), and industrial processes (11%), with the remainder from fugitive sources and out-of-state sources. Carbon monoxide nonattainment is judged to be the result of emissions from motor vehicles, while ozone violations are caused mostly by transport of pollutants from out of state.

II. ATTAINMENT STRATEGIES

A. TSP

1. Point source control
 - a. State believes that existing control requirements are RACT
 - b. If and when EPA promulgates RACT for particulate matter, state will review and prepare necessary regulations
2. Stationary source fugitive emission control
 - a. Regulations amended to control fugitive particulate matter from industrial activity
 - b. In particular, controls on fugitive emissions from quarrying and asphalt and concrete batching
 - c. Controls to be required on paved and unpaved traffic areas at industrial sites, including stockpiling area and loading and handling areas
3. Controls needed on nontraditional sources
 - a. Controls on stationary sources and fugitive process emissions not adequate for attainment
 - b. Will develop control measures for natural re-entrained dust
 - c. Control dust re-entrained by vehicles on paved roads:

- vehicle re-entrainment of dust is considered to be the source with the largest impact on ambient TSP levels in the state
 - pave unpaved parking lots
 - reduce dirt spillage from trucks
 - reduce particulate matter from tailpipes and tire wear, mostly by reduced vehicle use
 - more efficient winter sanding of roads
 - street cleaning and washing
- d. Dust from unpaved roads not a major problem
- e. Control construction and demolition activities
4. Secondary particulate controls
- a. State law limiting sulfur in fuel to not more than 0.5% reduces secondary particulates (sulfates)
- b. State believes secondary particulate matter to be a major component of TSP levels
- secondary particulates contribute 20% of the TSP allowable under the secondary NAAQS in Connecticut
 - state will not relax limit on sulfur in fuel
 - state believes most of Connecticut's secondary particulates transported from out of state
 - state therefore insists that EPA develop and require control strategies (such as the limit on sulfur in fuel) for all other states to reduce sulfate production
- B. O_x AND CO
1. Employer-implemented commuter incentive plans
- a. To be voluntary
 - b. Promote car pooling
2. Transportation plan review for consistency with air quality goals
3. Inspection and maintenance as a condition for vehicle registration
4. Retrofit pollution controls on heavy duty gasoline vehicles (over 3 tons)
5. Gas surtax to be used for funding transit development

- a. Use for public transport and van pools
 - b. Alter tax structure to encourage the concentration of economic development
6. Reduce use of cutback asphalt
 7. RACT for vapor control in certain manufacturing processes

III. NEW SOURCE REVIEW

Connecticut has adopted the EPA emission offset policy for TSP and CO sources, but expects to provide a growth allowance to accommodate large sources of VOC or HC. New sources (after July 1, 1979) with potential emissions of more than 100 tons per year are to be reviewed, and sources emitting more than 50 tons per year are to be subject to offsets, LAER, etc. The state believes that the emission offset requirement will affect few new or modified sources. On the basis of data gathered since January, 1976, the state believes no source would have been subject to the nonattainment regulations.

The few sources with potential emissions of more than 100 tons per year reduced their operating time or controlled material processes to reduce emissions below 50 tons per year.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. 0.5% limit on sulfur in fuel
2. Emissions from all fuels must be less than 0.55 lb of SO₂ per MM Btu, with flue gas scrubbing

B. TSP

1. Existing sources: not more than 0.20 lb of particulate matter per MM Btu
2. New sources: not more than 0.10 lb of particulate matter per MM Btu

Note: Connecticut has recently announced a "Btu bubble approach" whereby a facility can apply the 0.55-lb limit to its entire energy use, rather than stack-by-stack. Total SO₂ emissions would be calculated for the facility on the basis of past amounts. Total sulfur emissions would be constant; any reductions in energy consumption would allow a facility to use higher-sulfur oil.

42°N

74°W

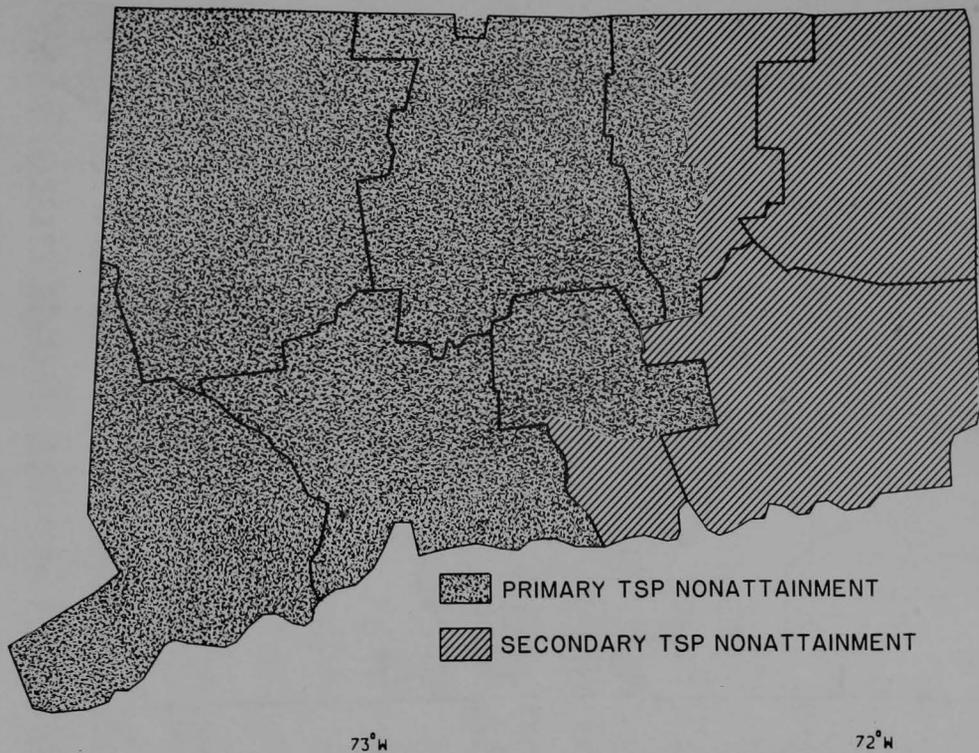


Fig. I.1. Connecticut: TSP Nonattainment Areas as Designated May 1979

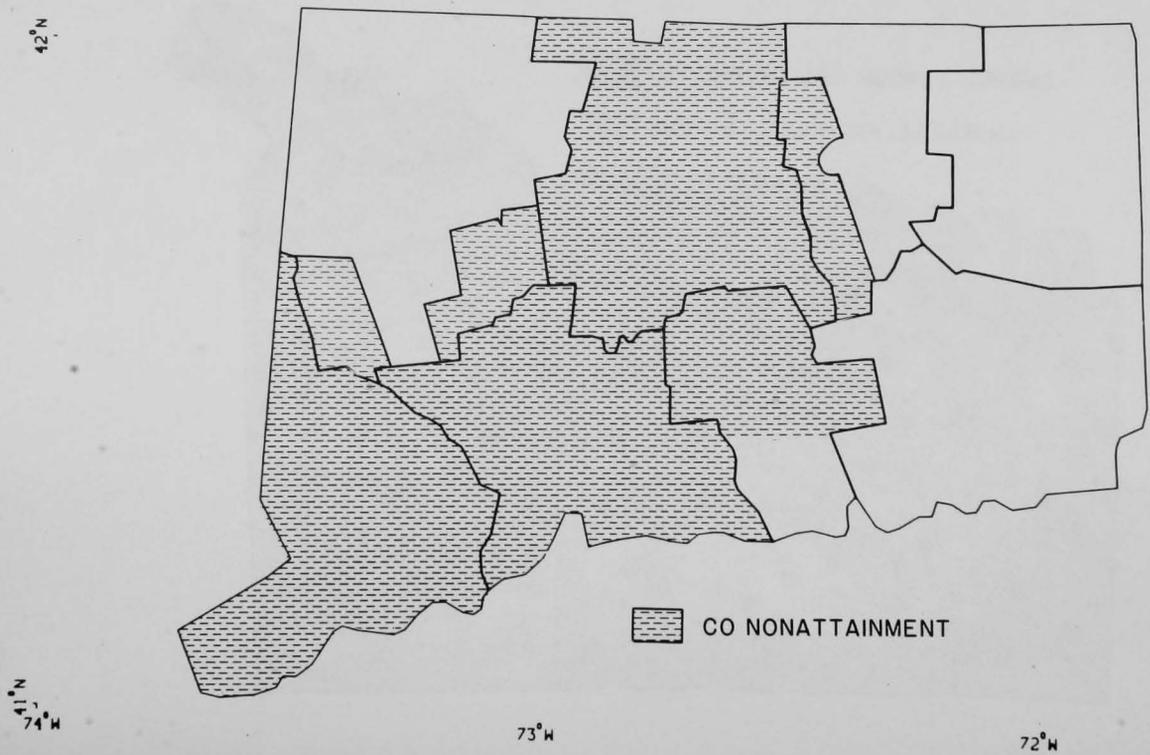


Fig. I.2. Connecticut: CO Nonattainment Areas as Designated May 1979

Table I.1. Connecticut: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	265	41.18	73.19	205. (1)		114. (1)	52. (1)			
3 *	265	0.0	0.0	122. (1)		135. (1)			9. (2)	510. (4)
4	265	41.18	73.19						14. (4)	
5	265	41.18	73.16	185. (1)						
6	265	41.16	73.23			79. (1)				
7	265	41.18	73.19	75. (1)	16. (1)			58. (1)		98. (1)
8	265	40.99	73.66			116. (1)				
9	265	41.03	73.60	97. (1)		133. (1)	61. (2)			
10	265	41.06	73.63			86. (1)				
11	265	41.08	73.71	106. (1)	14. (1)	93. (1)	37. (1)	53. (1)		453. (4)
12	265	41.00	73.66			114. (1)	50. (1)			
13	265	41.04	73.60			131. (1)	53. (1)			
14	265	41.02	73.62	104. (1)	10. (1)	158. (1)		34. (1)	14. (4)	
15	265	41.19	73.24			86. (1)				
16	265	41.40	73.44	74. (1)		114. (1)				392. (4)
17	265	41.40	73.44	92. (1)		78. (1)				
18	265	41.20	73.13	97. (1)	25. (1)	144. (1)	53. (1)	72. (1)		
19	265	41.22	73.14			109. (1)	46. (1)			
20	265	41.06	73.54	331. (2)	35. (1)			72. (1)	9. (2)	382. (4)
21	265	41.04	73.53	90. (1)	18. (1)	145. (1)	61. (2)	49. (1)		
22	265	41.03	73.52			140. (1)	42. (1)			
23	265	41.06	73.54			143. (1)	56. (1)			
24	265	41.05	73.53			127. (1)	56. (1)			
26	265	41.11	73.41	117. (1)	25. (1)	141. (1)	56. (1)	83. (2)	11. (3)	
27	265	41.12	73.42			148. (1)	54. (1)			
28	425	41.67	72.79	114. (1)		105. (1)				
29	425	41.70	72.79			79. (1)				
30	425	41.66	72.76			99. (1)	44. (1)			
31	425	41.67	72.82			161. (1)	73. (2)			
32	425	41.67	72.78	119. (1)	19. (1)	159. (1)	83. (3)	59. (1)	17. (4)	88. (1)
33	425	41.67	72.78			144. (1)				
34	425	41.78	72.52			112. (1)	44. (1)			
35	425	41.85	72.66							402. (4)
36	425	41.76	72.94	37. (1)	8. (1)	74. (1)		18. (1)		
37	425	41.67	72.92	67. (1)	16. (1)			43. (1)		
38	425	41.92	72.62	23. (1)		86. (1)				
39	425	41.74	72.63	34. (1)	17. (1)	110. (1)	47. (1)	54. (1)		
40	425	41.78	72.63	81. (1)	20. (1)	98. (1)	49. (1)	61. (1)		
41	425	42.00	72.57	197. (1)		70. (1)			7. (1)	343. (4)
42	425	42.00	72.60			130. (1)				
44	425	41.76	72.67			140. (1)	69. (2)			
45	425	41.76	72.68	107. (1)	36. (1)	97. (1)	50. (1)	61. (1)		
47	425	41.76	72.68	122. (1)					8. (2)	372. (4)
48	425	41.77	72.67						10. (2)	

Table continued on next page

Table I.1. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
49	425	41.76	72.68	119. (1)					10. (3)	147. (2)
50	425	41.74	72.69			115. (1)	50. (1)			
51	425	41.80	72.69			90. (1)	47. (1)			
52	425	41.67	72.95	81. (1)	20. (1)	146. (1)	49. (1)			
53	425	41.57	72.92			171. (1)	54. (1)			
54	425	41.69	72.92	40. (1)		87. (1)				
55	425	41.63	72.99	43. (1)		43. (1)				
56	425	41.67	72.95					44. (1)		
57	425	41.59	72.80	50. (1)	11. (1)	81. (1)	36. (1)	36. (1)		
58	478	41.71	73.38	9. (1)	6. (1)	103. (1)		19. (1)		
59	478	41.67	73.14			72. (1)	29. (1)			304. (4)
60	478	41.75	73.19	91. (1)	20. (1)			35. (1)		
61	478	41.92	73.06			127. (1)	52. (1)			
62	478	42.04	73.33			147. (1)	48. (1)			
63	478	41.80	73.12			146. (1)				
64	478	41.67	73.07			107. (1)	45. (1)			
65 *	478	0.0	0.0			79. (1)				
66	478	41.80	73.12	103. (1)						
67 *	478	0.0	0.0	107. (1)						372. (4)
68	565	41.32	72.36	60. (1)	13. (1)	190. (1)	65. (2)	68. (1)		
69	565	41.55	72.65	79. (1)	18. (1)	128. (1)	54. (1)	55. (1)		578. (4)
70	565	41.56	72.71			41. (1)				
71	565	41.43	72.51			68. (1)	33. (1)			
72	705	41.41	72.91							529. (4)
73	705	41.32	73.09	102. (1)		89. (1)				
74	705	41.34	73.08			157. (1)	56. (1)			
75	705	41.51	72.83			293. (3)	60. (2)			
76	705	41.55	72.79			191. (1)	61. (2)			
77	705	41.54	72.82			193. (1)				
78	705	41.54	72.80	77. (1)	17. (1)	123. (1)	52. (1)	42. (1)		
79	705	41.53	72.77			117. (1)				
80	705	41.49	73.06	56. (1)	11. (1)	181. (1)	57. (2)	50. (1)		
81	705	41.23	73.02			99. (1)	42. (1)			
82	705	41.20	73.10	350. (2)		148. (1)	63. (2)			
83	705	41.23	73.06	76. (1)	19. (1)	113. (1)	46. (1)	59. (1)		
86	705	41.33	72.95			106. (1)				
87	705	41.33	72.92							608. (4)
88	705	41.31	72.92						12. (3)	
89	705	41.29	72.94			126. (1)	53. (1)			
90	705	41.30	72.92	123. (1)						
91	705	41.27	72.89			120. (1)	52. (1)			
92	705	41.32	72.89			201. (2)				
93	705	41.31	72.92	106. (1)	35. (1)	135. (1)	59. (2)	75. (1)		
94	705	41.31	72.92	187. (1)						
95	705	41.55	73.04	62. (1)		166. (1)				

Table continued on next page

Table I.1. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
97	705	41.45	72.82			82. (1)				
98	705	41.55	73.04	39. (1)		180. (1)			11. (3)	
99	705	41.58	73.05	86. (1)	13. (1)	131. (1)	57. (2)	50. (1)		
100	705	41.52	73.04	88. (1)	13. (1)	173. (1)	66. (2)	46. (1)		
101	725	41.32	72.14			98. (1)	32. (1)			
102	725	41.59	71.86	84. (1)	11. (1)	65. (1)		20. (1)		
103	725	41.52	72.08	44. (1)	13. (1)	108. (1)	48. (1)	44. (1)		
104	725	41.58	72.35	77. (1)	12. (1)			36. (1)		
105	725	41.35	72.08	36. (1)						363. (4)
106	725	41.35	72.07			87. (1)				
107	725	41.35	72.08	73. (1)		75. (1)			6. (1)	
108	725	41.35	72.07	51. (1)						
109	1155	41.81	72.25	37. (1)	10. (1)	98. (1)	36. (1)	32. (1)		
110	1505	41.91	71.91	55. (1)	13. (1)	133. (1)	48. (1)	33. (1)		
111	1505	41.71	72.22	72. (1)	25. (1)	105. (1)	49. (1)	43. (1)		
112	1505	41.84	72.09							437. (4)

42°N

74°W
71°N

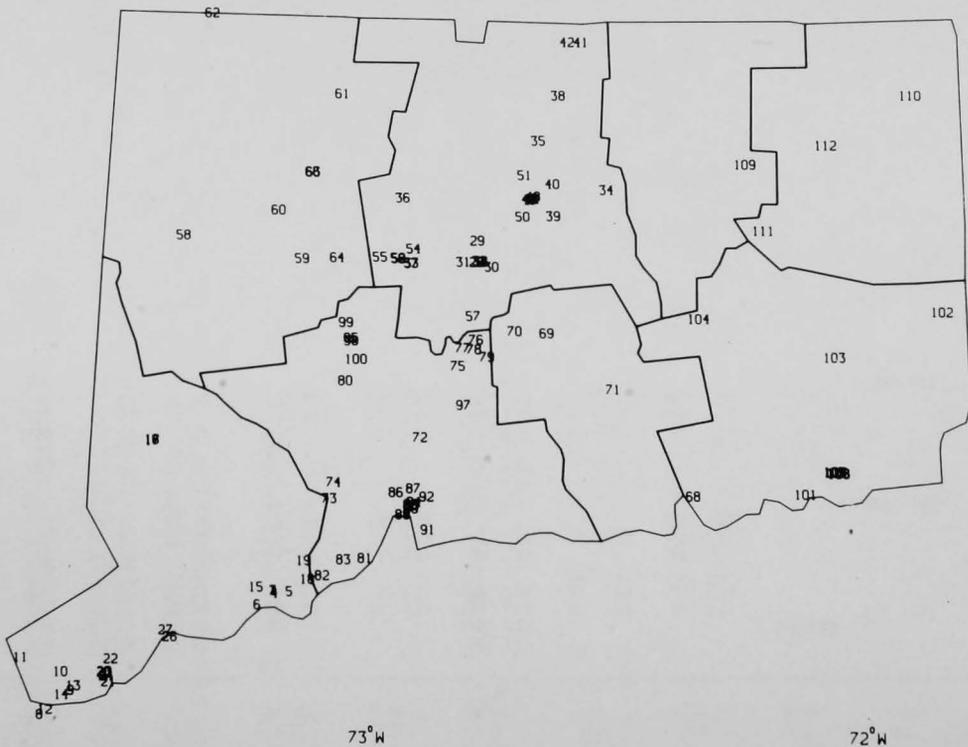


Fig. I.3. Connecticut: Locations of SAROAD Monitors (See Table I.1 for Monitor Numbers)

42°N

41°N
74°W

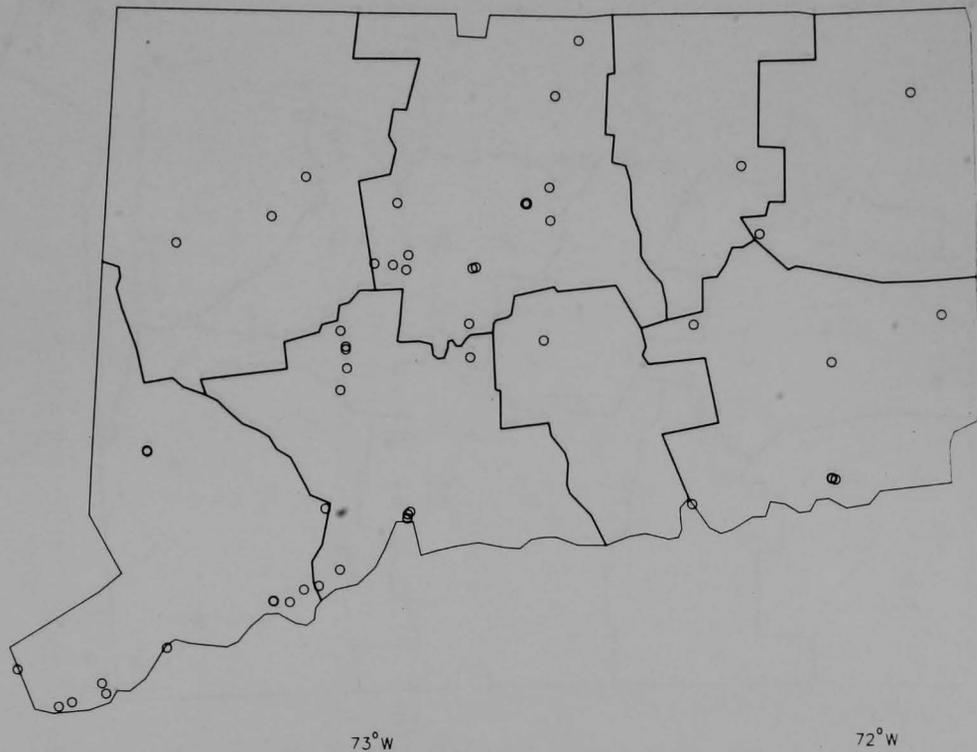
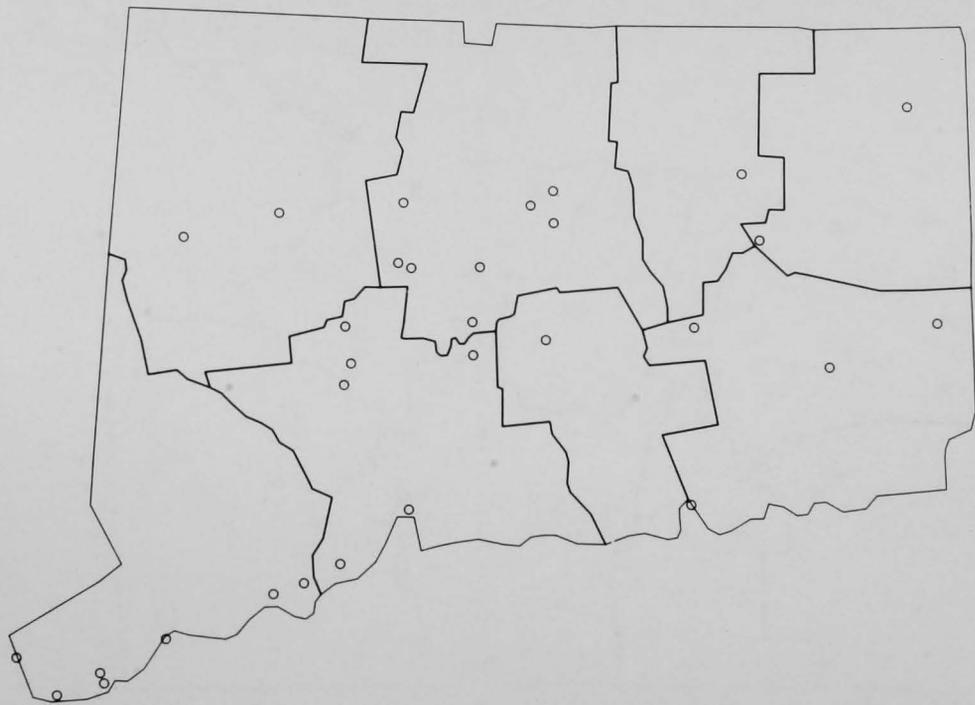


Fig. I.4. Connecticut: Monitors Reporting Adequate Data on 24-hr Average SO₂; No Violations

42°N

41°N
74°W



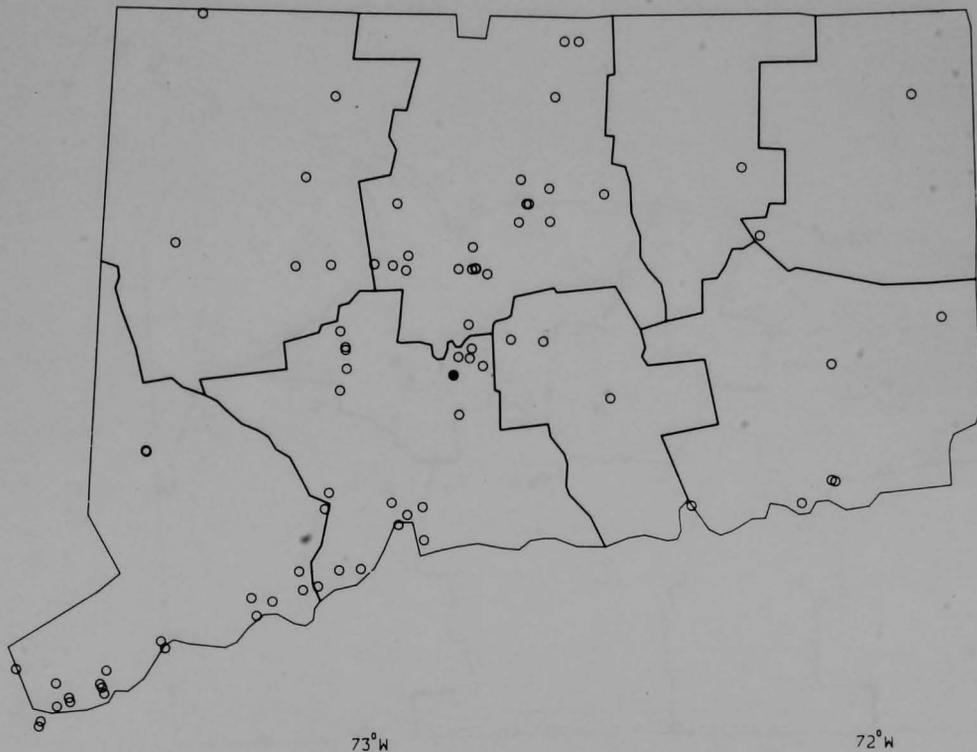
73°W

72°W

Fig. I.5. Connecticut: Monitors Reporting Adequate Data on Annual Average SO₂; No Violations

42°N

41°N
74°W



73°W

72°W

Fig. I.6. Connecticut: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

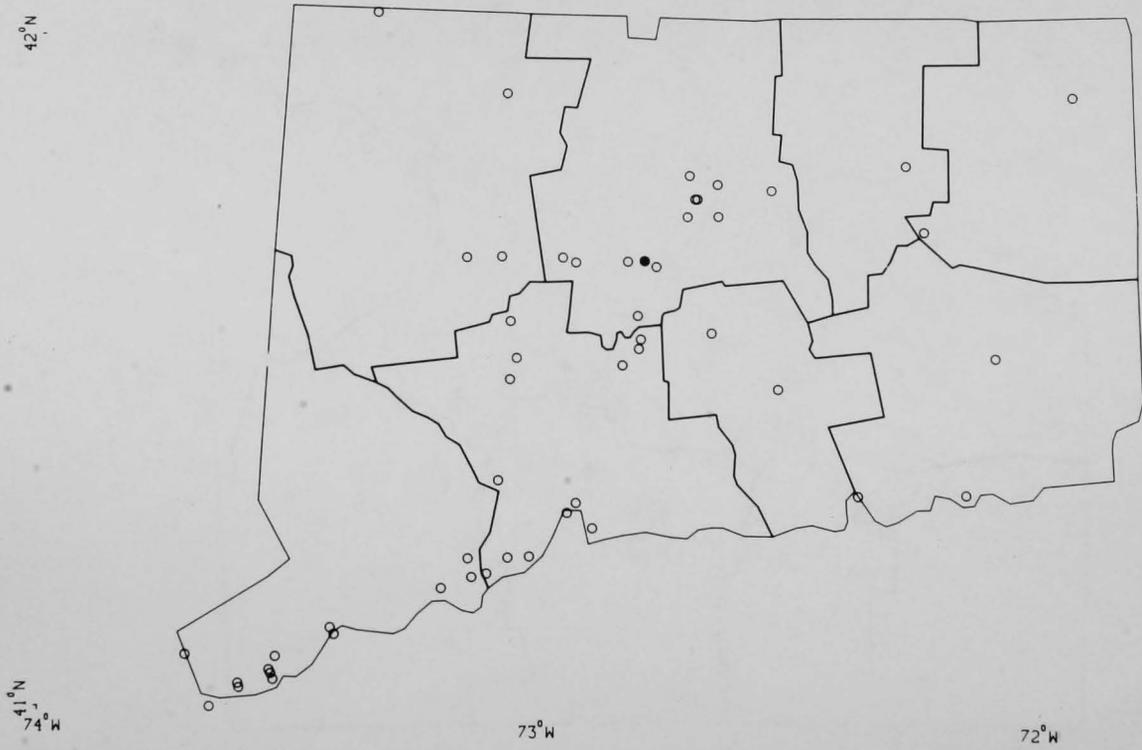


Fig. I.7. Connecticut: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

42°N

41°N
74°W

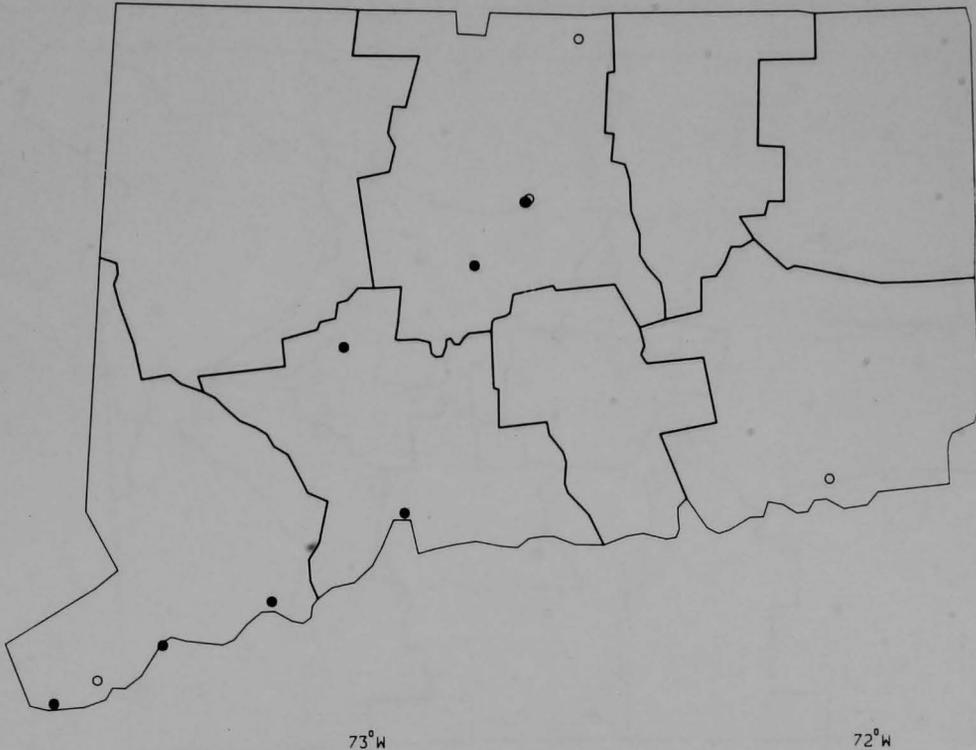


Fig. I.8. Connecticut: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles

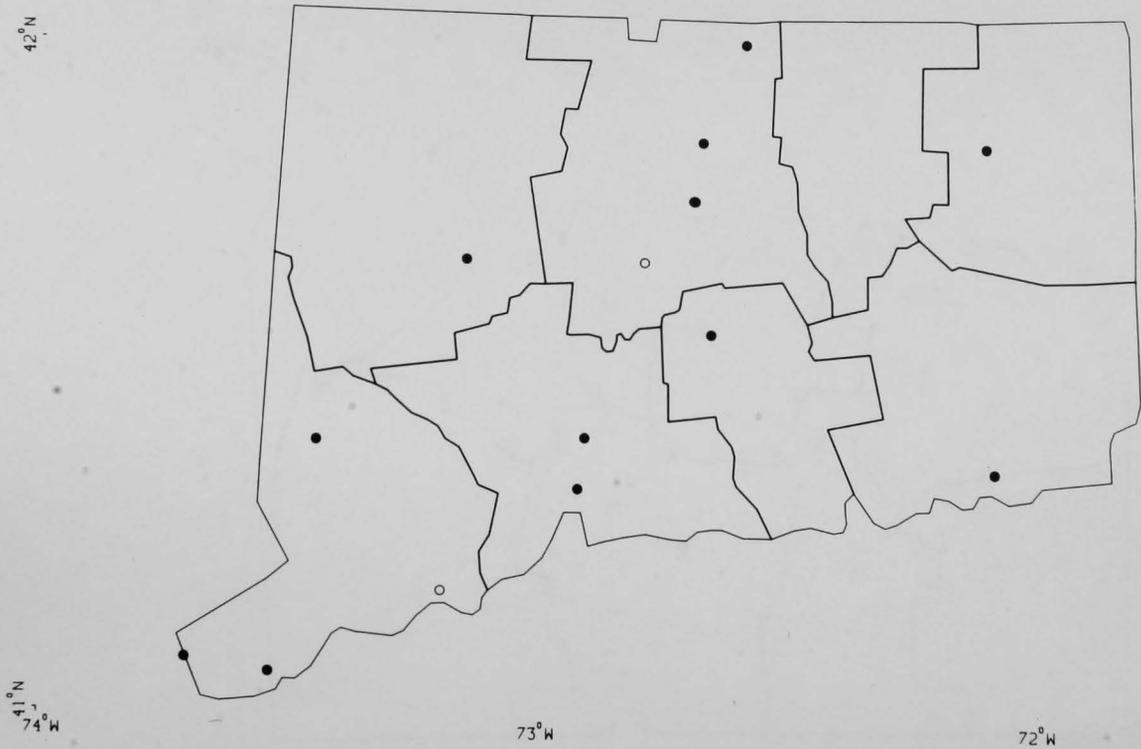


Fig. I.9. Connecticut: Monitors Reporting Adequate Data on 1-hr Average O₃; Violations Shown by Shaded Circles

42° N

41° N
74° W

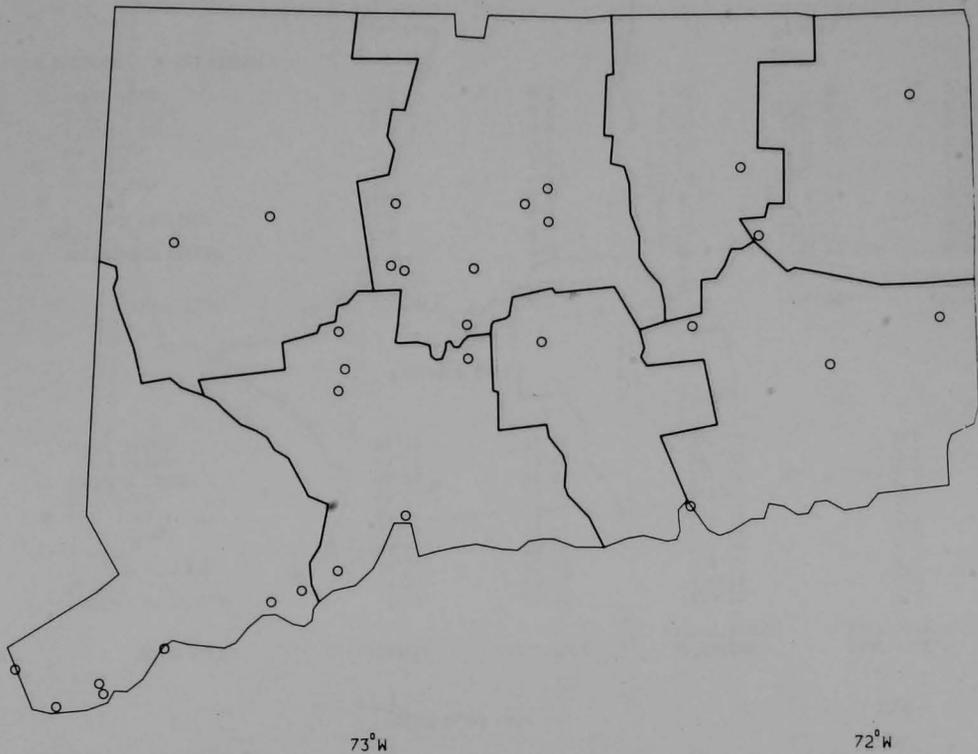


Fig. I.10. Connecticut: Monitors Reporting Adequate Data on Annual Average NO_x ; No Violations

Table I.2. Connecticut: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	BRIDGEPORT HARBOR	41.17	73.18	660.50	0.0
2	DEVON	41.21	73.11	459.00	0.0
3	ENGLISH STATION	41.31	72.91	156.30	0.0
4	N HADDAM	41.47	72.53	600.30	0.0
5	MIDDLETOWN	41.56	72.50	836.90	0.0
6	N HILLSTONE 1	41.31	72.91	1571.60	0.0
7	MONTVILLE	41.43	72.10	577.60	0.0
8	NORWALK HARBOR	41.03	73.41	326.60	0.0
9	SOUTH MEADOW	41.75	72.65	216.75	0.0
10	STEEL POINT	41.18	73.19	135.50	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	BRIDGEPORT HARBOR	0.0	0.0	0.39	5674.00	0.0
2	DEVON	0.0	0.0	0.20	2733.70	0.0
3	ENGLISH STATION	0.0	0.0	0.44	314.00	0.0
4	N HADDAM	0.0	0.0	0.0	0.0	0.0
5	MIDDLETOWN	0.0	0.0	0.44	5207.33	0.0
6	N HILLSTONE 1	0.0	0.0	0.0	0.0	0.0
7	MONTVILLE	0.0	0.0	0.47	2490.50	0.0
8	NORWALK HARBOR	0.0	0.0	0.40	3142.83	0.0
9	SOUTH MEADOW	0.0	0.0	0.43	222.50	0.05
10	STEEL POINT	0.0	0.0	0.43	177.00	0.0

N NUCLEAR * NOT PLOTTED

42°N

41°N
74°W



Fig. I.11. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

42°N

41°N
74°W



Fig. I.12. Power Plant Key (See Table I.2 for Identification and Fuel Use Data)

42° N

41° N
74° W

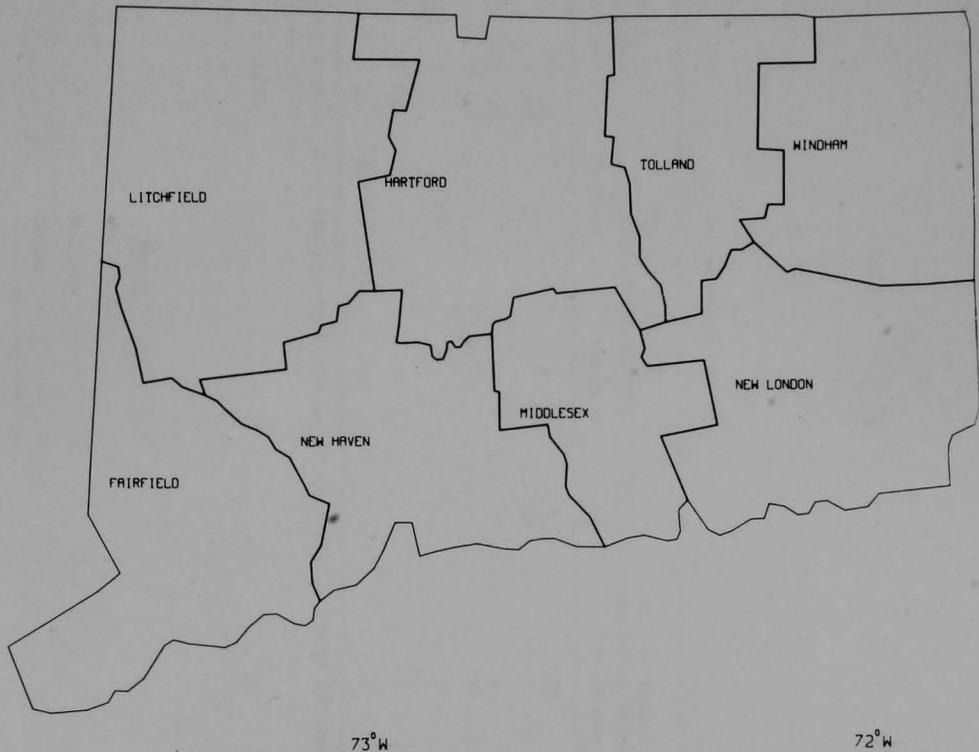


Fig. I.13. Connecticut: Key to Counties

REGION I: MAINE

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr }	1	0	32	0
	1 yr }			16	0
TSP	24 hr }	1	4	32	1
	1 yr }			14	0
NO _x	1 yr	0 ^b	-	1	0
CO	8 hr	1	-	1	1
O _x	1 hr	Half of state	-	1	1

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	3
Nuclear	1
Total	4

MAINE: Draft SIP, 12/78

I. SOURCES OF THE PROBLEM

Maine has nonattainment areas for O_x , CO, TSP, and SO_2 . Ozone nonattainment areas cover most of the southern portion of the state and are attributed to out-of-state transport, vehicle emissions, and industrial emissions of VOC. Urban fugitive dust, industrial processes, and fuel-burning installations cause TSP violations. Urban fugitive dust (a "nontraditional" source) is the principal particulate problem in the Bangor-Brewer and Lewiston-Auburn areas as well as in the capital city, Augusta. Fugitive industrial process emissions from the Georgia Pacific pulp and paper mill cause TSP violations in Baileyville, and emissions from a cement kiln cause violations in Rockland-Thomaston.

Millinocket is the small SO_2 nonattainment area in Maine, the result of emissions from the Great Northern pulp and paper mill. The Bangor-Brewer and Lewiston-Auburn urban areas are both designated as nonattainment for CO because of mobile sources.

II. ATTAINMENT STRATEGIES

A. SO_2

1. Millinocket

- a. Reduce Great Northern Paper Co.'s emissions
 - enforce the existing emission limit for sulfide paper mills of 40 lb of SO_2 per dried ton of pulp
 - add scrubbers
 - modify the process
 - higher stacks (consistent with good engineering practice)
- b. Use offset policy for new sources

2. Portland

- a. Area currently in attainment
- b. Continue the limit on sulfur in fuel
 - after November 1975, no fuel can be used that has more than 1.5% sulfur

- after November 1985, no fuel can be used that contains more than 1.0% sulfur

B. TSP

1. Redesignate nonattainment areas to secondary or unclassified:
 - a. Bangor-Brewer
 - b. Lewiston-Auburn
 - c. Rockland-Thomaston
2. Control nontraditional sources (Bangor-Brewster, Lewiston-Auburn and Augusta):
 - a. Road cleaning
 - b. Dust suppression in construction
 - c. Street sweeping, flushing
 - d. Pave parking lots
 - e. Add curbs to paved roads
3. Stationary point sources
 - a. Existing emission standards considered as RACT
 - b. No additional controls required
4. Fugitive industrial process emissions
 - a. Rockland-Thomaston
 - control Martin Marietta cement kiln, which is a source of fugitive cement dust
 - cleanup to be adequate to provide a growth allowance
 - b. Baileyville
 - control mill process and boiler in the Georgia Pacific paper mill
5. Institute statewide ban on open burning
 - higher stacks (consistent with good engineering practice)

C. CO

1. Federal Motor Vehicle Emissions Control Program
2. Enforcement of law against tampering with vehicle pollution controls

3. Traffic flow improvements to eliminate "hot spots"

D. O_x 1. Design attainment strategies on the assumption that O_x violations are caused equally by each of:

- man-made sources in Maine
- nature
- long-range transport

2. Long-range transport

- rely on cleanup of Boston

3. Motor vehicles

- controls on fuel vapor and evaporation of degreasers
- FMVECP
- RACT for other sources of VOC
- transportation improvements, but no inspection and maintenance program planned
- eliminate cutback asphalt

III. NEW SOURCE REVIEW

Maine intends to use EPA's emission offset policy for new sources in all nonattainment areas (except for the Rockland TSP area, where a growth allowance is projected to be available) and for all new sources in PSD areas when the allowable emission increment has been exhausted.

IV. EMISSION LIMITATIONS ON FUEL COMBUSTION

A. SO_2

1. Limit on sulfur in fuel in Portland (see II.A.2, above)
2. Maximum 2.5% sulfur content in fuel in the remainder of the state

B. TSP

1. Not more than 0.6 lb of particulates per MM Btu for existing sources smaller than 3 MM Btu/hr fuel input
2. Not more than 0.3 lb of particulates per MM Btu for existing sources larger than 150 MM Btu/hr fuel input
3. Values interpolated between these limits for sources of intermediate size

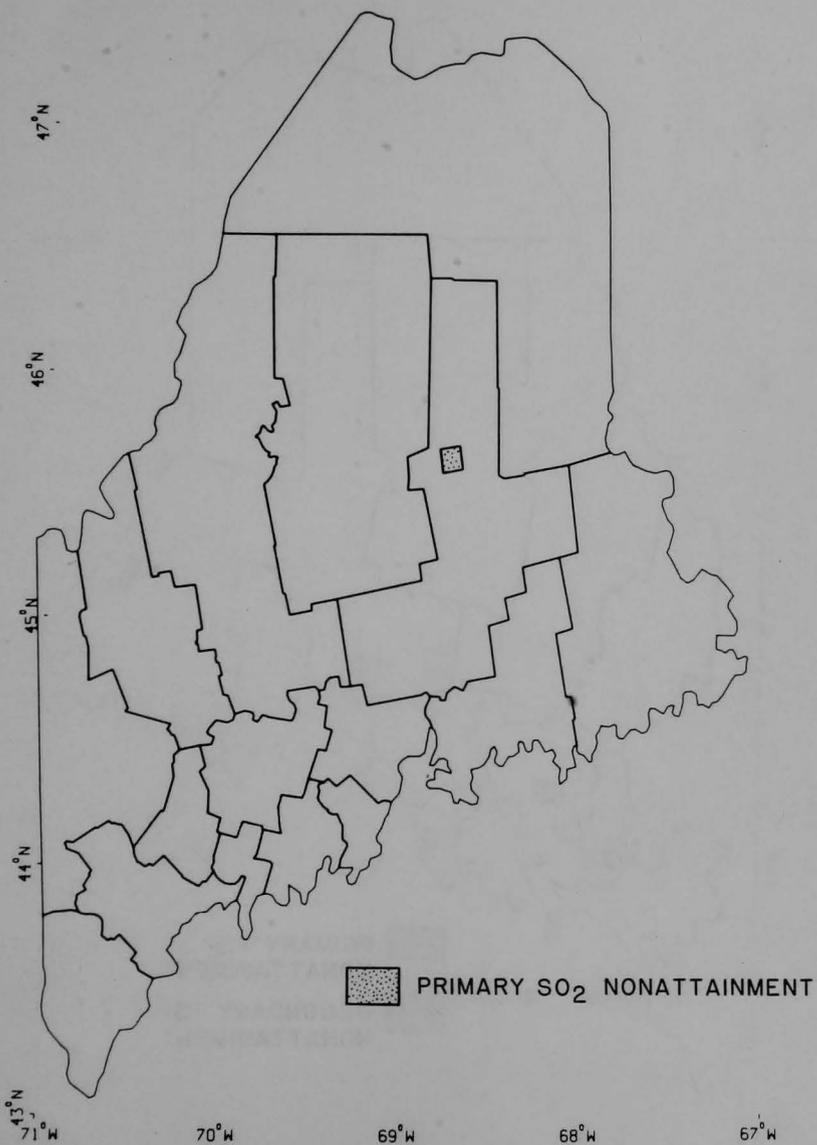


Fig. I.14. Maine: SO₂ Nonattainment Areas as Designated May 1979

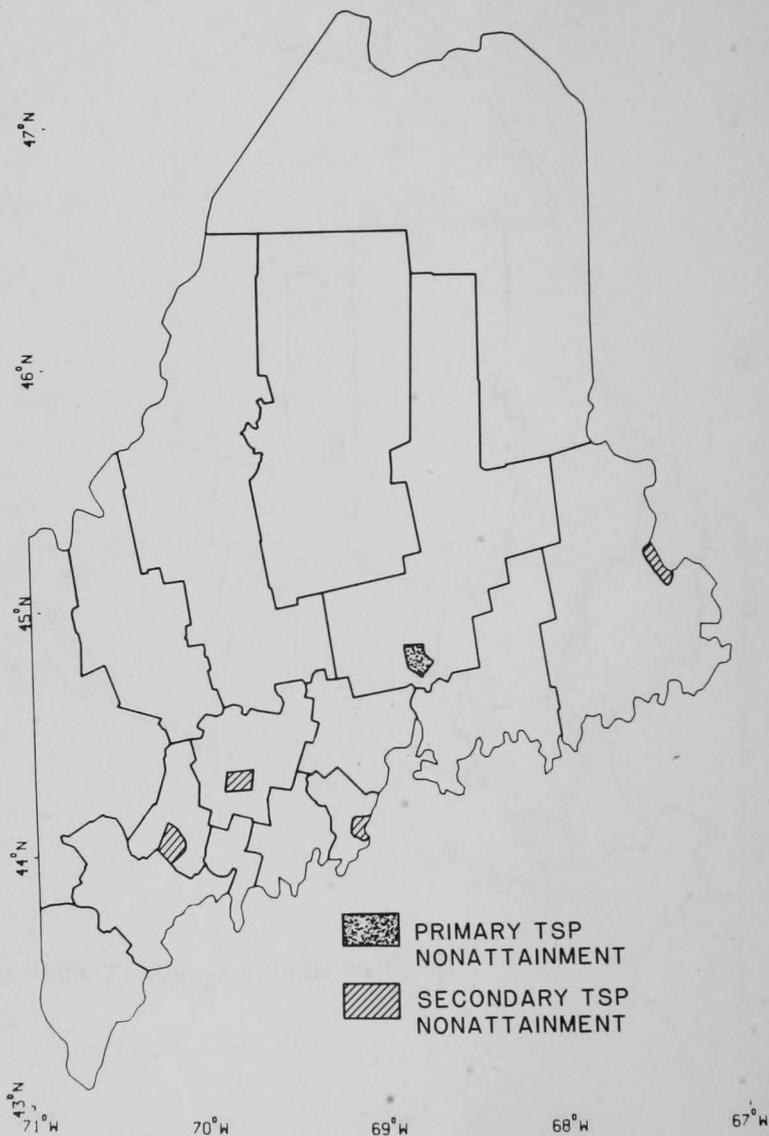


Fig. I.15. Maine: TSP Nonattainment Areas as Designated May 1979

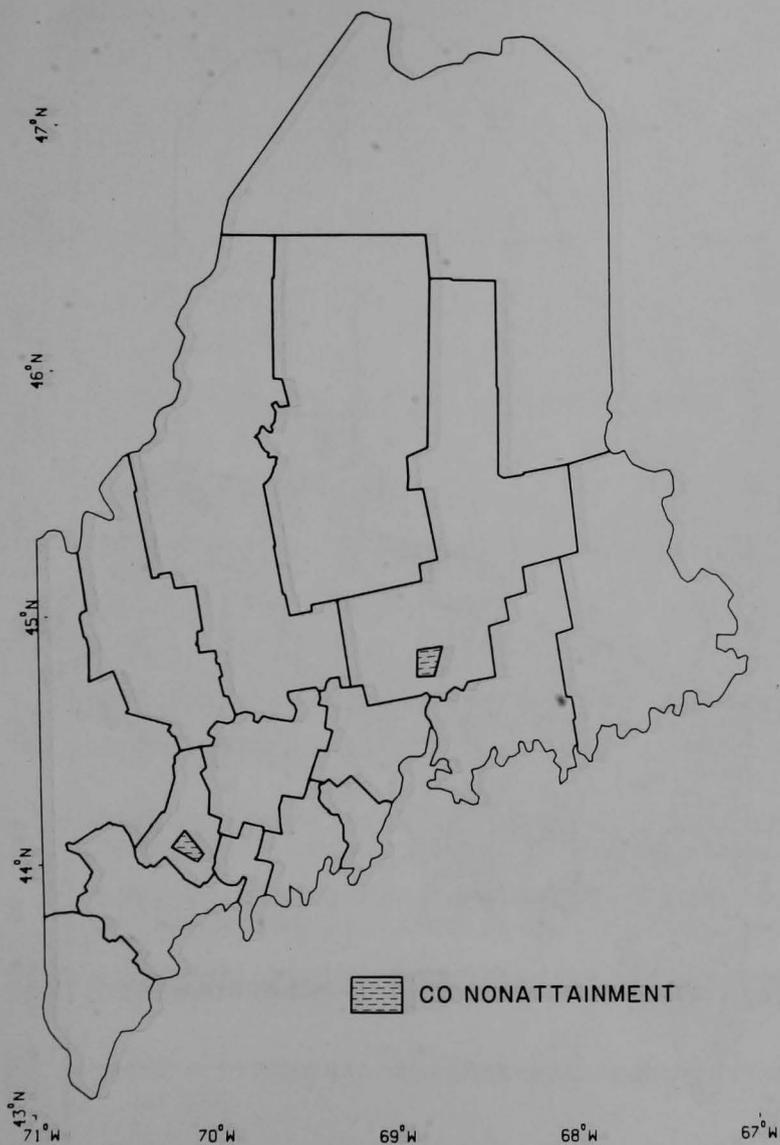


Fig. I.16. Maine: CO Nonattainment Areas as Designated May 1979

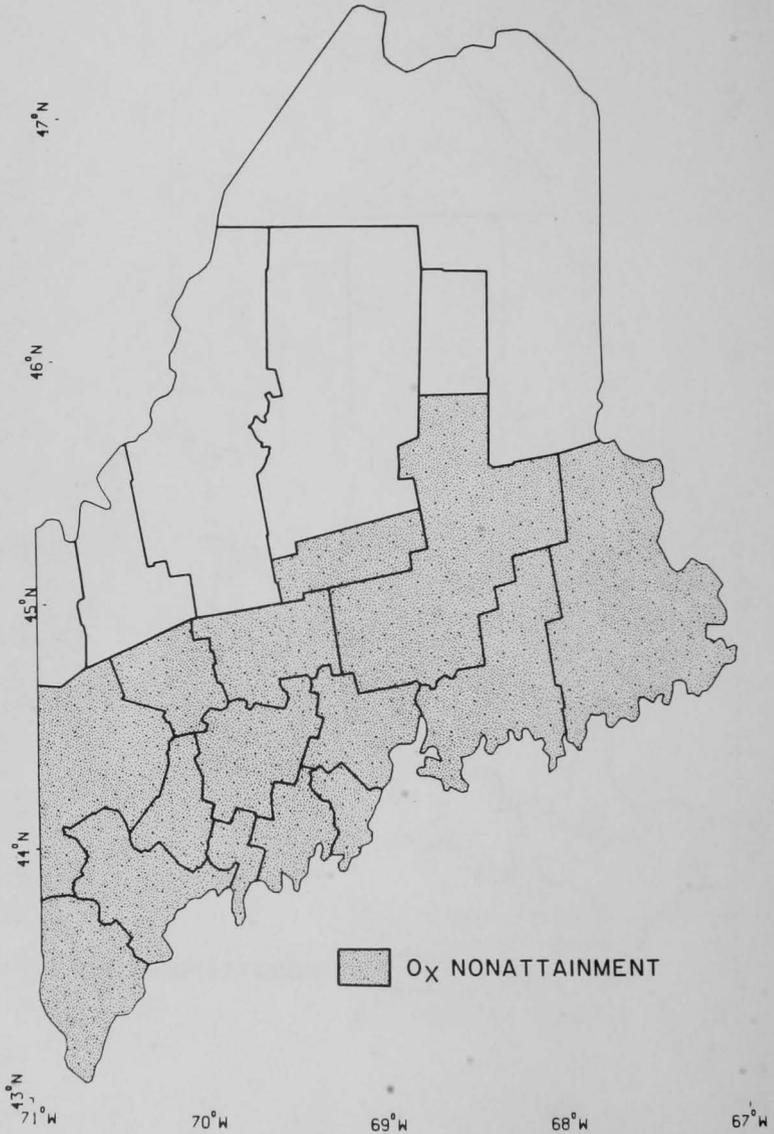


Fig. I.17. Maine: O_x Nonattainment Areas as Designated May 1979

Table I.3. Maine: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	27	44.47	70.18	37. (1)		132. (1)				
2	27	44.10	70.21	39. (1)		90. (1)				
3	27	44.09	70.20	213. (1)						
4	27	44.07	70.21	55. (1)						
5	45	47.35	68.31	115. (1)		63. (1)				
6	45	46.69	68.00			24. (1)				
7	45	46.69	68.03			31. (1)				
8	277	43.67	70.25	86. (1)	20. (1)	114. (1)	42. (1)			
9	277	43.65	70.31	31. (1)	8. (1)	105. (1)	39. (1)			
10	277	43.66	70.26	141. (1)	30. (1)					
11	277	43.62	70.27			75. (1)	32. (1)			
12	277	43.66	70.26			95. (1)				
14	277	43.71	70.29	50. (1)	11. (1)	87. (1)	33. (1)			
15	277	43.66	70.26	230. (1)	61. (2)					
16	277	43.65	70.23	85. (1)	22. (1)	75. (1)	35. (1)			256. (4)
17	277	43.62	70.27	74. (1)	15. (1)					
19 *	495	44.24	68.31	17. (1)	4. (1)	49. (1)	19. (1)			
21	547	44.32	69.78			247. (2)				
22 *	547	4.50	69.55	100. (1)	25. (1)	236. (2)	63. (2)			
23	547	44.55	69.63			88. (1)				
24	547	44.55	69.62	181. (1)		92. (1)				
25	547	44.54	69.62	103. (1)		93. (1)				
26	547	44.55	69.63	167. (1)						
27	595	44.10	69.11	12. (1)						
28	595	44.11	69.12			110. (1)	44. (1)			
29	595	44.10	69.11			87. (1)				
30	595	44.11	69.12	109. (1)	27. (1)					
31	645	44.01	69.66	50. (1)	13. (1)	69. (1)	31. (1)			
32	825	44.53	70.46	46. (1)		104. (1)				
33	825	44.56	70.55	21. (1)		103. (1)				
34	907	45.66	68.71	71. (1)	13. (1)	130. (1)	48. (1)			
35	907	45.39	68.50	40. (1)	10. (1)	104. (1)	34. (1)			
36	907	44.80	68.77	133. (1)	38. (1)	294. (3)	62. (2)	49. (1)	17. (4)	
37	907	44.88	68.67	50. (1)		103. (1)				
38	907	44.93	68.65	35. (1)	8. (1)	169. (1)	42. (1)			
39 *	907	45.49	75.09	48. (1)		27. (1)				
40	1125	45.06	69.89	3. (1)		104. (1)				
41	1205	45.11	67.28	17. (1)		25. (1)				
42	1205	45.15	67.40	14. (1)		119. (1)				
43	1325	43.49	70.46	63. (1)	13. (1)	80. (1)	43. (1)			

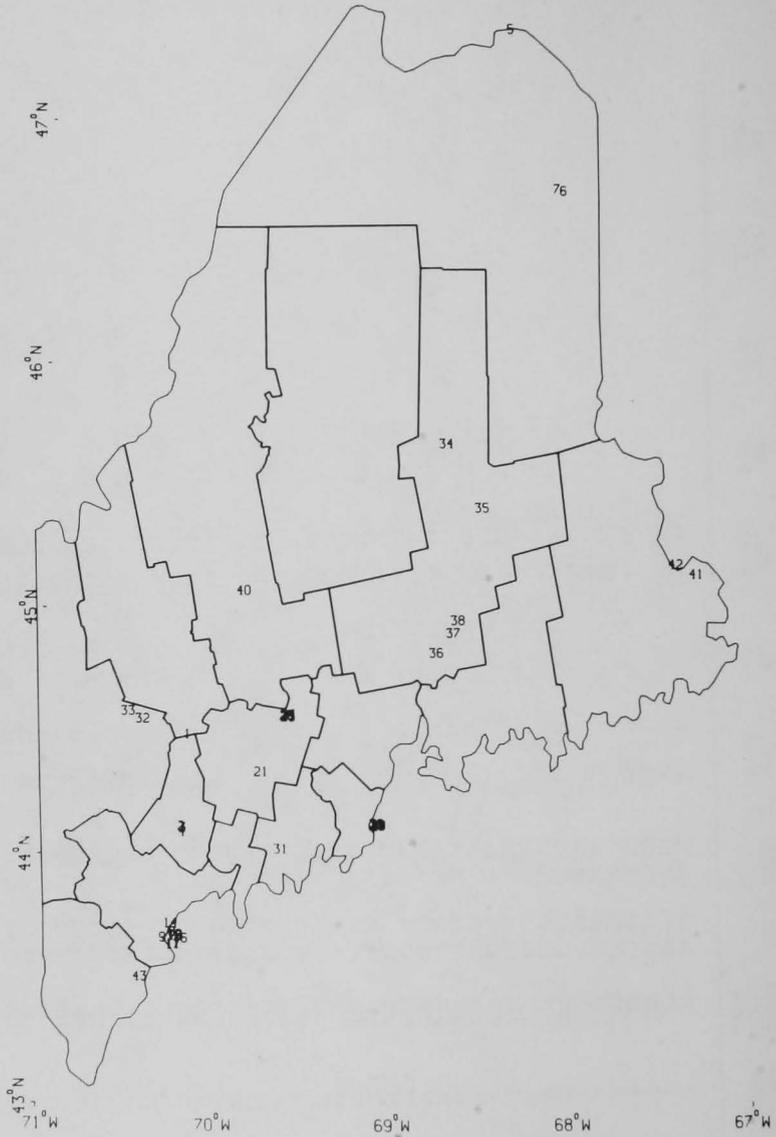


Fig. I.18. Maine: Locations of SAROAD Monitors (See Table I.3 for Monitor Numbers)

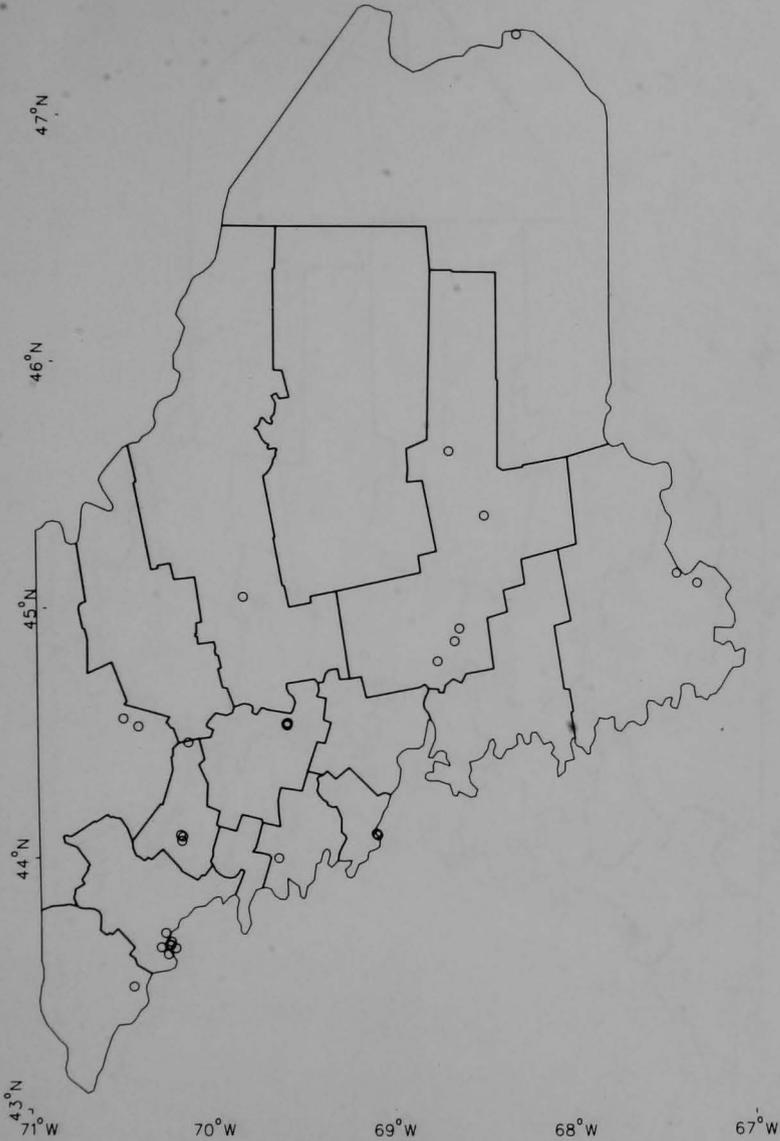


Fig. I.19. Maine: Monitors Reporting Adequate Data on 24-hr Average SO₂; No Violations

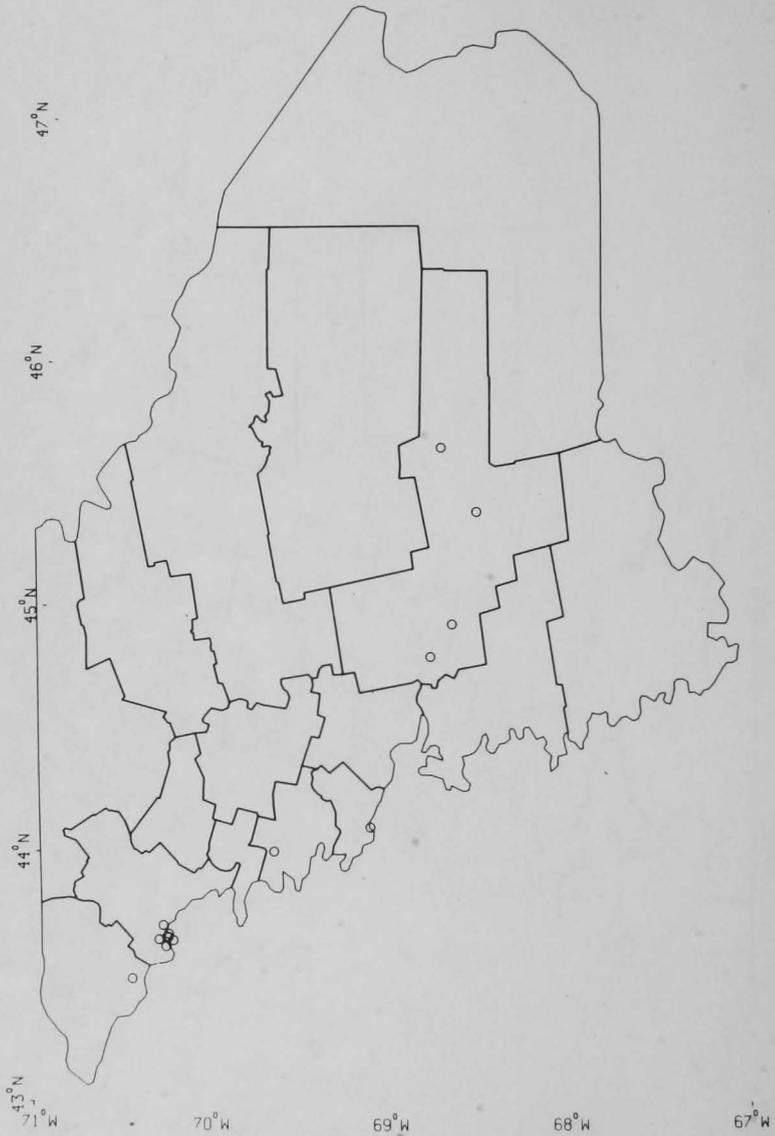


Fig. I.20. Maine: Monitors Reporting Adequate Data on Annual Average SO_2 ; No Violations

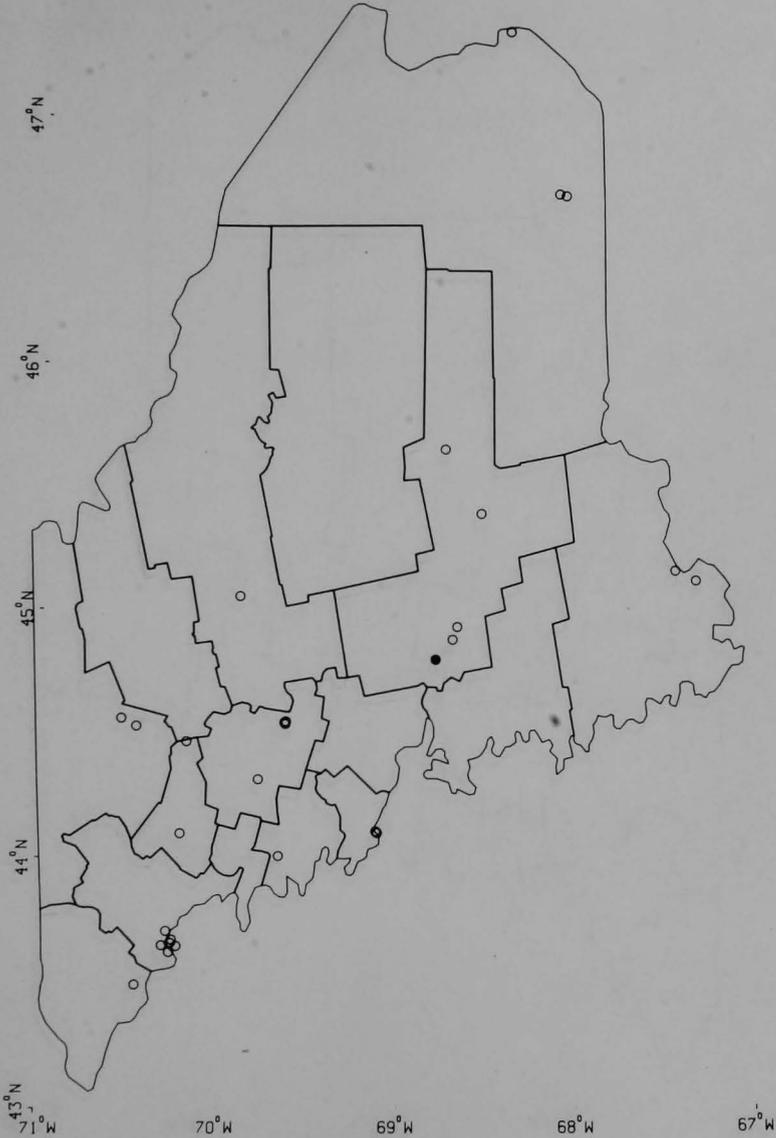


Fig. I.21. Maine: Monitors Reporting Adequate Data on 24-hr Average TSP;
Violations Shown by Shaded Circles

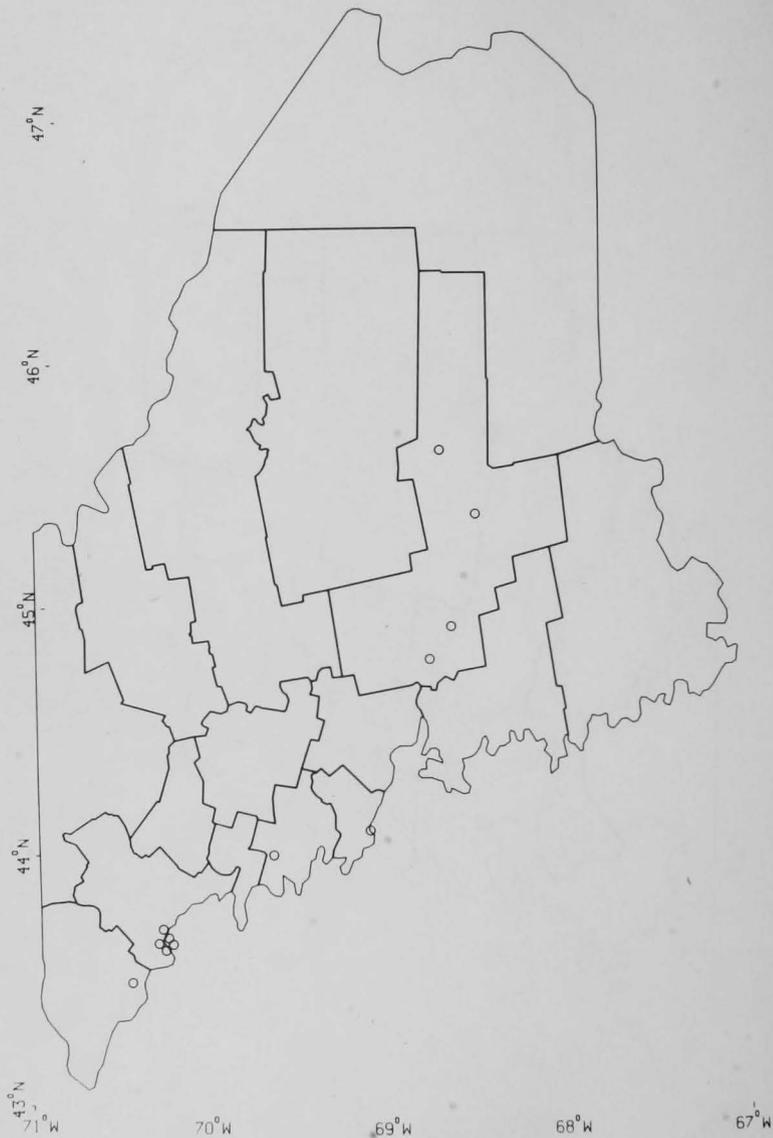


Fig. I.22. Maine: Monitors Reporting Adequate Data on Annual Average TSP; No Violations

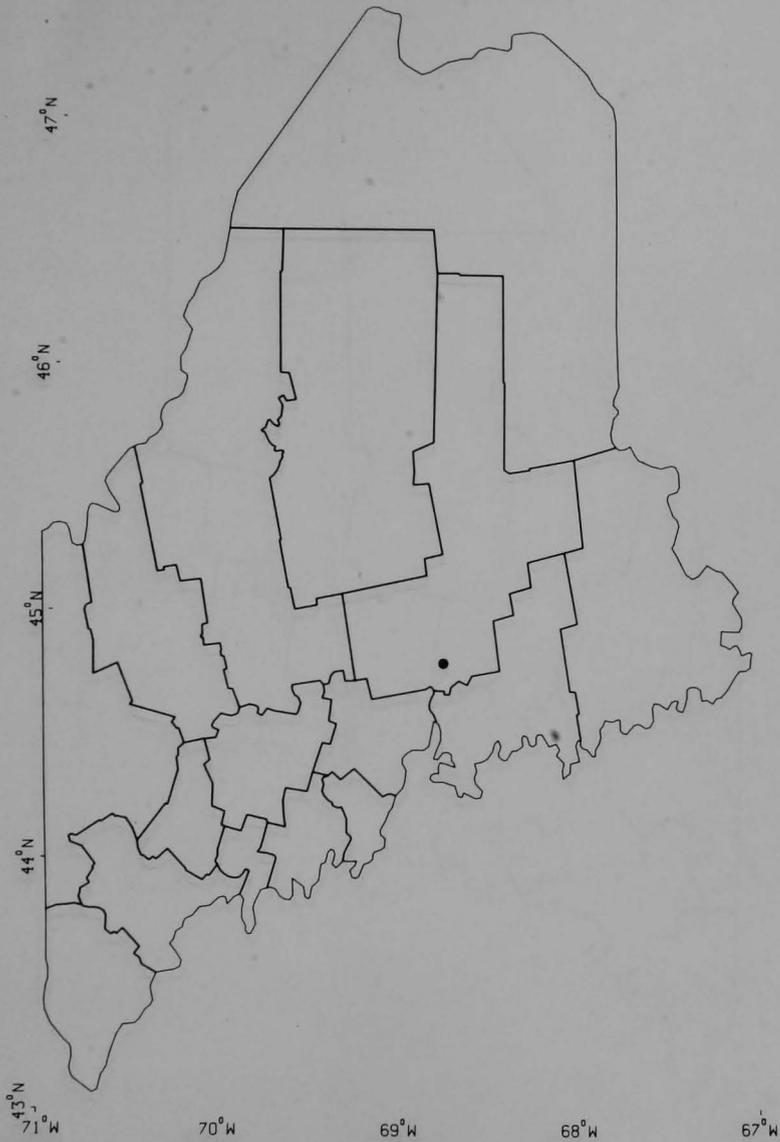


Fig. I.23. Maine: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles

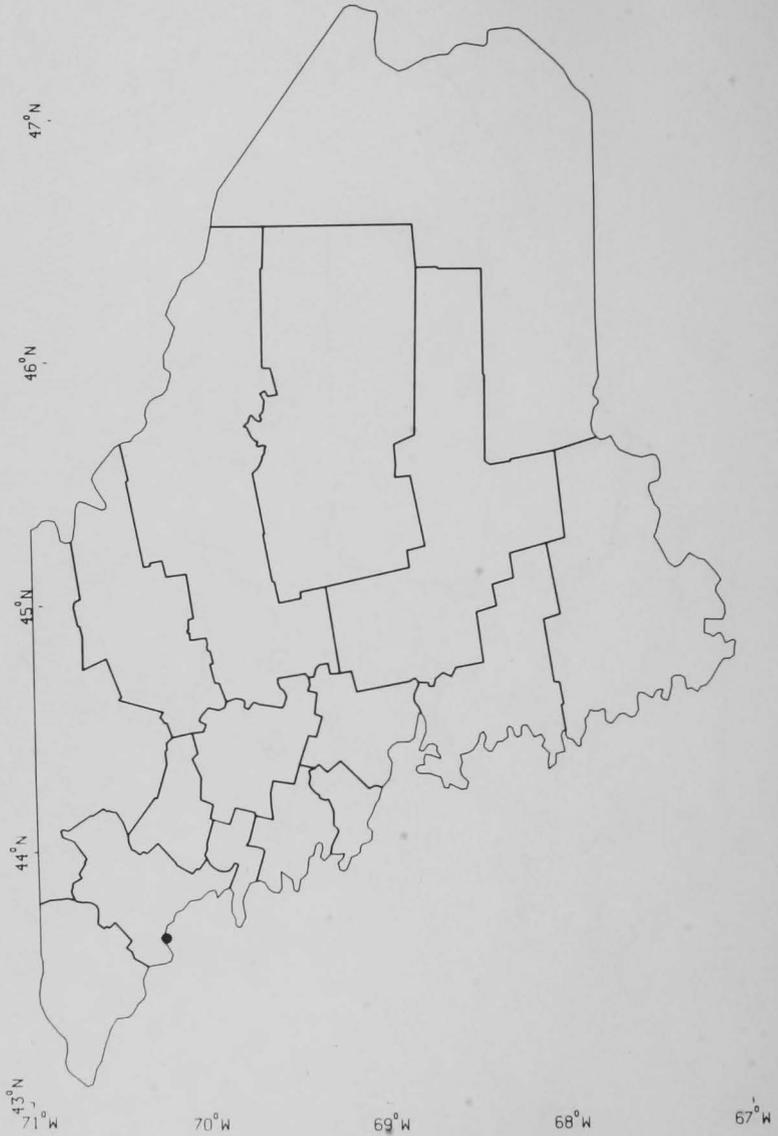


Fig. I.24. Maine: Monitors Reporting Adequate Data on 1-hr Average O₃; Violations Shown by Shaded Circles

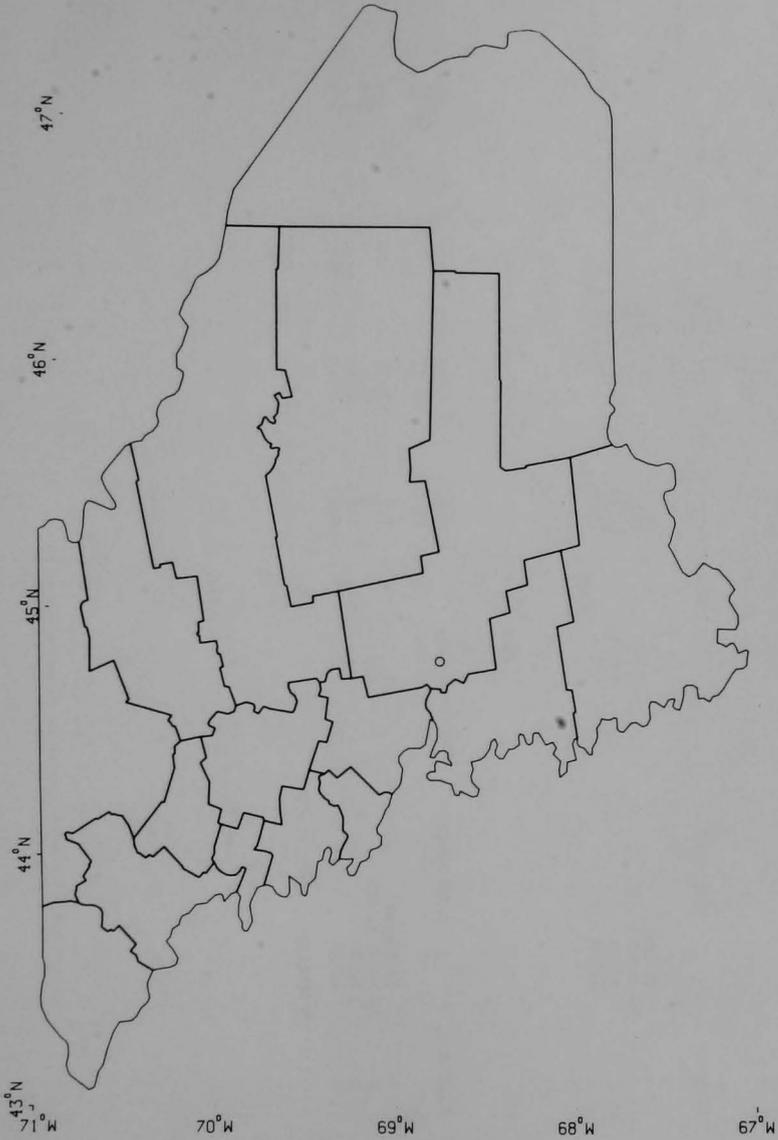


Fig. I.25. Maine: Monitors Reporting Adequate Data on Annual Average NO_x ; No Violations

Table I.4. Maine: Power Plant and Fuel Use Data

POWER PLANT DATA					
PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	EM GRAHAM	44.02	68.70	57.45	0.0
2	N* MAINE YANKEE	0.0	0.0	830.00	0.0
3	MASON	43.99	69.67	146.50	0.0
4	WYMAN	43.75	70.16	213.60	0.0

FUEL-USE DATA						
PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	EM GRAHAM	0.0	0.0	2.18	242.40	0.0
2	N* MAINE YANKEE	0.0	0.0	0.0	0.0	0.0
3	MASON	0.0	0.0	2.00	335.00	0.0
4	WYMAN	0.0	0.0	2.12	2086.00	0.0
	N NUCLEAR					
	* NOT PLOTTED					

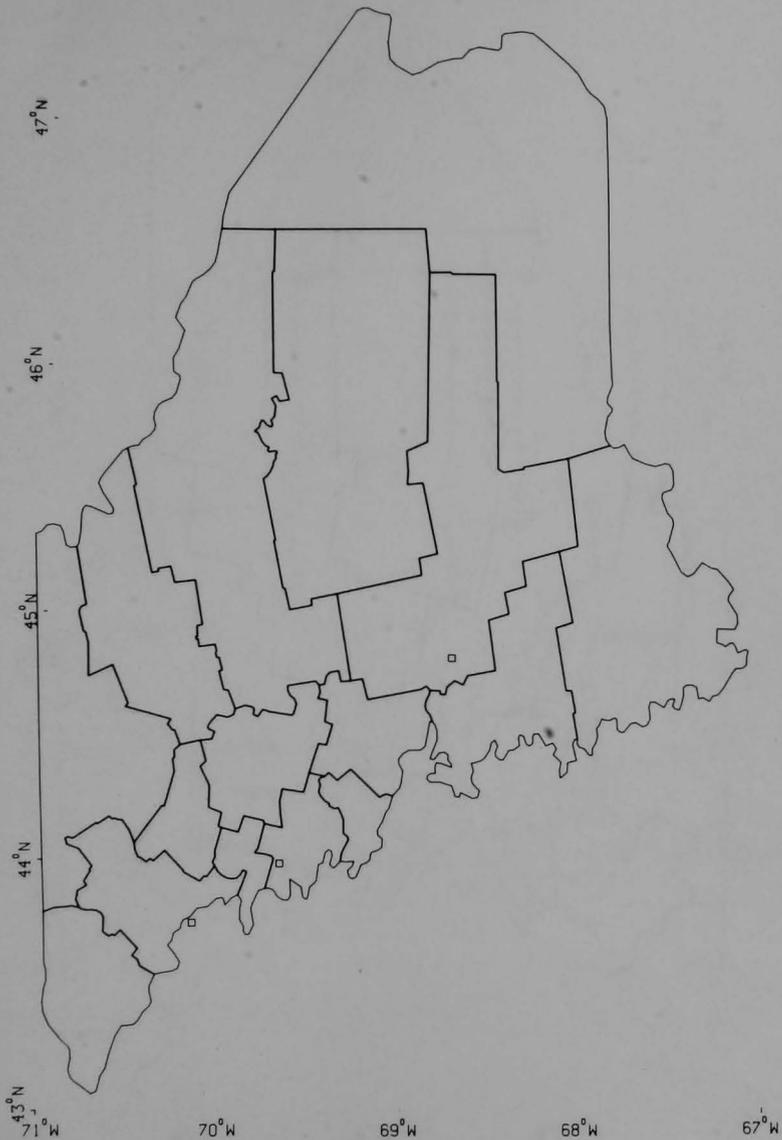


Fig. I.26. Power Plant Locations (Square = Fossil Fuel; Shaded, ≥ 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

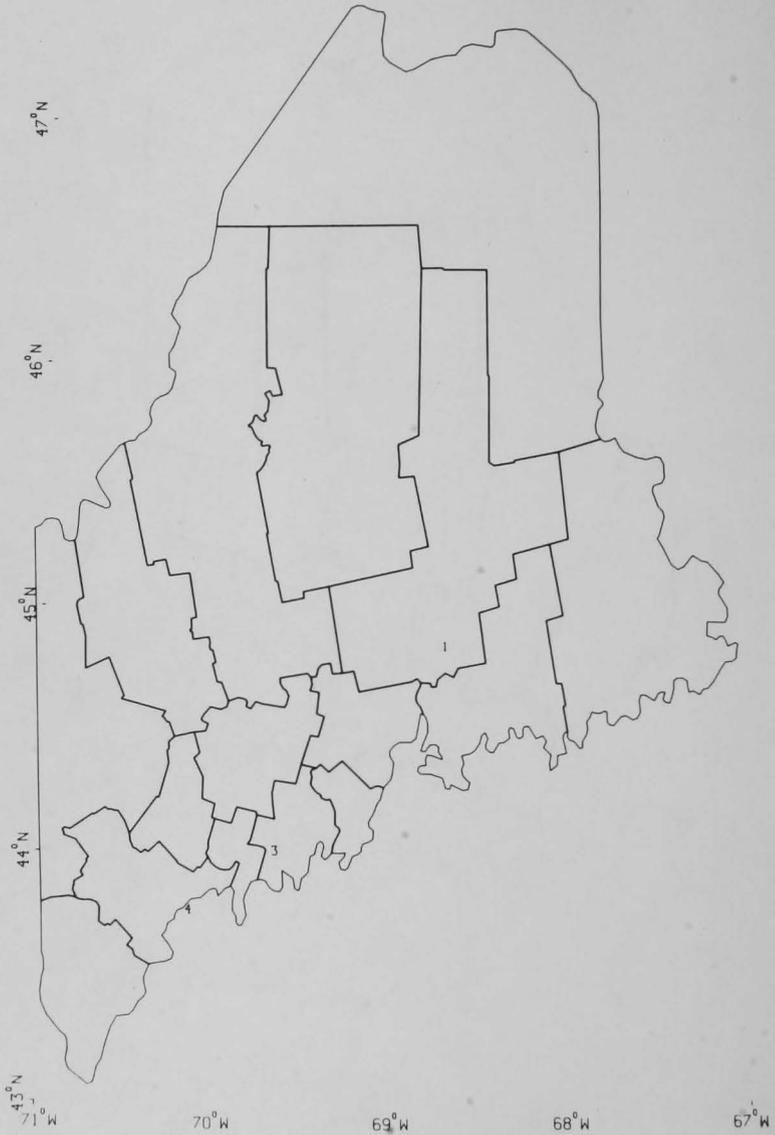


Fig. I.27. Power Plant Key (See Table I.4 for Identification and Fuel Use Data)

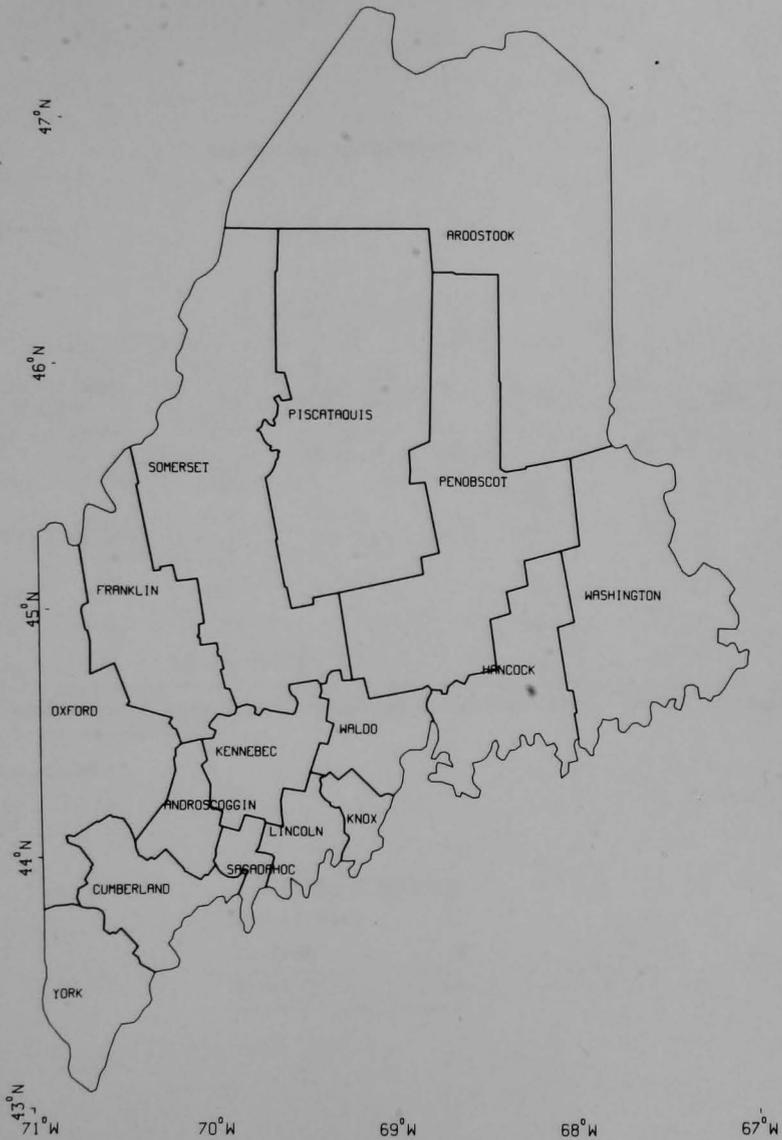


Fig. I.28. Maine: Key to Counties

REGION I: MASSACHUSETTS

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr	0 ^b	0	71	0
	1 yr			47	0
TSP	24 hr	5	13	68	4
	1 yr			38	3
NO _x	1 yr	0 ^b	-	46	2
CO	8 hr	8	-	10	7
O _x	1 hr	Whole state ^b		20	20

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	17
Nuclear	2
Total	19

MASSACHUSETTS: Official SIP, 3/79 (TSP); 6/79 (CO, O_x)

I. SOURCES OF THE PROBLEM

Massachusetts has nonattainment areas for TSP, CO and O_x. Air quality problems are the result of local industry and transportation with (according to the state) significant contributions of pollutants transported from Connecticut, New York, and other out-of-state sources. There are no SO₂ nonattainment areas, possibly as a result of regulations controlling the sulfur content in fuel.

The towns of Springfield and Worcester and the metropolitan area around Boston (including Danvers, Framingham, and Quincy) are designated as nonattainment for the primary TSP standards. Secondary TSP violations have been recorded in Pittsfield, North Adams/Adams, Athol, Fitchburg, Falls River, Haverhill/Lawrence, and portions of the Boston metropolitan area. Stationary point sources of particulate matter are already well controlled; the SIP states that air quality studies have indicated that fugitive emissions from industry and from roads are responsible for the violations. The state suggested that the original designations were over-protective and the SIP therefore requests redesignation of all the primary areas except Worcester.

CO nonattainment areas are limited to the urban centers of Springfield, Worcester, Laurell, Boston and towns surrounding Boston. Mobile sources are responsible for CO emissions.

The entire state is designated nonattainment for O_x. The contributions to O_x from within the state are from motor vehicles (which produce 60% of nonmethane hydrocarbons) and industrial processes (27%), with gasoline marketing and miscellaneous sources accounting for the remainder.

II. ATTAINMENT STRATEGIES

A. TSP

1. Redesignation of primary nonattainment areas in Boston and Springfield to secondary nonattainment or unclassified status
 - a. On the basis of improper monitor siting
 - b. On the basis of new emissions data

2. Request 18-month extension of the deadline for submitting SIP to achieve secondary standards
 - a. To study and inventory urban fugitive emissions
 - b. To develop and implement controls on urban fugitive emissions
3. Worcester (the other primary nonattainment area)
 - a. Sand (silica) constitutes between 32 and 58% of TSP collected
 - reduced sanding of streets in winter has prevented primary standard violations in 1978
 - reduced sanding to be incorporated into SIP
 - b. Eliminate rotary cup boilers
 - c. Eliminate use of coal in the Worcester school system
4. Statewide strategies include:
 - a. Inspection and maintenance for mid-sized boilers
 - b. Fuel oil viscosity controls on large fuel-burning installations
 - c. Registration of construction and demolition projects so that fugitive emissions can be monitored

B. CO

1. Federal Motor Vehicle Emissions Control Program (FMVECP)
2. Inspection and maintenance of vehicles
3. Extension of deadline to 1987
4. Reasonably Available Control Measures (RACM) for transportation for ozone

C. O_x

1. FMVECP
2. Vehicle inspection and maintenance programs
3. Extension of deadline to 1987
4. Reasonably Available Control Measures:
 - a. Mass transit extensions
 - b. Exclusive bus and carpool lanes
 - c. Bikeway projects

5. Reasonably available control technology (RACT) for stationary sources, including:
 - a. Surface coating processes
 - b. Petroleum storage and marketing
6. RACT not adopted for
 - a. Paper, fabric, and metal coil coating, due to a dispute with EPA about what constitutes RACT
7. Reduction of ozone transported from out of state

III. NEW SOURCE REVIEW

An emissions offset policy is in effect for all pollutants in all nonattainment areas, including secondary TSP nonattainment areas. A proposal has been made to issue industrial bonds to help finance insulation or fuel conversion in residential and commercial areas, and thus to obtain offsets by reducing emissions from such area sources.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. State has limited sulfur allowable in fuel to:
 - a. 1.21 lb per MM Btu of fuel input in the Berkshire Air Pollution Control District (APCD)
 - b. 0.55 lb per MM Btu in Central Massachusetts, Merrimack Valley, Pioneer Valley, and Southeastern Massachusetts
 - c. 0.28 lb per MM Btu in the Metropolitan Boston APCD, with a variance to 0.55 lb in Arlington, Belmont, Boston, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Newton, Somerville, Waltham, and Watertown, and a variance to 1.21 lb in the remainder of the APCD
2. State has issued revised regulations on sulfur in fuel, allowing sources in all air pollution control districts to burn fuel with maximum sulfur content of 1.21 lb per MM Btu
 - a. A source must apply for permission to use the higher sulfur fuel
 - b. The application must be subject to modeling for air quality impact

B. TSP

1. General limits are the same as in the previous SIP

a. For new sources, constructed after 8/71:

Source size (fuel input)	Emission limit (lb of PM per MM Btu)
3 to 250 MM Btu/hr	0.10
> 250 MM Btu/hr	0.05

A rate of 0.10 lb per MM Btu is allowed if the source is using SO₂ control equipment to meet SIP emission limitations for that pollutant

b. For existing sources larger than 3 MM Btu/hr:

0.15 lb of PM per MM Btu

2. In critical areas of concern (i.e., a series of urban areas, such as Boston and Springfield):

a. For new sources, limits are the same as above

b. For existing sources larger than 3 MM Btu/hr:

0.12 lb of PM per MM Btu

3. Worcester

a. New Sources

Source size (fuel input)	Fuel type	Emission limit (lb of PM per MM Btu)
3 to 250 MM Btu/hr	Solid and residual	0.10
	Distillate oil, gas	0.05
> 250 MM Btu/hr	Solid	0.10
	Residual	0.05 ^a
	Distillate oil, gas	0.05

^aThe limit may be relaxed to 0.10 lb per MM Btu if the source is using SO₂ control equipment.

b. Existing sources larger than 3 MM Btu/hr:

solid and residual fuel 0.12 lb PM per MM Btu

distillate oil and gas 0.10 lb PM per MM Btu

c. EPA proposed, in July 1979, disapproving the emission limitation for new sources > 250 MM Btu/hr using solid fuel, since this represents a relaxation of the limit from 0.05 to 0.10 lb of PM. Such a relaxation is not deemed appropriate for a nonattainment area.

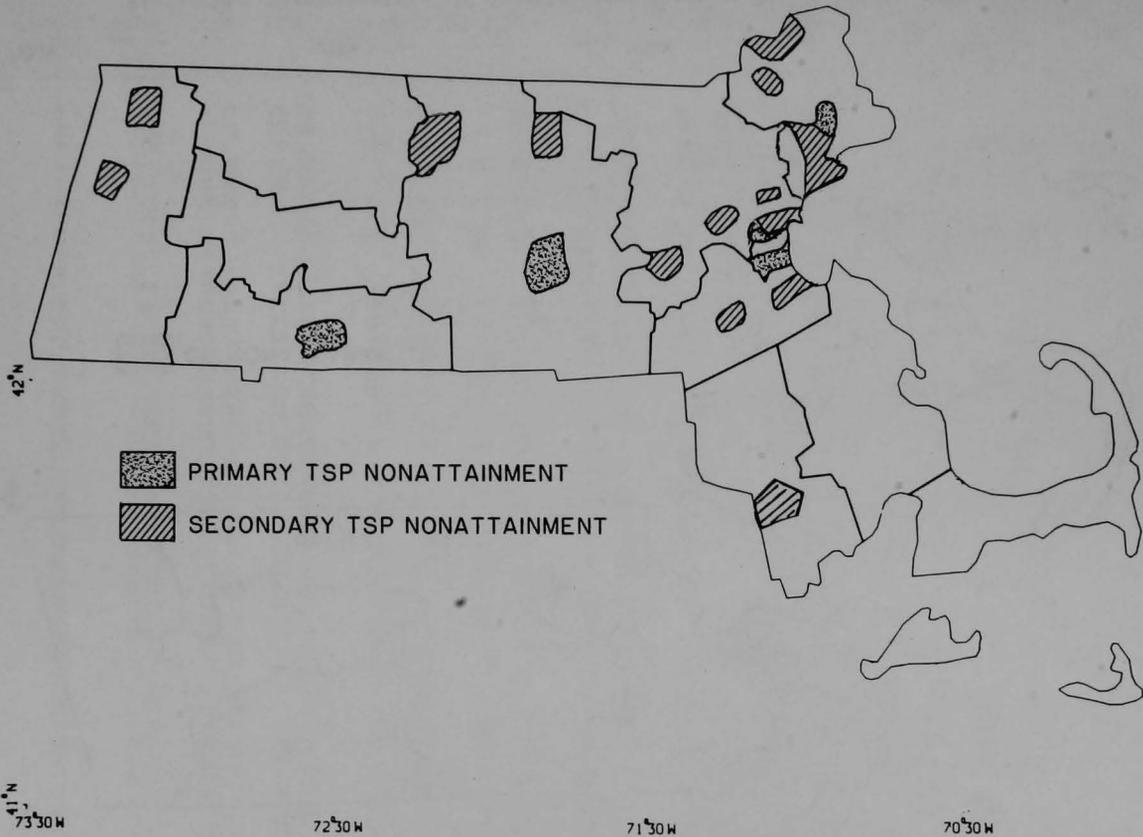


Fig. I.29. Massachusetts: TSP Nonattainment Areas as Designated May 1979

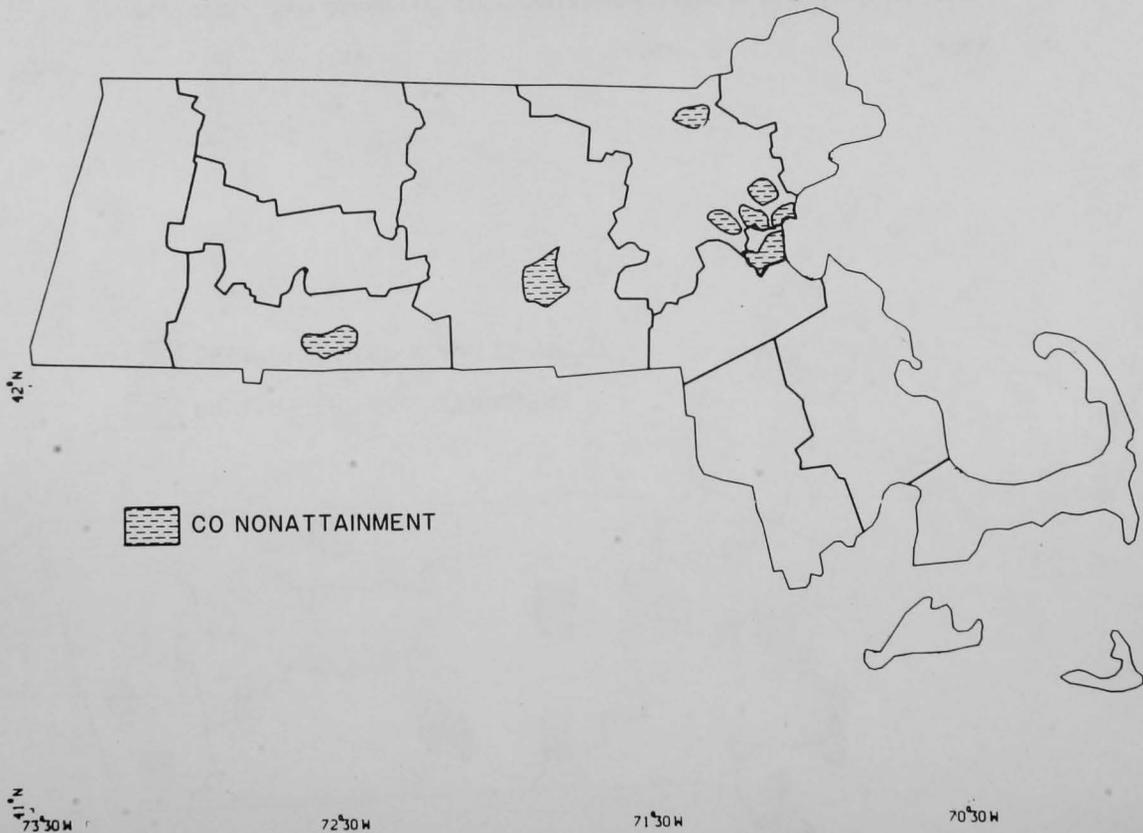


Fig. I.30. Massachusetts: CO Nonattainment Areas as Designated May 1979

Table I.5. Massachusetts: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1 *	187	4.27	73.60	110. (1)	16. (1)	176. (1)	62. (2)	36. (1)		
2	187	42.28	73.25	89. (1)	14. (1)	76. (1)	36. (1)	34. (1)		
3 *	187	0.0	0.0	101. (1)	21. (1)	103. (1)	48. (1)	47. (1)	8. (2)	323. (4)
4	187	42.45	73.22	79. (1)	26. (1)	100. (1)	41. (1)	40. (1)		
5	187	42.70	73.11	13. (1)		31. (1)				
6	187	42.69	73.11	107. (1)	21. (1)	122. (1)	51. (1)	35. (1)		
7	369	42.27	71.76	37. (1)		147. (1)				
8	369	42.26	71.80	211. (1)	42. (1)	396. (4)	82. (3)	70. (1)	20. (4)	308. (4)
9 *	369	0.0	0.0			100. (1)	45. (1)			
10 *	369	0.0	0.0			134. (1)	59. (2)			
11 *	369	0.0	0.0	52. (1)		81. (1)				
12	369	42.25	71.82	100. (1)	23. (1)	151. (1)	43. (1)	51. (1)		
13	369	42.26	71.80	139. (1)	32. (1)	265. (3)	61. (2)	75. (1)		
15 *	369	42.14	80.16	47. (1)	10. (1)	74. (1)	27. (1)	38. (1)		
16	369	42.57	71.79	115. (1)	25. (1)	149. (1)	48. (1)	56. (1)		
17	369	42.57	71.78	115. (1)	27. (1)			50. (1)		255. (4)
18	369	42.58	71.80	121. (1)	30. (1)			47. (1)		
19	369	42.59	72.23	60. (1)	17. (1)	86. (1)	42. (1)	42. (1)		
20	1274	42.56	71.57	81. (1)	20. (1)	89. (1)	43. (1)	37. (1)		
21	1274	42.71	71.15	84. (1)	27. (1)			44. (1)		
22	1274	42.64	71.31			120. (1)	53. (1)			
23	1274	42.71	71.15	128. (1)		125. (1)	52. (1)			
24	1274	42.78	71.08	115. (1)	30. (1)	163. (1)	59. (2)	48. (1)		
25	1274	42.78	71.01							165. (3)
26	1274	42.81	70.87	50. (1)	14. (1)	83. (1)	40. (1)	35. (1)		
27	1274	42.65	71.31	128. (1)	30. (1)			67. (1)	13. (4)	247. (4)
28	1274	42.64	71.29	123. (1)	30. (1)	115. (1)	52. (1)	51. (1)		
29	1274	42.64	71.31	110. (1)	27. (1)			50. (1)		
30	1291	42.47	70.95			95. (1)				
31	1291	42.42	71.47	37. (1)	12. (1)	81. (1)		35. (1)		
32	1291	42.52	70.74	95. (1)		128. (1)				
33	1291	42.50	70.87	34. (1)	9. (1)	113. (1)	44. (1)	42. (1)		
34	1291	42.47	70.95	100. (1)						
35	1291	42.28	71.24	37. (1)		61. (1)				
36	1291	42.26	71.23	47. (1)		78. (1)				
37	1291	42.40	71.08	146. (1)	30. (1)	131. (1)		86. (2)	14. (4)	312. (4)
38	1291	42.42	71.11	84. (1)	23. (1)	89. (1)		65. (1)		
39	1291	42.21	71.34							304. (4)
40	1291	42.19	71.20	76. (1)	20. (1)	83. (1)	45. (1)	52. (1)		
41	1291	42.51	70.91	98. (1)		97. (1)				
42	1291	42.51	70.91	139. (1)	19. (1)					286. (4)
43	1291	42.40	70.99	118. (1)	30. (1)	171. (1)	54. (1)	62. (1)		
44	1291	42.25	71.01	63. (1)	18. (1)	83. (1)	45. (1)	51. (1)		
45	1291	42.24	70.97	141. (1)	29. (1)	261. (3)	84. (3)	63. (1)	7. (1)	321. (4)
46	1291	42.43	71.15			124. (1)	51. (1)			

Table Continued on next page

Table I.5. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
47	1291	42.37	71.24					66. (1)		290. (4)
43	1291	42.48	71.15	37. (1)	8. (1)			49. (1)		
49	1291	42.37	71.24	167. (1)	31. (1)	164. (1)	73. (2)		16. (4)	
50	1291	42.38	71.21	50. (1)		83. (1)				284. (4)
51	1291	42.29	71.41	60. (1)		110. (1)	41. (1)			
52	1291	42.30	71.41							376. (4)
55	1291	42.54	70.92	75. (1)		135. (1)				
56	1291	42.37	71.07	116. (1)	37. (1)	142. (1)	68. (2)	71. (1)	9. (2)	304. (4)
57	1291	42.38	71.13	55. (1)	19. (1)	98. (1)	44. (1)	51. (1)		
59	1291	42.34	71.13	58. (1)	11. (1)	100. (1)	42. (1)	55. (1)		
60	1291	42.37	71.04						15. (4)	
61	1291	42.33	71.07					51. (1)		
62	1291	42.56	70.85			97. (1)				
63	1291	42.36	71.06	105. (1)	28. (1)	141. (1)				
65	1291	42.56	70.85	62. (1)						
66	1291	42.33	71.07	73. (1)	19. (1)	147. (1)	63. (2)			
67	1291	42.35	71.10	160. (1)	48. (1)	164. (1)		102. (3)	16. (4)	186. (3)
68	1291	42.36	71.06					66. (1)		
69	1798	42.39	72.52							321. (4)
70	1798	42.15	72.62			141. (1)	58. (2)			
71	1798	42.15	72.60			117. (1)	52. (1)			
72	1798	42.15	72.62	65. (1)	17. (1)					
73	1798	42.15	72.62					57. (1)		
74	1798	42.15	72.60	102. (1)	22. (1)			54. (1)		225. (4)
75	1798	42.19	72.60	71. (1)	23. (1)	139. (1)	55. (1)	61. (1)		
76	1798	42.57	72.60	31. (1)		62. (1)				265. (4)
77	1798	42.53	72.61	84. (1)		91. (1)				
78	1798	42.09	72.59	172. (1)	37. (1)	298. (3)	120. (4)	101. (3)	15. (4)	161. (3)
20	1798	42.10	72.58	39. (1)	11. (1)	170. (1)	67. (2)	75. (1)		
81	1798	42.10	72.58	100. (1)	29. (1)	146. (1)	61. (2)	80. (2)		
83	1798	42.70	72.45			47. (1)				
84	2121	41.96	70.66	76. (1)	17. (1)			37. (1)		
85	2121	41.64	70.93	42. (1)	13. (1)	146. (1)		30. (1)		
87	2121	41.72	71.21	42. (1)		90. (1)				
28	2121	41.75	71.20	100. (1)		81. (1)				
89	2121	41.74	71.18	78. (1)		90. (1)				
90	2121	41.55	70.61	31. (1)	10. (1)	48. (1)		21. (1)		
91	2121	41.70	71.16	85. (1)		188. (1)				
92	2121	41.73	71.14	76. (1)		177. (1)				
93	2121	41.69	71.16	54. (1)						
95 *	2121	41.64	76.91	70. (1)						329. (4)
96	2121	41.69	71.16			145. (1)				
97	2121	41.69	71.17	144. (1)	25. (1)	118. (1)	54. (1)	38. (1)		300. (4)
99 *	2121	0.0	0.0	29. (1)		104. (1)				
101	2121	41.93	71.28	71. (1)		70. (1)				



Fig. I.32. Massachusetts: Monitors Reporting Adequate Data on 24-hr Average SO₂; No Violations

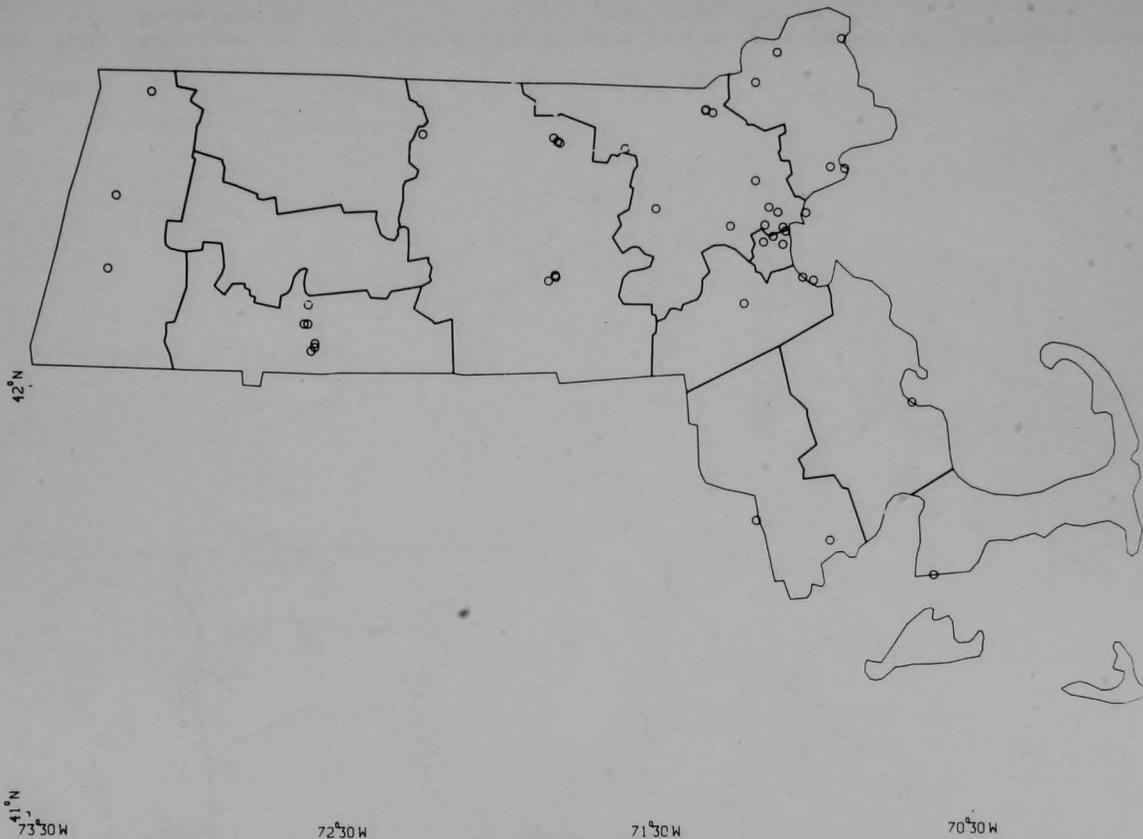


Fig. I.33. Massachusetts: Monitors Reporting Adequate Data on Annual Average SO_2 ; No Violations

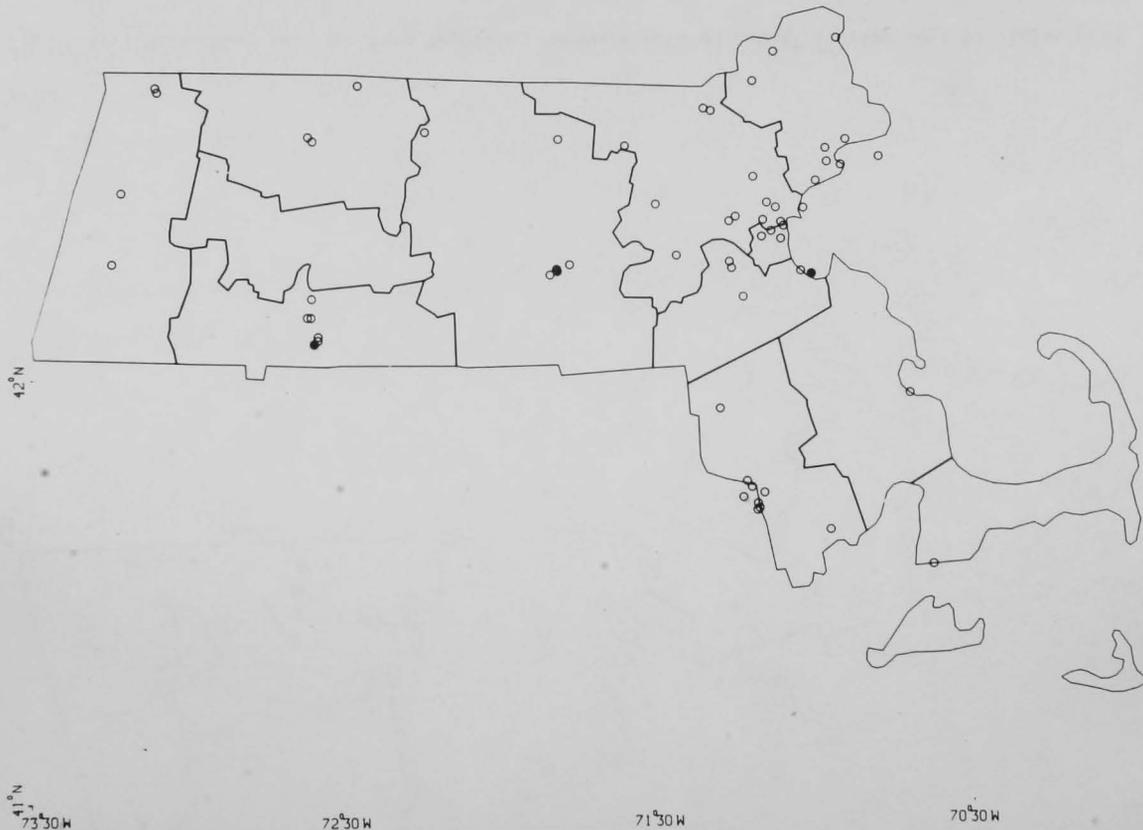


Fig. I.34. Massachusetts: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

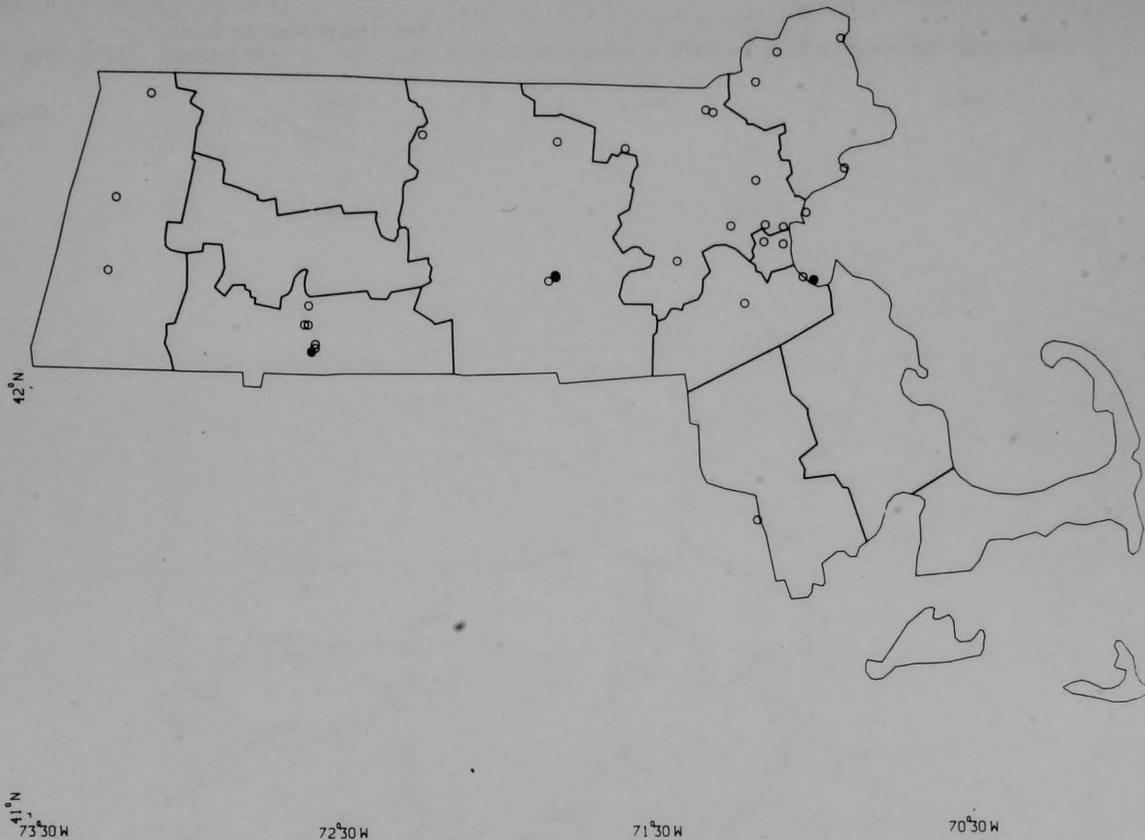


Fig. I.35. Massachusetts: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles



Fig. I.36. Massachusetts: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles



Fig. I.37. Massachusetts: Monitors Reporting Adequate Data on 1-hr Average O_x ; Violations Shown by Shaded Circles

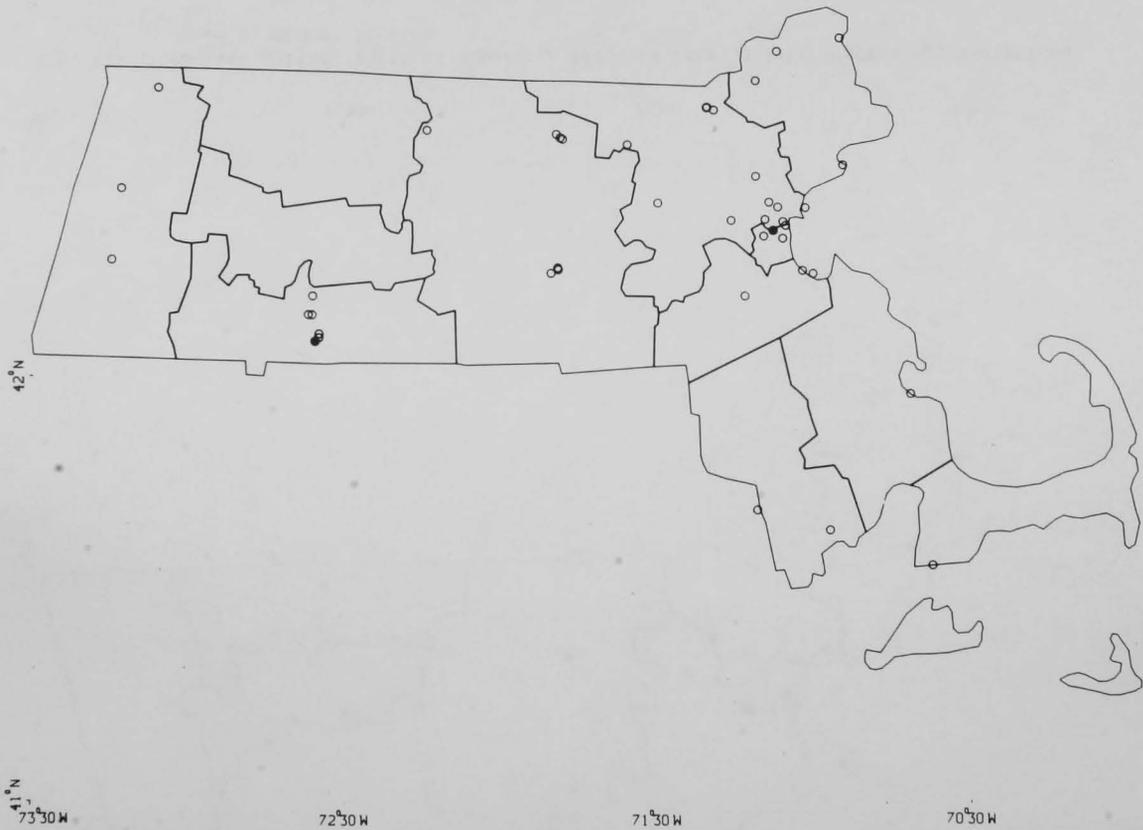


Fig. I.38. Massachusetts: Monitors Reporting Adequate Data on 1-hr Average NO_x; Violations Shown by Shaded Circles

Table I.6. Massachusetts: Power Plant Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	BRAYTON POINT	41.71	71.19	1610.00	0.0
2	CANAL	41.77	70.51	542.50	0.0
3	CANNON STREET	41.63	70.92	33.00	0.0
4	CLEARY	41.87	71.11	118.30	0.0
5	EDGAR	42.24	70.96	263.50	0.0
6	FITCHBURG	42.58	71.79	35.45	0.0
7	HOLYCKE	42.20	72.60	25.50	0.0
8	KENDALL SQUARE	42.36	71.08	67.45	0.0
9	L STREET	42.34	71.04	25.00	0.0
10	MOUNT TOM	42.28	72.60	136.00	0.0
11	MYSTIC	42.39	71.06	1041.00	0.0
12	NEW BOSTON	42.34	71.04	760.00	0.0
13	N * PILGBIM	0.0	0.0	670.00	0.0
14	RIVERSIDE	42.20	72.59	39.75	0.0
15	N* ROWE	0.0	0.0	0.0	0.0
16	SALEM HARDOR	42.53	70.88	805.25	0.0
17	SOMERSET	41.74	71.14	325.00	0.0
18	TAUNTON	41.88	71.10	46.00	0.0
19	WEST SPRINGFIELD	42.10	72.60	209.64	0.0

N NUCLEAR * NOT PLOTTED

Table I.7. Massachusetts: Fuel Use Data

FUEL-USE DATA						
PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	BRAYTON POINT	0.24	601.10	0.81	8852.10	0.0
2	CAHAL	0.0	0.0	0.95	5716.00	0.0
3	CANNON STREET	0.0	0.0	0.91	268.20	35.30
4	CLEARY	0.0	0.0	0.86	418.63	0.0
5	EDGAR	0.0	0.0	0.86	2035.90	0.0
6	FITCHBURG	0.0	0.0	0.93	35.05	101.20
7	HOLYOKE	0.0	0.0	0.85	83.30	157.90
8	KENDALL SQUARE	0.0	0.0	0.45	648.00	0.0
9	L STREET	0.0	0.0	0.49	94.60	0.0
10	MOUNT TOM	0.0	0.0	0.83	1600.60	0.0
11	MYSTIC	0.0	0.0	0.50	3730.70	0.0
12	NEW BOSTON	0.0	0.0	0.41	6177.10	0.0
13	N* PILGRIM	0.0	0.0	0.0	0.0	0.0
14	RIVERSIDE	0.0	0.0	0.26	135.70	0.0
15	N* ROKE	0.0	0.0	0.0	0.0	0.0
16	SALEM HARBOR	1.30	82.10	0.74	6606.50	0.0
17	SOMERSET	0.60	121.90	0.80	1662.90	0.0
18	TAUNTON	0.0	0.0	0.92	214.12	0.0
19	WEST SPRINGFIELD	0.0	0.0	0.85	1112.62	690.45

N NUCLEAR * NOT PLOTTED

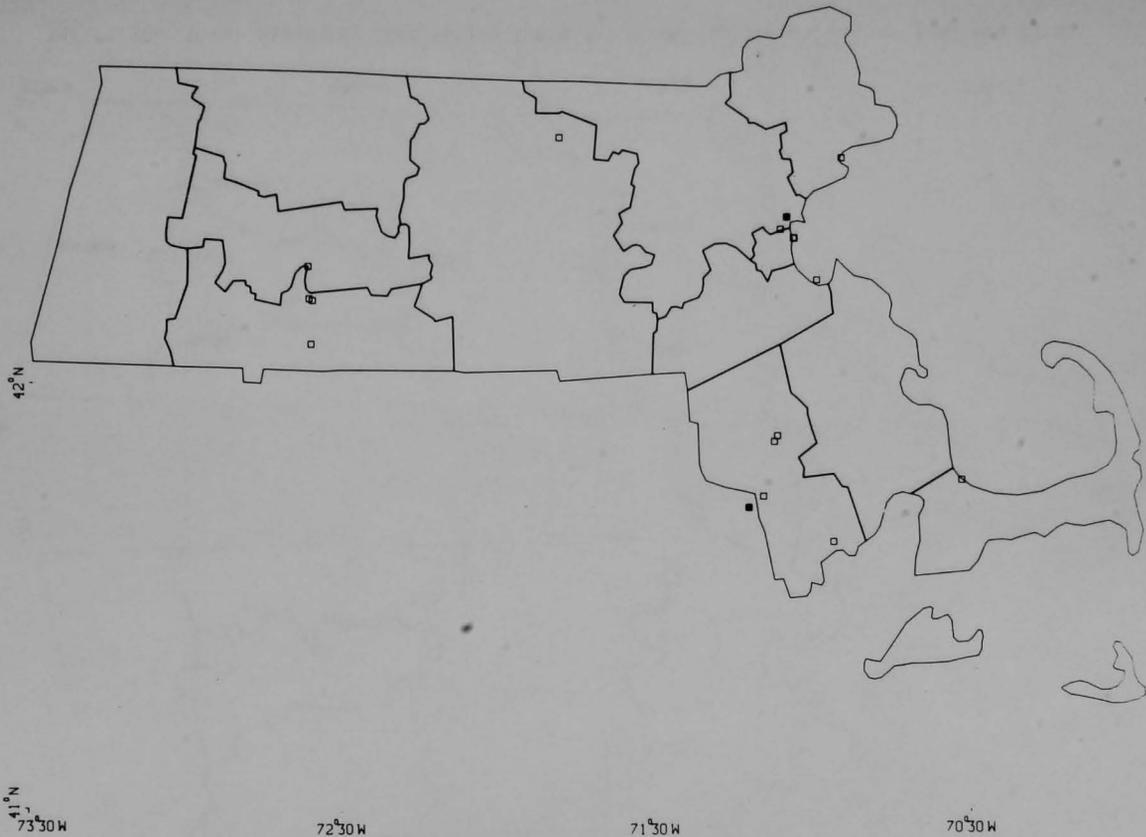


Fig. I.39. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

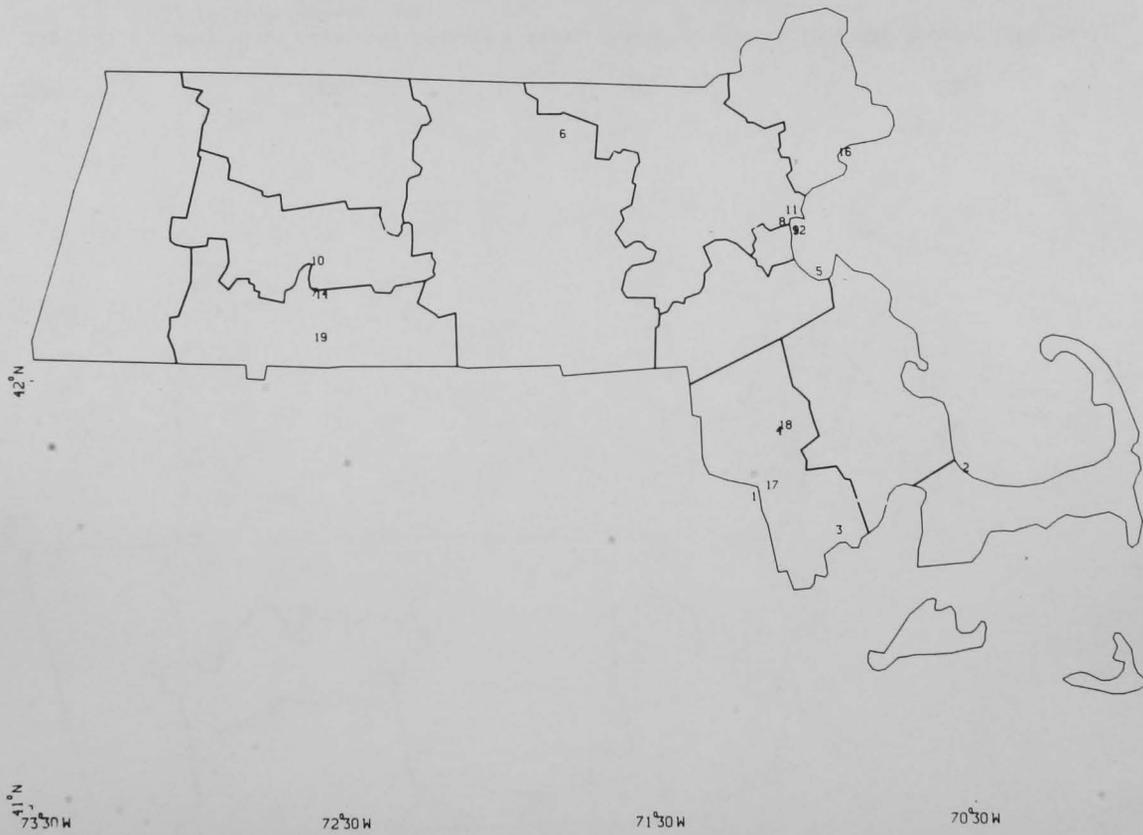


Fig. I.40. Power Plant Key (See Tables I.6 and I.7 for Identification and Fuel Use Data)

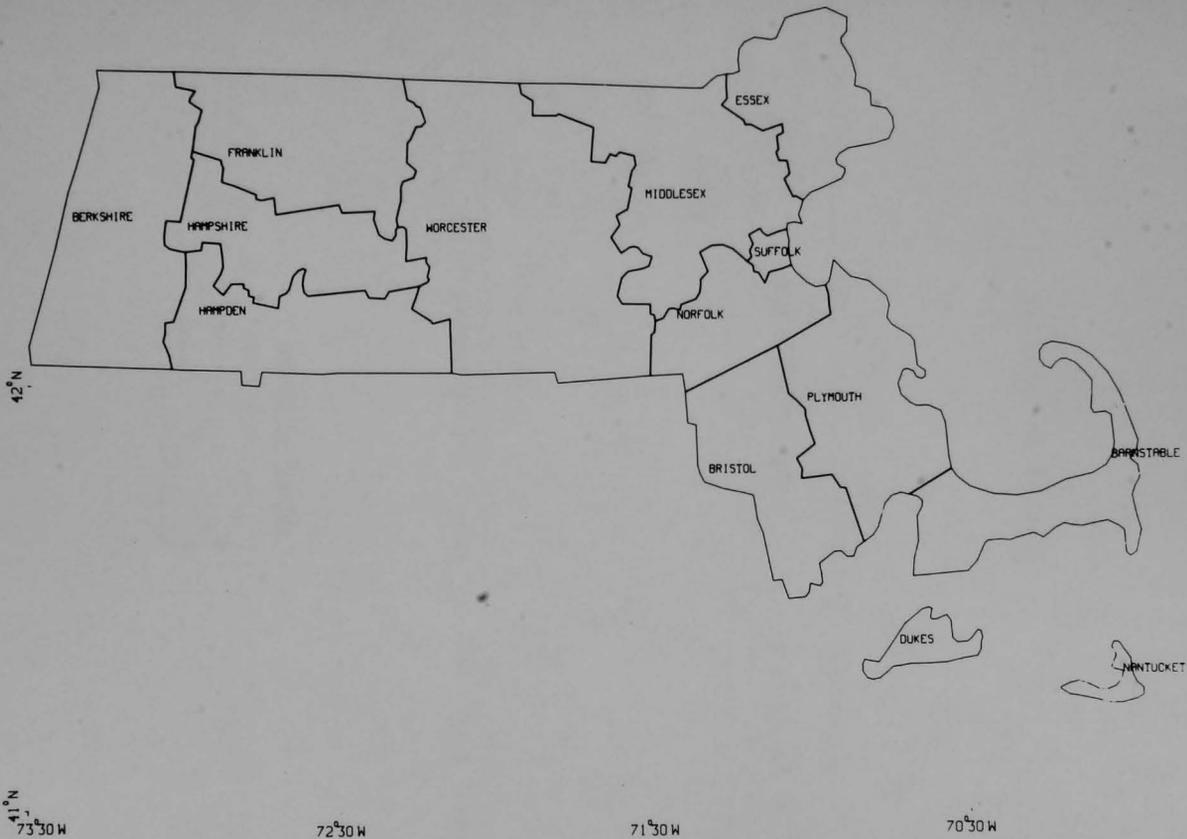


Fig. I.41. Massachusetts: Key to Counties

REGION I: NEW HAMPSHIRE

Air Quality Summary

Pollutant and Standard Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
	Primary	Secondary		
SO ₂ 24 hr } 1 yr }	1	0	12	0
			10	0
TSP 24 hr } 1 yr }	1	2	31	0
			30	1
NO _x 1 yr	0 ^b	-	10	0
CO 8 hr	1	-	3	3
O _x 1 hr	2/3 of state	-	3	2

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	3
Nuclear	0
Total	3

NEW HAMPSHIRE: Official SIP, 5/79

I. SOURCES OF THE PROBLEM

New Hampshire has been experiencing considerable population and commercial growth recently but does not have air quality problems comparable to more heavily industrialized states. There is one town, Berlin, in which air does not meet standards for SO₂. Emissions from a Brown Paper Co. plant which are trapped in a valley between large hills are responsible. The same plant also causes nonattainment of primary TSP standards in Berlin. Keene and Manchester, two areas in southern New Hampshire, are currently nonattainment for TSP. Violations of NAAQS in Keene are due to construction dust. In Manchester, local man-made emissions are from oil-fired boilers, vehicle tailpipe exhaust, and re-entrained road dust. Sulfates and other particulates transported from states to the south and west contribute significantly to ambient TSP levels. State air quality officials claim nontraditional, natural, and transported emissions each account for 30 to 33% of ambient TSP levels, with point sources accounting for less than 10% in southern New Hampshire.

Under the NAAQS for oxidants of 0.08 ppm, only the northern fourth of the state was in attainment of standards. Under the revised ozone standard (0.12 ppm), state officials indicate the northern half is in attainment. The seven southern counties are in nonattainment as a result of ozone transported from the urbanized areas of Massachusetts, New York, Philadelphia, and the District of Columbia. Natural emissions from vegetation contribute up to one-third of the locally produced ozone precursors (hydrocarbons) in the summer. Motor vehicles emit the bulk of locally produced hydrocarbons (VOC or volatile organic compounds). There are 105 VOC-emitting stationary plants, with 23 of them producing 74% of the emissions from stationary sources. Motor vehicles create the CO nonattainment problem in Nashua and Manchester.

II. ATTAINMENT STRATEGIES

A. SO₂

1. Berlin

- a. Strategy to be based on emissions regulation and compliance by Brown Paper Co. plant

2. Attainment continued in remainder of state by
 - a. Limits on sulfur in fuel oil:
 - #2 fuel oil, 0.4% sulfur
 - #4 fuel oil, 1.0% sulfur
 - #5 and #6 fuel oil, 2.0% sulfur in southern areas, 2.2% sulfur in north
 - b. Emission limitations on sources burning coal:
 - pre-1970 sources, 2.8 lb of sulfur per MM Btu of fuel input
 - post-1970 sources, 1.5 lb of sulfur per MM Btu
- B. TSP
1. Berlin
 - a. Strategy to be developed
 - RACT, compliance enforced at Brown Paper Co.
 - development of industrial and other fugitive dust control measures
 2. Keene (secondary violation only)
 - a. Redesignate to attainment
 - b. Violations due to temporary sources and an error in monitor calibration
 3. Manchester (secondary violation only)
 - a. Request 18-month extension of deadline
 - b. Study construction emissions and emissions due to control malfunctions to assess whether they cause violations
 - c. Evaluate and implement controls on fugitive dust
- C. O_x
1. New Hampshire is a rural state, and has less rigorous requirements for its SIP
 2. Controls to include:
 - a. Federal Motor Vehicle Emissions Control Program (FMVECP)
 - b. Regulation of VOC from sources covered in EPA's control technology guidances

- applied to 23 large emitters
 - affects surface coating, degreasing, and petroleum-storage facilities
- c. Eliminate use of cutback asphalt except for patching in cold weather
 - d. Transportation planning consistent with air quality goals
 - e. Rely upon cleanup of out-of-state sources
- D. CO
1. FMVECP
 2. Identification and correction of hot spots
 3. Improve traffic flow if necessary

III. NEW SOURCE REVIEW

New Hampshire plans to use EPA's emission offset policy for major new sources of TSP and SO₂ in locations having significant impact on nonattainment areas. Controls on existing stationary VOC sources will be sufficient to attain standards and provide a growth allowance. Emissions reductions that exceed the offset requirement may be banked for future use if the New Hampshire air pollution agency has determined that use of banked emissions will not interfere with reasonable further progress towards attainment. New Hampshire will also permit new sources to use the bubble approach of controlling emissions per plant rather than meeting limitations on each individual stack or process effluent. Fugitive emissions from roads or storage piles may not be offset against flue emissions. The policy applies to sources having an allowable emission rate in excess of 50 tons of pollutant per year.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

- A. SO₂
 1. As described in II.A, above
- B. TSP
 1. For existing sources:

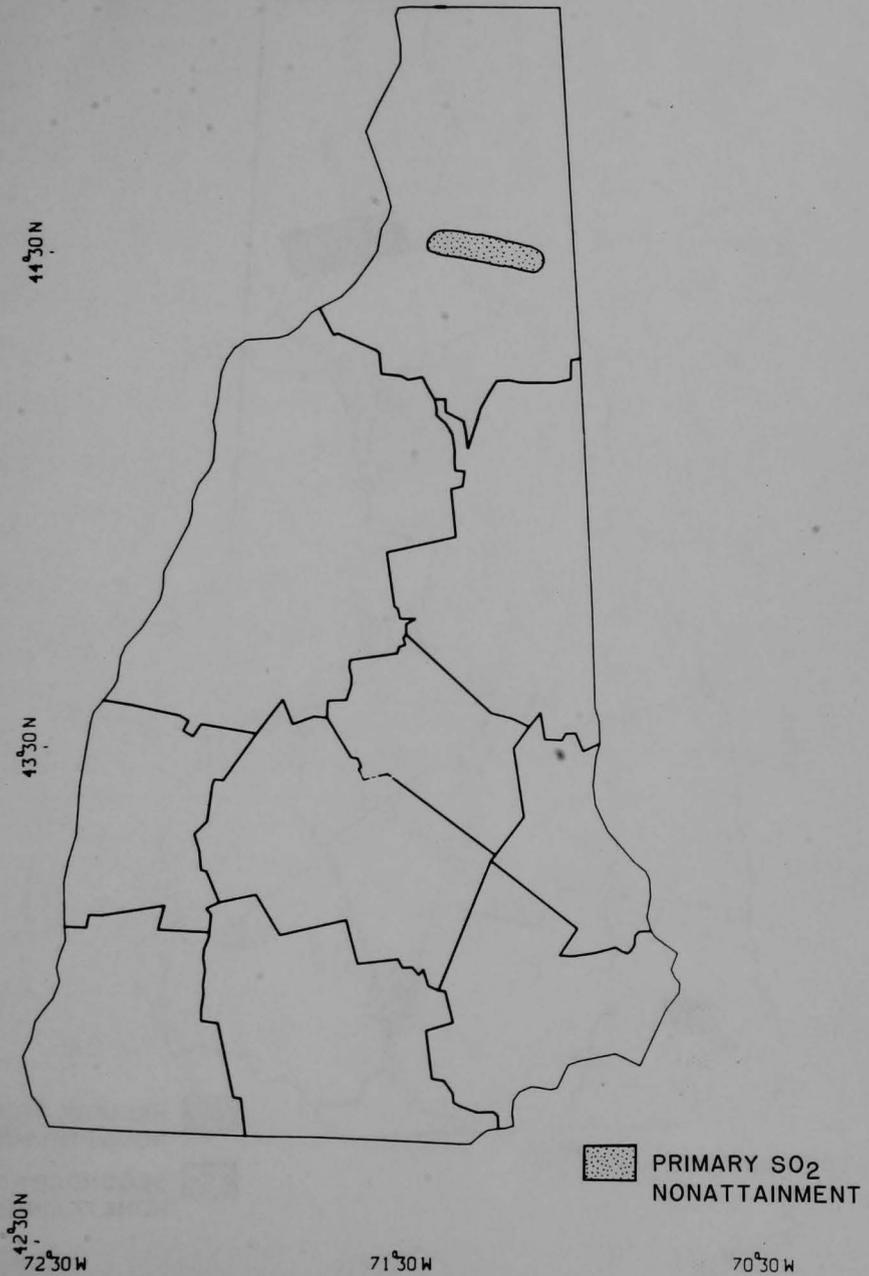
Size of Source (fuel input)	Emission Limit (lb of PM per MM Btu)
< 10 MM Btu/hr	0.60
> 10,000 MM Btu/hr	0.19

Proportional limits to be interpolated for sources of intermediate size

2. For new sources:

Size of Source (fuel input)	Emission Limit (lb of PM per MM Btu)
< 10 MM Btu/hr	0.60
> 250 MM Btu/hr	0.10

Proportional limits to be interpolated for sources of intermediate size



SO₂ Nonattainment Areas as Designated May 1979

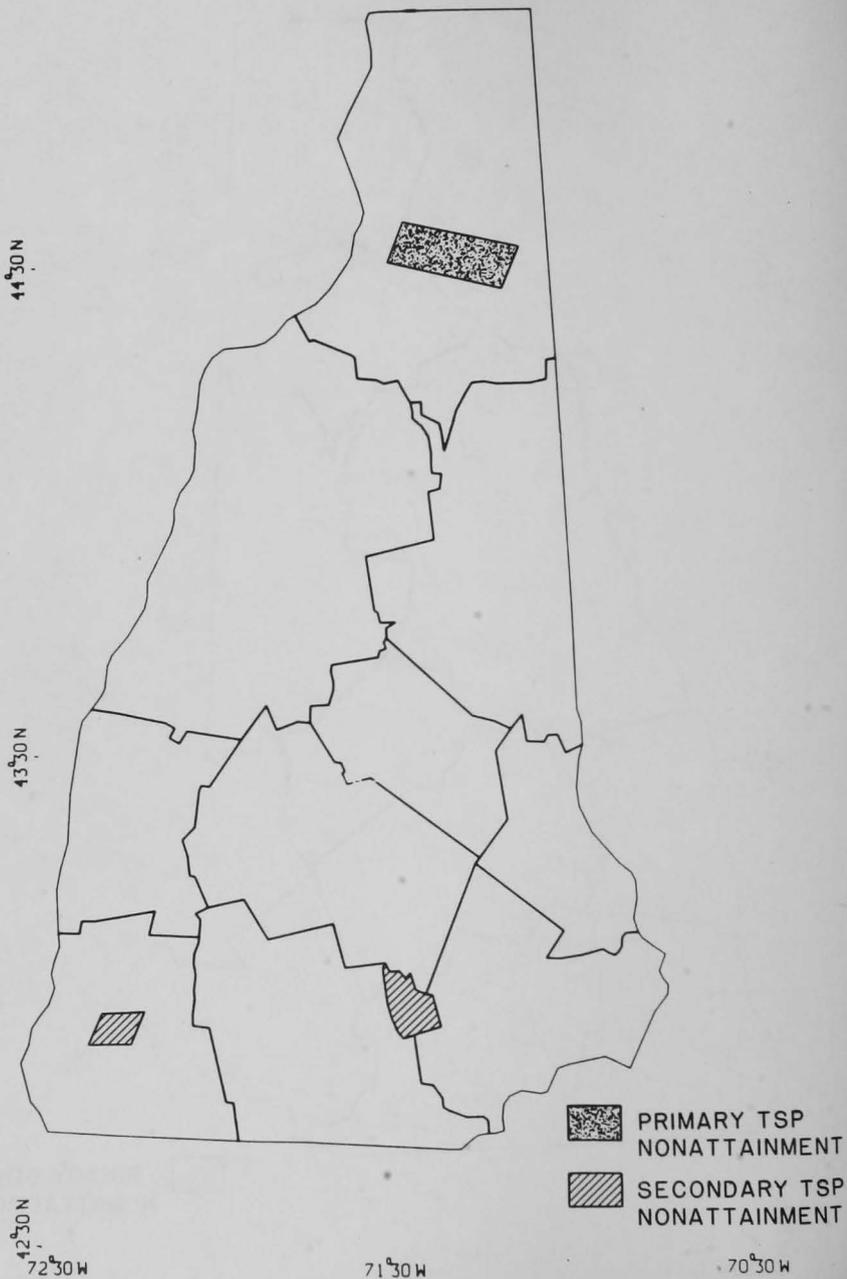
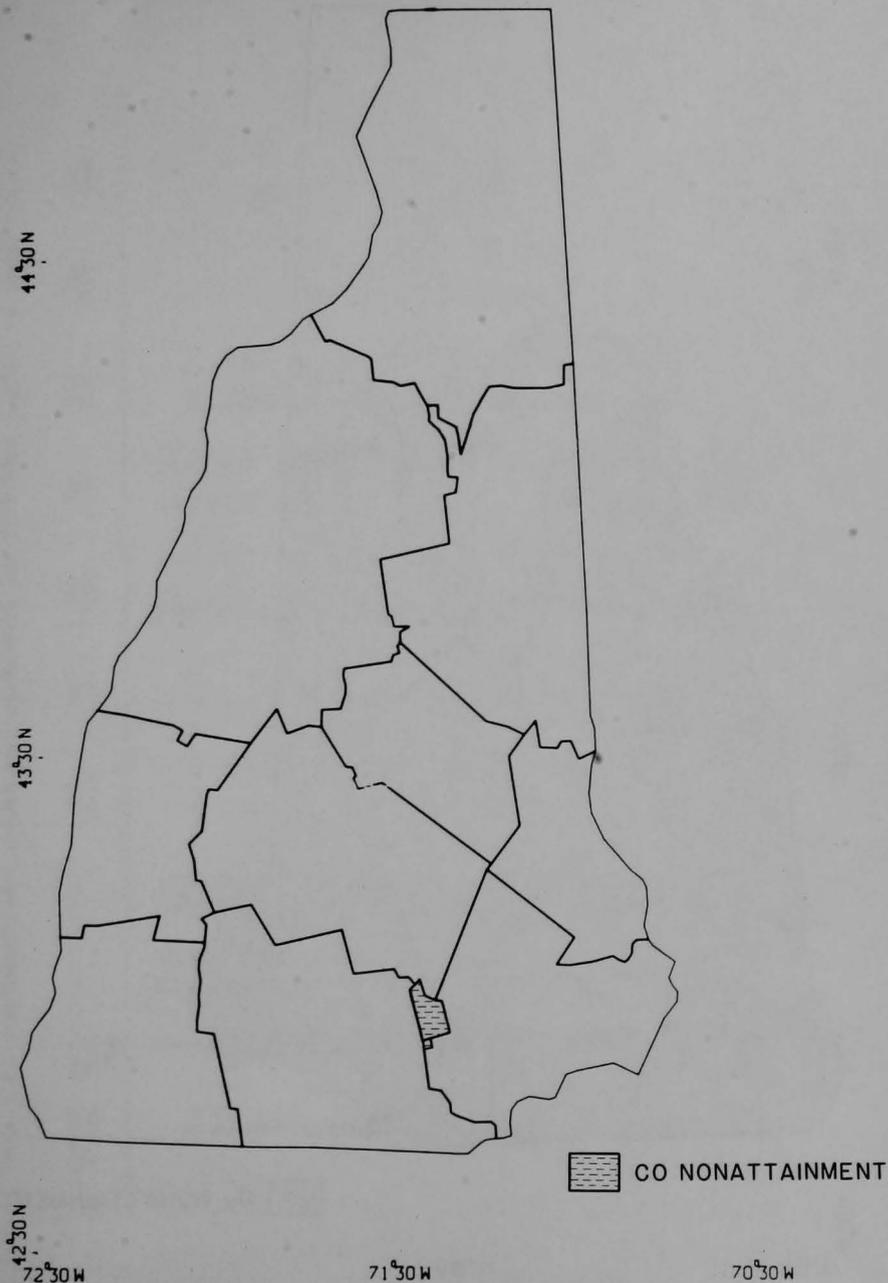


Fig. I.43. New Hampshire: TSP Nonattainment



CO Nonattainment Areas as Designated May 1979

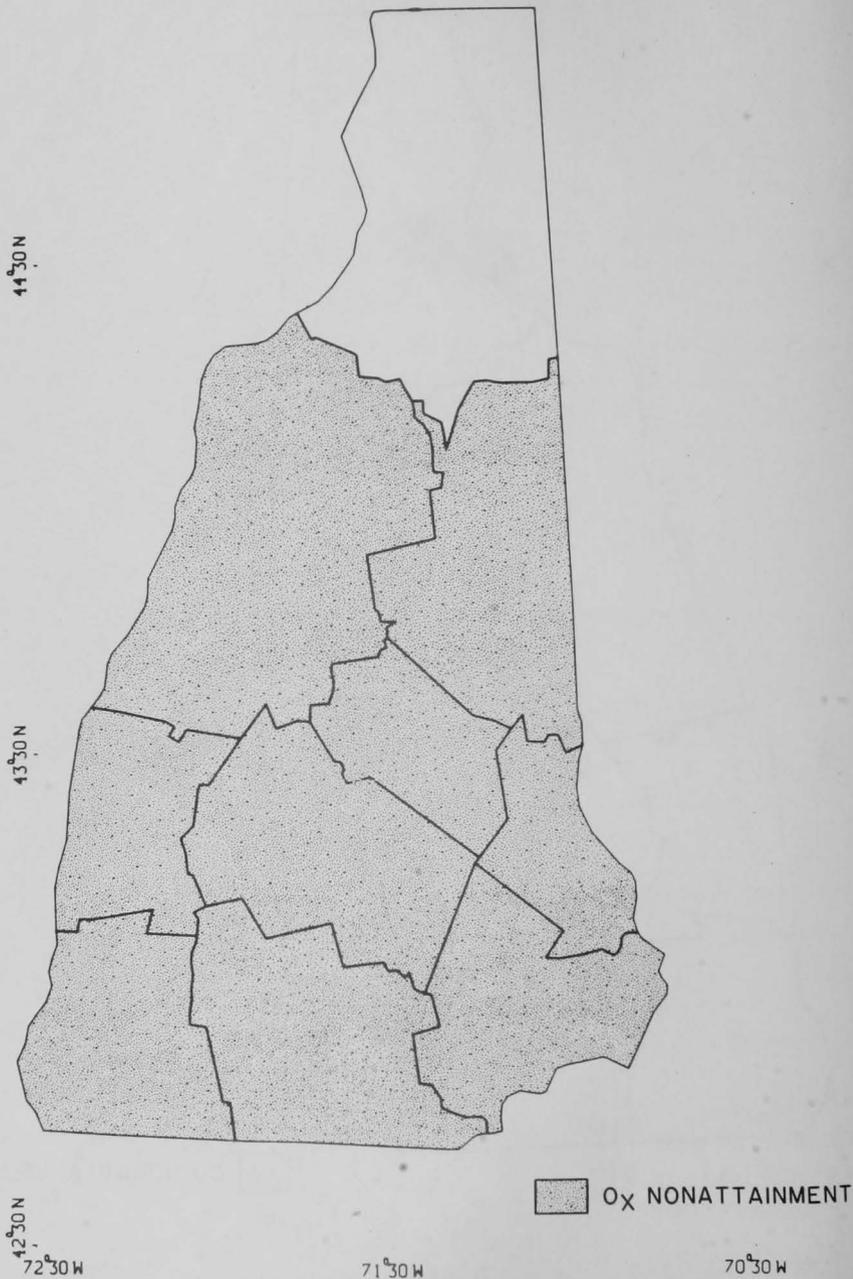


Fig. I.45. New Hampshire: O_x Nonattainment

Table I.8. New Hampshire: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	20	43.53	71.47			117. (1)	45. (1)			
2	20	43.45	71.59			105. (1)	35. (1)			
3 *	80	42.92	78.32	80. (1)	33. (1)	107. (1)	47. (1)	38. (1)		
4 *	80	42.91	78.32			187. (1)	52. (1)			
5 *	80	42.91	78.31	56. (1)	29. (1)	74. (1)	37. (1)	34. (1)		
6	140	44.50	71.33	28. (1)	26. (1)	64. (1)	23. (1)	20. (1)		
8	140	44.46	71.18					36. (1)		127. (2)
9	140	44.48	71.18			147. (1)	51. (1)			
10	140	44.47	71.17			161. (1)	83. (3)			
11	140	44.46	71.18	219. (1)	34. (1)	163. (1)	55. (1)		12. (3)	
12	140	44.60	71.51			59. (1)	30. (1)			
13 *	140	44.56	65.21	38. (1)	27. (1)	149. (1)	49. (1)	23. (1)		
14	240	43.75	71.69	117. (1)	32. (1)	181. (1)	34. (1)	29. (1)		
15 *	240	43.63	78.36			107. (1)	47. (1)			
16	300	42.99	71.46			158. (1)	71. (2)			
17	300	42.99	71.48			131. (1)	54. (1)			
18	300	42.76	71.47			141. (1)	53. (1)			
19	300	42.75	71.46	128. (1)	47. (1)			60. (1)	11. (3)	198. (3)
20	300	42.99	71.44			113. (1)	48. (1)			
21	300	42.99	71.46	198. (1)	61. (2)			64. (1)	12. (3)	216. (4)
22	440	43.17	71.82			99. (1)	33. (1)			
23	440	43.13	71.46	46. (1)		182. (1)				
24	440	43.10	71.46			127. (1)	39. (1)			
26	440	43.20	71.55	75. (1)		196. (2)	45. (1)			
29	580	42.98	70.94			159. (1)	56. (1)			
30	580	42.75	71.21			81. (1)	32. (1)			
31	580	43.11	70.81			137. (1)	44. (1)			
32	580	43.08	70.79	126. (1)	28. (1)	93. (1)	36. (1)	35. (1)		
33	580	43.08	70.75			157. (1)	55. (1)			
34	580	43.07	70.77	108. (1)	35. (1)	111. (1)	45. (1)	48. (1)		
35	640	43.31	70.97			123. (1)	50. (1)			
36	640	43.19	70.88			165. (1)	61. (2)			
37 *	660	43.35	78.42			127. (1)	34. (1)			
38 *	660	43.35	78.43			120. (1)	57. (2)			

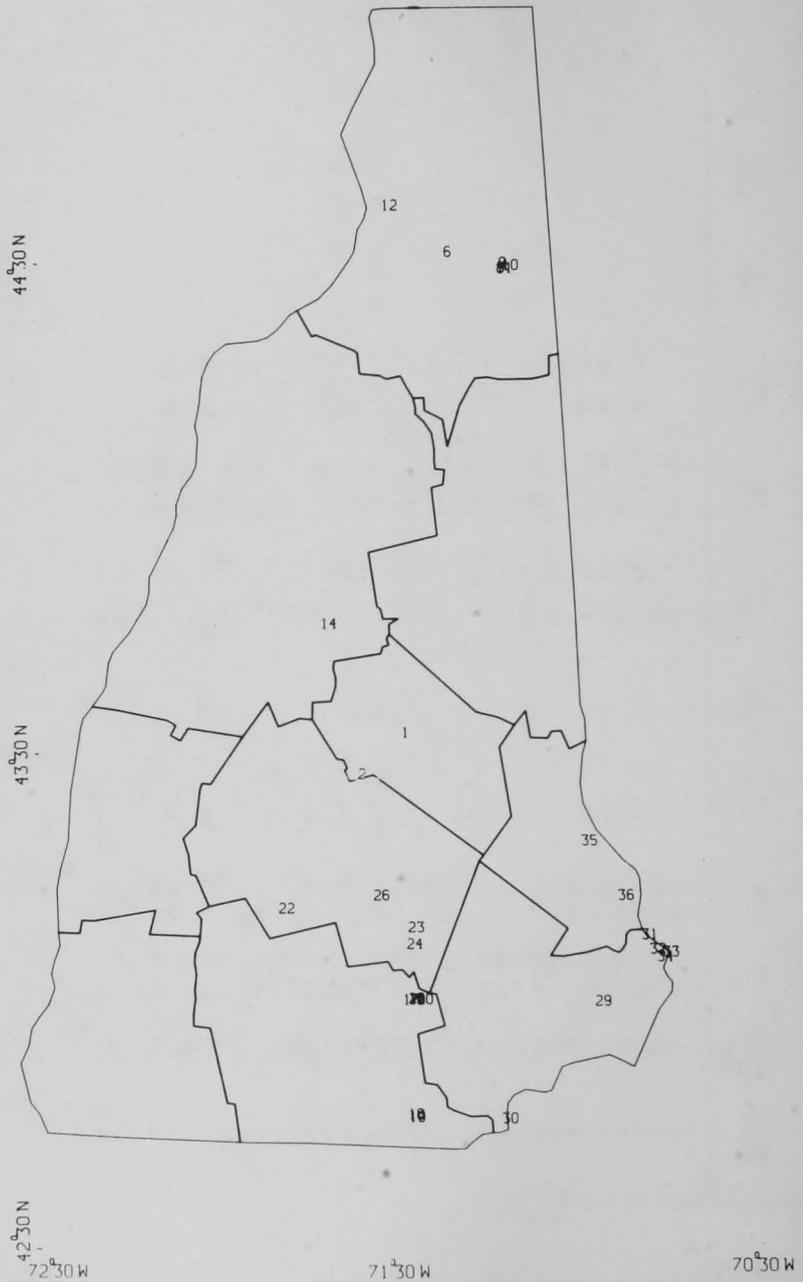
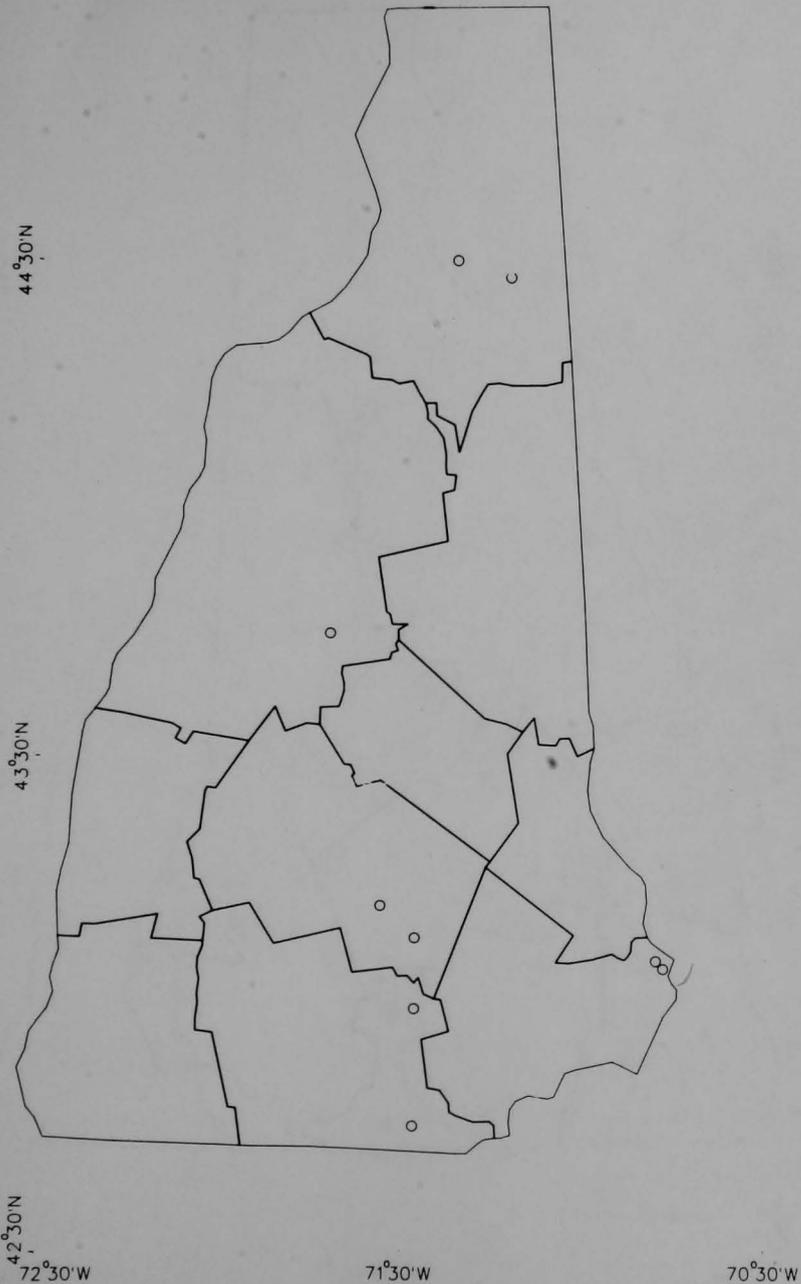


Fig. I.46. New Hampshire: Locations of SARC (for Monitor Numbers)



Monitors Reporting Adequate Data on 24-hr Violations

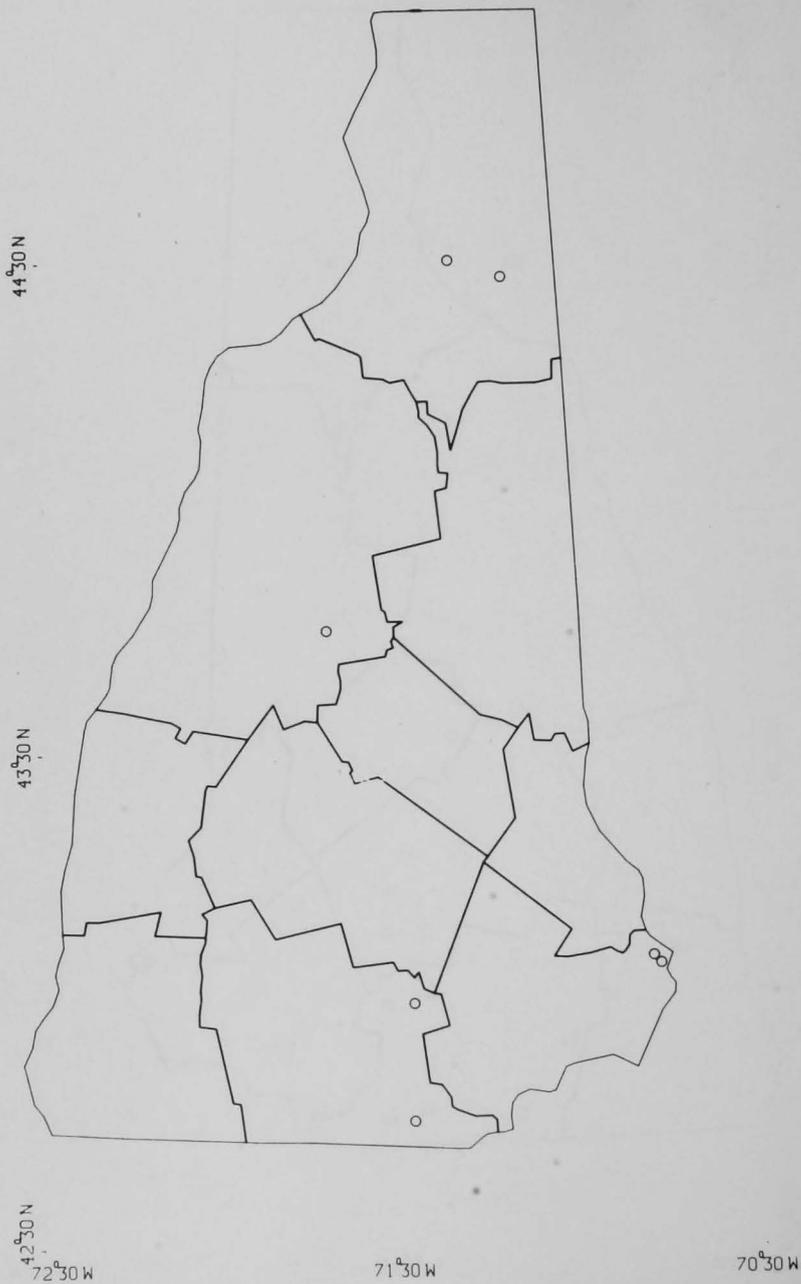


Fig. I.48. New Hampshire: Monitors Reporting Adequate Data on Annual Average SO_2 ; No Violations

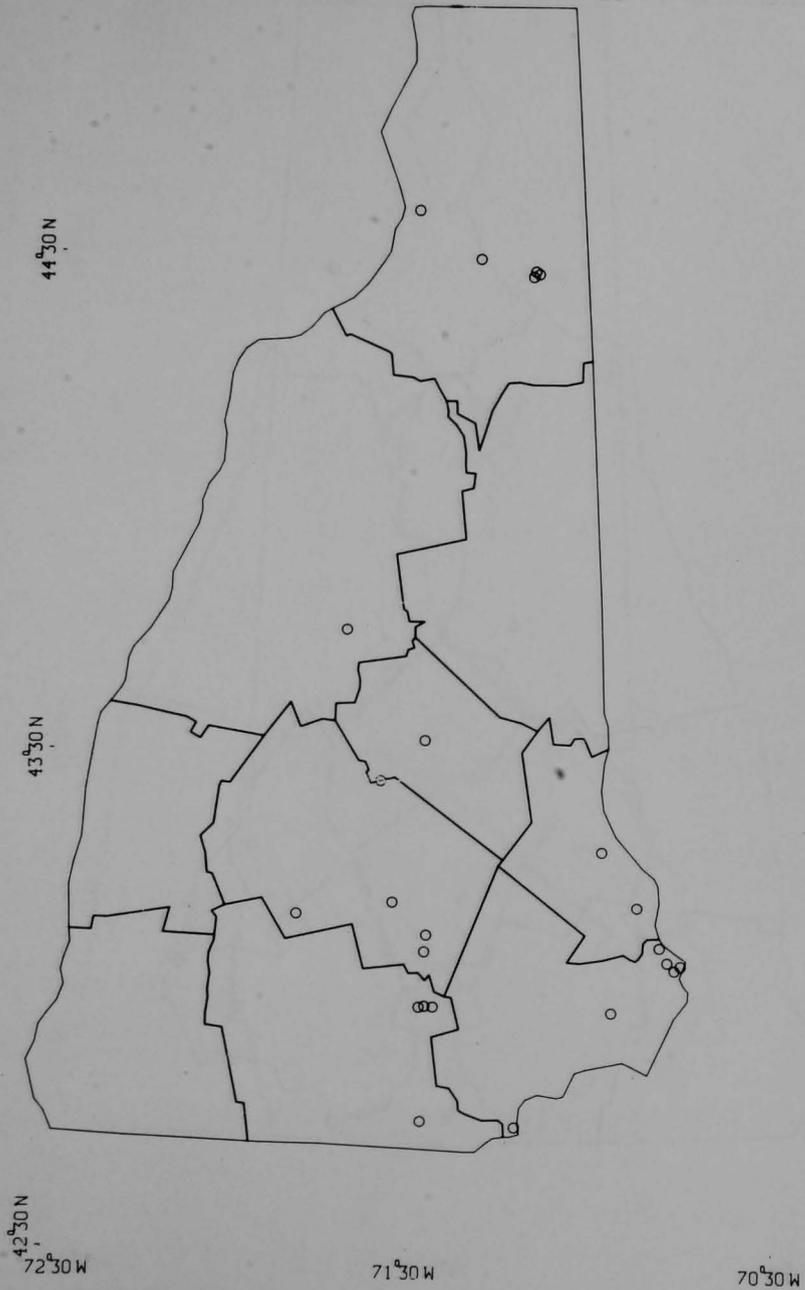


Fig. 1.40 New Hampshire: Monitors Reporting Adequate Data on 24-hr Violations

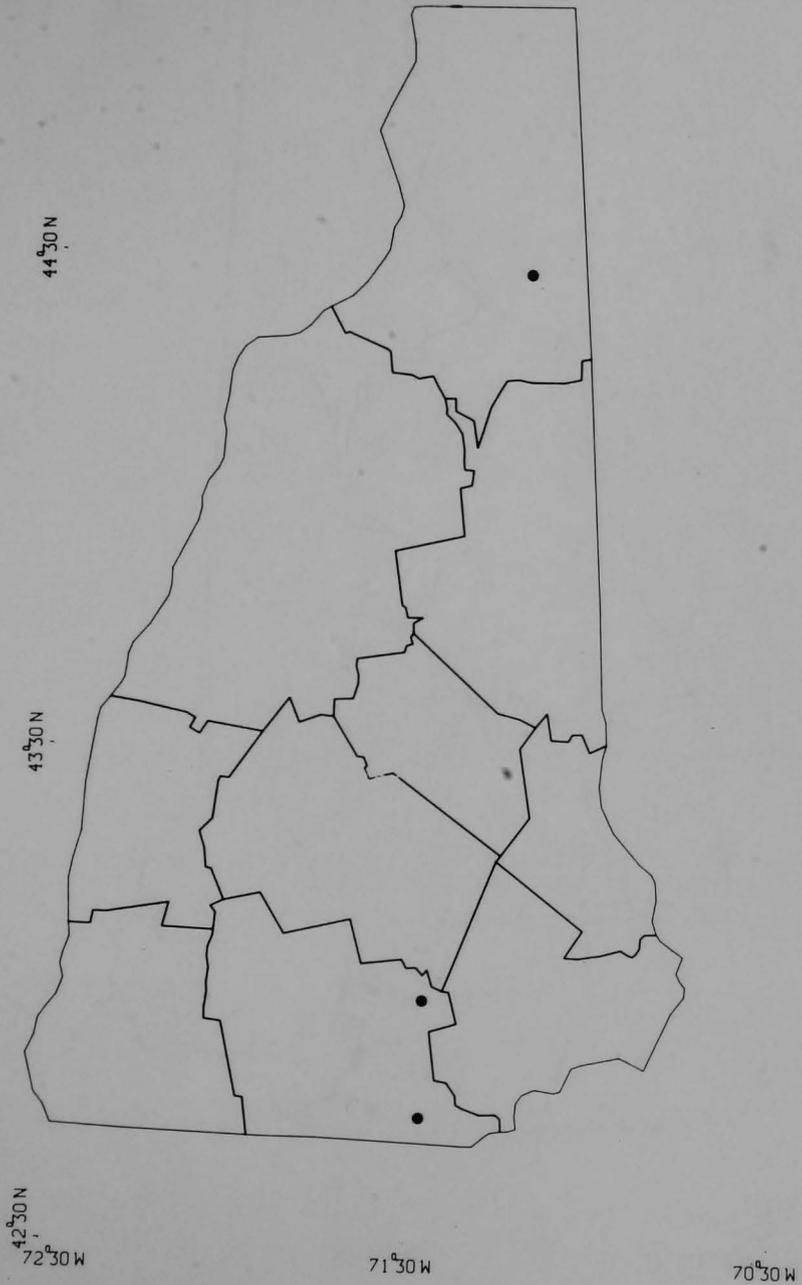


Fig. I.51. New Hampshire: Monitors Reporting Adequate Data on 8-hr
Violations Shown by Shaded Circles

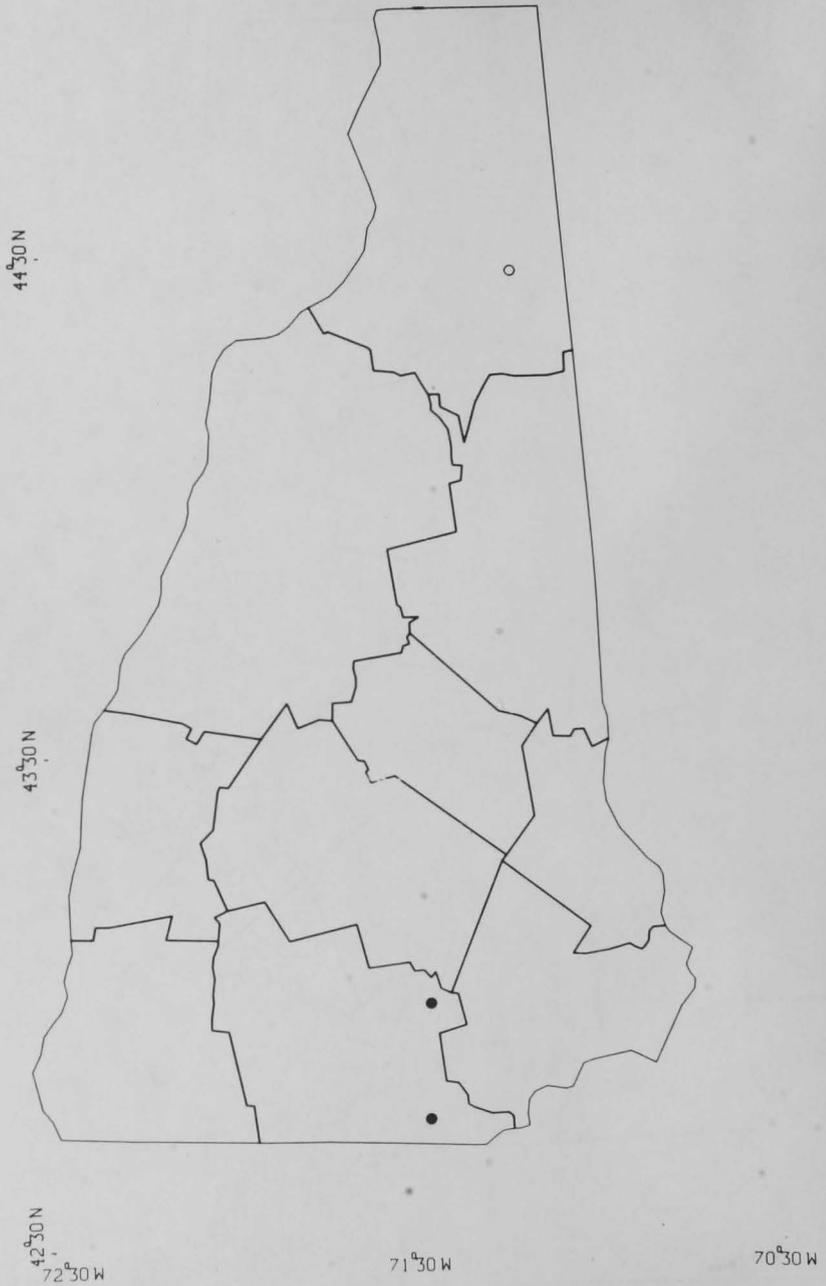


Fig. I.52. New Hampshire: Monitors Reporting Adequate Data on 1-hr Average O_3 ; Violations Shown by

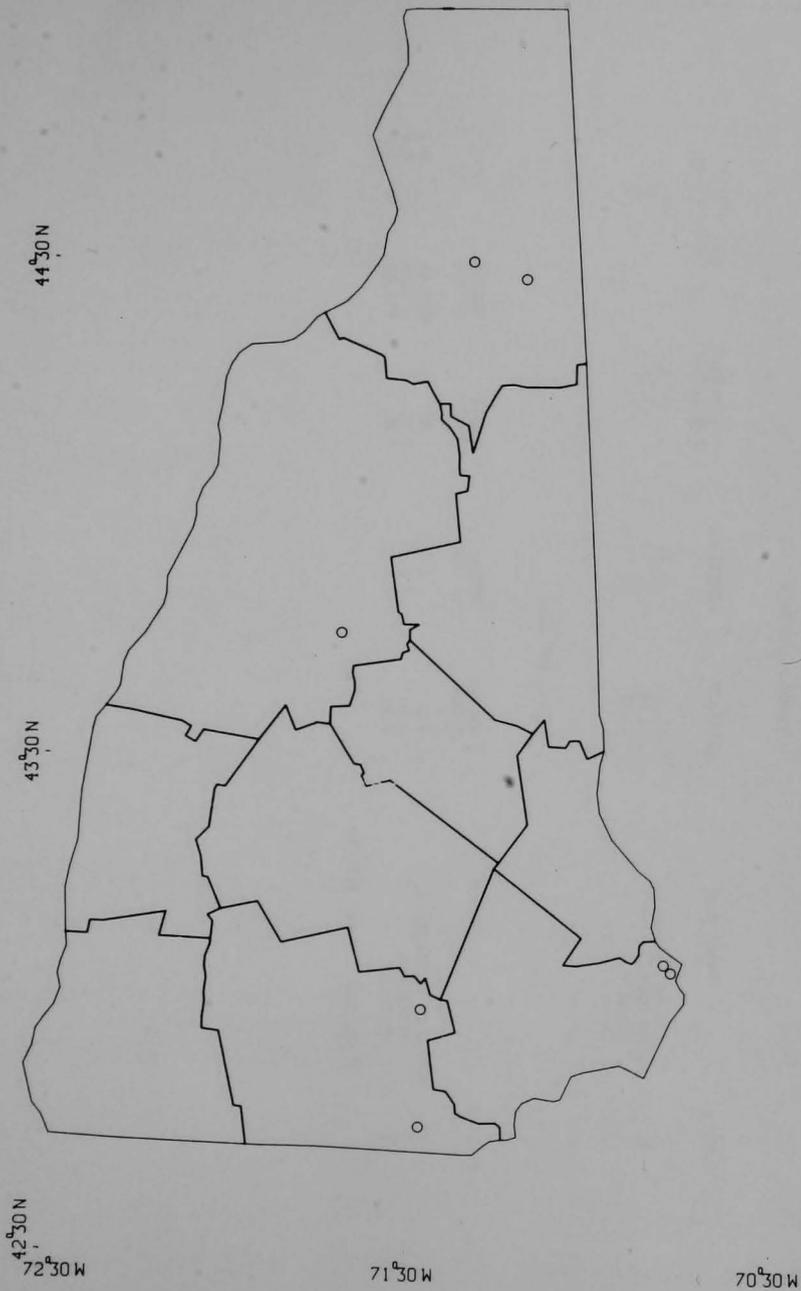


Fig. T 53 New Hampshire: Monitors Reporting Adequate Data on Annual
; No Violations

Table I.9. New Hampshire: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	J.O. NEWINGTON 1	43.10	70.79	414.00	0.0
2	MERRIMACK	43.14	71.47	459.24	0.0
3	SCHILLER	43.09	70.78	178.75	100.00

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	J.O. NEWINGTON 1	0.0	0.0	1.81	1222.64	0.0
2	MERRIMACK	2.34	978.80	0.05	1.23	0.0
3	SCHILLER	0.0	0.0	1.82	990.00	0.0

N NUCLEAR * NOT PLOTTED

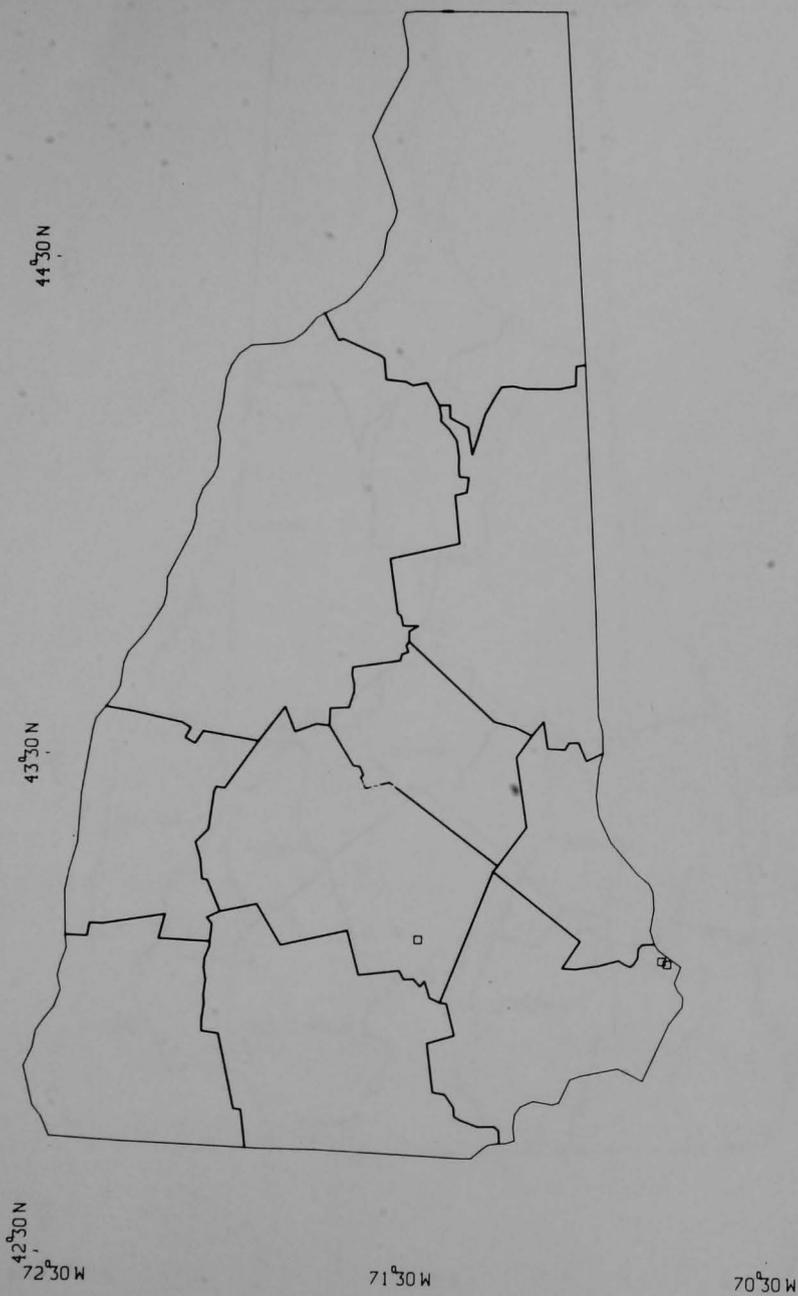


Fig. I.54. Power Plant Locations (Square = Fossil Fuel: Shaded, Open, < 1000 MW. Triangle = Nuclear)

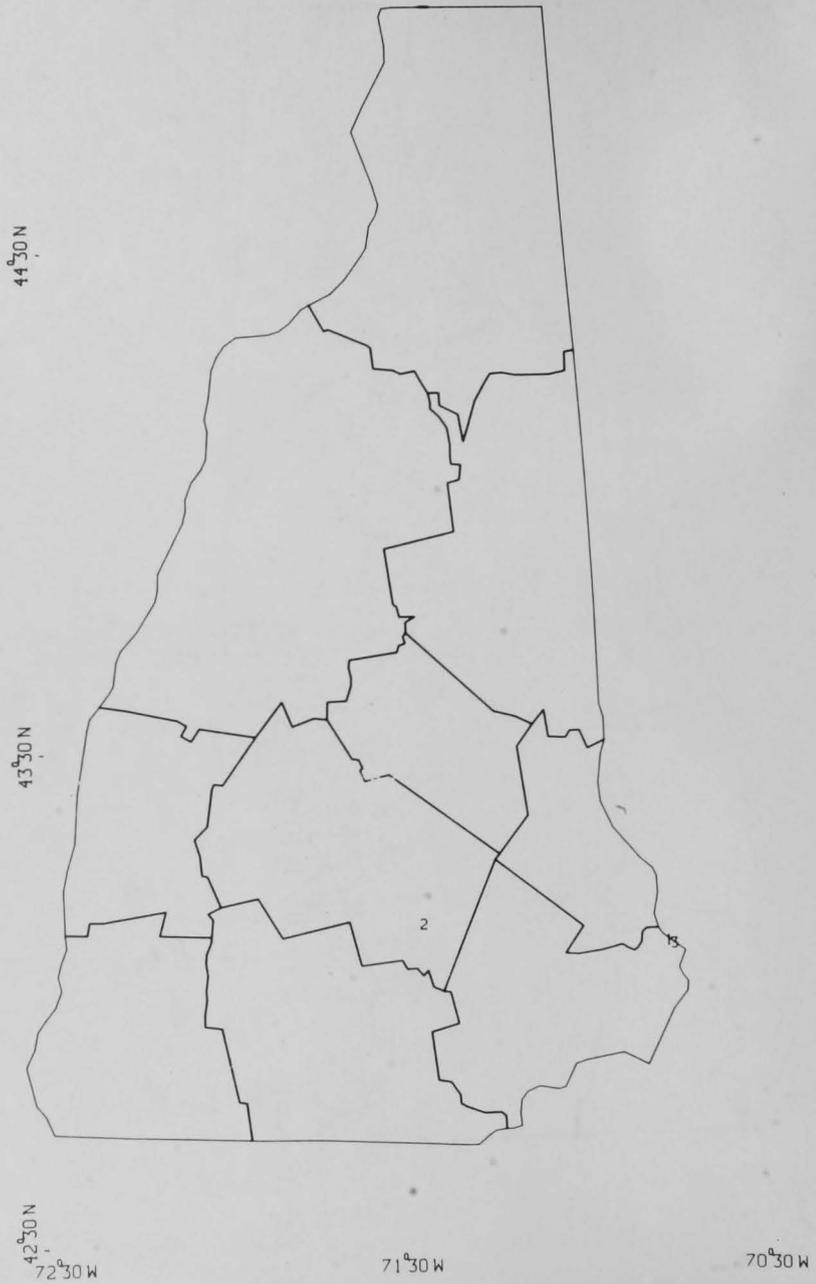


Fig. I.55. Power Plant Key (See Table I.9 for Identification and Fuel Use Data)

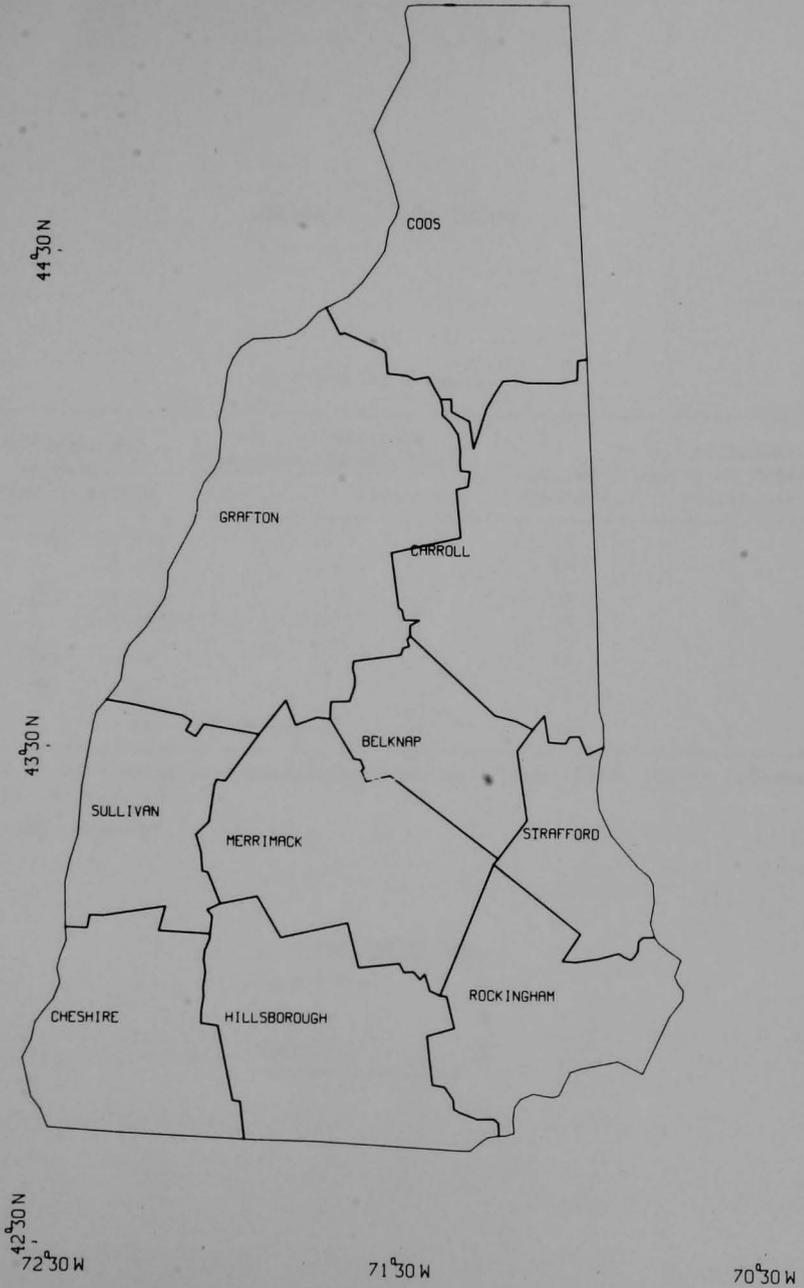


Fig. T.56. New Hampshire: Key to Counties

REGION I: RHODE ISLAND

Air Quality Summary

Pollutant and Standard Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
	Primary	Secondary		
SO ₂ 24 hr } 1 yr }	0 ^b	0	25	0
			14	0
TSP 24 hr } 1 yr }	1	0	22	0
			15	1
NO _x 1 yr	0 ^b	-	14	0
CO 8 hr	1	-	2	2
O _x 1 hr	Whole state ^b		2	2

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities

Fossil Fuel	2
Nuclear	0
Total	2

RHODE ISLAND: Draft SIP, 12/78

I. SOURCES OF THE PROBLEM

Rhode Island has nonattainment areas for TSP, O_x , and CO. General air quality problems are due to the collective contribution of many small sources and pollutant transport from out of state rather than local large stationary sources. In the small TSP nonattainment areas in Providence, stationary sources generate about 55% of emissions (mostly from small sources); and transportation (through tailpipe exhausts, worn tire and brake fragments, and resuspended road dust) contributes 45% of emissions. Providence is also a carbon monoxide nonattainment area in which 99% of CO emissions are attributable to vehicles. All of Rhode Island has been designated nonattainment for ozone. Of the locally produced hydrocarbon precursors to ozone (HC and VOC), 66% comes from transportation sources and 34% from stationary sources, primarily surface coating, degreasing, and gasoline marketing. At present, there are no nonattainment areas for sulfur dioxide or nitrogen oxides.

II. ATTAINMENT STRATEGIES

A. TSP

1. Stationary Point Sources

a. More stringent emission limitations

- previous emission limits were 0.20 lb of particulates per MM Btu of fuel input for sources between 1 and 250 MM Btu/hr and 0.10 lb for sources larger than 250 MM Btu/hr;
- revised limit is 0.10 lb of particulates per MM Btu for all fossil fuel-fired steam or hot water units larger than 1 MM Btu/hr of fuel input
- limit applies state-wide, although Providence is the only nonattainment area
- limit applies to sources burning wood residue

b. Improved inspection and periodic maintenance program

- will apply, for example, to an asphalt batch plant in Providence which has a history of emission violations

c. Energy conservation

- projected to reduce energy consumption 5% by 1980
- will result in reduced fuel combustion and reduced particulate emissions

2. Sources of fugitive dust

- a. Increased use of unleaded gasoline
- b. Investigate controls on nontraditional sources
 - paving unpaved parking lots
 - street cleaning

B. CO

1. Federal Motor Vehicle Emissions Control Program (FMVECP)
2. Inspection and maintenance program operated by independent contractors
3. Restrict use of autos in some zones
4. Strategy to be developed for "hot spots"

C. O_x

1. RACT for surface coating, degreasing, and gasoline marketing
2. FMVECP
3. Inspection and maintenance program for vehicles
4. Carpooling
5. Promotion of mass transit
6. Auto restricted zones
7. Connecticut's cleanup will decrease transport of out-of-state O_x into Rhode Island

III. NEW SOURCE REVIEW

Rhode Island is planning to use a growth allowance with an emissions offset backup for major new sources of VOC. Existing VOC sources are divided into 28 categories, and an allowance will be calculated for each category. When growth in a source category exceeds the yearly emission allowance, offsets will be required. Offsets would also be required for a new source that does not belong to one of the 28 categories currently represented in the state. An offset policy would also operate for new sources of TSP in the TSP nonattainment areas of Providence.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

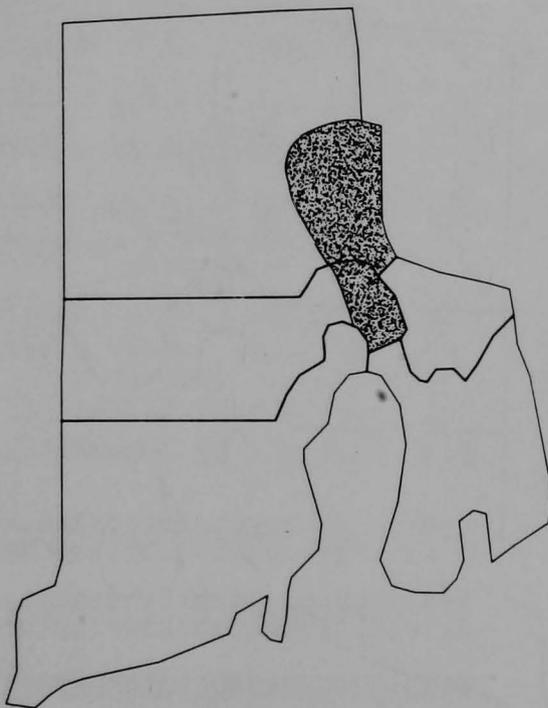
1. Limit on sulfur in fuel

- a. No use of fuel containing more than 0.55 lb of sulfur per MM Btu
- b. With permission of the state agency, facilities can be exempted from the limit
 - must use flue gas desulfurization (FGD)
 - emissions after FGD must not exceed 1.1 lb of SO₂ per MM Btu

B. TSP

1. See the description of new limits in II.A.1 above

42°15'N

 PRIMARY TSP
NONATTAINMENT41°15'N
72°W

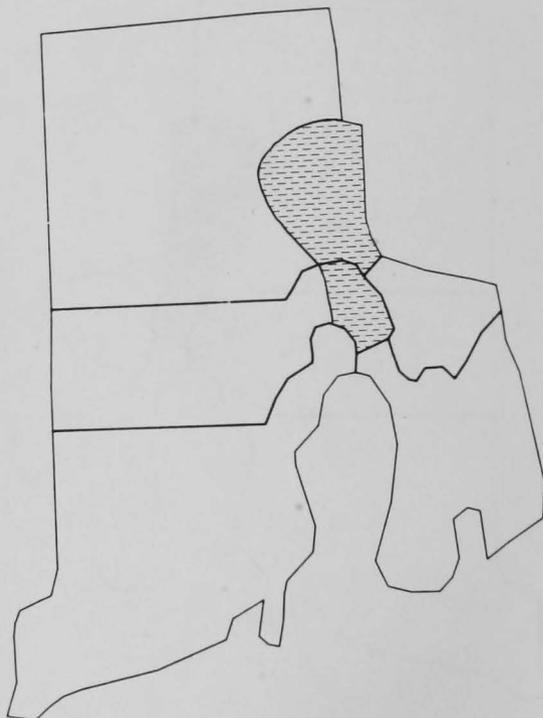
71°W

Fig. I.57. Rhode Island: TSP Nonattainment Areas as Designated May 1979

42°15'N



CO NONATTAINMENT

41°15'N
72°W

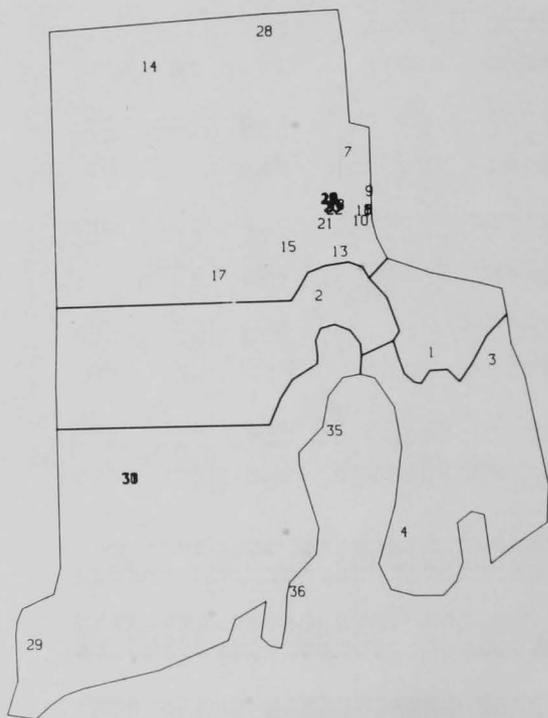
71°W

Fig. I.58. Rhode Island: CO Nonattainment Areas as Designated May 1979

Table I.10. Rhode Island: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	60	41.67	71.27	84. (1)		63. (1)				
2	140	41.73	71.43	39. (1)	12. (1)	121. (1)	53. (1)	29. (1)		
3	200	41.67	71.19	54. (1)	16. (1)	113. (1)	41. (1)	23. (1)		
4	200	41.49	71.31	75. (1)	20. (1)	73. (1)	39. (1)	26. (1)		
7	320	41.88	71.38	58. (1)	14. (1)	101. (1)	49. (1)	44. (1)		
8	320	41.82	71.36	63. (1)		55. (1)				
9	320	41.84	71.35	77. (1)	20. (1)			41. (1)		
10	320	41.81	71.37	54. (1)		85. (1)				
11	320	41.82	71.37	32. (1)		79. (1)	43. (1)			
13	320	41.78	71.40	82. (1)	31. (1)	90. (1)	45. (1)	41. (1)		
14	320	41.97	71.66	9. (1)		76. (1)				
15	320	41.78	71.47	43. (1)	14. (1)	114. (1)	51. (1)	26. (1)		
17	320	41.75	71.57							216. (4)
18	320	41.83	71.41	68. (1)						323. (4)
19	320	41.83	71.41	156. (1)						
20	320	41.82	71.41					17. (4)		
21	320	41.81	71.42	99. (1)	28. (1)	90. (1)	45. (1)	43. (1)		
22	320	41.82	71.41	227. (1)	61. (2)	202. (2)	89. (3)	75. (1)	12. (3)	
23	320	41.82	71.41	86. (1)	33. (1)	126. (1)	66. (2)	59. (1)		
24	320	41.83	71.42	53. (1)						
25	320	41.83	71.42	204. (1)		114. (1)	57. (2)			
26 *	320	41.82	70.40	70. (1)	23. (1)	108. (1)		49. (1)		
28	320	42.00	71.50	109. (1)	26. (1)	121. (1)	49. (1)	38. (1)		
29	380	41.38	71.83	26. (1)		110. (1)	46. (1)			
30	380	41.55	71.70			37. (1)				
31	380	41.55	71.70					14. (1)		
33	380	41.55	71.70	24. (1)	9. (1)	61. (1)	27. (1)			
35	380	41.59	71.41	41. (1)	9. (1)	92. (1)	36. (1)	17. (1)		
36	380	41.43	71.47	40. (1)		72. (1)				

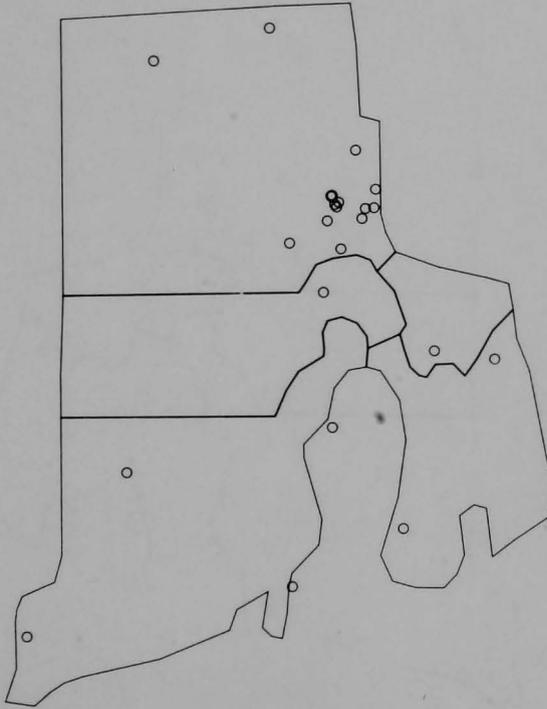
42°15' N

41°15' N
72° W

71° W

Fig. I.59. Rhode Island: Locations of SAROAD Monitors
(See Table I.10 for Monitor Numbers)

42°15'N

41°15'N
72°W

71°W

Fig. I.60. Rhode Island: Monitors Reporting Adequate Data on 24-hr Average SO₂; No Violations

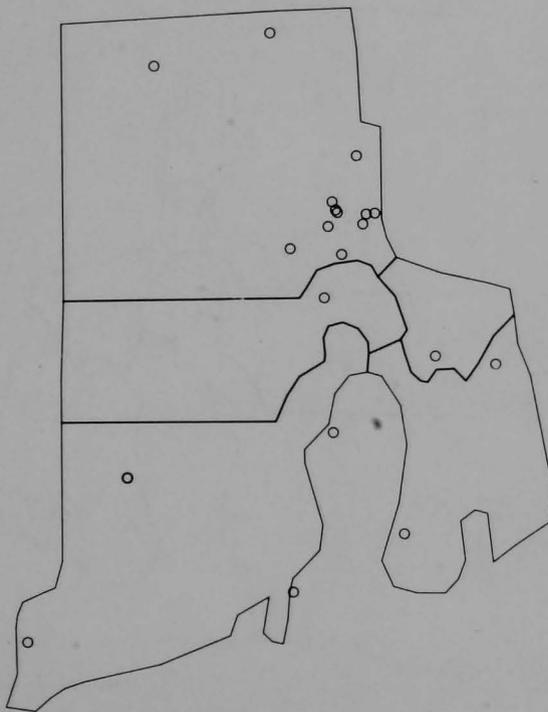
42°15'N

41°15'N
72°W

71°W

Fig. I.61. Rhode Island: Monitors Reporting Adequate Data on Annual Average SO₂; No Violations

42°15'N

41°15'N
72°W

71°W

Fig. I.62. Rhode Island: Monitors Reporting Adequate Data on 24-hr Average TSP; No Violations

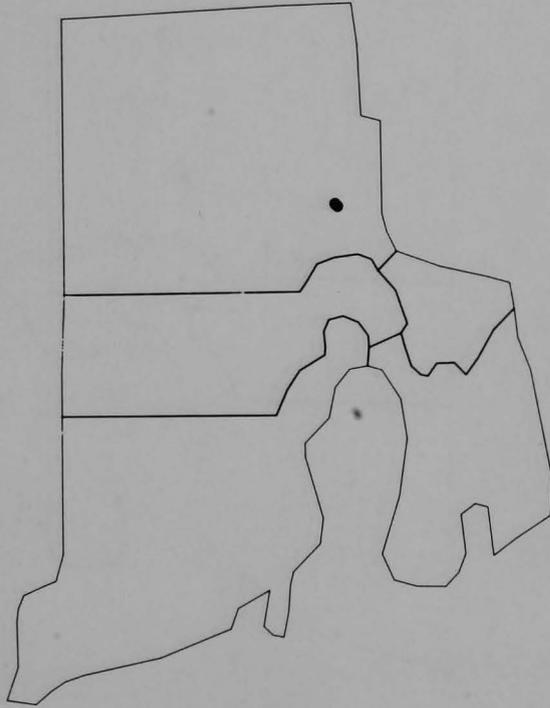
42°15'N

41°15'N
72°W

71°W

Fig. I.63. Rhode Island: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

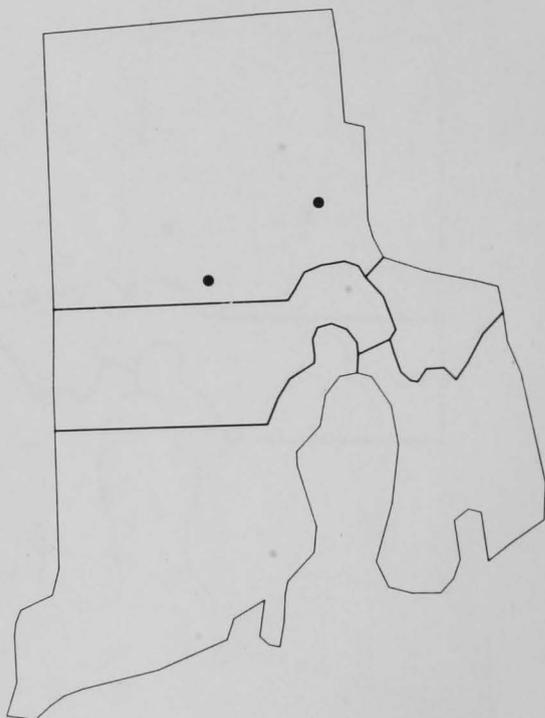
42° 15' N

41° 15' N
72° W

71° W

Fig. I.64. Rhode Island: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles

42°15'N

41°15'N
72°W

71°W

Fig. I.65. Rhode Island: Monitors Reporting Adequate Data on 1-hr Average O_x ; Violations Shown by Shaded Circles

42°15'N

41°15'N
72°W

71°W

Fig. I.66. Rhode Island: Monitors Reporting Adequate Data on Annual Average NO_x ; No Violations

Table I.11. Rhode Island: Power Plant and Fuel Use Data

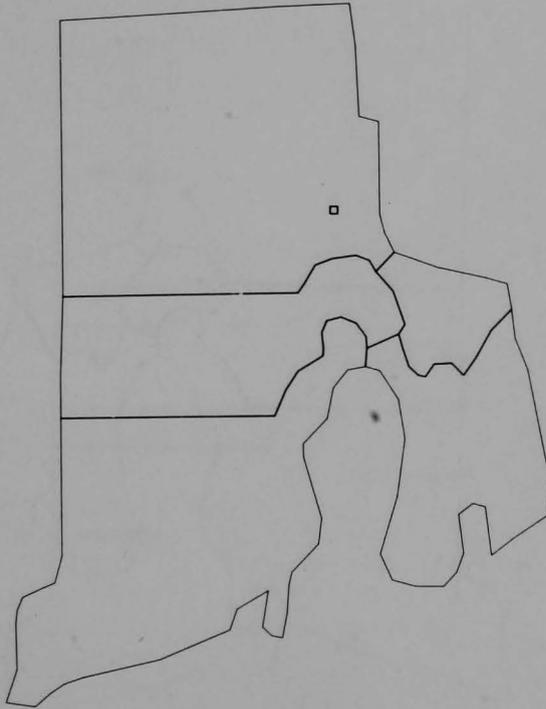
POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	MANCHESTER STREET	41.82	71.41	132.00	0.0
2	SOUTH STREET	41.82	71.41	110.90	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	MANCHESTER STREET	0.0	0.0	0.93	294.91	0.0
2	SOUTH STREET	0.0	0.0	0.93	632.30	0.0
	N NUCLEAR	* NOT PLOTTED				

42° 15' N

41° 15' N
72° W

71° W

Fig. I.67. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

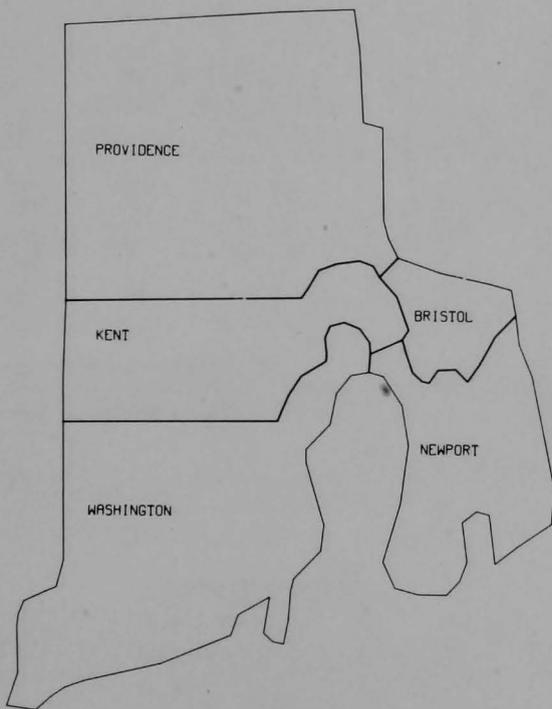
42°15'N

41°15'N
72°W

71°W

Fig. I.68. Power Plant Key (See Table I.11 for Identification and Fuel Use Data)

42°15'N



41°15'N
72°W

71°W

Fig. I.69. Rhode Island: Key to Counties

REGION I: VERMONT

Air Quality Summary

Pollutant and Standard Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
	Primary	Secondary		
SO ₂ 24 hr } 1 yr }	0 ^b	0	4 0 ^b	0 0
TSP 24 hr } 1 yr }	0	2	13 8	1 1
NO _x 1 yr	0 ^b	-	0 ^b	0
CO 8 hr	1	-	2	1
O _x 1 hr	Whole state ^b		1	1

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities

Fossil Fuel	0
Nuclear	1
Total	1

VERMONT: Draft SIP, 12/78

I. SOURCES OF THE PROBLEM

Initially Vermont designated the entire state as nonattainment for O_x . In June 1979 the state requested that the designation be changed to unclassified, except for Chittenden, Addison, and Windsor counties. (The map of nonattainment areas does not reflect this change.) Ozone is judged to be mostly the result of out-of-state transport, with some contribution from motor vehicles and stationary sources of VOC. The regions around the cities of Burlington and Barre are designated as nonattainment for the secondary TSP standard. Violations are the result of nontraditional sources of fugitive dust, with possible contributions from residential wood burning. The bulk of the fugitive particulate emissions is the result of the re-entrainment of dust from paved roads and emissions from unpaved roads. An urban area around Burlington is designated as nonattainment for CO , as a result of motor vehicles. There are no nonattainment areas in the state for NO_x or SO_2 .

II. ATTAINMENT STRATEGIES

A. TSP

1. Stationary point sources

- a. Existing SIP emission limitations are adequate
- b. A limit will be developed for wood-fired boilers
- c. A new wood-fired power plant is planned for a site near Burlington in a "clean" portion of the nonattainment area

2. Fugitive emissions

- a. Additional monitoring needed to determine causes
- b. By 1980 control measures will be introduced; for example:
 - road curbing
 - street sweeping
 - paving unpaved parking areas
 - reducing vehicle use in urban areas
- c. Increased residential wood burning may add significant particulate matter, but may be difficult to control

B. CO

1. Attainment projected by December 1982
2. Mobile source controls
 - a. Transportation planning
 - improved traffic flow
 - focus on "hot spots"

C. O_x

1. Stationary sources
 - a. RACT as outlined in EPA's control techniques guidances
 - b. Vermont has only one of the categories (petroleum liquid storage) covered by a control techniques guidance
 - retrofit existing roof storage
 - add internal floating roofs
2. Mobile sources
 - a. FMVECP
 - b. Low population density makes many mass transit strategies for controlling O_x impractical
3. Reduction of transport of pollutants from other states (especially New York and New Jersey) and Canada is important

III. NEW SOURCE REVIEW

Vermont will use EPA's emission offset policy for major new sources in nonattainment areas. Offsets can be banked. Stationary sources of particulate matter can obtain offsets from fugitive sources. Vermont regulations require new sources to use the most stringent emission rate (MSER) rather than the lowest achievable emission rate (LAER). EPA believes MSER, which allows a source to take energy, economic, and environmental impacts into consideration, is less stringent than LAER and has requested Vermont to certify that MSER will be interpreted to be equivalent to LAER.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. Limit on sulfur in fuel

- a. No use of any fuel with sulfur content of more than 2.0%
- b. Limit will not apply if flue gas scrubbing reduces emissions of sulfur compounds to the level that would have resulted from 2.0% sulfur fuel

2. Variances from limit

- a. Fuels up to 2.2% sulfur can be used, on application, if:
 - lower sulfur fuel not available (affidavit required)
 - user promises to seek supplies of lower sulfur fuel
 - estimate of duration of use of higher sulfur fuel is given
- b. If violations of NAAQS (primary or secondary) are threatened, more stringent sulfur limits may be imposed

B. TSP

1. Limits for existing sources:

Source size (fuel input)	Emission Limit (lb of PM per MM Btu)
< 10 MM Btu/hr	0.5
> 250 MM Btu/hr	0.1

Limits interpolated proportionally for sources of intermediate size

2. Limits for new sources (constructed after July 1, 1971):

> 1000 MM Btu/hr 0.06 lb of PM per MM Btu

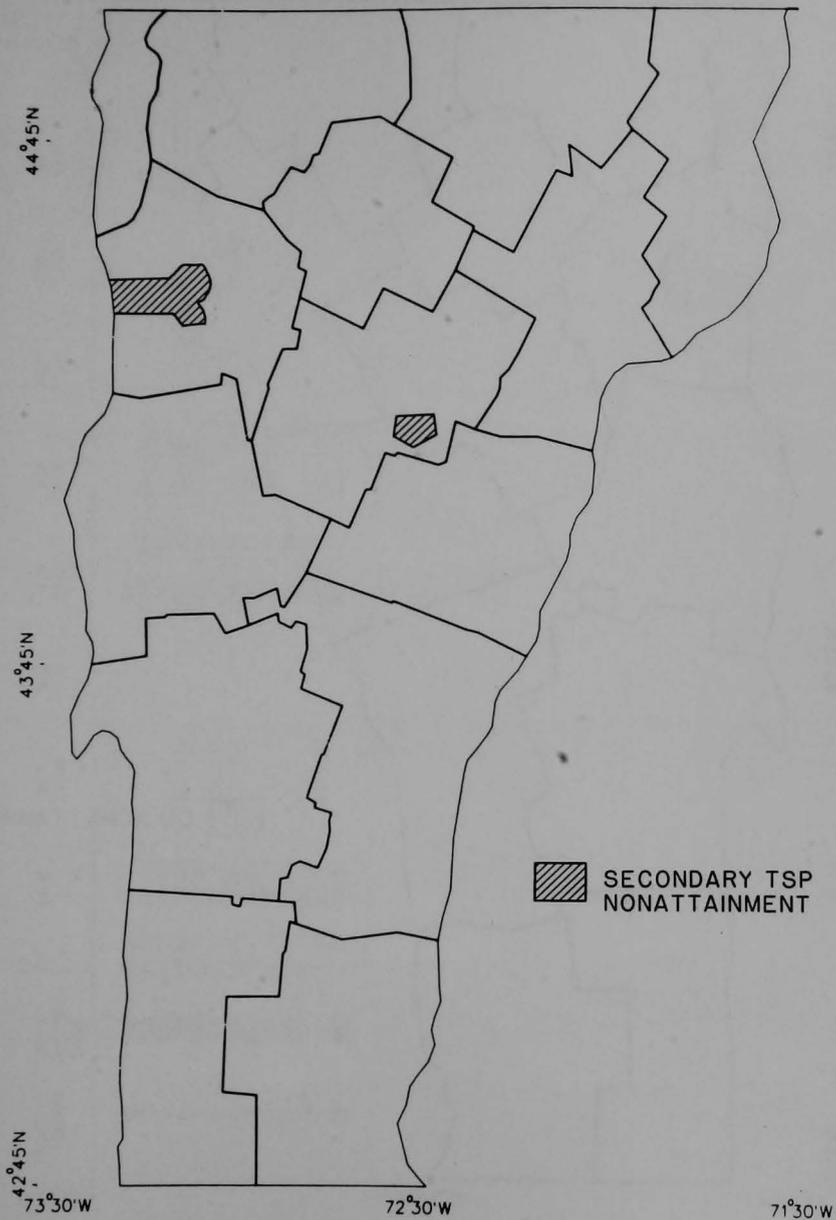


Fig. I.70. Vermont: TSP Nonattainment Areas as Designated May 1979

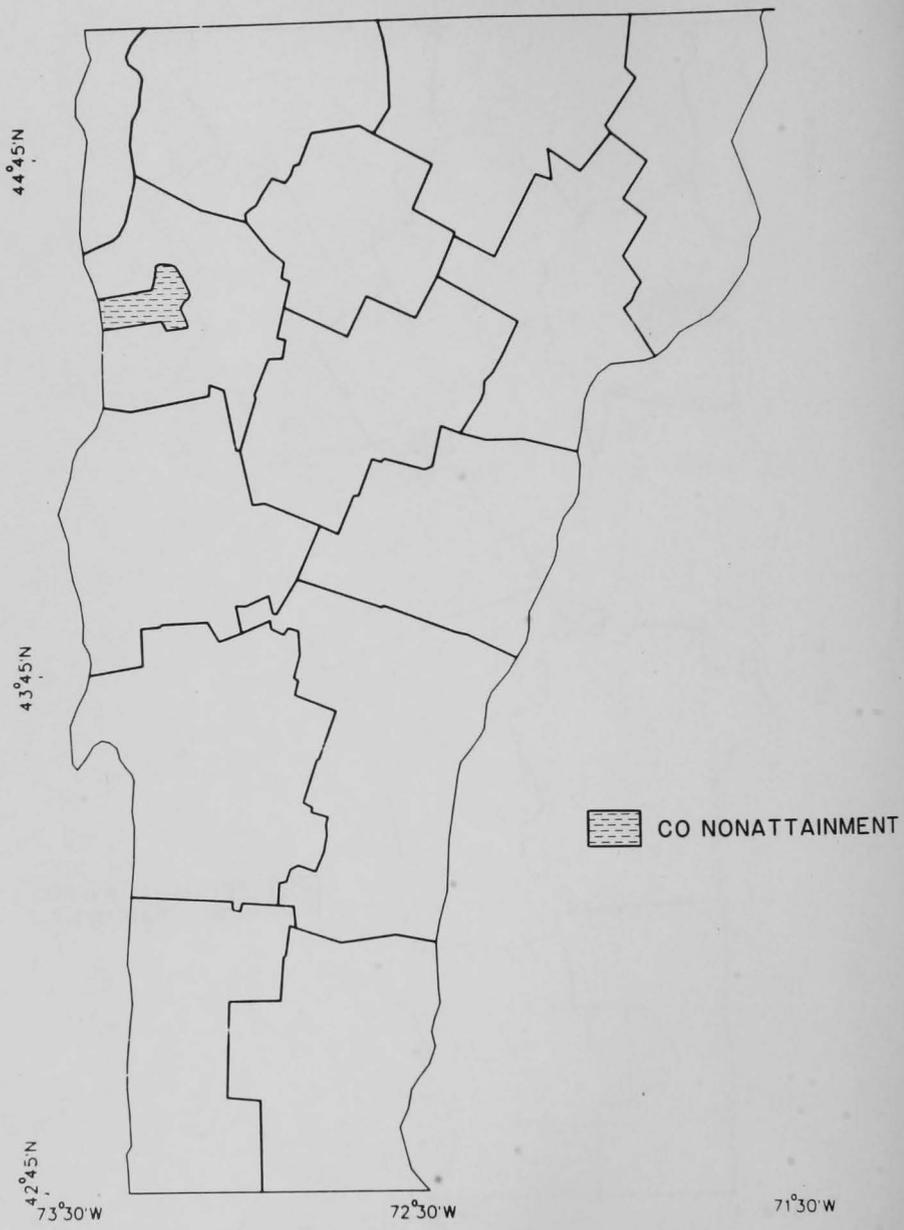


Fig. I.71. Vermont: CO Nonattainment Areas as Designated May 1979

Table I.12. Vermont: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	20	43.88	73.36			99. (1)				
2	160	44.53	72.02			54. (1)	23. (1)			
3	160	44.57	71.89			73. (1)				
4	180	44.48	73.21	90. (1)		143. (1)	71. (2)		11. (3)	194. (3)
6	360	43.94	72.60			123. (1)	31. (1)			
8	420	43.60	72.98	75. (1)		57. (1)				
9	420	43.61	72.98	201. (1)		96. (1)	35. (1)		9. (2)	
10	420	43.61	72.98			312. (3)	104. (4)			
11	500	44.13	72.67			74. (1)	33. (1)			
12	500	44.27	72.60			60. (1)				
13 *	500	44.20	132.50			23. (1)				
14	500	44.20	72.50	55. (1)		107. (1)	42. (1)			
15	530	42.85	72.57			109. (1)	53. (1)			



Fig. I.72. Vermont: Locations of SAROAD Monitors (See Table I.12 for Monitor Numbers)

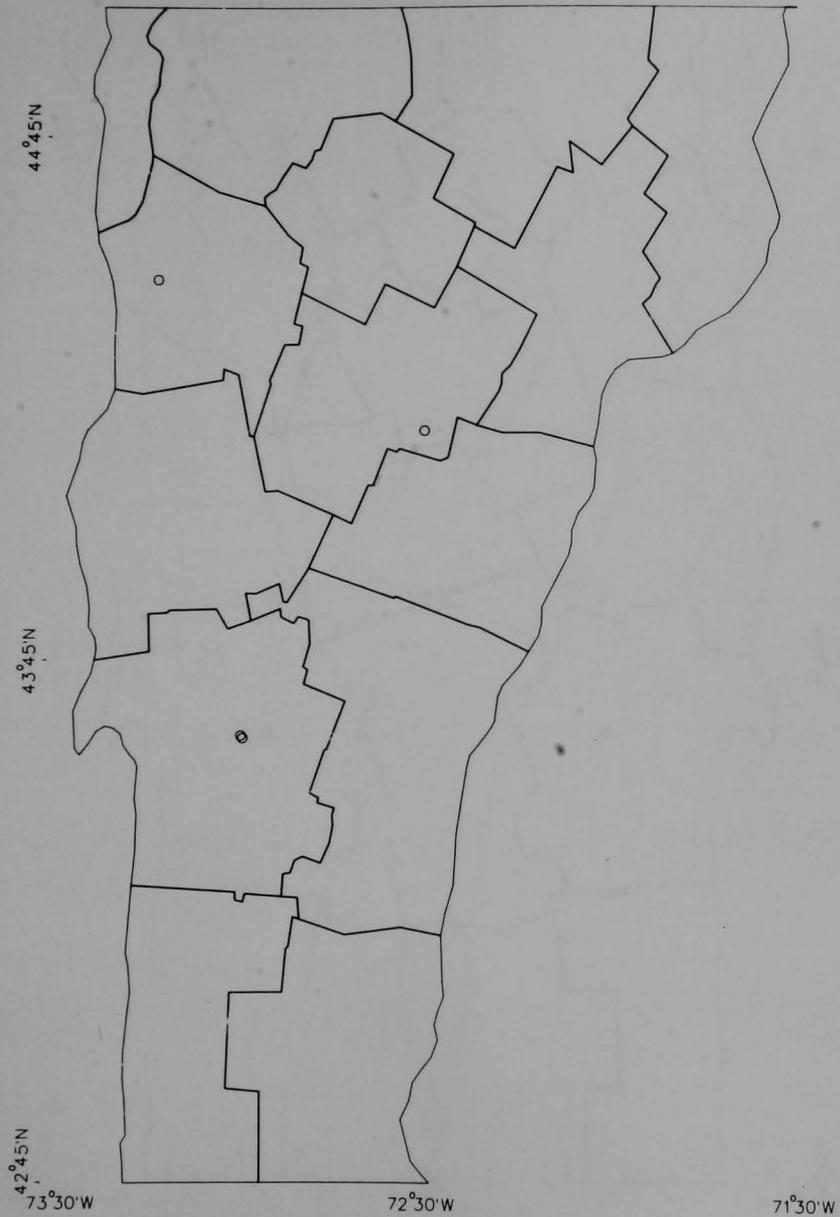


Fig. I.73. Vermont: Monitors Reporting Adequate Data on 24-hr Average SO_2 ; No Violations

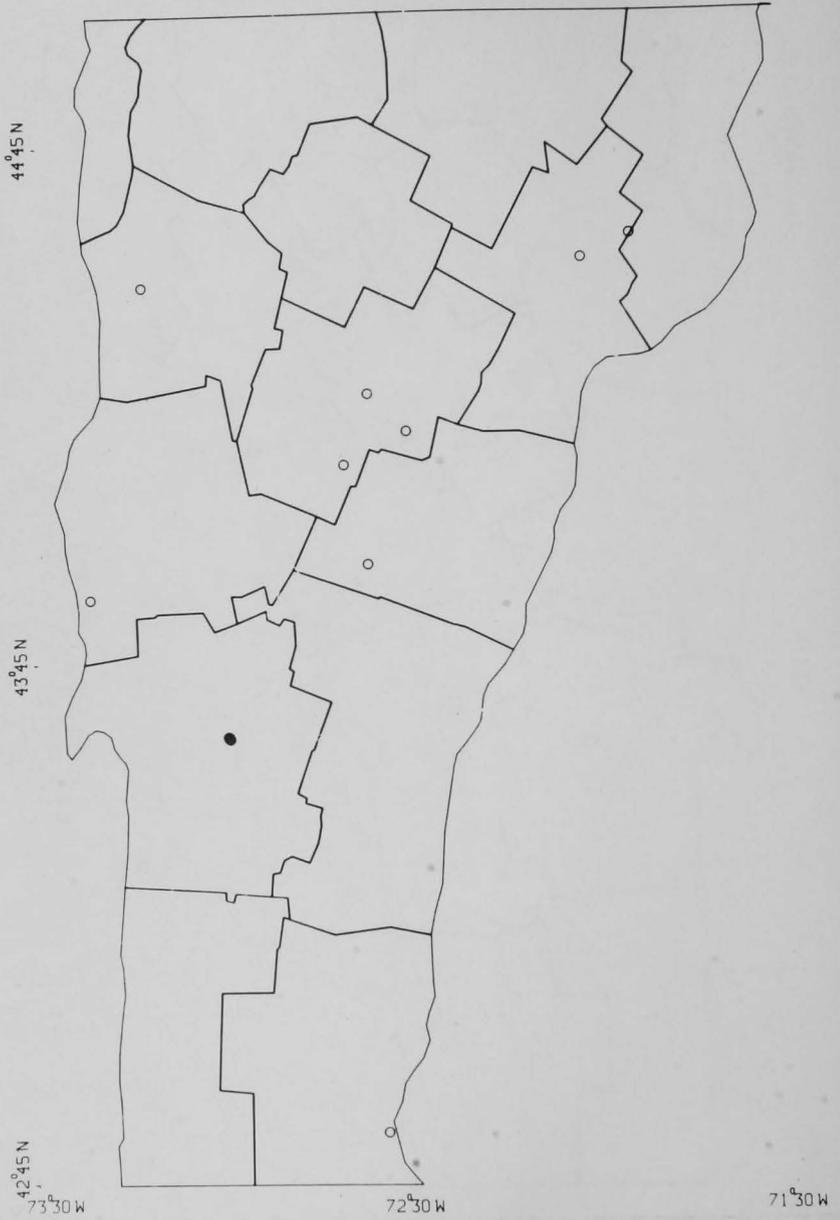


Fig. I.74. Vermont: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

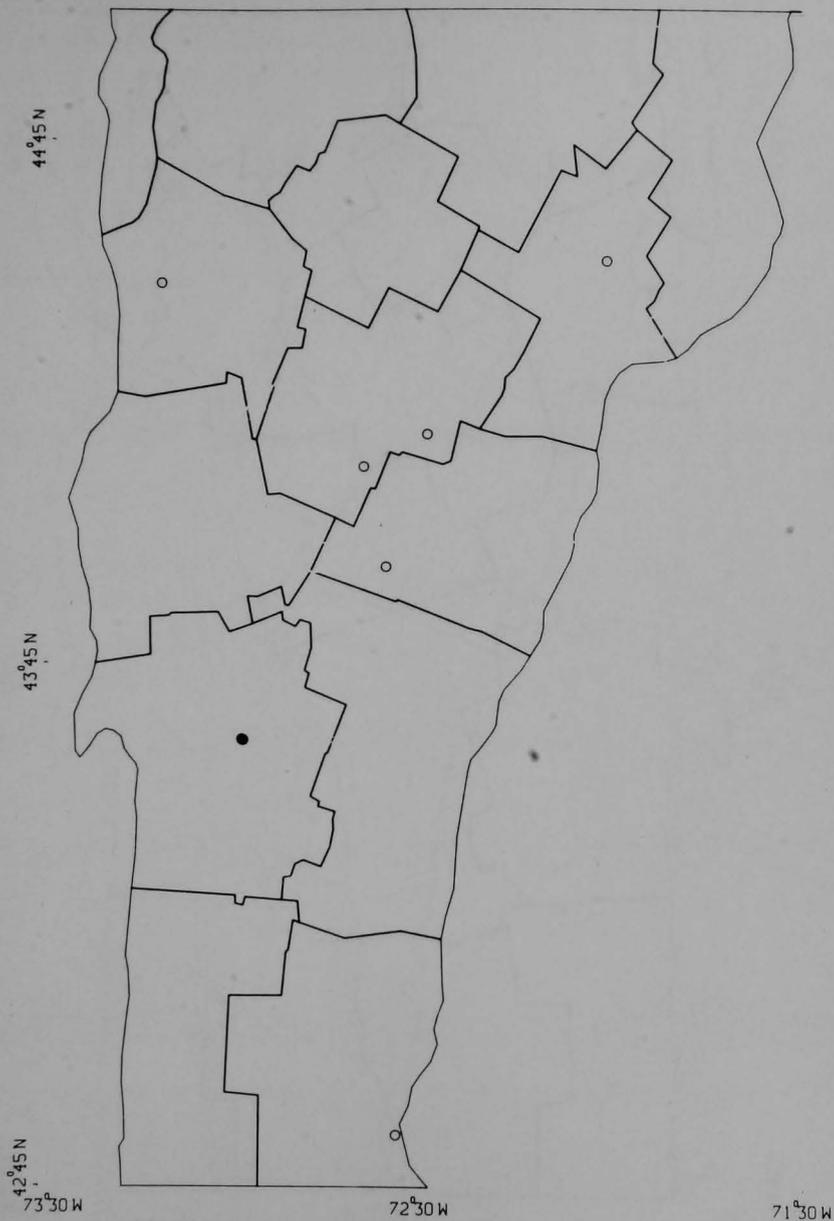


Fig. I.75. Vermont: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

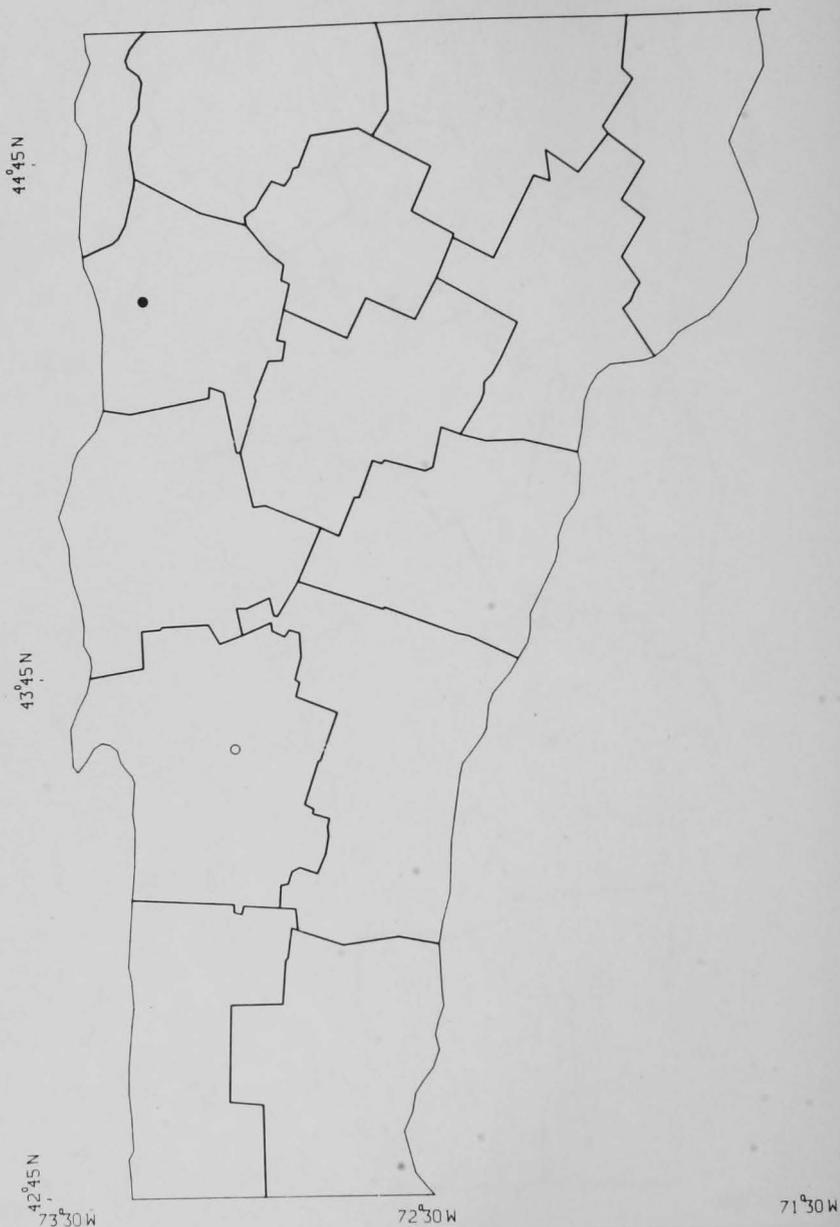


Fig. I.76. Vermont: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles

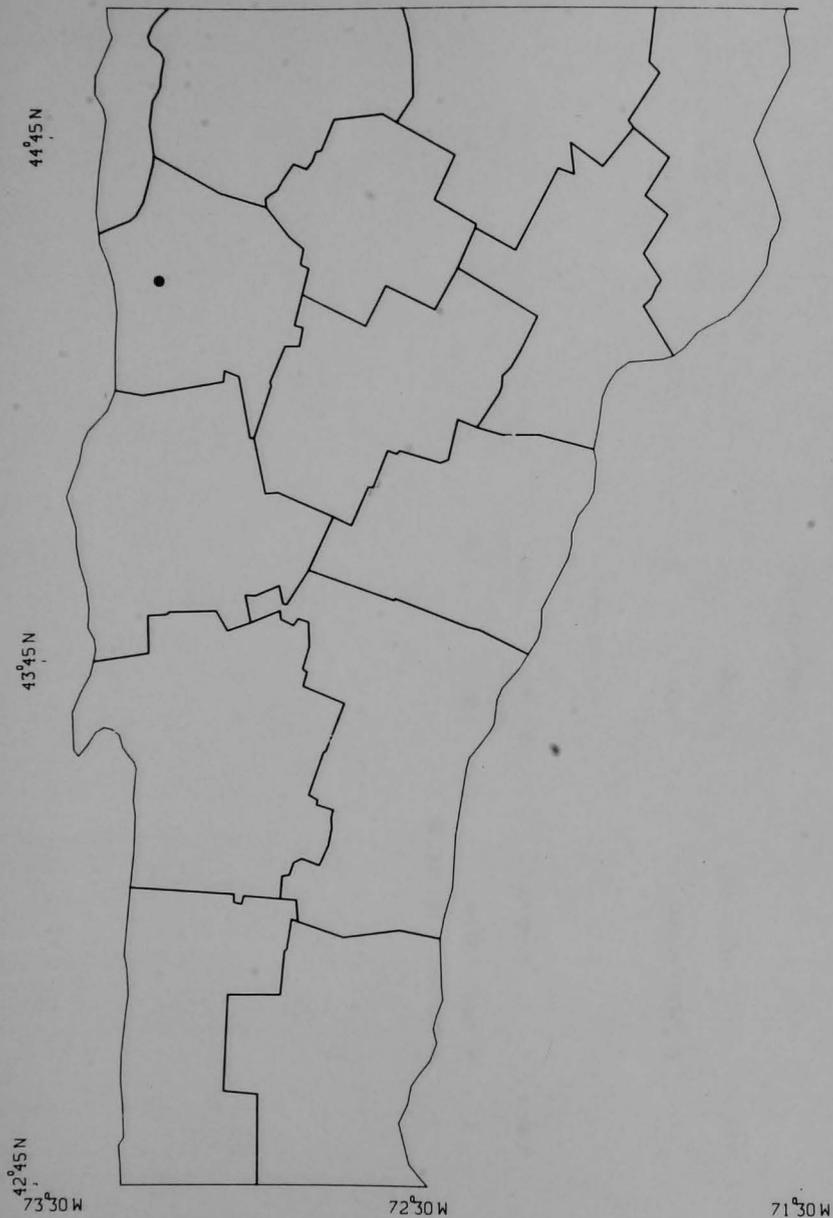


Fig. I.77. Vermont: Monitors Reporting Adequate Data on 1-hr Average O_3 ; Violations Shown by Shaded Circles

Table I.13. Vermont: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	<i>N</i> YANKEE NUCLEAR	42.99	72.72	540.00	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	<i>N</i> YANKEE NUCLEAR	0.0	0.0	0.0	0.0	0.0
	<i>N</i> NUCLEAR * NOT PLOTTED					

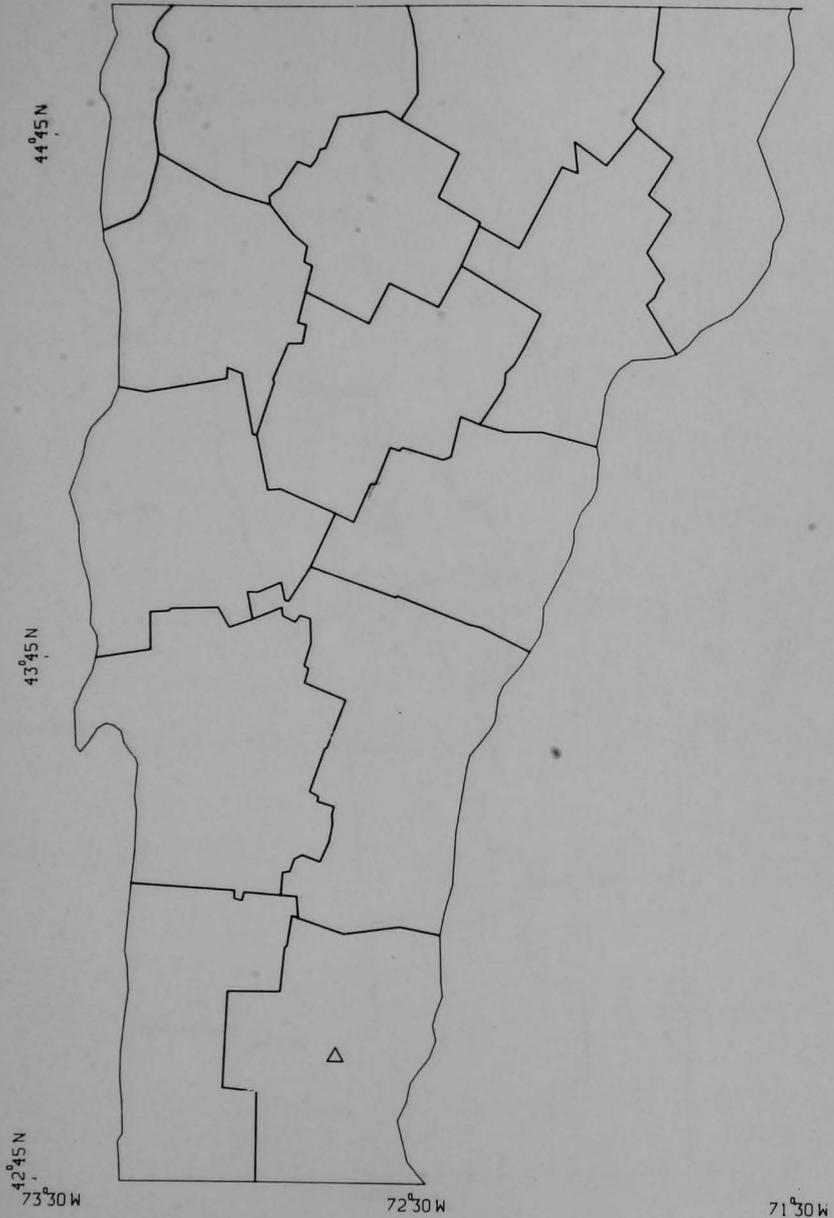


Fig. I.78. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open, < 1000 MW. Triangle = Nuclear)



Fig. I.79. Power Plant Key (See Table I.13 for Identification and Fuel Use Data)



Fig. I.80. Vermont: Key to Counties

Federal Region II
Covering the States of:

New Jersey

New York

REGION II: NEW JERSEY

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr	0 ^b	0	31	0
	1 yr			8	0
TSP	24 hr	0	3	69	0
	1 yr			58	3
NO _x	1 yr	0 ^b	-	0 ^b	0
CO	8 hr	15	-	21	18
O _x	1 hr	Whole state ^b		8	5

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	16
Nuclear	1
Total	17

NEW JERSEY: Official SIP, 1/79

I. SOURCES OF THE PROBLEM

There are no nonattainment areas in New Jersey for SO_2 , NO_x , or primary TSP. Secondary violations have been recorded in portions of Middlesex, Union, Essex, and Hudson counties and in the cities of Camden (Camden Co.), Jersey City (Hudson Co.), and Bridgeton (Cumberland Co.). In the Camden/Philadelphia area, and in northeastern New Jersey, point sources contribute 50% of the particulate emissions and area sources 50%. In Bridgeton, point sources account for over 75% of the particulate load.

The entire state is designated as nonattainment for ozone. The SIP notes that out-of-state transport (from Washington, D.C., Baltimore, Philadelphia, etc.) contributes significantly to the ozone level. Of the sources of ozone in New Jersey, 25% is estimated to be natural, 40% is stationary sources, and 35%, mobile sources. CO violations (due to mobile sources) have been recorded in 16 business districts, with an additional 75 business areas suspected to be exceeding the standard.

II. ATTAINMENT STRATEGIES

A. TSP

1. The degree of violation of secondary standards is small
2. Analysis and selection of a variety of measures
 - a. Control of fugitive industrial emissions
 - b. Control of dust from unpaved areas
 - c. Control of construction dust
 - d. Reductions in vehicle miles traveled and other O_x strategies
 - e. Reduction of lead content in gasoline
 - f. Improved design and operation of commercial, industrial, and domestic fuel burners (also part of state energy plan for conservation)
 - g. Reductions in levels of secondary particulates
 - h. Phaseout of fossil-fuel power plants in northeastern New Jersey

3. Bridgeton
 - a. Stack height of manufacturing plant to be raised
 - b. Compliance with particulate emission standards to be achieved
- B. CO
1. A dual strategy:
 - a. Area-wide reductions
 - b. Control of hot spots
 2. Inspection and maintenance of autos
 3. California-type new car standards
 4. Inspection of heavy-duty gas vehicles
 5. Transportation control measures
- C. O_x
1. Stationary source controls (RACT), including gasoline vapor recovery
 2. Mobile source controls
 - a. Federal Motor Vehicle Emissions Control Program
 - b. Replacement of older vehicles (at normal turnover rate) by catalyst-equipped vehicles using lead-free fuel
 - c. Inspection and maintenance
 - d. Mechanic training
 - e. Inspection of heavy-duty gas vehicles
 3. Encouraging alternatives to individual use of automobiles
 - a. Improved public transit
 - b. Exclusive bus/carpool lanes
 - c. Ridesharing programs by private employers with state assistance in computer-matching drivers and riders
 - d. Auto restricted zones/pedestrian malls
 - e. Bicycle lanes and storage
 - f. Park-and-ride facilities
 - g. Higher tolls for single-occupant vehicles
 - h. Active marketing of alternatives to single-occupant use of autos

4. Encouraging centralized economic activity
 - a. Aid for urban revitalization
 - b. Transfer of development rights to encourage more density in location of new emission sources
5. Improvements of traffic flow
6. Regional O_x control strategies advocated

III. NEW SOURCE REVIEW

A growth allowance is provided for small sources of VOC, with an emission offset policy to be in effect for all other sources and pollutants. The state established a minimum offset ratio and distance requirement:

Distance of offsets from new source (miles)		
VOC and NO _x	SO ₂ , TSP, CO	Minimum Offset Ratio
0-100	0-0.5	1 : 1
100-250	0.5-1.0	1.5 : 1
250-500	1.0-2.0	2 : 1

The offset ratio can be altered, if the state determines that a different offset ratio is necessary to maintain reasonable further progress towards attainment. Emission reductions that took place after August 7, 1977, can be banked after registration with state.

New Jersey is developing a computerized emissions inventory system called "Air Pollution Emissions Data System", to track emission reductions and increases and progress toward air quality goals for stationary-source emissions. When the new system is operational, the state will decide whether to drop the federal offset policy.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. Existing sources

a. State separated into zones

Zone 1: Atlantic, Cape May, Cumberland, and Ocean Counties

Zone 2: Hunterdon, Sussex, and Warren Counties

Zone 3: Burlington, Camden, Gloucester, Mercer, and Salem Counties

Zone 4: Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, and Union Counties

- b. Maximum allowable sulfur in fuel
- Zone 1 and 2: 1%
 - Zone 3 and 4: 0.2%
- c. Maximum SO₂ emission
- Zone 1 and 2: 1.5 lb of SO₂ per MM Btu
 - Zone 3 and 4: 0.3 lb of SO₂ per MM Btu
- d. Any power-generation source with fuel input more than 200 MM Btu/hr.
- located in Zone 3 or 4
 - in operation before 5/6/68
 - subject to standard for Zone 1
- e. Possible exception to sulfur-in-fuel limit in Zone 1: may use fuel up to 3.5% sulfur if
- can demonstrate that lower sulfur fuel is not available
 - can demonstrate that SO₂ levels will not exceed NAAQS
2. If an existing power plant is converted to coal and is "reconstructed" in conversion, and if it is larger than 100 MM Btu/hr fuel input:
- a. SO₂ emission limit is 0.3 lb per MM Btu; but
 - b. "Reconstruction" is not clearly defined
 - c. The state is considering raising the limit to 1.2 lb of SO₂ per MM Btu

B. TSP

1. Emission limits

Source Size (fuel input, MM Btu/hr)	Emission limit (lb of PM per hr)
1	0.6
10	6.0
100	15.0
200	20.0
>200	0.1 lb PM per MM Btu

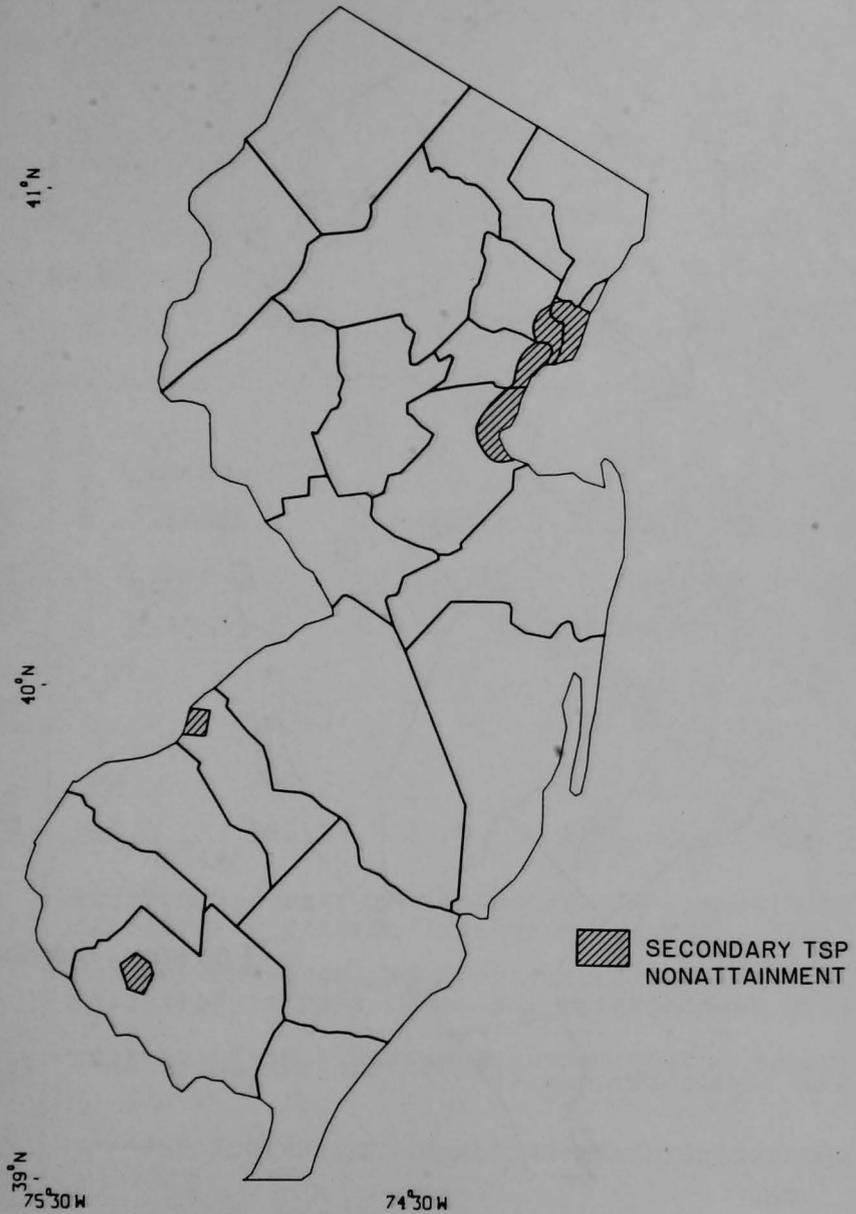


Fig. II.81. New Jersey: TSP Nonattainment Areas as Designated May 1979

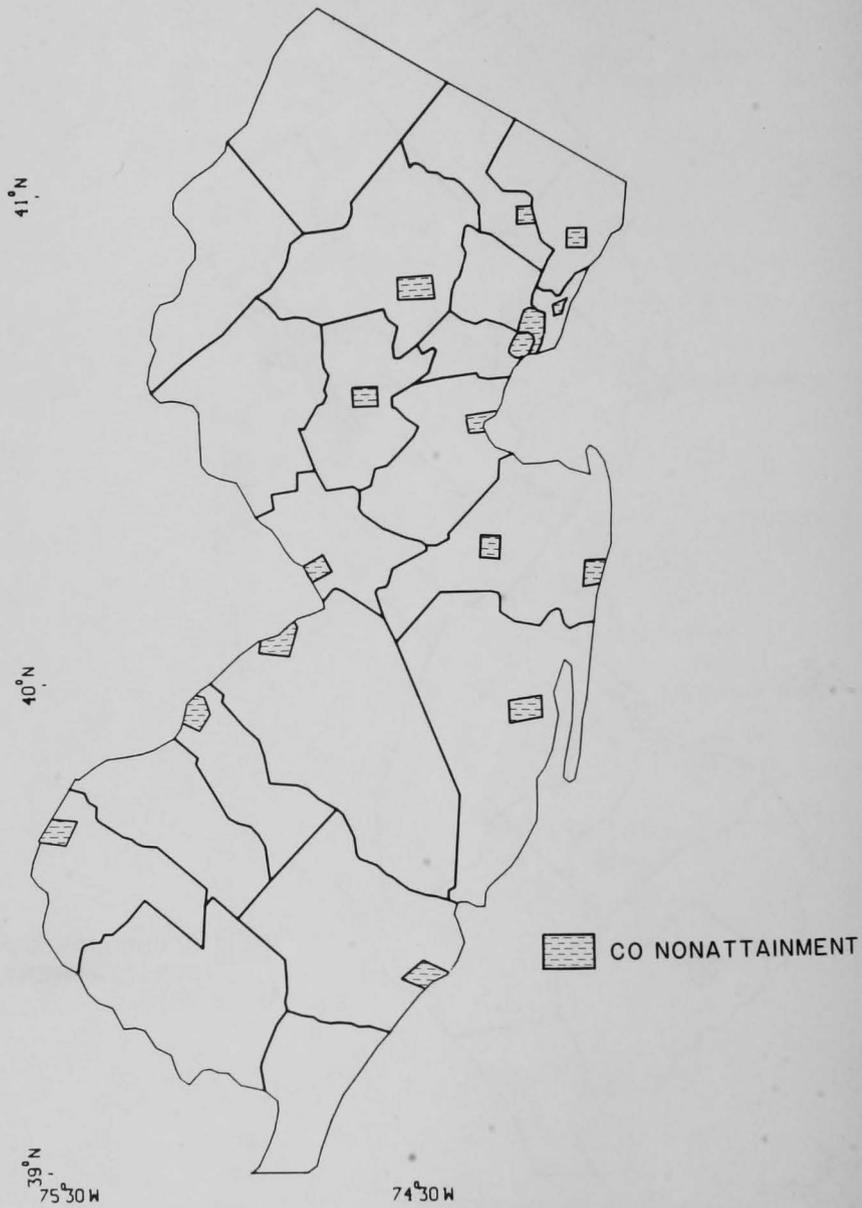


Fig. II.82. New Jersey: CO Nonattainment Areas as Designated May 1979

Table II.14. New Jersey: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
2	80	39.60	74.75			60. (1)	29. (1)			
3	80	39.36	74.44	97. (1)					15. (4)	
4	300	40.88	74.04	122. (1)					11. (3)	
5	300	40.86	73.96			104. (1)	42. (1)			
6	300	40.92	74.10			115. (1)	43. (1)			
7	300	41.05	74.10			82. (1)	36. (1)			
8	660	40.06	74.83			95. (1)	38. (1)			
9	660	40.12	74.64			99. (1)	35. (1)			
10	660	39.90	74.83			81. (1)	35. (1)			
11	660	40.06	74.69			105. (1)	42. (1)			
12	650	40.08	74.86	139. (1)					18. (4)	
14	740	39.94	75.12	75. (1)	32. (1)	163. (1)	84. (3)			
16	740	39.92	75.10	231. (1)					21. (4)	
18	740	39.68	74.86						5. (1)	
19	740	39.95	75.12	134. (1)					11. (3)	
20	740	39.92	75.10							506. (4)
21	740	39.92	75.06			80. (1)				
22	740	39.93	75.04	78. (1)		71. (1)				
23	740	39.79	74.94			93. (1)	44. (1)			
25	740	39.68	74.86	94. (1)						343. (4)
26	780	39.10	74.80			56. (1)	26. (1)			
27	780	39.27	74.73			66. (1)	27. (1)			
28	780	39.10	74.80	20. (1)	6. (1)					
29	1380	40.76	74.21			116. (1)	55. (1)			
30	1380	40.76	74.30			70. (1)	32. (1)			
31	1380	40.73	74.24			123. (1)	48. (1)			
32	1380	40.80	74.24			106. (1)	47. (1)			
33	1380	40.77	74.24			104. (1)	47. (1)			
34	1380	40.74	74.18	146. (1)					17. (4)	143. (2)
36 *	1380	40.70	76.17	18. (1)	5. (1)	89. (1)				
38	1760	39.83	75.24	155. (1)					15. (4)	
39	1760	39.83	75.15			100. (1)	40. (1)			
41	1760	39.76	75.29			78. (1)	33. (1)			
42	1760	39.71	75.12	51. (1)	26. (1)	72. (1)	49. (1)			
44	1760	39.68	75.10			70. (1)	31. (1)			
46	2240	40.73	74.07						25. (4)	
47	2240	40.72	74.05	111. (1)	27. (1)	112. (1)				
49	2240	40.73	74.09			141. (1)	71. (2)			
50	2240	40.73	74.05			160. (1)	81. (3)			
51	2240	40.73	74.07	168. (1)						
52	2240	40.68	74.12			129. (1)	64. (2)			
53	2240	40.68	74.12							355. (4)
55	2240	40.68	74.12	193. (1)					9. (2)	
56	2240	40.67	74.10			84. (1)				
57	2240	40.80	74.05			135. (1)	59. (2)			

Table continued on next page

Table II.14. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
58	2260	40.62	74.84			92. (1)	35. (1)			
59	2980	40.18	74.71			148. (1)	43. (1)			
60	2980	40.31	74.60			83. (1)	40. (1)			
61	2980	40.32	74.85			101. (1)	39. (1)			
62	2980	40.22	74.76	158. (1)					10. (3)	127. (2)
63	2980	40.22	74.77	107. (1)	44. (1)	95. (1)	54. (1)			
65	3060	40.44	74.32			120. (1)				
66	3060	40.48	74.28			127. (1)	59. (2)			
67	3060	40.46	74.32			139. (1)				
68	3060	40.51	74.27	107. (1)					14. (4)	
69	3060	40.52	74.28			115. (1)	61. (2)			
70	3060	40.51	74.26			79. (1)				
72	3060	40.56	74.26			126. (1)	57. (2)			
73	3060	40.57	74.29			166. (1)	51. (1)			
74	3060	40.38	74.53			130. (1)	49. (1)			
75	3060	40.44	74.26			80. (1)	35. (1)			
76	3060	40.58	74.50			159. (1)	51. (1)			
77	3060	40.54	74.35			122. (1)	51. (1)			
78	3060	40.58	74.22			176. (1)	86. (3)			
79	3180	40.20	74.43			78. (1)	33. (1)			
80	3180	40.26	74.27	162. (1)					14. (4)	
81	3180	40.16	74.06			80. (1)	34. (1)			
82	3180	40.22	74.01			106. (1)	50. (1)			
83	3180	40.22	74.01	207. (1)					14. (4)	398. (4)
84	3180	40.34	74.07			80. (1)	39. (1)			
85	3260	40.80	74.48	102. (1)					28. (4)	
86	3260	40.78	74.44			95. (1)	33. (1)			
88	3260	40.89	74.57			64. (1)				
89	3900	39.60	74.35	34. (1)	7. (1)	60. (1)	27. (1)			
90	3900	40.14	74.27			63. (1)	25. (1)			
91	3900	39.85	74.09			91. (1)	43. (1)			
92	3900	39.79	74.20			80. (1)	31. (1)			
93	3900	39.95	74.20						18. (4)	
94	3900	39.95	74.20			91. (1)	43. (1)			
95	3900	39.95	74.20	106. (1)						
96	4120	40.93	74.16	92. (1)					16. (4)	
97	4120	40.91	74.17	65. (1)		92. (1)				
99	4900	39.73	75.47	178. (1)					10. (3)	
100	4900	39.63	75.36			75. (1)	32. (1)			
101	5020	40.57	74.61							437. (4)
102	5020	40.42	74.68			109. (1)	37. (1)			
103	5020	40.57	74.61	96. (1)					16. (4)	
104	5300	41.14	74.77			77. (1)	28. (1)			
105	5440	40.66	74.26			152. (1)	66. (2)			

Table II.14. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
106	5440	40.61	74.28			113. (1)	44. (1)			
107	5440	40.68	74.23			102. (1)	43. (1)			
109	5440	40.66	74.21	136. (1)	56. (1)	97. (1)	61. (2)			
112	5440	40.66	74.21	141. (1)					21. (4)	
114	5440	40.61	74.22			130. (1)	62. (2)			
115	5440	40.64	74.21	151. (1)					10. (2)	35. (1)
116	5660	41.01	75.08			81. (1)				
117	5660	40.69	75.19			136. (1)	47. (1)			

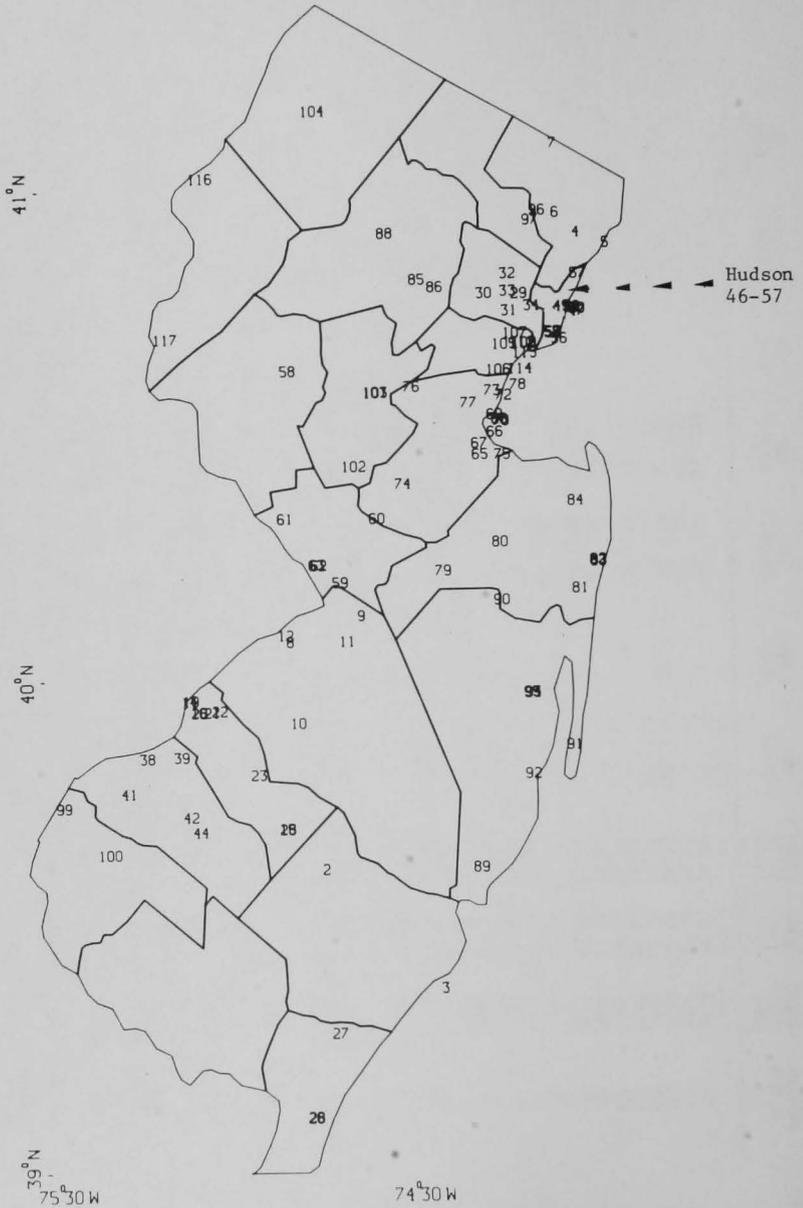


Fig. II.83. New Jersey: Locations of SAROAD Monitors (See Table II.14 for Monitor Numbers)

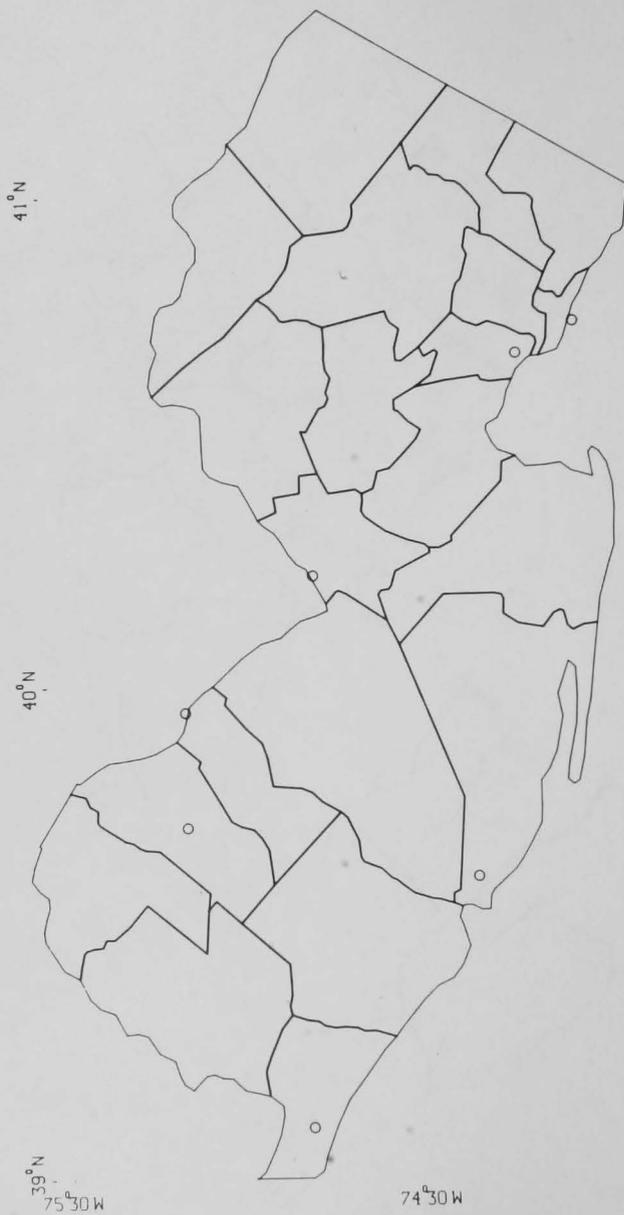


Fig. II.85. New Jersey: Monitors Reporting Adequate Data on Annual Average SO_2 ; No Violations

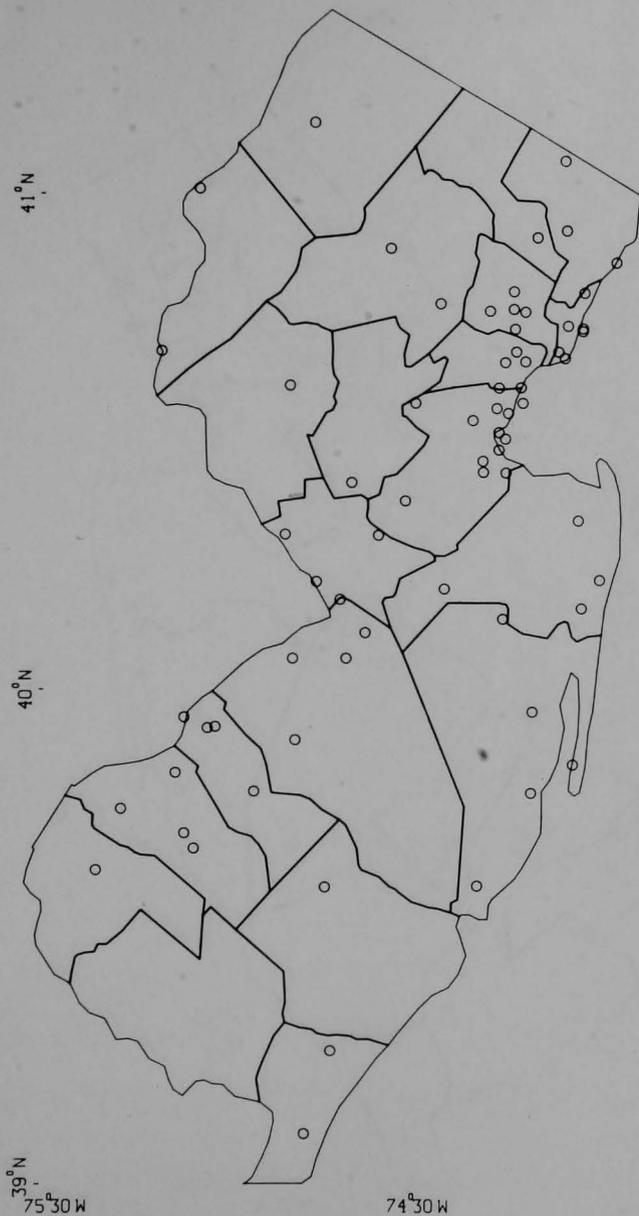


Fig. II.86. New Jersey: Monitors Reporting Adequate Data on 24-hr Average TSP; No Violations

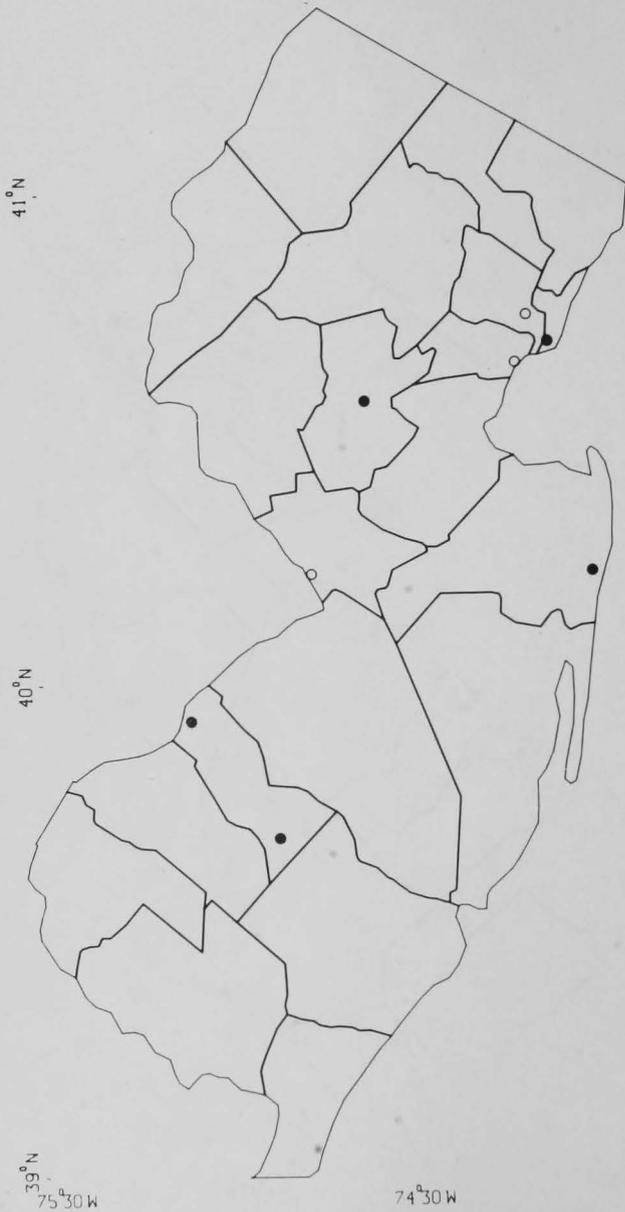


Fig. II.89. New Jersey: Monitors Reporting Adequate Data on 1-hr Average O_x ; Violations Shown by Shaded Circles

Table II.15. New Jersey: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	BERGEN	40.84	74.02	650.40	0.0
2	BURLINGTON	40.08	74.83	455.00	0.0
3	DEEPWATER	39.68	75.51	303.30	0.0
4	ENGLAND	39.29	74.63	475.60	299.20
5	ESSEX	40.74	74.12	92.00	0.0
6	GILBERT	40.56	75.16	126.00	0.0
7	HOPE CREEK	39.59	75.34	3.00	0.0
8	HUDSON	40.74	74.07	1114.50	0.0
9	KEARNY A&B	40.74	74.10	314.00	0.0
10	LINDEN	40.62	74.21	612.00	0.0
11	MERCER	40.18	74.73	652.00	0.0
12	N* OYSTER CREEK	0.0	0.0	550.00	0.0
13	SALEM (GT)	39.59	75.34	22.80	0.0
14	SAYREVILLE	40.48	74.36	366.80	0.0
15	SEWAREN	40.55	74.27	850.00	0.0
16	VINELAND (DOWN)	39.37	75.11	76.45	0.0
17	WERNER	40.49	74.28	116.20	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	BERGEN	0.0	0.0	0.27	2576.10	2041.70
2	BURLINGTON	0.0	0.0	0.29	2108.70	0.0
3	DEEPWATER	0.0	0.0	0.30	3475.64	14.65
4	ENGLAND	2.90	671.79	0.74	1158.84	0.0
5	ESSEX	0.0	0.0	0.20	383.80	175.00
6	GILBERT	0.0	0.0	0.28	344.00	0.0
7	HOPE CREEK	0.0	0.0	0.0	0.0	0.0
8	HUDSON	1.41	529.00	0.29	3074.20	3355.20
9	KEARNY A&B	0.0	0.0	0.23	1769.00	0.0
10	LINDEN	0.0	0.0	0.42	5708.00	0.0
11	MERCER	1.49	1047.40	0.0	0.0	1316.00
12	N* OYSTER CREEK	0.0	0.0	0.0	0.0	0.0
13	SALEM (GT)	0.0	0.0	0.0	0.0	0.0
14	SAYREVILLE	0.0	0.0	0.30	2064.00	365.00
15	SEWAREN	0.0	0.0	0.29	3793.10	835.00
16	VINELAND (DOWN)	0.0	0.0	0.81	341.04	0.0
17	WERNER	0.0	0.0	0.30	493.00	0.0

N NUCLEAR * NOT PLOTTED

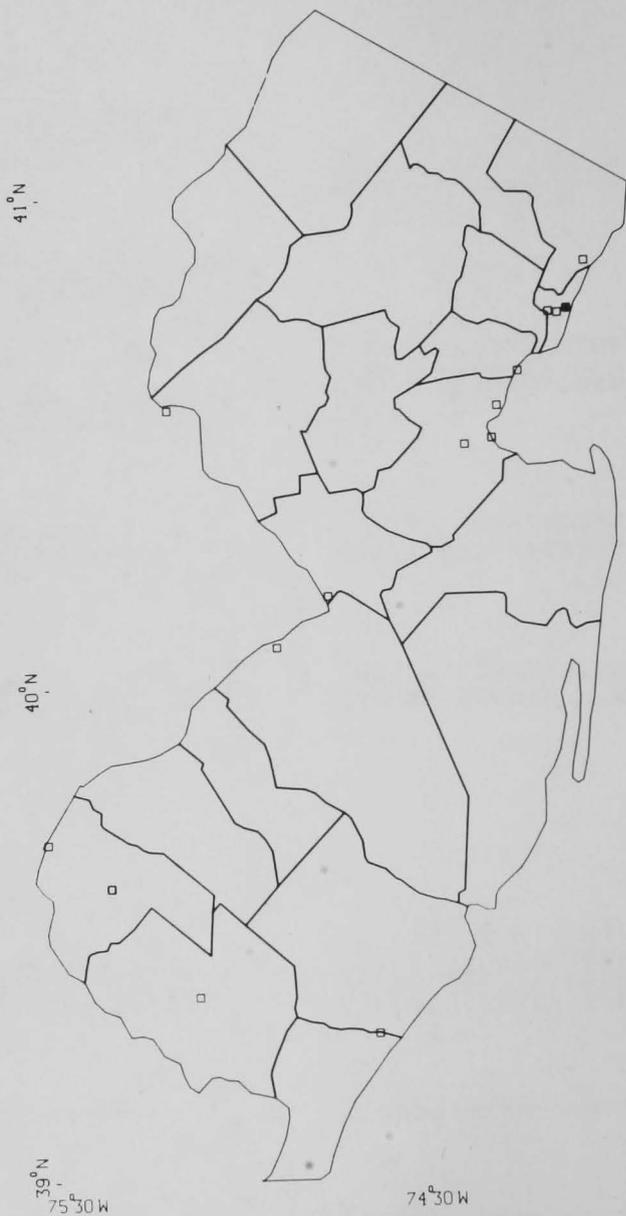


Fig. II.90. Power Plant Locations (Square = Fossil Fuel: Shaded, > 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

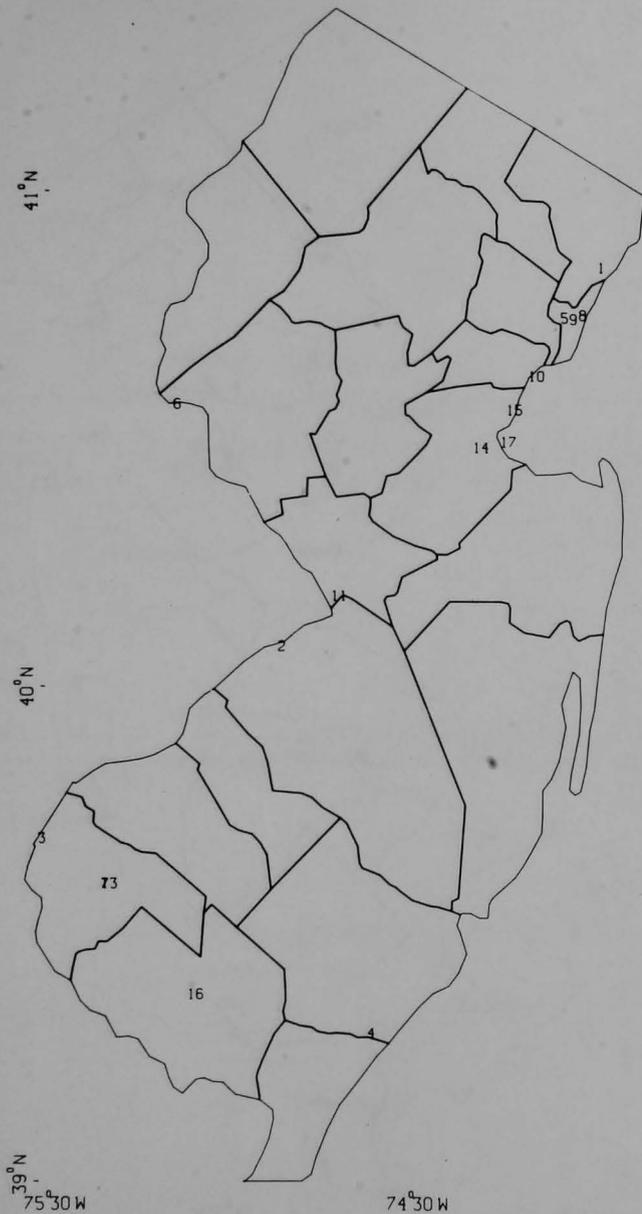


Fig. II.91. Power Plant Key (See Table II.15 for Identification and Fuel Use Data)

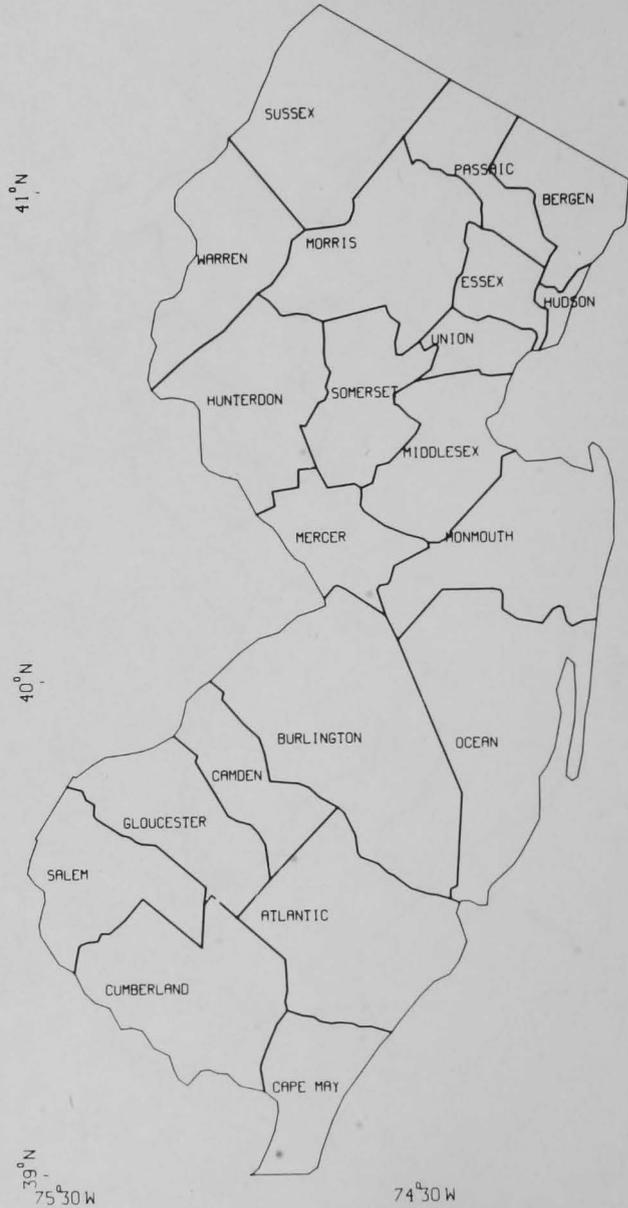


Fig. II.92. New Jersey: Key to Counties

REGION II: NEW YORK

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr	1	0	168	0
	1 yr			113	1
TSP	24 hr	3	8	323	5
	1 yr			109	9
NO _x	1 yr	0 ^b	-	19	2
CO	8 hr	9	-	27	16
O _x	1 hr	Whole state ^b		18	18

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

<u>Energy Facilities</u>	
Fossil Fuel	30
Nuclear	3
Total	33

NEW YORK: Official SIP, 4/79, 6/79

I. SOURCES OF THE PROBLEM

New York State has only one area currently in nonattainment for SO₂: Lackawanna/Buffalo in the Niagara Frontier Air Quality Control Region. A delayed compliance order issued to Bethlehem Steel is responsible for the violations, since over 90% of the SO₂ emissions in the area are attributed to coke ovens.

Primary TSP nonattainment areas are in the South Buffalo/Lackawanna area and Niagara (Niagara and Erie Counties). The primary violations are surrounded by areas of secondary violations in the rest of Buffalo, Tonawanda, Niagara Falls, and Lockport (the latter are all towns just north of the Buffalo/Lackawanna area). In this industrial area, point sources contribute over 50% of estimated particulate emissions, with area sources (such as residential heating) and fugitive process emissions each responsible for approximately 25%. The Bethlehem Steel Co.'s coke ovens were major sources of both stack and fugitive emissions. Construction of the Tonawanda Sewage Treatment Plant had a significant impact on monitor readings. Plants owned by Donner-Hanna Furnace Co., Tonawanda Coke, and Republic Steel Co. also contributed particulate emissions. In addition, fugitive emissions from slag-handling operations are being studied to determine the extent of their contributions and the controls needed.

The only additional primary TSP nonattainment area is in the city of Syracuse (Onondaga Co.), with secondary violations recorded in East Syracuse. The Allied Chemical Co. in Solvay is the significant point source of particulate emissions, contributing approximately 50%, with transportation-related emissions contributing about 25%. An area of secondary violation in Jamestown (Chautauqua County) is caused by contributions (45%) from point sources, over 20% from area sources, and over 20% from transportation. Albany, the state capital has a secondary TSP violation recorded (for Albany and Rensselaer counties), with 60% of emissions from point sources, 20% from area sources, and 16% from transportation. The violations, however, are attributed to fugitive emissions from grain loading by the Cargill Corp. at the Port of Albany, on the Hudson River. The town of Catskill (Greene Co.) is designated as nonattainment for the secondary TSP standards, as a result of fugitive dust

from dumping at several cement plants. Portions of the five boroughs of New York City (Manhattan, Queens, Brooklyn, Bronx, and Richmond) are designated as nonattainment for the secondary standard. The city believes that the current data are inadequate to determine causes of the violations, and has requested an 18-month extension for submission of a plan in order to study the causes and develop controls.

Currently there are no nonattainment areas for NO_x in New York. Emissions from vehicles, primarily automobiles, cause violations of the standard for carbon monoxide in Buffalo, Rochester, Syracuse, Schenectady, Troy, Albany, and the New York City metropolis. Under the former NAAQS for ozone, the entire state was nonattainment, but now two-thirds of the state is attainment. Areas not meeting the 0.12-ppm ozone standard include regions surrounding Buffalo (where mobile sources emit 55% of locally produced hydrocarbon precursors to ozone, refineries emit 20%, gasoline storage accounts for 12.5%, and other stationary sources 12.5%); Rochester (52% for mobile, 39% for point sources, and 9% for gasoline evaporation); Syracuse (72% mobile, 14% point, 14% gasoline evaporation); Albany (69% mobile, 15% point, 16% evaporation); and New York City (where mobile sources emit 54% of locally produced HC and stationary sources 46%). The ozone problem is compounded by ozone transport from areas outside the state to the south and west.

II. ATTAINMENT STRATEGIES

A. SO_2

1. Buffalo/Lackawanna

a. Bethlehem Steel Co.

- compliance with coke oven gas standard
- installation of coke oven desulfurization systems

b. Replacing manual SO_2 bubbler monitor with continuous monitors

- concentrations in area are close to standard
- older monitors may have been inaccurate, giving readings too high

B. TSP

1. Buffalo/Lackawanna/Niagara area

- a. RACT on coke oven emissions
 - b. Air-cleaning devices for basic oxygen furnaces
 - c. Further study and control of fugitive dust
2. Jamestown
- a. Industrial compliance with existing regulations
 - b. Replacement of older vehicles (at normal turnover rates) with catalyst-equipped vehicles using lead-free fuel
3. Syracuse
- a. Compliance with existing regulations will reduce the size of nonattainment areas
 - b. Further reduction of emissions is needed from Allied Chemical in Solvay
 - c. Reduction in emissions from incinerators
 - d. Replacement of older vehicles with cars using lead-free fuel
 - e. Lower background level from statewide reductions of emissions
4. Albany
- a. Reduce grain dust emissions at Cargill loading facility, Port of Albany
 - b. Improve Sheridan refuse-fueled facility
 - c. Replacement of older vehicles using lead-free fuel
5. Catskill
- a. Stabilize cement dust dumps with soil and vegetation
 - b. Reduce dump area by 90%
6. New York City
- a. Request 18-month extension to plan
 - b. RACT already on stationary sources
 - c. Transportation improvement program to encourage use of mass transit

- d. Replacement of older vehicles with those using lead-free fuel
- e. Development of fugitive dust controls

C. CO

- 1. Cities where Federal Motor Vehicle Emissions Control Program (FMVECP) and normal vehicle replacement rates will achieve NAAQS:
 - a. Syracuse
 - b. Albany
 - c. Schenectady
 - d. Troy
- 2. Cities where FMVECP will be supplemented by traffic flow requirements:
 - a. Rochester
 - b. Buffalo
 - c. New York City
- 3. Inspection and maintenance programs for vehicles:
 - a. Essential for Manhattan
 - b. Useful elsewhere in NYC

D. Ozone

- 1. Buffalo
 - a. FMVECP
 - b. Long-range transit improvements (includes light rail)
 - c. RACT on fuel storage
 - d. RACT for refining processes
 - e. Regional and international (Canadian) cooperation in reducing O_x precursors
 - f. Emissions offset program
- 2. Rochester
 - a. FMVECP
 - b. RACT on fuel storage and transfer
 - c. Improved public transit
 - d. Control extended vehicle idling

- e. Traffic flow improvements
 - f. Staggered work hours
 - g. Prohibit use of cutback asphalt
 - h. RACT on metal cleaning with solvents
 - i. RACT on refinery processes
 - j. Emissions offset
3. Syracuse
- a. FMVECP
 - b. Improved public transit
 - c. RACT for:
 - evaporative sources
 - surface coaters
 - solvent cleaners
 - refinery
 - d. Offset policy
4. Albany
- a. FMVECP
 - b. Traffic network improvement (i.e., bridges)
 - evaporative sources
 - prohibit cutback asphalt
 - surface coating
 - solvent cleaning
 - refinery processes
 - improved monitoring
 - d. Offset policy
 - e. Possible measures (may be implemented) to be submitted in late October 1979
 - staggered work hours
 - carpooling
 - park-and-ride facilities
 - bicycle facilities

5. New York City

- a. FMVECP
- b. Inspection and maintenance of vehicles
- c. Capping fuel vapors
- d. Control emissions from heavy-duty trucks
- e. Improved and rehabilitated public transit
- f. Land use planning
- g. Parking restrictions in central business district
- h. RACT for:
 - surface coating
 - solvent cleaning
 - petroleum refinery
 - cutback asphalt

III. NEW SOURCE REVIEW

New York State will use an emission offset policy in accommodating new major sources in nonattainment areas.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. Statewide limit on sulfur in fuel for sources with fuel input > 250 MM Btu/hr, constructed after 3/15/73, and not located in New York City, Nassau, Rockland, or Westchester counties
 - a. Oil: 0.75% sulfur content
 - b. Coal: 0.6 lb of sulfur per MM Btu
 - c. In New York City (after 9/74):
 - oil: 0.3% sulfur content
 - coal: 0.2 lb of sulfur per MM Btu
2. For sources with fuel input of 250 MM Btu/hr or less:
 - a. In New York City: see l.c. above
 - b. In Nassau, Rockland, and Westchester counties:
 - oil: 0.37% sulfur content
 - coal: 0.2 lb of sulfur per MM Btu

- c. In Suffolk County, Babylon, Brookhaven, Huntington, Islip, and Smithtown
 - oil: 1.0% sulfur content
 - coal: 0.6 lb of sulfur per MM Btu
 - d. In the City of Lackawanna and South Buffalo (Erie and Niagara counties):
 - oil: 1.1% sulfur content
 - e. In the rest of Erie and Niagara counties
 - oil: 2.0% maximum, 1.7% average sulfur content
 - coal: maximum 1.7 lb, average 1.4 lb of sulfur per MM Btu
 - f. In the rest of the state:
 - oil: 2.0% sulfur content
 - coal: maximum 2.5 lb, average 1.9 lb of sulfur per MM Btu
3. Sources converting to coal must conform to limits on sulfur in fuel:
- a. Except in nonattainment areas or if a SO₂ violation could result
 - b. SO₂ limit is 0.55 times the maximum sulfur content of oil for the area
4. Special limitations may be promulgated for:
- a. Oil with 3.0% sulfur maximum
 - b. Coal with 2.8 lb of sulfur per MM Btu
 - c. If use of such fuel would not lead to a violation of a NAAQS
- B. TSP
- 1. Emission limit for new sources with fuel input greater than 250 MM Btu/hr, constructed after 8/11/72:
 - a. 0.1 lb of particulates per MM Btu

2. For other sources:

- a. Fuel input between 1 and 10 MM Btu/hr:
0.6 lb of PM per MM Btu
- b. Fuel input greater than 10,000 MM Btu/hr:
0.14 lb of PM per MM Btu
- c. Limits interpolated within this range for
sources of intermediate size

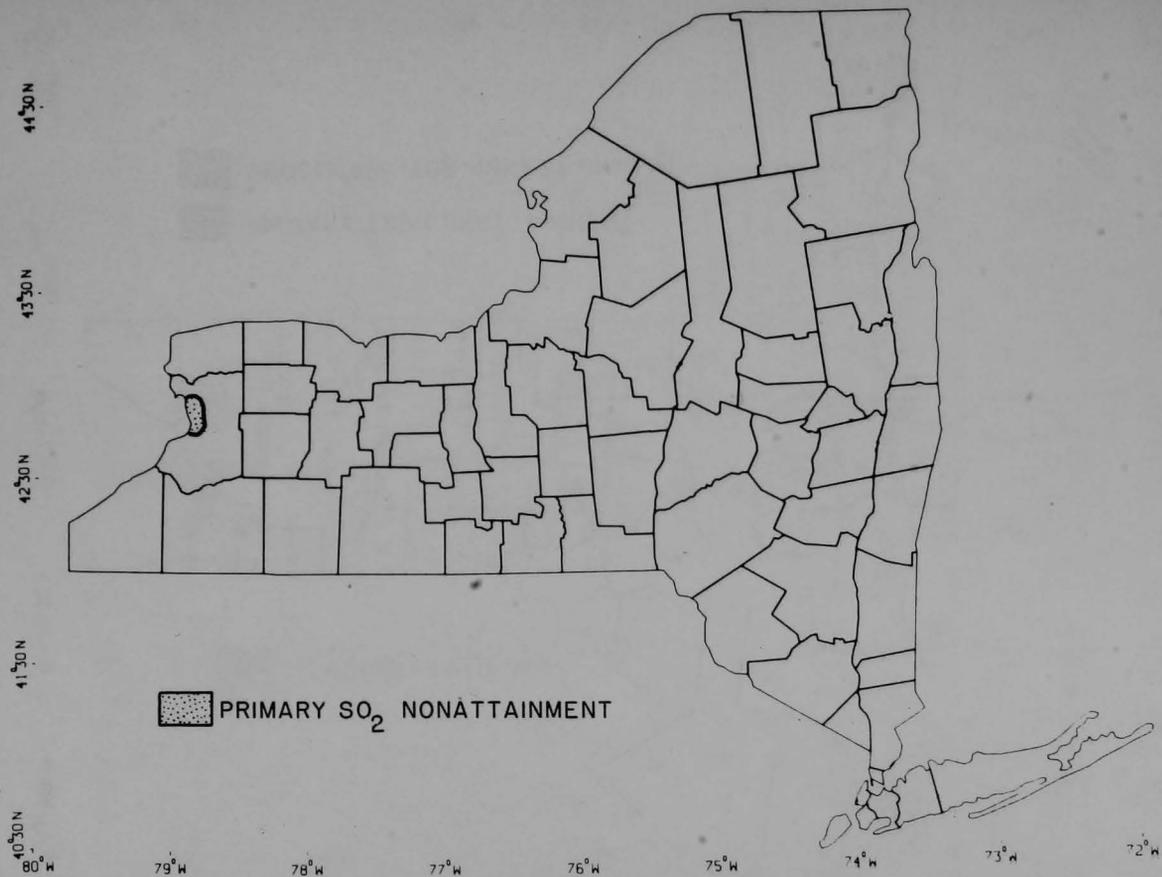


Fig. II.93. New York: SO₂ Nonattainment Areas as Designated May 1979

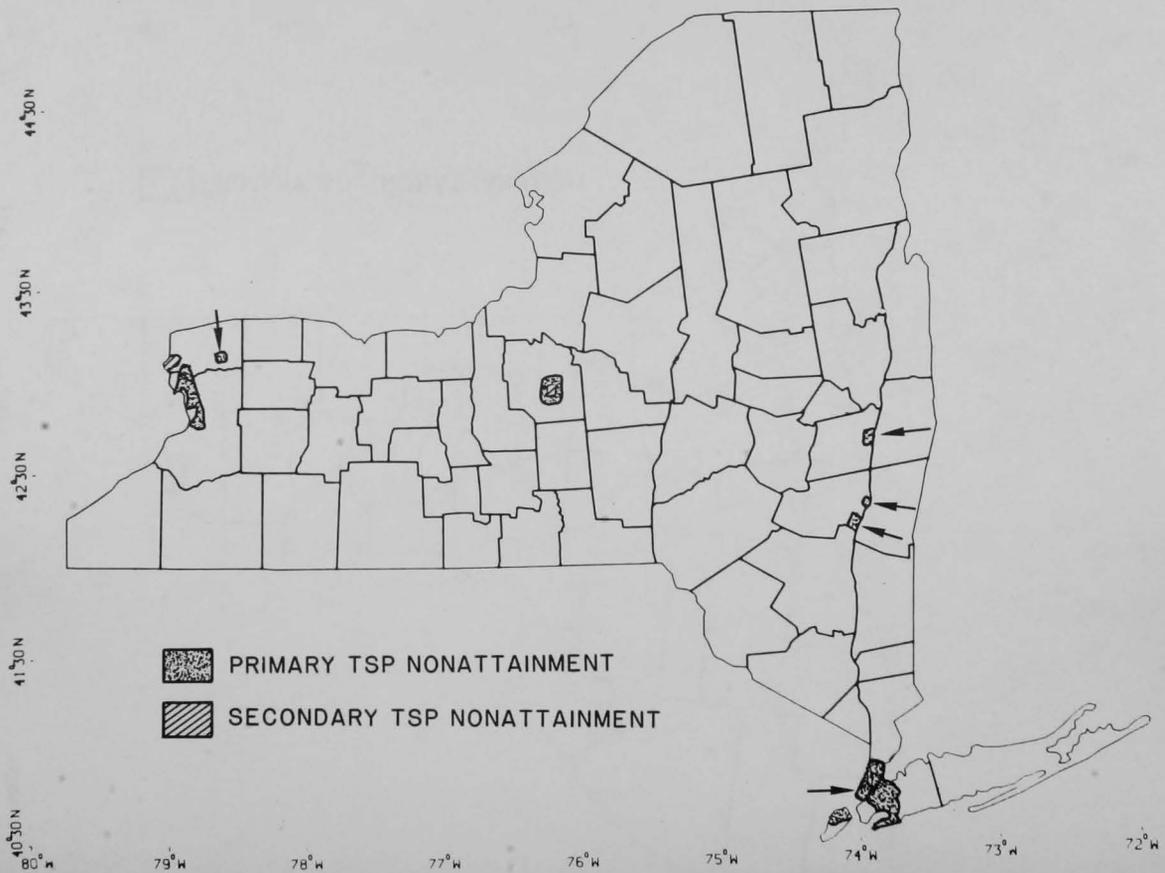


Fig. II.94. New York: TSP Nonattainment Areas as Designated May 1979

Table II.16. New York: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	60	42.65	73.78	147. (1)	44. (1)	116. (1)				
3	60	42.64	73.78	172. (1)						
4	60	42.64	73.75	131. (1)	56. (1)	172. (1)	66. (2)			
5	60	42.64	73.75			206. (2)	79. (3)			
6	60	42.63	73.76			158. (1)				
7	60	42.65	73.76	178. (1)		153. (1)				
8	60	42.65	73.78	148. (1)	48. (1)	81. (1)	47. (1)			
9	60	42.74	73.81			136. (1)	52. (1)			
10 *	60	42.76	72.92	81. (1)	29. (1)	130. (1)				
11	60	42.72	73.80			95. (1)				
12	60	42.50	73.82			103. (1)				
13	120	42.27	78.16			69. (1)	29. (1)			
14	120	42.25	77.79	50. (1)		63. (1)	23. (1)			
15 *	120	60.19	79.42			109. (1)	36. (1)			
16	600	40.84	73.84	154. (1)						
17	600	40.89	73.84	130. (1)		142. (1)	55. (1)			
18	600	40.84	73.84			151. (1)	59. (2)			
19	600	40.84	73.84			186. (1)				
20	600	40.81	73.91	187. (1)		166. (1)	76. (3)			
21	600	40.81	73.80	92. (1)		121. (1)	48. (1)			
22	600	40.87	73.89	167. (1)		150. (1)	57. (2)			
24	600	40.83	73.90	183. (1)		166. (1)	75. (2)	73. (1)	10. (2)	
25	600	40.84	73.84	157. (1)					11. (3)	
26	640	42.24	75.85			74. (1)	37. (1)			
27 *	640	42.10	81.92	63. (1)		107. (1)				
28	640	42.10	75.89	103. (1)	26. (1)			3. (1)		
29	640	42.11	75.94	55. (1)	18. (1)					
30	640	42.11	75.87			87. (1)				
31	640	42.11	75.96	110. (1)	33. (1)	123. (1)				
32	640	42.03	76.10			86. (1)				
33	640	42.11	76.05			93. (1)				
34	840	42.17	78.97			74. (1)				
35	840	42.42	78.48			86. (1)				
36	840	42.33	78.86			78. (1)				
37	840	42.03	78.43			89. (1)				
38	860	40.74	73.42	24. (1)	6. (1)	73. (1)				
39	860	42.94	76.53	60. (1)	13. (1)	164. (1)				
40	1000	42.48	79.33	76. (1)		91. (1)				
41	1000	42.09	79.29	68. (1)	11. (1)	74. (1)				
42	1000	42.53	79.21	140. (1)						
43	1000	42.50	79.32			146. (1)				
44	1000	42.09	79.23	176. (1)						
45	1000	42.10	79.24	178. (1)						

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
46 *	1000	36.72	78.90		55. (1)	17. (1)	102. (1)			
47	1000	42.10	79.24				152. (1)			
48	1000	42.10	79.25	110. (1)	18. (1)	196. (2)	63. (2)			
49	1000	42.54	79.17				35. (1)			
50	1000	42.54	79.17				99. (1)			
51	1060	42.11	76.80						5. (1)	263. (4)
52	1060	42.09	76.80				167. (1)			
53	1060	42.16	76.82				89. (1)			
54	1060	42.14	76.93				94. (1)			
55	1080	42.32	75.77				70. (1)	32. (1)		
56	1080	42.53	75.53				70. (1)	35. (1)		
57	1120	44.51	73.50				96. (1)			
58	1120	44.70	73.47				64. (1)			
59	1220	42.24	73.64				70. (1)			
60	1220	42.13	73.89				82. (1)			
61	1220	42.24	73.64	68. (1)	15. (1)					
62	1220	42.24	73.76	86. (1)	17. (1)	102. (1)				
63	1400	42.71	76.03			86. (1)				
64	1400	42.60	76.16			100. (1)	42. (1)			
65	1400	42.60	76.18			111. (1)				
66 *	1520	0.0	0.0			82. (1)				
67	1520	42.27	74.92			118. (1)	48. (1)			
68	1620	41.54	73.95			110. (1)	41. (1)			
69	1620	41.93	73.91			92. (1)				
70	1620	41.66	73.78	71. (1)	18. (1)	71. (1)				
71	1620	41.56	73.96	153. (1)						
72	1620	41.54	73.95	100. (1)	24. (1)					
73	1620	41.72	73.94	121. (1)	43. (1)	144. (1)				
74	1620	42.11	73.96			113. (1)				
75	2000	42.64	78.54	73. (1)	14. (1)	107. (1)	37. (1)			
76	2000	42.97	78.63			128. (1)	38. (1)			
77	2000	42.58	79.02			112. (1)				
78 *	2000	0.0	0.0			111. (1)				
79	2000	42.98	78.87	110. (1)	24. (1)	129. (1)				
80	2000	42.82	78.84		71. (2)	317. (3)	107. (4)			
81	2000	42.90	78.66			116. (1)				
82	2000	42.83	78.85			449. (4)				
83	2000	42.83	78.82	105. (1)	32. (1)	176. (1)				
84	2000	42.82	78.84	363. (2)	45. (1)					
85	2000	42.92	78.70			136. (1)	49. (1)			
86 *	2000	42.90	84.75	84. (1)	31. (1)	142. (1)				
87 *	2000	42.93	84.80			168. (1)	69. (2)			
88 *	2000	42.86	84.86			192. (1)				

Table continued on next page

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
89 *	2000	42.86	84.83			236. (2)				
90	2000	42.93	78.89			153. (1)				
91	2000	42.89	78.88	182. (1)	54. (1)	195. (1)		49. (1)	10. (3)	
92	2000	42.85	78.83	100. (1)		214. (2)				
93 *	2000	42.88	84.81	297. (2)	68. (2)			64. (1)		8423. (4)
94	2000	42.80	78.83			130. (1)				
96	2000	42.91	78.84			112. (1)	66. (2)			
97	2000	42.91	78.84	102. (1)	29. (1)	117. (1)				
99 *	2000	42.88	84.81	298. (2)	71. (2)	189. (1)			12. (3)	
100 *	2000	42.87	84.83	288. (2)	84. (3)	183. (1)				
101 *	2000	42.92	85.82	79. (1)	21. (1)	106. (1)				
102	2000	42.91	78.84	74. (1)	35. (1)					
103	2000	42.99	78.77	68. (1)	27. (1)	165. (1)				404. (4)
104	2000	42.99	78.77			154. (1)				
105	2000	42.49	78.47	73. (1)	21. (1)	127. (1)				
106	2000	42.90	78.72	63. (1)	23. (1)	117. (1)				
107	2000	43.00	78.90			405. (4)				
108	2000	43.00	78.83	84. (1)	26. (1)	130. (1)				
109	2000	42.98	78.94			96. (1)				
110	2000	42.98	78.91			208. (2)				
112	2000	42.86	78.74			134. (1)				
113	2000	42.83	78.77			142. (1)				
114	2000	43.00	78.90	260. (1)	63. (2)					
115	2020	44.29	73.99			91. (1)				
116	2020	44.05	73.48			44. (1)	23. (1)			
117	2020	44.36	73.91							174. (3)
118	2020	44.03	73.42	45. (1)	10. (1)					
119	2020	44.39	73.91			39. (1)				
120	2020	43.84	73.43			60. (1)	31. (1)			
121 *	2240	44.85	80.30			92. (1)	29. (1)			
122	2240	44.25	74.50			86. (1)				
123	2240	44.33	74.14			130. (1)				
124	2340	43.01	74.38			106. (1)				
125 *	2340	0.0	0.0			71. (1)				
126	2400	43.01	78.18	5. (1)		97. (1)				
127	2660	42.21	73.87			74. (1)	35. (1)			
128	2660	42.13	73.92			181. (1)	62. (2)			
129	2820	43.41	74.28			36. (1)	14. (1)			
130	2960	43.03	74.98			93. (1)	40. (1)			
131 *	2960	0.0	0.0			76. (1)				
132	2960	42.96	74.37			37. (1)				
133	2960	43.01	75.01			74. (1)	35. (1)			
134	3340	43.98	75.62			70. (1)				
136	3340	44.00	76.36	44. (1)	15. (1)	79. (1)	22. (1)			

Table II.16 (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CCDE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
137	3340	43.97	75.91			110. (1)	38. (1)			
138	3440	40.62	73.98	132. (1)		129. (1)	57. (2)			
139	3440	40.65	73.92	89. (1)		153. (1)	61. (2)			
140	3440	40.63	74.04	195. (1)		117. (1)	59. (2)			
141	3440	40.59	73.94	100. (1)		163. (1)	62. (2)		7. (1)	
142	3440	40.74	73.99			139. (1)	71. (2)			
143	3440	40.73	73.95			168. (1)	73. (2)			9. (2)
144	3440	40.74	73.99	163. (1)					11. (3)	
145	3440	40.67	73.98	136. (1)		111. (1)	52. (1)		11. (3)	
146	3440	40.65	74.01	106. (1)		165. (1)	77. (3)			
147	3440	40.73	73.95	175. (1)						
148	3440	40.68	73.83	84. (1)		143. (1)	65. (2)			
149	3440	40.68	73.92	52. (1)		154. (1)	66. (2)			
150	3440	40.67	73.98					79. (2)		
151	3740	43.77	75.48			93. (1)	38. (1)			
152	3880	42.80	77.79			92. (1)				
153	4040	42.82	75.55			59. (1)				
154	4040	43.09	75.66			93. (1)				
155	4040	43.08	75.75			69. (1)				
156 *	4380	0.0	0.0						5880. (4)	
157	4380	43.13	77.56			112. (1)				
158	4380	43.16	77.60	118. (1)	48. (1)	110. (1)	68. (2)			
159	4380	43.16	77.60	113. (1)	34. (1)	132. (1)				
161	4380	43.21	77.95			48. (1)				
162	4380	43.13	77.56	68. (1)	20. (1)					
163 *	4380	0.0	0.0			112. (1)				
164	4380	43.20	77.64	102. (1)	32. (1)	132. (1)				
165	4380	43.16	77.59	73. (1)	24. (1)	129. (1)				
166	4380	43.19	77.63	100. (1)	28. (1)	117. (1)	58. (2)			
167	4380	43.11	77.41			88. (1)	35. (1)			
168	4380	43.17	77.63	94. (1)	23. (1)	129. (1)				
171	4380	43.20	77.58			130. (1)				
172	4380	43.29	77.80			87. (1)				
173	4380	43.12	77.84	50. (1)	11. (1)	89. (1)				
174	4380	43.20	77.58	97. (1)	25. (1)					
175	4380	42.95	77.59	50. (1)	8. (1)	81. (1)				
176	4380	43.29	77.80	39. (1)	10. (1)					
177	4380	43.14	77.66			121. (1)				
178 *	4380	0.0	0.0					43. (1)		
179	4380	43.24	77.65	105. (1)	28. (1)	91. (1)				
181	4380	43.20	77.60	92. (1)	28. (1)	105. (1)				
182 *	4380	0.0	0.0	153. (1)	52. (1)				9. (2)	
183	4380	43.17	77.58			123. (1)				
184	4380	43.14	77.66	86. (1)	17. (1)					

Table continued on next page

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
185	4380	43.21	77.43	42. (1)	9. (1)	81. (1)				
186	4400	42.93	74.18			50. (1)				
187	4400	42.93	74.18			100. (1)				
183 *	4400	0.0	0.0			37. (1)				
189	4520	40.76	73.57	92. (1)	16. (1)	98. (1)				
190	4520	40.78	73.45	52. (1)	17. (1)	109. (1)				
191 *	4520	0.0	0.0	73. (1)	17. (1)	99. (1)				
192	4520	40.67	73.46	73. (1)	16. (1)	104. (1)				
193	4520	40.80	73.65	71. (1)	21. (1)					
194	4520	40.66	73.65	79. (1)	24. (1)	107. (1)				
195	4520	40.66	73.57	92. (1)	20. (1)	91. (1)				
196	4520	40.74	73.64	92. (1)	21. (1)	93. (1)				
197	4520	40.86	73.63	84. (1)	21. (1)	131. (1)				
198	4520	40.62	73.73	97. (1)	23. (1)	122. (1)				
199	4520	40.75	73.59	143. (1)	34. (1)	112. (1)		58. (1)	17. (4)	6860. (4)
200	4520	40.63	73.71	79. (1)	18. (1)	94. (1)				
201	4520	40.69	73.71	100. (1)	21. (1)	118. (1)				
202	4520	40.62	73.64	60. (1)	18. (1)	126. (1)				
203	4520	40.80	73.70	86. (1)	22. (1)	92. (1)	46. (1)			
204	4520	40.81	73.76	65. (1)	16. (1)	91. (1)	43. (1)			
206	4660	40.59	73.94			111. (1)				
207	4660	40.82	73.95			112. (1)				
208	4660	40.59	73.94	151. (1)						
209	4660	40.72	74.00					106. (3)	23. (4)	
211	4660	40.77	73.97	205. (1)					9. (2)	
213	4660	40.80	73.94			198. (2)	89. (3)		11. (3)	
215	4660	40.80	73.94	141. (1)	63. (2)	126. (1)	86. (3)			
216	4660	40.80	73.94	257. (1)						
217	4660	40.82	73.95	218. (1)						
218	4660	40.77	73.94			161. (1)	70. (2)			
220	4660	40.77	73.97			129. (1)				
222	4660	40.75	73.98			142. (1)	65. (2)			
223	4660	40.73	74.01	125. (1)		127. (1)	62. (2)	133. (4)	23. (4)	
224	4660	40.76	73.96						41. (4)	
225	4660	40.75	73.98						27. (4)	
229	4660	40.73	73.98							431. (4)
230	4660	40.77	73.94	204. (1)	60. (1)			70. (1)	7. (1)	384. (4)
232	4720	43.09	78.99	345. (2)	79. (2)					353. (4)
234	4720	43.10	79.06	129. (1)	51. (1)	148. (1)	69. (2)			
235	4720	43.10	79.06	141. (1)	42. (1)					
236	4720	43.09	78.99			221. (2)			12. (3)	
237	4720	43.07	79.00	181. (1)	61. (2)					
238	4720	43.13	79.04			166. (1)				
240	4720	43.10	79.02			183. (1)				

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
241	4720	43.08	79.00			230. (2)				
243	4720	43.04	78.87			132. (1)				
244 *	4720	43.03	84.86			141. (1)				
245	4720	43.06	78.85	94. (1)	31. (1)	123. (1)				
246	4720	43.04	78.87	147. (1)	53. (1)					
247	4720	43.07	78.94	115. (1)	38. (1)	112. (1)				
248	4720	43.09	78.99		61. (2)			56. (1)		
249	4720	43.21	78.47			147. (1)				
250	4720	43.14	78.84			110. (1)				
251	4720	43.21	78.47	79. (1)	28. (1)					
252	4720	43.10	79.06			146. (1)				
254	4720	43.23	78.98			27. (1)				
255	4720	43.26	79.06			103. (1)				
256	4720	43.14	78.84	79. (1)	25. (1)					
258 *	4720	43.03	84.86	147. (1)	45. (1)					
259 *	4720	0.0	0.0	89. (1)	28. (1)	148. (1)				
260	4720	43.17	79.04	110. (1)	26. (1)	146. (1)				
261	4720	43.18	78.67			118. (1)				
262	4720	43.15	78.69			111. (1)				
263	4720	43.18	78.67	113. (1)	30. (1)					
264	4720	43.17	78.70	94. (1)	33. (1)	114. (1)				
265	4720	43.19	78.64			150. (1)				
266	4720	43.18	78.69			123. (1)				
267	4720	43.17	78.70	102. (1)	30. (1)	130. (1)				
268	4720	43.18	78.68			134. (1)				
269	4740	43.11	78.96			120. (1)				
270	5060	43.48	75.34			67. (1)	32. (1)			
272	5060	43.09	75.23			101. (1)				
274	5060	43.12	75.29			155. (1)	50. (1)			
276	5060	43.10	75.20					44. (1)		225. (4)
277	5060	43.27	75.24			160. (1)				
279	5060	43.27	75.24	45. (1)	20. (1)	144. (1)	72. (2)			
281	5060	43.10	75.20	108. (1)	28. (1)	82. (1)			7. (1)	
283	5060	43.10	75.20	74. (1)	24. (1)					
284	5060	43.22	75.46			101. (1)				
285	5100	43.06	76.18	211. (1)	39. (1)				9. (2)	
286	5100	43.05	76.15	129. (1)	40. (1)	192. (1)		63. (1)	11. (3)	223. (4)
287	5100	43.07	76.15			107. (1)				
288	5100	43.07	76.13			97. (1)				
289	5100	43.06	76.18			194. (1)		58. (1)		220. (4)
290	5100	43.06	76.15			204. (2)				
291	5100	43.04	76.13			96. (1)				
292	5100	43.05	76.15	36. (1)		141. (1)				

Table continued on next page

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
293	5100	43.05	76.13			179. (1)				
295	5100	43.05	76.47			113. (1)				
296	5100	43.06	76.08			192. (1)				
297	5100	43.06	76.08			77. (1)				
298	5100	43.23	76.14			121. (1)				
299	5100	43.07	76.08			134. (1)				
300	5100	43.10	76.15			144. (1)				
301	5100	43.09	76.18			92. (1)				
302	5100	43.09	76.10			117. (1)				
303	5100	43.04	76.08			124. (1)				
304	5100	42.95	76.43			127. (1)				
305	5100	43.07	76.21			267. (3)				
306	5100	43.05	76.13			134. (1)	61. (2)			
308	5120	42.87	76.98			88. (1)				
309 *	5120	42.89	83.29			87. (1)	41. (1)			
310	5140	41.46	74.36			216. (2)	84. (3)			
311	5140	41.50	74.02			129. (1)				
312	5180	43.22	78.39			80. (1)	31. (1)			
313	5180	43.24	78.20			116. (1)	34. (1)			
314	5240	43.45	76.51			81. (1)				
315	5240	43.45	76.50	50. (1)	8. (1)	82. (1)				
316	5240	43.45	76.51	181. (1)	35. (1)					
317	5240	43.32	76.41			66. (1)				
318	5260	42.45	75.06			103. (1)	58. (2)			
319	5260	42.69	74.91			63. (1)	30. (1)			
320	5640	41.37	73.66			115. (1)	41. (1)			
321	5640	41.37	73.97			91. (1)	42. (1)			
322	5660	40.78	73.89	248. (1)		275. (3)	96. (4)			
324	5660	40.60	73.85			100. (1)				
325	5660	40.75	73.87			134. (1)	63. (2)			
326	5660	40.60	73.85	181. (1)						
327	5660	40.67	73.76			120. (1)	51. (1)			
328	5660	40.66	73.84			133. (1)	57. (2)			
330	5660	40.71	73.91			60. (1)	67. (2)			
331	5660	40.75	73.87			162. (1)				
332	5660	40.74	73.82			115. (1)	50. (1)	64. (1)	13. (4)	
333	5660	40.73	73.75			136. (1)	62. (2)			
334	5660	40.71	73.83			89. (1)				
336	5660	40.75	73.91	41. (1)		130. (1)	73. (2)			
337	5660	40.77	73.78			122. (1)	48. (1)			
338	5660	40.73	73.74	69. (1)		114. (1)	59. (2)			
339	5660	40.77	73.78	128. (1)						
340	5700	42.63	73.75	162. (1)	40. (1)	102. (1)		30. (1)	6. (1)	272. (4)

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
341	5700	42.53	73.76			82. (1)	45. (1)			
342	5700	42.77	73.43			75. (1)	32. (1)			
343	5700	42.63	73.74			94. (1)	44. (1)			
345	5700	42.63	73.75	73. (1)	18. (1)					
346	5700	42.90	73.35			134. (1)	64. (2)			
347	5700	42.63	73.75			94. (1)				
348	5720	40.63	74.18	212. (1)		141. (1)	72. (2)			
349	5720	40.64	74.08	164. (1)		139. (1)	68. (2)			
351	5720	40.58	74.20	108. (1)		221. (2)	82. (3)			
353	5720	40.58	74.10			142. (1)	64. (2)			
354	5720	40.59	74.13	143. (1)		123. (1)	60. (2)	6. (1)		
356	5720	40.51	74.24	189. (1)		107. (1)	53. (1)			
357	5720	40.58	74.10	138. (1)						
358	5780	41.15	73.99			92. (1)	43. (1)			
359	5780	41.15	73.99	34. (1)	8. (1)					
360	5780	41.04	73.95			97. (1)	46. (1)			
361	5780	41.12	74.16			113. (1)				
362	5780	41.21	74.00	55. (1)	16. (1)	125. (1)				
363	5780	41.09	73.93	81. (1)	15. (1)					
364	5930	44.70	75.50			128. (1)				
365	5930	44.94	74.87			63. (1)	26. (1)			
366	5930	44.93	74.89			59. (1)				
367 *	5965	0.0	0.0			70. (1)				
368	5965	43.08	73.79			84. (1)	43. (1)			
369	6040	42.81	73.94			145. (1)				
370	6040	42.83	73.93			123. (1)	55. (1)			
371	6040	42.81	73.94	121. (1)	27. (1)					
372	6040	42.80	73.94	130. (1)	38. (1)			33. (1)	13. (4)	227. (4)
373	6040	42.81	73.89			104. (1)	48. (1)			
375	6040	42.74	74.18			61. (1)				
377 *	6060	0.0	0.0			46. (1)				
378	6060	42.69	74.36			84. (1)	34. (1)			
379	6080	42.34	76.85			136. (1)	50. (1)			
380	6160	42.91	76.80			83. (1)	46. (1)			
381	6500	42.14	77.05			105. (1)				
382	6500	42.33	77.66			30. (1)				
383 *	6580	38.12	73.29	47. (1)	15. (1)					
384	6580	40.94	73.07			103. (1)	44. (1)			
385	6580	40.95	73.08			81. (1)	36. (1)			
386	6580	40.74	73.41							455. (4)
387	6580	40.74	73.42			114. (1)				
388	6580	40.74	73.41	139. (1)	28. (1)			6. (1)		
389	6580	40.92	73.13			84. (1)				
390	6580	40.78	73.26			92. (1)				

Table continued on next page

Table II.16. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR			
391	6580	40.79	73.00			91.	(1)						
392	6580	40.91	72.67			57.	(1)						
393	6580	41.07	71.89	18.	(1)								
395	6580	40.84	73.28			94.	(1)						
396 *	6580	0.0	0.0	34.	(1)	13.	(1)						
397	6580	40.91	72.66	68.	(1)	75.	(1)						
398	6580	41.05	71.96			40.	(1)						
399	6700	42.10	76.27			95.	(1)						
400	6720	42.45	76.50			82.	(1)						
401	6840	41.61	74.12			85.	(1)						
402	6840	41.72	74.39			75.	(1)						
403	6840	41.94	73.99	89.	(1)	28.	(1)	43.	(1)				
404	6840	42.28	73.99	187.	(1)	48.	(1)	31.	(1)	8.	(2)	284.	(4)
405	6840	41.93	74.02			69.	(1)						
406	6840	42.29	74.08			107.	(1)						
407	7040	43.32	73.62			99.	(1)	49.	(1)				
408	7040	43.31	73.65			124.	(1)						
409	7040	43.32	73.62	172.	(1)	27.	(1)	27.	(1)			188.	(3)
410	7100	43.30	73.58			95.	(1)	42.	(1)				
411	7100	43.27	73.59			52.	(1)						
412	7240	43.05	77.10			110.	(1)	50.	(1)				
413	7320	40.91	73.78			122.	(1)						
414	7320	40.91	73.84	162.	(1)	107.	(1)						
415	7320	40.93	73.68			145.	(1)						
416	7320	41.00	73.67			109.	(1)						
417	7320	41.29	73.92			142.	(1)						
418	7320	41.00	73.67	134.	(1)	30.	(1)						
419	7320	41.16	73.86			107.	(1)						
420	7320	41.08	73.86			109.	(1)						
421	7320	41.31	73.71			80.	(1)						
422	7320	41.27	73.80			87.	(1)						
423	7320	41.09	73.81	113.	(1)	22.	(1)						
425	7320	41.03	73.77	113.	(1)	31.	(1)	113.	(1)				
426	7320	41.05	73.81	58.	(1)	17.	(1)	159.	(1)				
427	7320	41.31	73.71	79.	(1)								
428	7320	40.93	73.90	44.	(1)	122.	(1)	74.	(2)				
429	7320	40.94	73.74	92.	(1)	33.	(1)						
430	7320	40.93	73.90			168.	(1)						
432	7320	40.93	73.77	95.	(1)	24.	(1)						
433	7580	42.53	78.43			112.	(1)	43.	(1)				
434	7580	42.75	78.13	100.	(1)	109.	(1)						
435	7580	42.86	78.26			82.	(1)	33.	(1)				
436	7600	42.67	77.09			80.	(1)	33.	(1)				

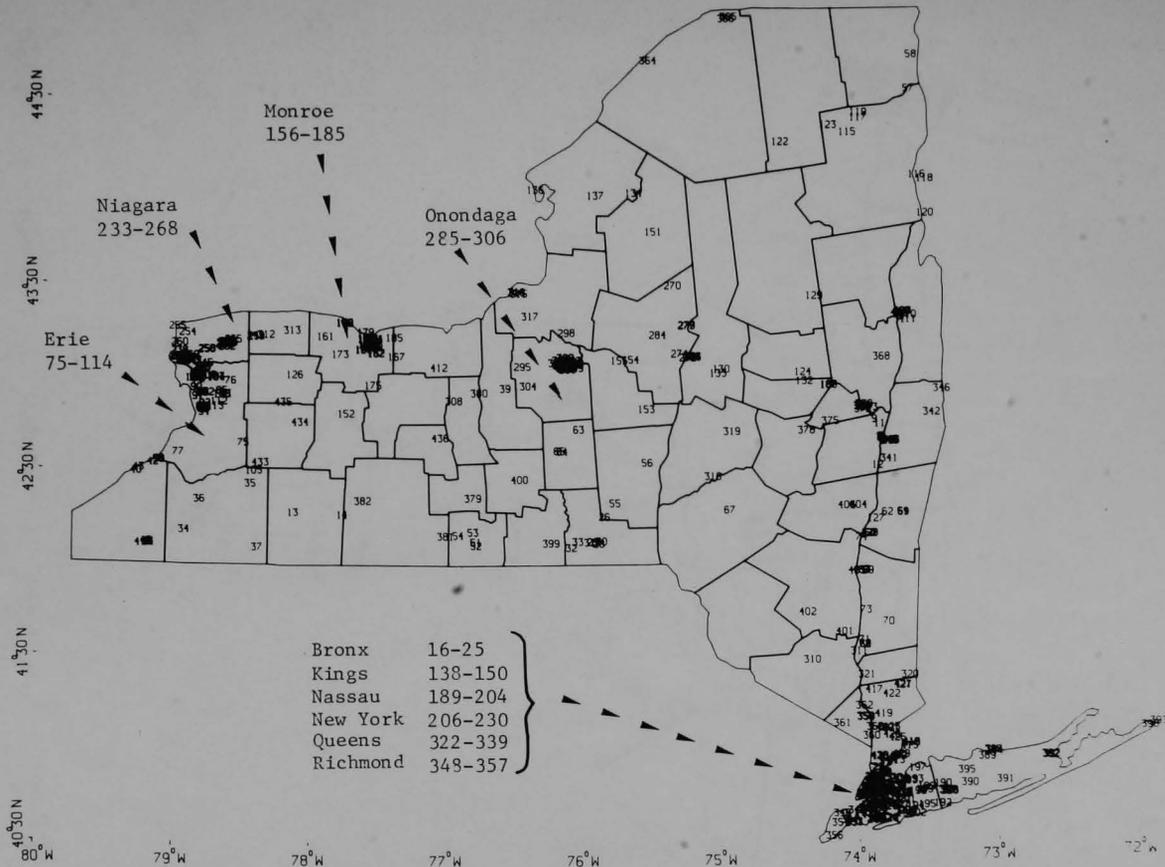


Fig. II.96. New York: Locations of SAROAD Monitors (See Table II.16 for Monitor Numbers)

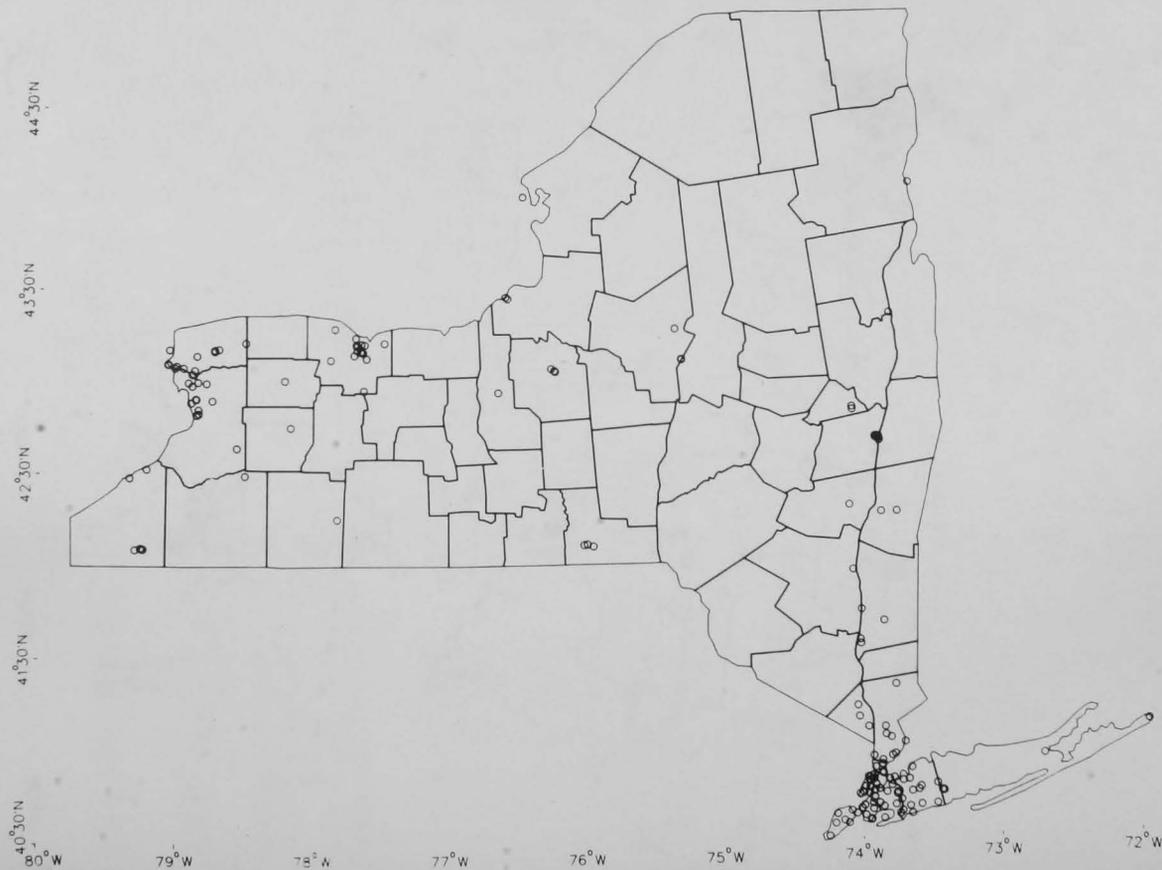


Fig. II.97. New York: Monitors Reporting Adequate Data on 24-hr Average SO₂; No Violations

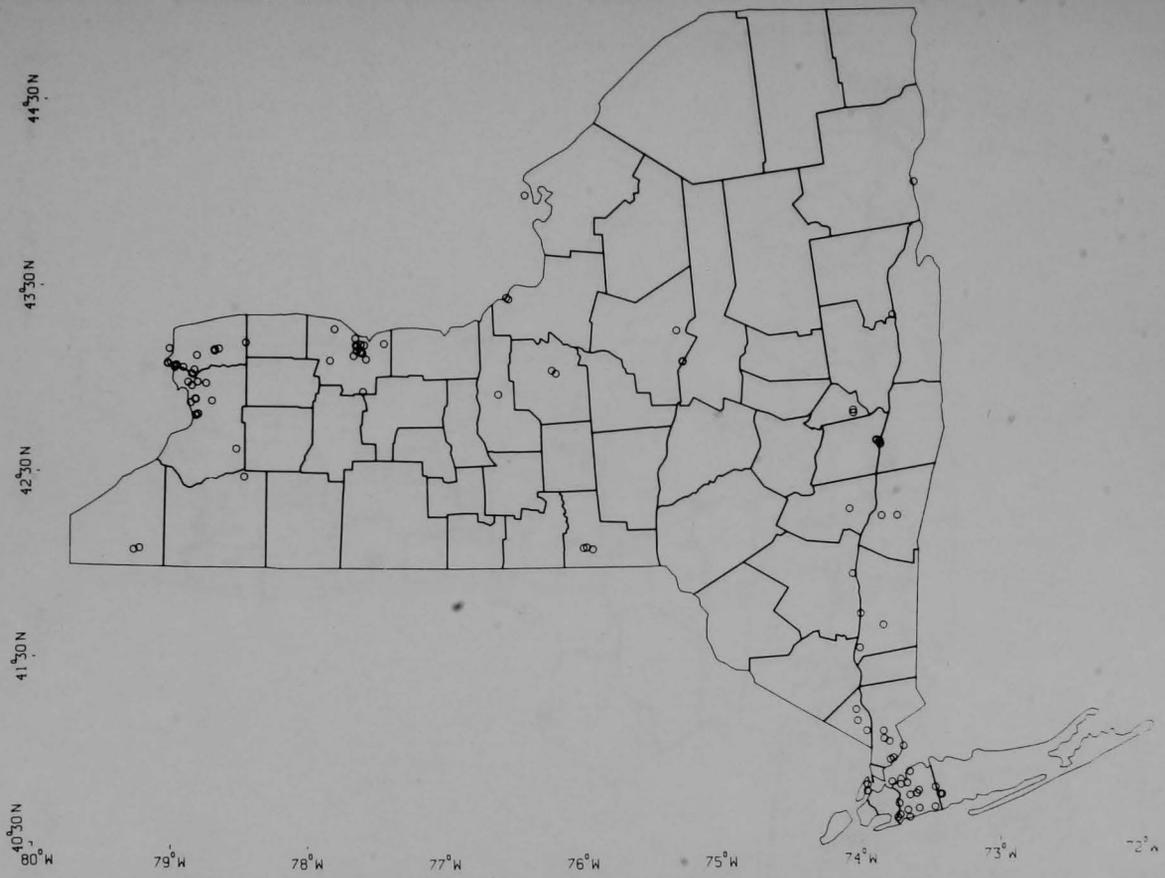


Fig. II.98. New York: Monitors Reporting Adequate Data on Annual Average SO₂; No Violations

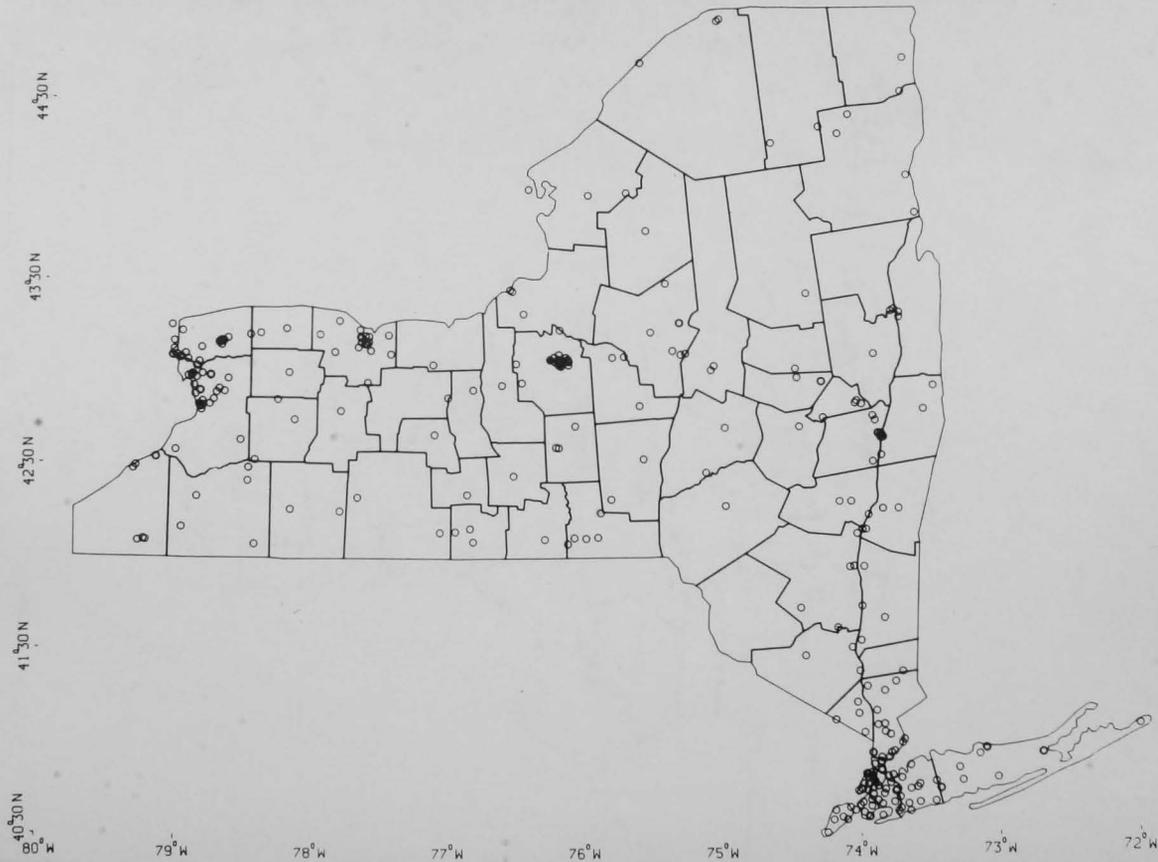


Fig. II.99. New York: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown



Fig. II.100. New York: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles



Fig. II.101. New York: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown

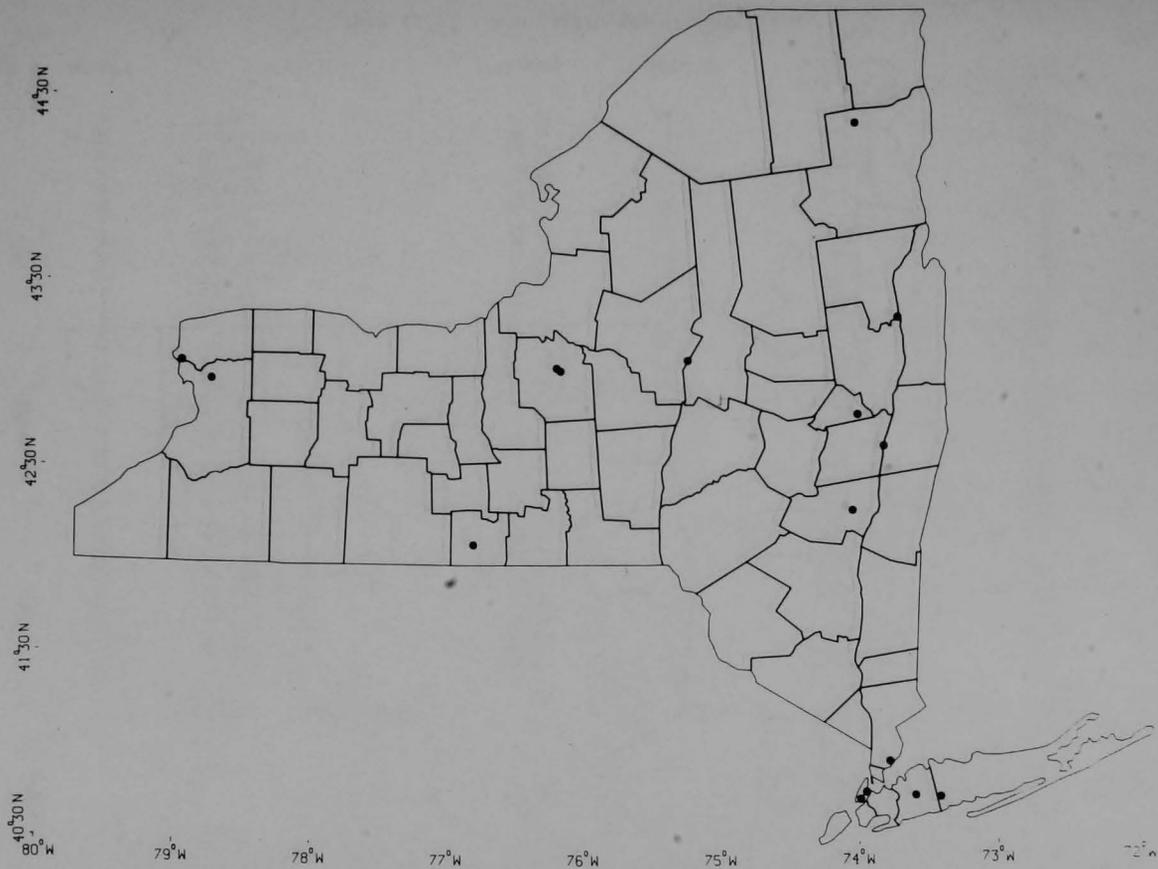


Fig. II.102. New York: Monitors Reporting Adequate Data on 1-hr Average Ox; Violations Shown by Shaded Circles

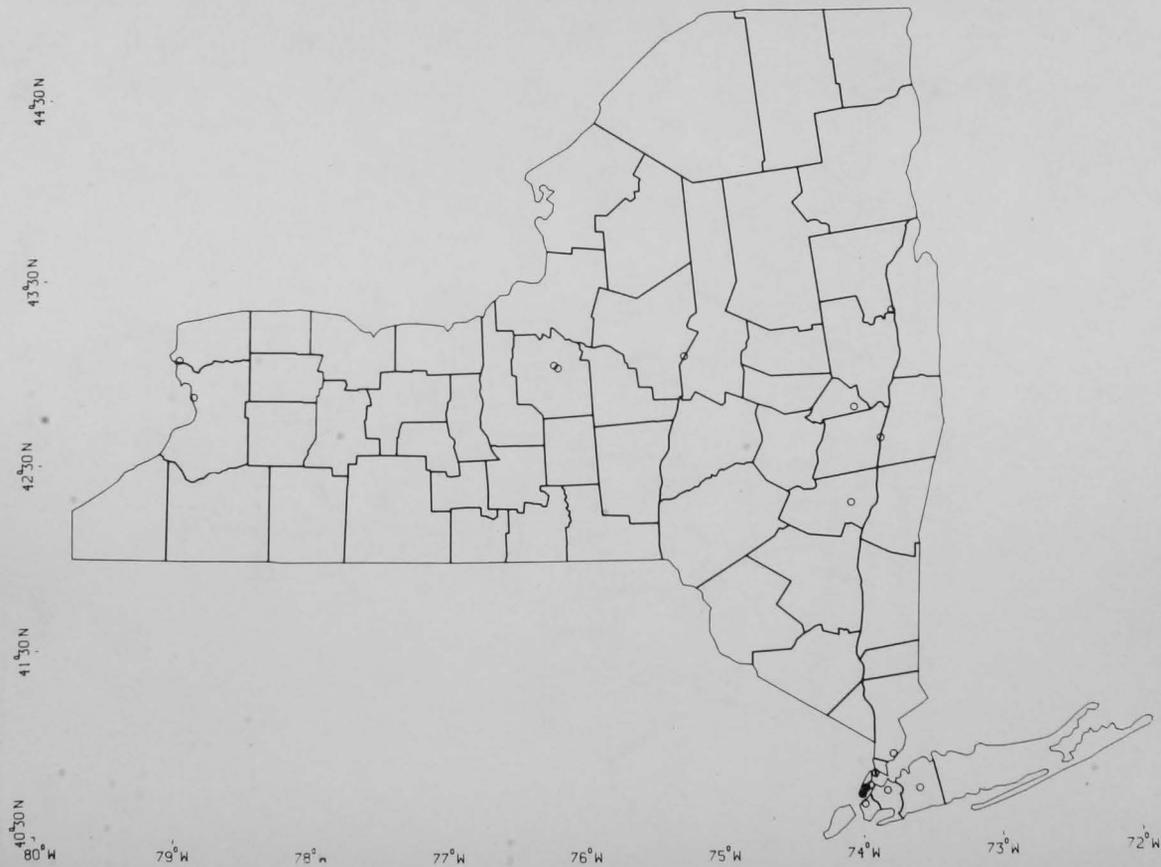


Fig. II.103. New York: Monitors Reporting Adequate Data on Annual Average NO_x Violations Shown

Table II.17. New York: Power Plant Data

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	ALBANY	42.59	73.76	400.00	400.00
2	ARTHUR KILL	40.59	74.20	911.70	0.0
3	ASTORIA	40.79	73.91	1550.60	0.0
4	BARRETT	40.62	73.65	375.00	0.0
5	BOHLINE	41.20	73.96	1242.00	0.0
6	DANSKAMMER	41.57	73.96	531.91	336.40
7	DUNKIRK	42.49	79.34	628.00	0.0
8	EAST RIVER	40.73	73.97	512.50	0.0
9	FAR ROCKAWAY	40.61	73.76	113.64	0.0
10	GLENWOOD	40.83	73.65	330.27	0.0
11	GOUDY	42.11	75.97	103.75	0.0
12	GREENIDGE	42.68	76.95	178.80	0.0
13	HICKLING	42.12	76.99	70.00	0.0
14	HOLBROOK (GT)	40.87	72.85	0.0	0.0
15	HUDSON AVENUE	40.70	73.98	700.00	0.0
16	HUNTLEY	42.97	78.93	828.00	0.0
17	N INDIAN POINT	41.27	73.94	1298.04	0.0
18	JENNISON	42.28	75.48	60.00	0.0
19	LOVETT	41.26	73.93	495.12	0.0
20	HILLIKEN	42.60	76.63	270.00	0.0
21	N NINE-MILE-POINT	43.43	76.15	610.00	0.0
22	NORTHPORT	40.92	73.34	1161.27	0.0
23	OSHEGO	43.43	76.53	1225.00	0.0
24	FORT JEFFERSON	40.95	73.08	467.00	0.0
25	RAVENSWOOD	40.76	73.95	1227.70	0.0
26	N* ROCHESTER 13	0.0	0.0	490.00	0.0
27	ROCHESTER 3	43.16	77.62	196.20	0.0
28	ROCHESTER 7	43.27	77.63	252.60	0.0
29	ROBETON 1&2	41.55	73.99	1242.00	0.0
30	SHOREHAM (GT)	40.87	72.85	32.00	0.0
31	WATERSIDE	40.75	73.97	657.25	0.0
32	59TH ST	40.77	73.99	134.50	0.0
33	74TH STREET	40.77	73.95	209.00	0.0

N NUCLEAR * NOT PLOTTED

Table II.18. New York: Fuel Use Data

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	ALBANY	0.0	0.0	2.67	3533.00	0.0
2	ARTHUR KILL	0.0	0.0	0.29	4997.00	0.0
3	ASTORIA	0.0	0.0	0.28	8503.60	1503.90
4	BARRETT	0.0	0.0	0.30	3061.00	894.00
5	BOHLINE	0.0	0.0	0.31	9081.50	15.37
6	DANKAMMER	0.0	0.0	1.99	3597.00	21.40
7	DUNKIRK	2.37	1347.00	0.0	0.0	0.0
8	EAST RIVER	0.0	0.0	0.28	1312.60	1344.50
9	FAR ROCKAWAY	0.0	0.0	0.30	602.00	195.00
10	CLEWODD	0.0	0.0	0.30	1361.00	166.00
11	GOODEY	1.53	365.70	0.25	9.50	0.0
12	GREENIDGE	1.68	473.90	0.30	69.30	0.0
13	HICKLING	1.28	308.10	0.0	0.0	0.0
14	HOLBROOK (GT)	0.0	0.0	0.0	0.0	0.0
15	HUDSON AVENUE	0.0	0.0	0.28	1250.00	0.0
16	HUNTLEY	2.44	1742.00	0.0	0.0	0.0
17	N INDIAN POINT	0.0	0.0	0.0	0.0	0.0
18	JENNISON	1.79	194.20	0.0	0.0	0.0
19	LOVETT	0.0	0.0	0.33	2374.23	2950.10
20	MILLIKEN	1.86	818.30	0.32	8.90	0.0
21	N NINE-MILE-POINT	0.0	0.0	0.0	0.0	0.0
22	NORTHPORT	0.0	0.0	2.45	10950.00	0.0
23	OSWEGO	0.0	0.0	2.55	2442.00	0.0
24	PORT JEFFERSON	0.0	0.0	2.11	4140.00	0.0
25	RAVENSWOOD	0.0	0.0	0.27	13242.40	355.70
26	N* ROCHESTER 13	0.0	0.0	0.0	0.0	0.0
27	ROCHESTER 3	1.84	177.73	1.83	900.41	0.0
28	ROCHESTER 7	2.03	496.53	0.27	3.43	0.0
29	ROSETON 1&2	0.0	0.0	2.03	7824.00	0.0
30	SHOREHAM (GT)	0.0	0.0	0.0	0.0	0.0
31	WATERSIDE	0.0	0.0	0.28	2645.60	5524.90
32	59TH ST	0.0	0.0	0.30	1425.80	13.10
33	74TH STREET	0.0	0.0	0.28	680.80	0.0

N NUCLEAR * NOT PLOTTED

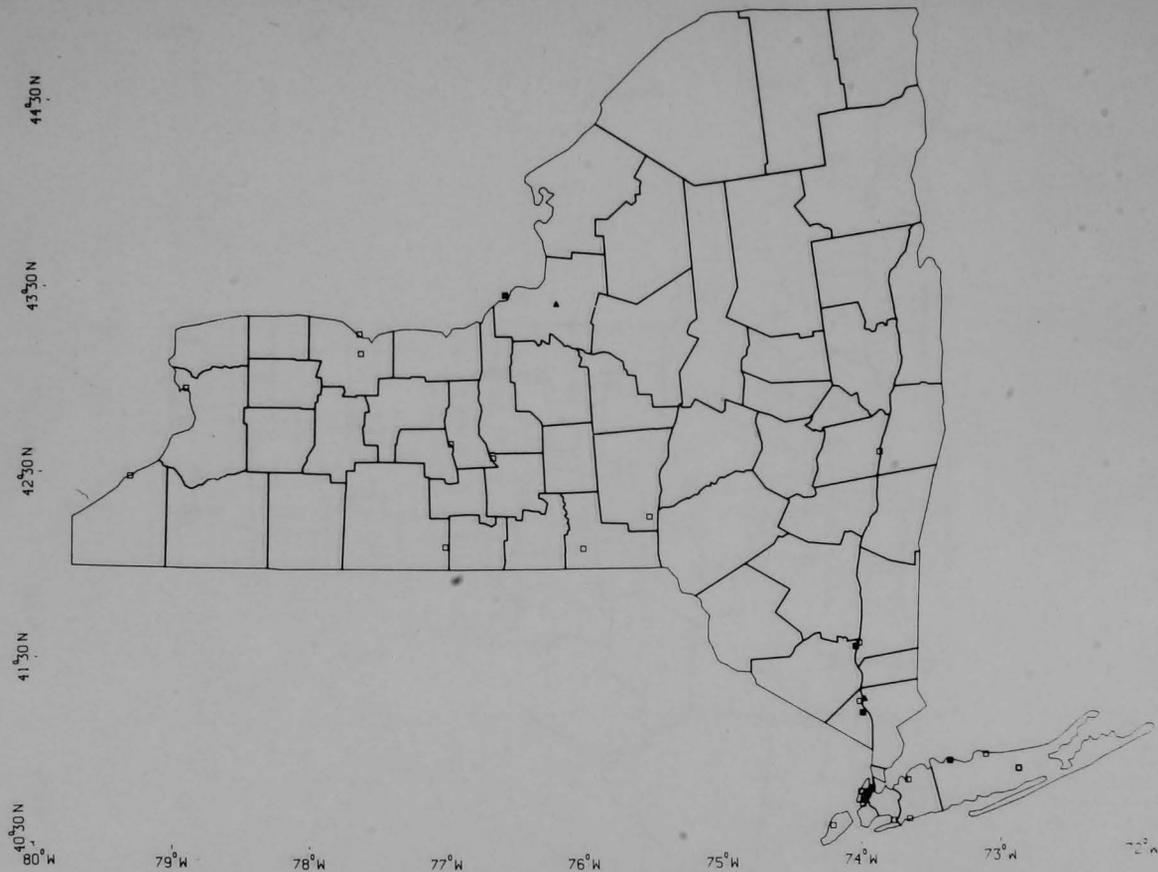


Fig. II.104. Power Plant Locations (Square = Fossil Fuel: Shaded, > 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

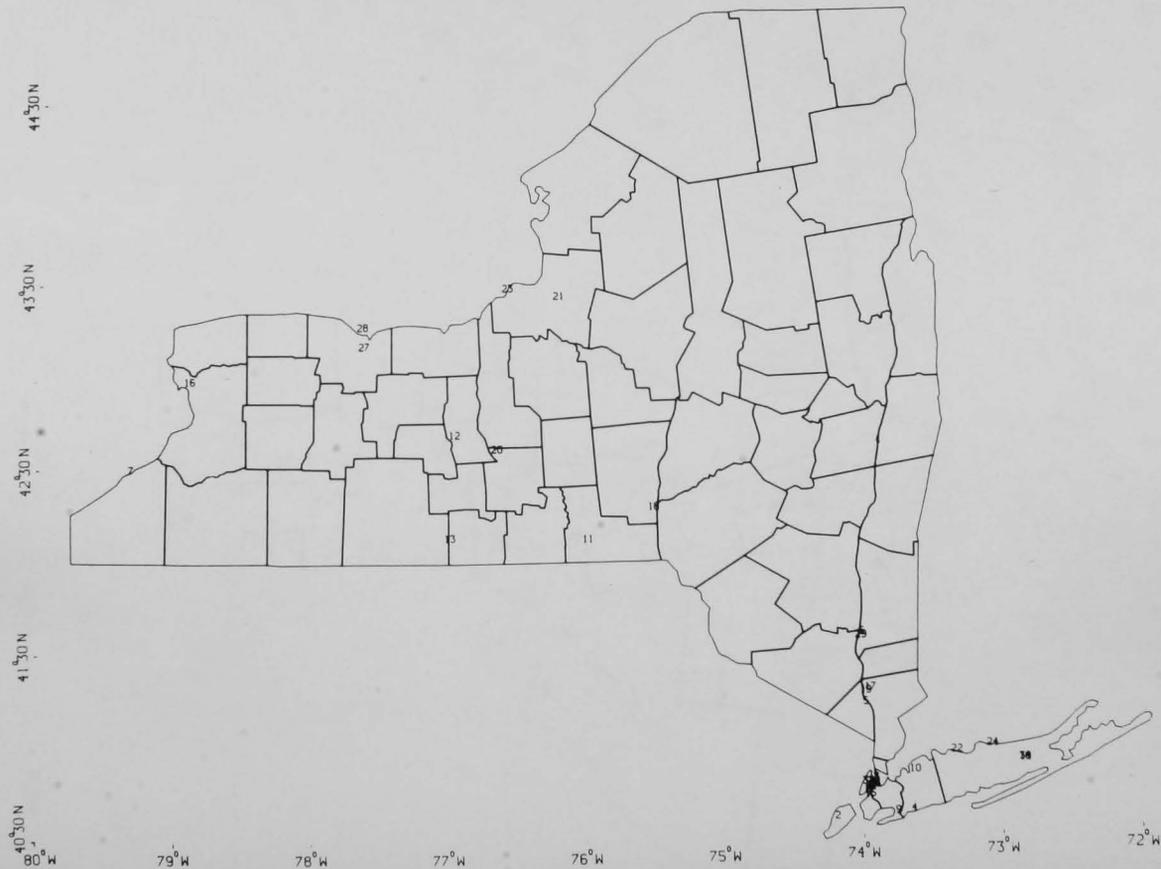


Fig. II.105. Power Plant Key (See Table II.17 and II.18 for Identification and Fuel Use Data)

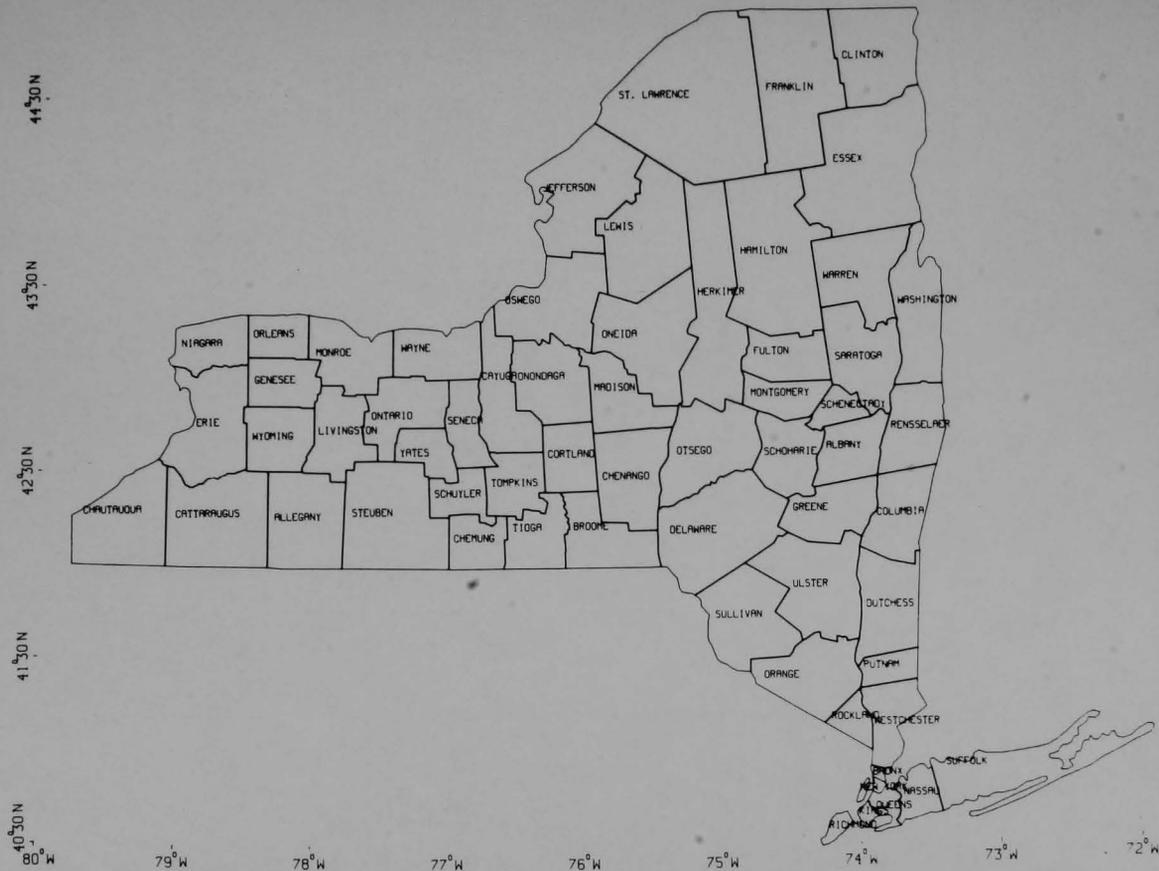


Fig. II.106. New York: Key to Counties

Federal Region III
Covering the States of:

Delaware

Maryland

Pennsylvania

Virginia

West Virginia

REGION III: DELAWARE

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr }	0 ^b	0	17	0
	1 yr }			7	0
TSP	24 hr }	0 ^b	0	18	0
	1 yr }			13	1
NO _x	1 yr	0 ^b	-	0 ^b	0
CO	8 hr	0 ^b	-	0 ^b	0
O _x	1 hr	1	-	0 ^b	0

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	4
Nuclear	0
Total	4

DELAWARE: Official SIP, 4/79

I. SOURCES OF THE PROBLEM

Delaware only has one nonattainment problem -- ozone. Only New Castle County has been designated nonattainment, but the state expects that a more adequate monitoring network will reveal other nonattainment areas.

In New Castle County, 37% of the VOC emissions in the base year (1976) resulted from mobile sources. Stationary-source emissions were from refineries, petroleum storage and marketing, chemical manufacturing, automobile surface coating, and industrial degreasing.

II. ATTAINMENT STRATEGIES

A. Ozone

1. RACT for the processes noted above
2. The implementation of the following transportation control measures:
 - a. Vehicle inspection and maintenance
 - b. Ride-sharing pilot program
 - c. A service standards study for Delaware Area Rapid Transit (DART)
 - d. DART marketing study
 - e. Demonstration project of coordinated traffic signals
 - f. Staggered and flexible work hours
 - g. Land use planning
 - h. Bicycle measures
 - i. Control of extended idling by allowing right turn on red
3. Extension to 1987 requested

III. NEW SOURCE REVIEW

Delaware will probably use a growth allowance for new sources of VOC, with an emission-offset policy (in keeping with EPA's policy) as a backup if the growth allowance is inadequate.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. New sources (constructed after 8/71)
 - a. New Castle County: 0.8 lb of SO₂ per MM Btu of fuel input
 - b. Kent and Sussex Counties: 1.2 lb of SO₂ per MM Btu
2. Existing sources
 - a. New Castle: 1% limit on sulfur in fuel
 - b. No limits for other counties

B. TSP

1. Existing sources with fuel input greater than 1 MM Btu/hr:
0.3 lb of PM per MM Btu

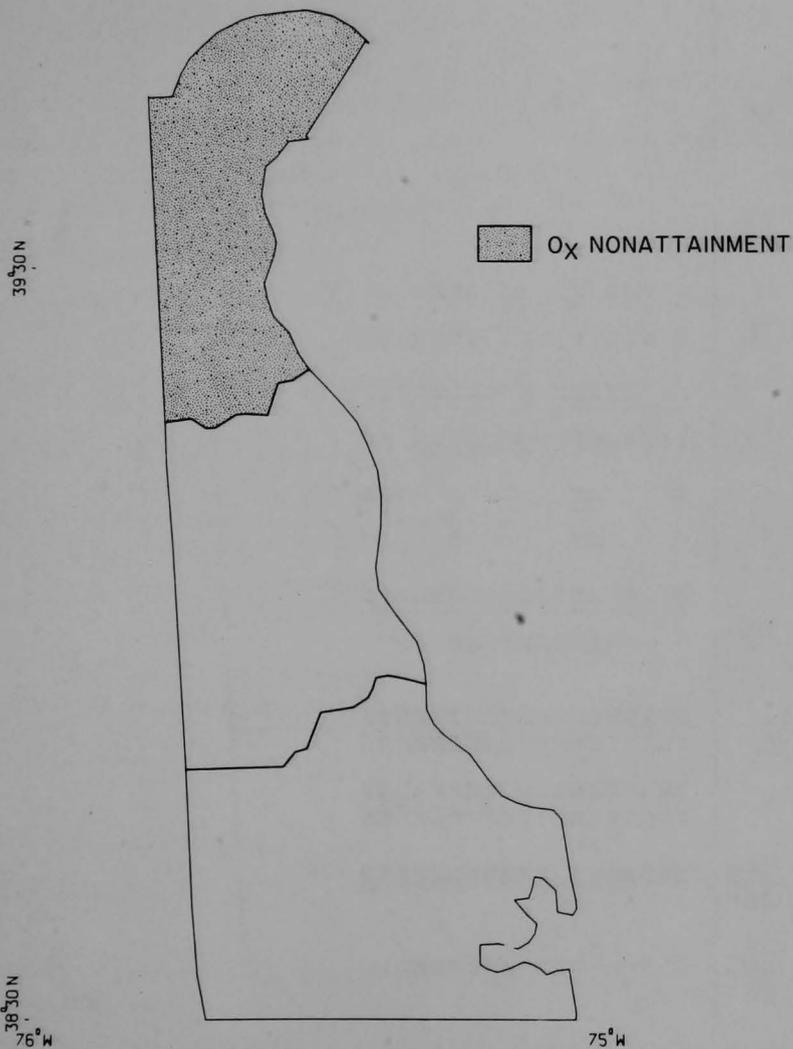


Fig. III.107. Delaware: O_x Nonattainment Areas as Designated May 1979

Table III.19. Delaware: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	60	39.15	75.50	3. (1)	3. (1)	92. (1)	40. (1)			
2	60	39.26	75.47			34. (1)				
5	180	39.67	75.62			104. (1)	44. (1)			
6	180	39.74	75.62	26. (1)		84. (1)	41. (1)			
7	180	39.77	75.52	31. (1)		104. (1)	41. (1)			
8 *	180	39.81	75.45	40. (1)	15. (1)	135. (1)				
9	180	39.65	75.55	26. (1)	14. (1)	95. (1)	45. (1)			
10	180	39.67	75.74	28. (1)		155. (1)	66. (2)			
11 *	180	0.0	0.0	25. (1)		98. (1)				
13	180	39.72	75.52	23. (1)		243. (2)	91. (3)			
14	180	39.73	75.55	26. (1)	14. (1)	125. (1)	67. (2)			
16	180	39.57	75.63	19. (1)		68. (1)				
17	180	39.78	75.54	28. (1)		103. (1)	47. (1)			
18	180	39.70	75.68	23. (1)	14. (1)	105. (1)	52. (1)			
19	180	39.53	75.67	21. (1)		131. (1)	50. (1)			
20	180	39.57	75.58	50. (1)		83. (1)	38. (1)			
21	180	39.67	75.62	28. (1)						
22	240	38.64	75.60	3. (1)	3. (1)	74. (1)	42. (1)			
23	240	38.92	75.40	3. (1)	3. (1)	70. (1)				

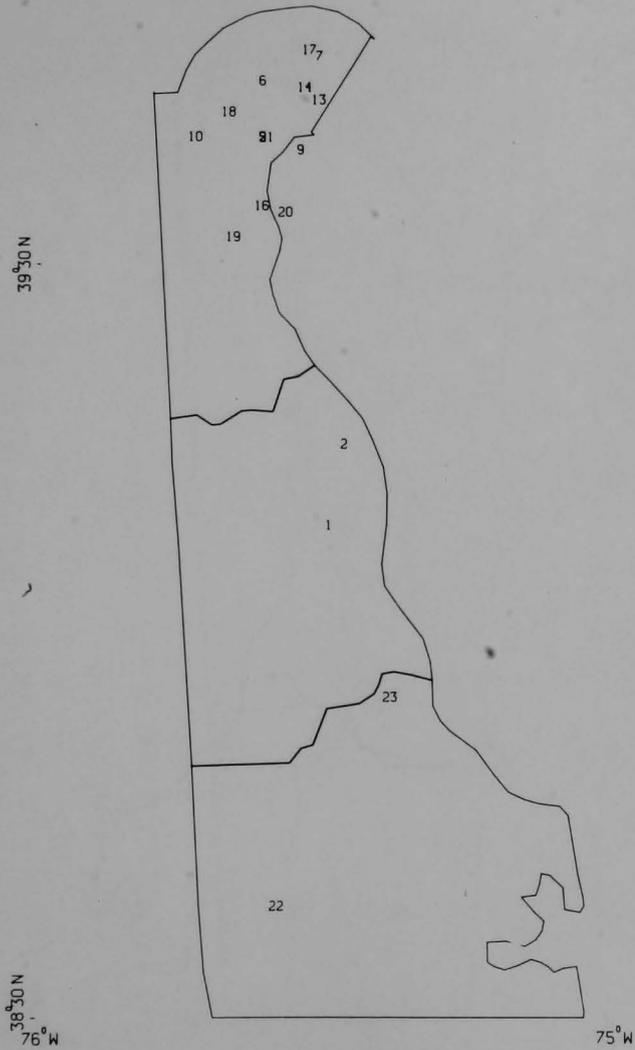


Fig. III.108. Delaware: Locations of SAROAD Monitors (See Table III.19 for Monitor Numbers)

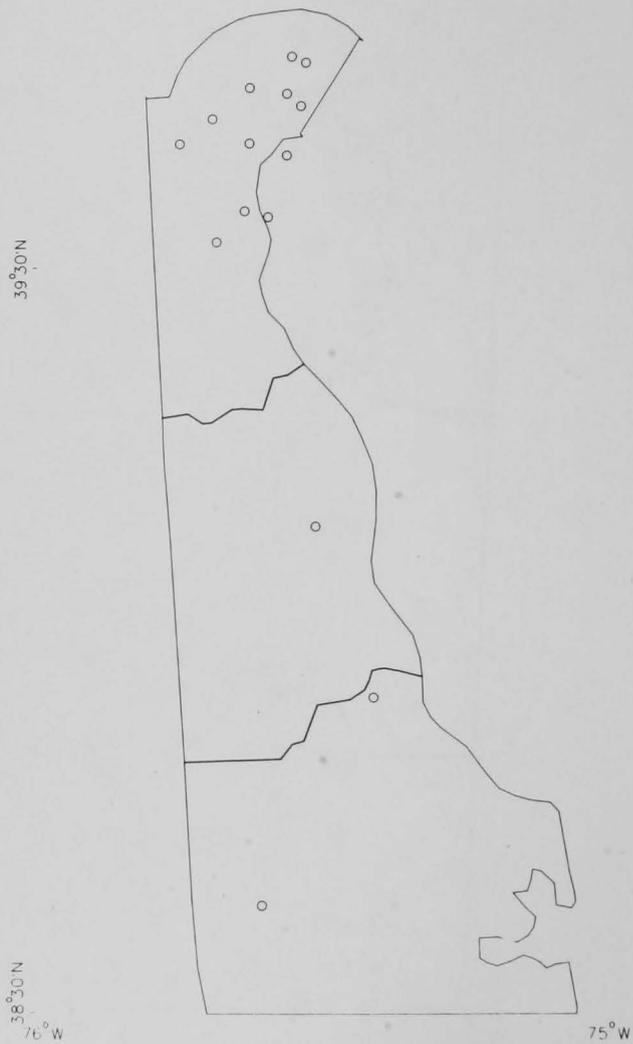


Fig. III.109. Delaware: Monitors Reporting Adequate Data on 24-hr Average SO_2 ; No Violations

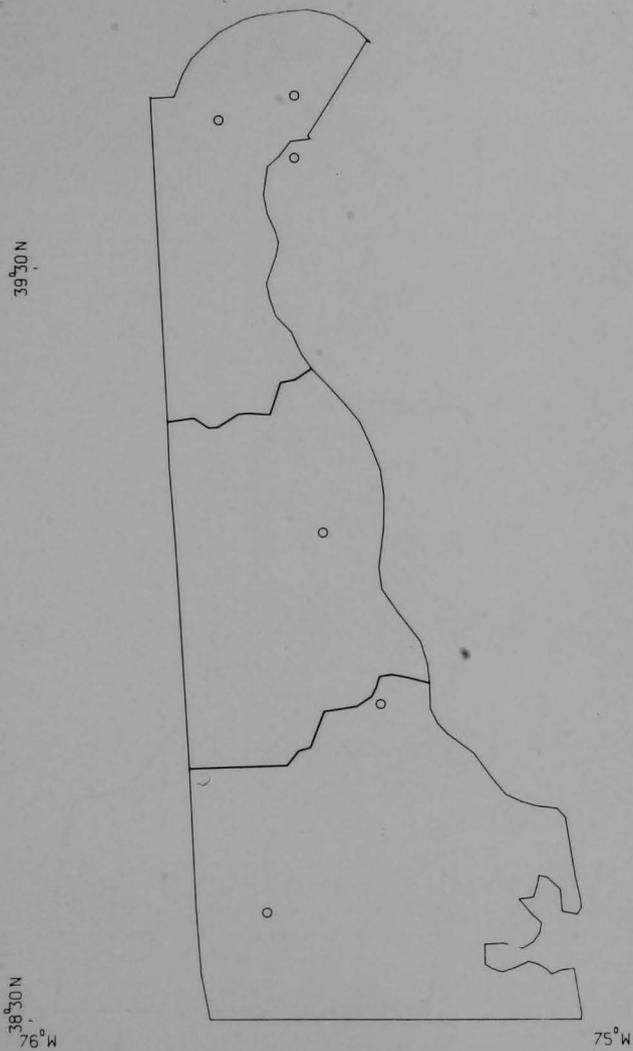


Fig. III.110. Delaware: Monitors Reporting Adequate Data on Annual Average SO_2 ; No Violations

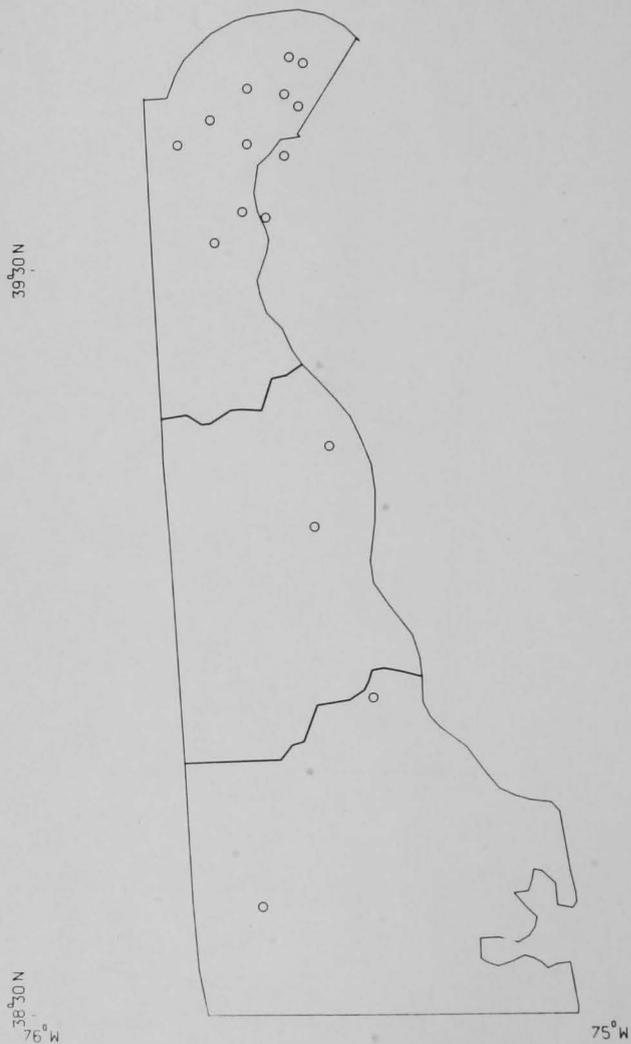


Fig. III.111. Delaware: Monitors Reporting Adequate Data on 24-hr Average TSP; No Violations

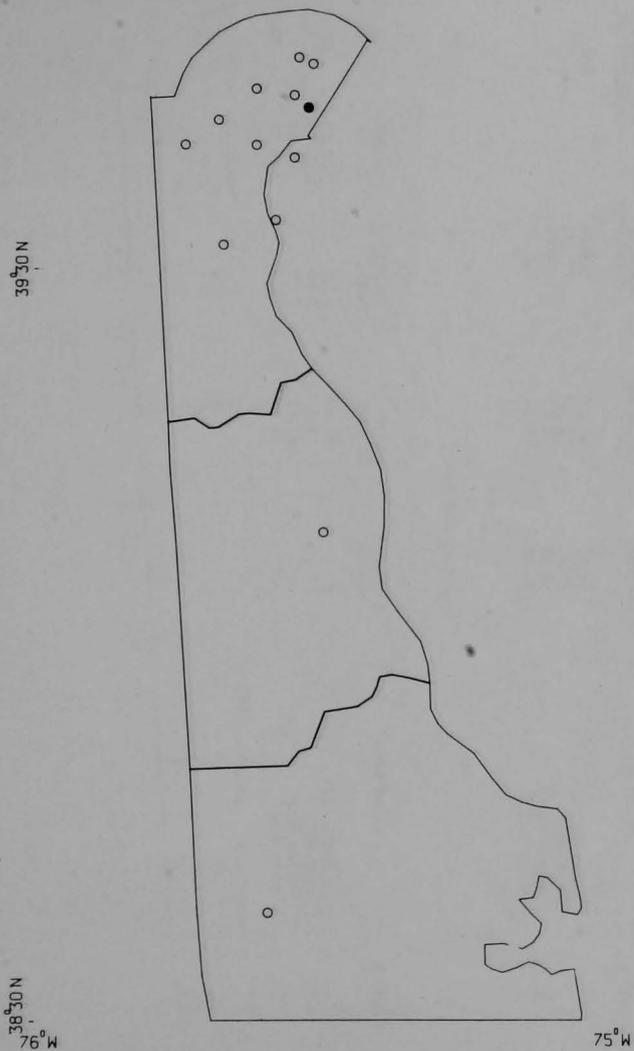


Fig. III.112. Delaware: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

Table III.20. Delaware: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	DELAWARE CITY	39.59	75.63	130.00	0.0
2	EDGE MOOR	39.74	75.50	775.10	357.00
3	INDIAN RIVER	38.58	75.23	340.00	0.0
4	MCKEE RUN	39.17	75.54	172.00	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	DELAWARE CITY	8.14	177.60	0.79	1302.60	4480.60
2	EDGE MOOR	0.0	0.0	0.80	4435.40	107.96
3	INDIAN RIVER	2.12	903.00	0.35	83.00	0.0
4	MCKEE RUN	0.0	0.0	1.71	605.00	249.00

N NUCLEAR * NOT PLOTTED)

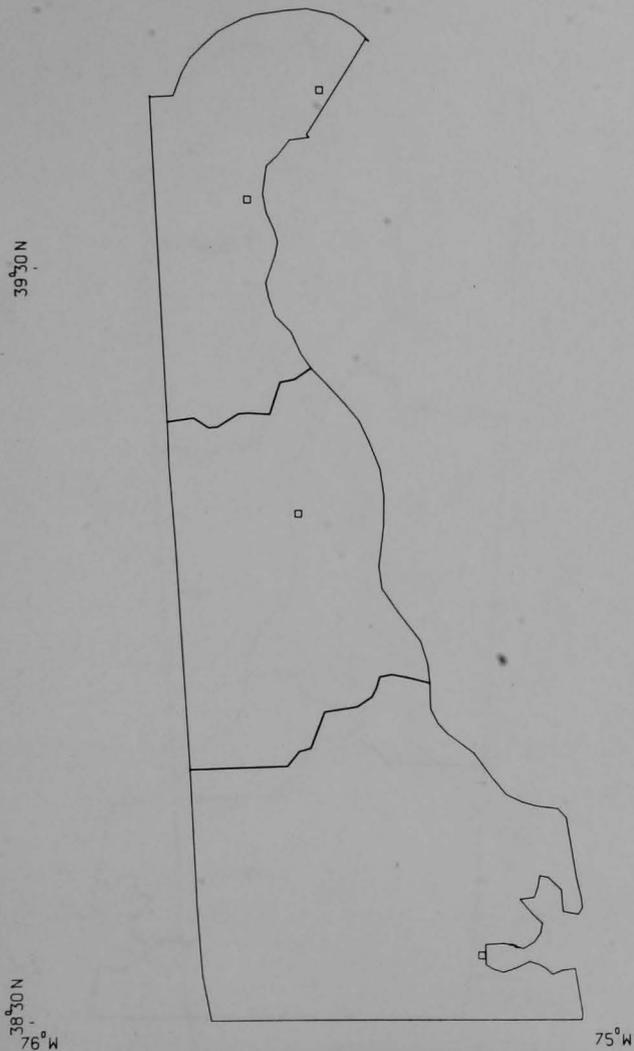


Fig. III.113. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open < 1000 MW. Triangle = Nuclear)

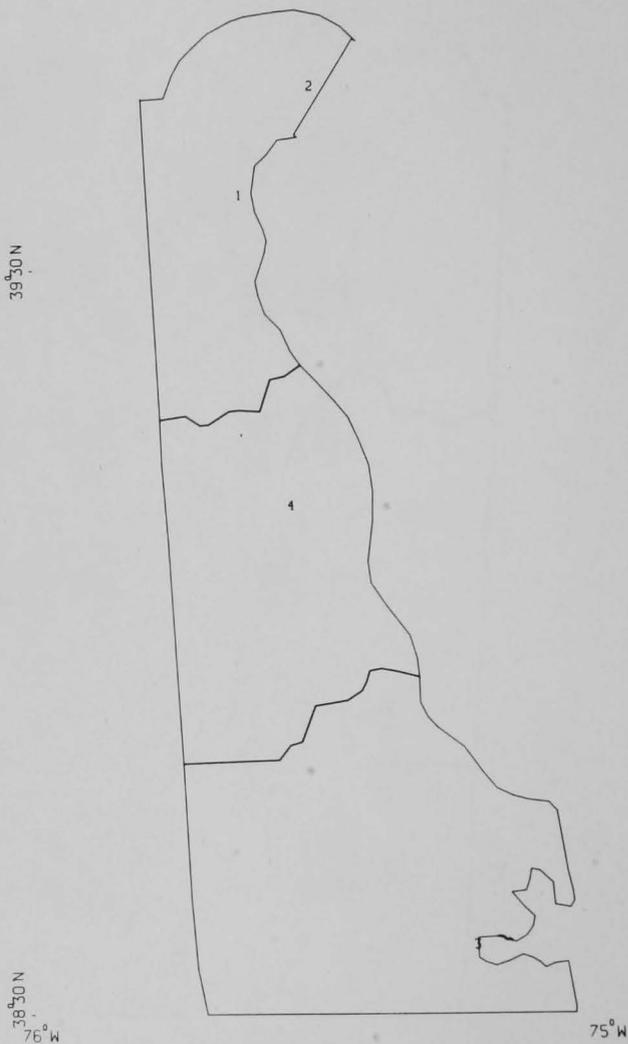


Fig. III.114. Power Plant Key (See Table III.20 for Identification and Fuel Use Data)

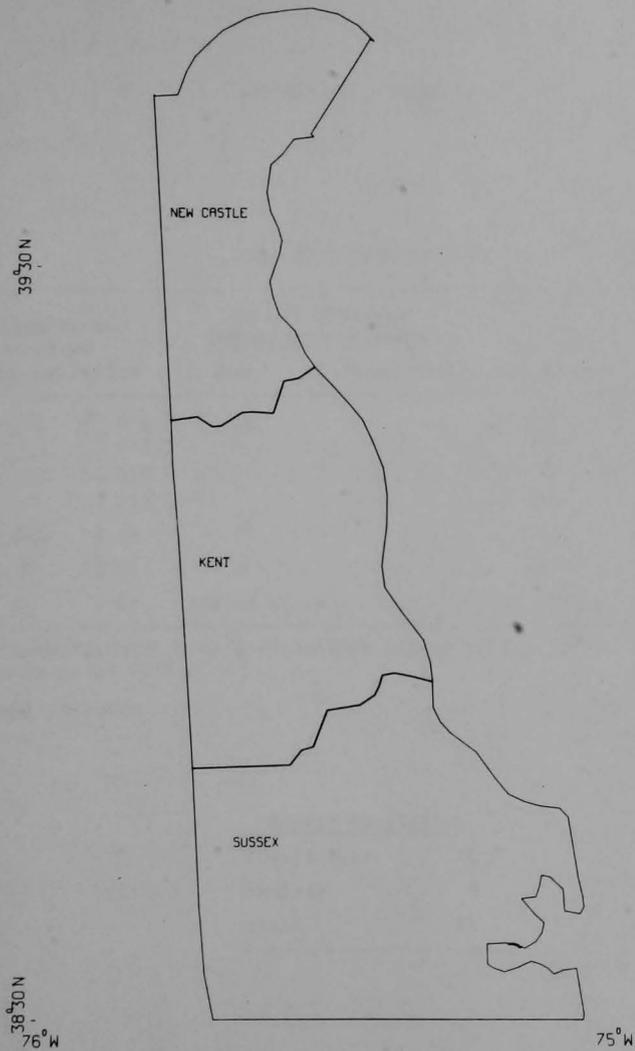


Fig. III.115: Delaware: Key to Counties

REGION III: MARYLAND

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr }	0 ^b	0	73	0
	1 yr }			48	0
TSP	24 hr }	2	1	73	2
	1 yr }			65	8
NO _x	1 yr	0 ^b	-	52	0
CO	8 hr	4	-	25	12
O _x	1 hr	1/2 of state	-	12	11

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

Energy Facilities	
Fossil Fuel	11
Nuclear	1
Total	12

MARYLAND: Official SIP, 1/79

I. SOURCES OF THE PROBLEM

Maryland's Metropolitan Baltimore Intrastate Air Quality Control Region (AQCR) and the National Capital Interstate AQCR are nonattainment areas for O_x . The high-density traffic areas of the two regions are nonattainment areas for CO. A portion of the Metropolitan Baltimore Intrastate AQCR was designated as nonattainment for total suspended particulates (TSP). The Metropolitan Baltimore Intrastate AQCR is composed of Baltimore City and the counties of Anne Arundel, Baltimore, Carroll, Harford, and Howard. The Maryland portion of the National Capital Interstate AQCR includes Montgomery and Prince George's counties.

In addition to the two major metropolitan areas, the Maryland portion of the Cumberland-Keyser Interstate AQCR also contains areas designated as nonattainment. Hagerstown and Cumberland were both designated as nonattainment areas for CO. The SIP to meet the CO standard for these cities indicates that the Federal Motor Vehicle Emission Control Program (FMVECP) alone will be sufficient. Election District No. 8 (Luke and Westernport) was designated nonattainment for TSP; however, no SIP revision will be submitted for this area. The state has been in continuous dialogue with EPA concerning this designation. The state contends that insufficient air monitoring data exist for this designation and that the area should be considered unclassified. Likewise, no SIP will be submitted addressing EPA's designation of the AQCR as nonattainment for O_x . The state contends that transported oxidants cause the air quality violations and that transportation control measures would be ineffective in this predominantly rural area. Furthermore, the AQCR contains no major stationary sources of oxidant precursors (volatile organic compounds-VOC) for which EPA control technology guidelines have been published, and therefore no new regulations are necessary at this time.

A study of Baltimore concluded that 50% of the sampled TSP was mineral, likely the result of wind-and-vehicle-generated dust from gravel and dirt road surfaces. The other 50% of the sampled material was attributed to traditional stationary sources and to fugitive emissions from industrial processes and grain-loading operations. In Baltimore, fugitive dust sources were ranked as: dirt roads, gravel roads, active construction sites,

storage piles, wind erosion, railroads, and roads. The SIP suggests that by using a variety of fugitive dust controls (see below), TSP levels in Baltimore can be reduced by 50%.

Over 70% of the ozone nonattainment is assumed to be the result of emissions from motor vehicles in the Baltimore and Washington, D.C., metropolitan areas. Carbon monoxide nonattainment in the Cumberland and Hagerstown area, Baltimore, and in D.C., is due to motor vehicle emissions.

II. ATTAINMENT STRATEGIES

A. TSP

1. No SIP revision for Election District No. 8 at this time -- state insists area should be unclassified
2. Traditional stationary sources
 - a. Already controlled or under compliance schedules
 - b. No further controls to be required
3. Controls on fugitive particulate matter
 - a. Gravel and dirt roads
 - paving will reduce dust emissions by over 99%
 - applying water
 - oiling and double-chip surfacing
 - control speeds
 - stabilize road shoulders
 - decrease multi-wheeled truck traffic
 - b. Construction sites
 - apply water to exposed soil
 - reduce activity (not explained in SIP)
 - c. Waste disposal sites
 - keeping material wet
 - covered or enclosed hauling
 - revegetation of sites
 - using spray during dumping

d. Storage piles

- enclosing piles
- chemically wetting
- water spraying during loading

e. Wind erosion

- reduce surface wind speed across a source by windbreaks, enclosures, covers
- cover fine tailings with rock or soil
- water exposed surface

f. Railroads

- cover open-top cars
- oil shoulders of the tracks

g. Paved roads

- keep roads in good repair
- use concrete rather than asphalt
- regular street cleaning
- add curbs

B. Ozone

1. RACT on emitters of VOC
2. Federal Motor Vehicle Emissions Control Program for autos
3. No provision for Cumberland-Keyser Interstate AQCR since there are no major sources and the area is rural
4. Request extension of attainment deadline to 1987 -- an auto inspection and maintenance program is in the planning stage

C. CO

1. Baltimore and Washington, D.C.
 - a. FMVECP
 - b. Transportation control measures
 - incentives for high-occupancy vehicles
 - park-and-ride lots
 - improved rail transit
 - carpooling and vanpooling
 - bus service improvements

- traffic-flow improvements
 - restrictions on on-street parking
 - reduction of extended idling
 - encouragement of bicycling
 - Baltimore includes land use control and a vigorous public education program
- c. Inspection and maintenance of vehicles
 - d. Request for extension to 1987
 - e. Cumberland and Hagerstown will reach attainment on the basis of the FMVECP alone

III. NEW SOURCE REVIEW

Maryland plans to use the EPA emission offset policy to accommodate growth in nonattainment areas.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. Baltimore Metropolitan area, Washington Metropolitan area and Cumberland/Keyser area
 - a. Limits on sulfur in fuel:
 - solid fuel: 1% sulfur
 - distillate oil: 0.3% sulfur
 - residual oil: 1.0% sulfur (after 7/1/80, 0.5%)
 - b. If stack-gas cleaning is used:
 - maximum SO₂ emission: 1.6 lb of SO₂ per MM Btu of fuel input
 - approximately equal to emissions from 1%-sulfur fuel
 - c. Prohibit construction of solid-fuel-burning SO₂ sources with fuel input less than 50 MM Btu/hr
 - relax previous prohibition on sources smaller than 250 MM Btu/hr
2. Central and South Maryland and Eastern Shore
 - a. Limits on sulfur in fuel
 - solid fuel: 2.0% sulfur

- b. If stack-gas cleaning is used:
 - maximum SO₂ emission: 3.5 lb of SO₂ per MM Btu of fuel input
 - approximately equivalent to emissions from 2.0%-sulfur fuel
- B. TSP
1. Baltimore Metropolitan area and Washington Metropolitan area
 - a. Emission limit for sources using 250 MM Btu/hr or less:
 - 0.05 grains per dry standard cubic foot (after 7/1/75)
 - b. For sources using more than 250 MM Btu/hr:
 - 0.03 grains per dry standard cubic foot (after 10/1/72)

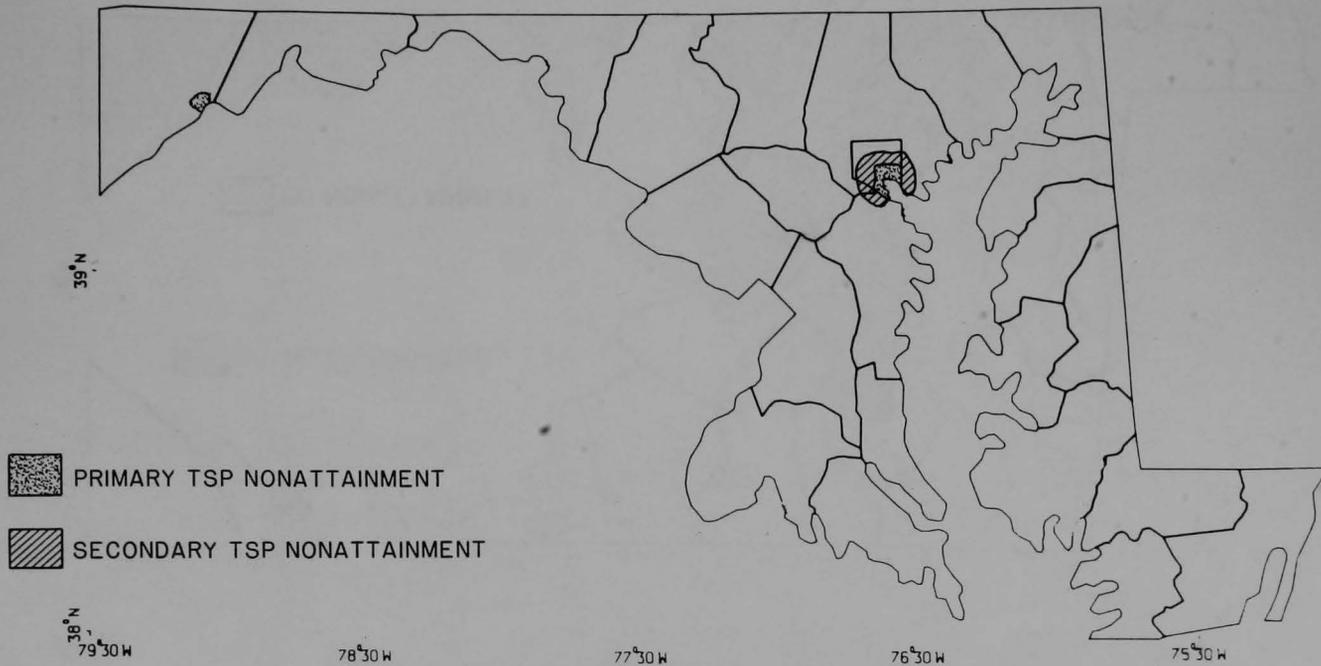


Fig. III.116. Maryland: TSP Nonattainment Areas as Designated May 1979

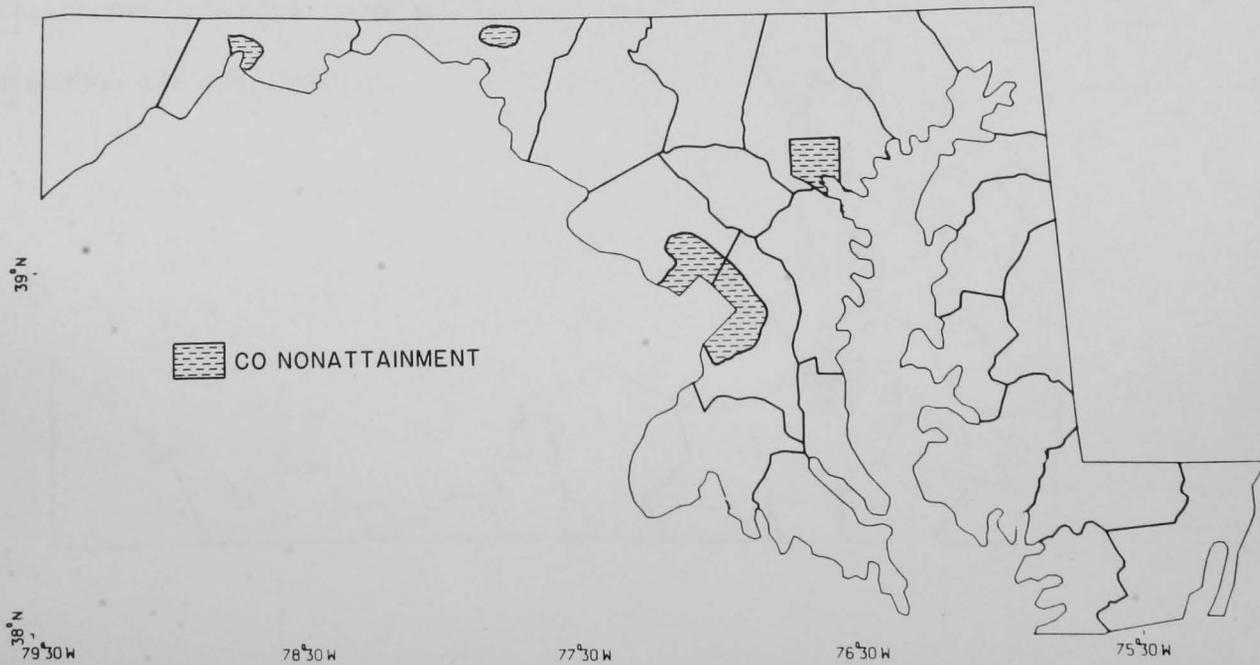


Fig. III.117. Maryland: CO Nonattainment Areas as Designated May 1979

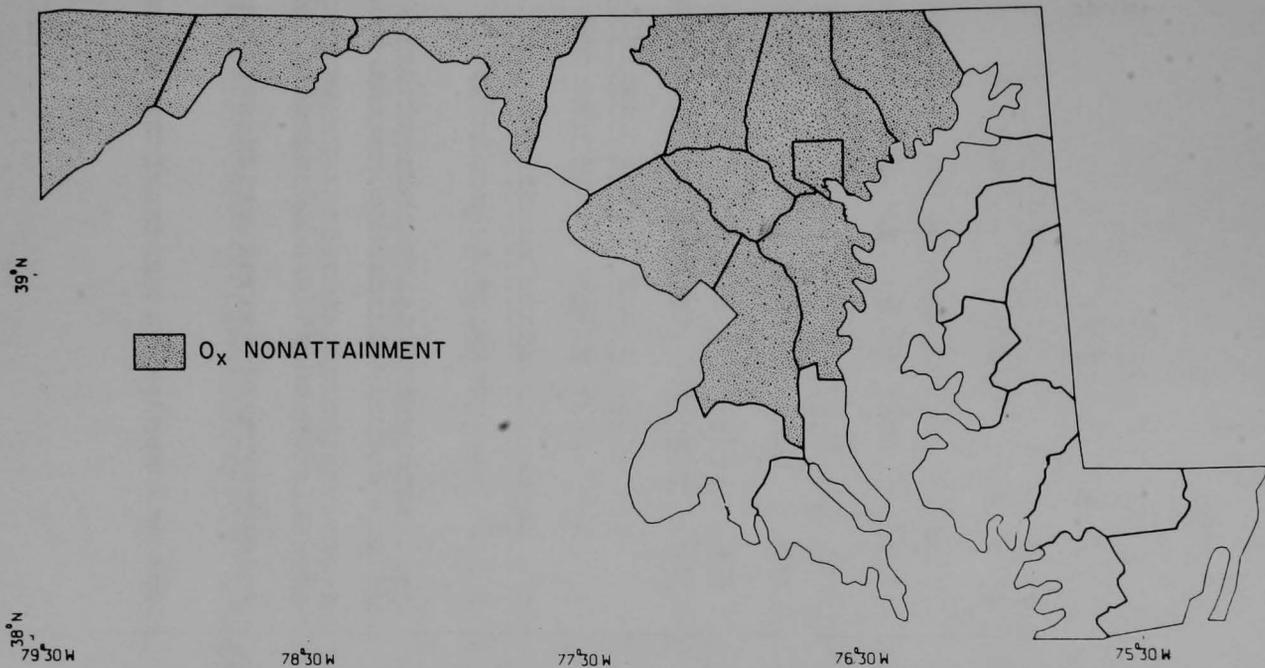


Fig. III.118. Maryland: O_x Nonattainment Areas as Designated May 1979

Table III.21. Maryland: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
2	0	39.28	76.57	213. (1)					9. (2)	
3	0	39.28	76.66			161. (1)	64. (2)			
4	0	39.29	76.55	70. (1)		209. (2)	79. (3)			
5	0	39.34	76.69			129. (1)	58. (2)	48. (1)		
6	0	39.34	76.58	54. (1)	13. (1)			56. (1)		
7	0	39.24	76.59	62. (1)						
8	0	39.30	76.61	165. (1)					18. (4)	137. (2)
9	0	39.29	76.61	33. (1)		105. (1)				
10	0	39.29	76.61			164. (1)				
12	0	39.23	76.57	78. (1)	26. (1)	396. (4)	150. (4)	56. (1)		
13	0	39.23	76.53	117. (1)	36. (1)	208. (2)	37. (3)	65. (1)		
14	0	39.27	76.53	129. (1)	44. (1)	190. (1)	87. (3)	55. (1)		
15	0	39.34	76.41	25. (1)	9. (1)	140. (1)	53. (1)	43. (1)		
16	0	39.29	76.53	73. (1)					11. (3)	314. (4)
17	0	39.31	76.61	111. (1)	21. (1)			66. (1)	18. (4)	372. (4)
18	0	39.27	76.66	137. (1)					8. (2)	
19	0	39.24	76.58	196. (1)					13. (4)	216. (4)
21	40	39.65	78.76	103. (1)	20. (1)	182. (1)	80. (3)	42. (1)		
22	40	39.47	79.06	78. (1)	17. (1)					
23	40	39.48	79.06			211. (2)	83. (3)			
24	40	39.48	79.05	211. (1)						
25	40	39.47	79.06					34. (1)		
26	40	39.48	79.04	106. (1)	33. (1)	162. (1)	63. (2)	26. (1)		
27	40	39.65	78.77	63. (1)					18. (4)	
28	80	39.16	76.52	91. (1)						
29	80	39.16	76.51	68. (1)	24. (1)	357. (4)	59. (2)	41. (1)	8. (2)	
30	80	39.21	76.65			97. (1)			9. (2)	
31	80	38.96	76.50	75. (1)	22. (1)	178. (1)	53. (1)	47. (1)		
32	80	38.87	76.62	61. (1)	15. (1)	74. (1)	37. (1)	31. (1)		
33	80	39.15	76.68	60. (1)	12. (1)	99. (1)	47. (1)	38. (1)		
34	80	39.17	76.63	41. (1)	11. (1)	114. (1)	65. (2)	52. (1)	11. (3)	
35	80	39.07	76.69	60. (1)	15. (1)	72. (1)	45. (1)	38. (1)		
36	140	39.49	76.65	14. (1)	5. (1)	167. (1)	50. (1)	27. (1)		
37	140	39.27	76.74	43. (1)	16. (1)	90. (1)	39. (1)	20. (1)		
38	140	39.41	76.77			137. (1)	43. (1)	50. (1)		314. (4)
39	140	39.20	76.45	80. (1)	16. (1)	102. (1)	51. (1)	34. (1)		
40	140	39.41	76.77	101. (1)	6. (1)				7. (1)	
41	140	39.33	76.34	23. (1)						
42	140	39.24	76.66	87. (1)	29. (1)	113. (1)	60. (2)	61. (1)		
43	140	39.24	76.51	88. (1)	33. (1)	145. (1)	75. (2)			
44	140	39.35	76.68			133. (1)	60. (2)			
45	140	39.35	76.68					47. (1)		
46	140	39.24	76.51					47. (1)		

Table III.21. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
47	140	39.35	76.48	201. (1)	26. (1)			64. (1)	10. (3)	510. (4)
48	140	39.41	76.60	83. (1)	17. (1)	84. (1)	40. (1)	51. (1)	6. (1)	314. (4)
49	280	38.33	76.38	20. (1)	5. (1)	64. (1)	33. (1)	20. (1)		
50	280	38.07	76.46			40. (1)				
52	360	39.55	76.99	67. (1)	19. (1)	215. (2)	45. (1)	29. (1)		
53	420	39.61	75.83	76. (1)	20. (1)	84. (1)	52. (1)	40. (1)		
54	420	39.70	76.07			73. (1)	38. (1)			
55	440	38.56	77.01	27. (1)		84. (1)				
56	600	38.57	76.03	59. (1)	10. (1)	96. (1)	43. (1)	28. (1)		
57	600	38.48	75.83	30. (1)	8. (1)			23. (1)		
58	740	39.42	77.43			84. (1)				
59	740	39.43	77.40	53. (1)		87. (1)				
60	740	39.42	77.41	22. (1)	7. (1)	149. (1)	70. (2)	43. (1)		
61	740	39.34	77.43	35. (1)	12. (1)	102. (1)	55. (1)	28. (1)		
62	740	39.57	77.29	53. (1)		75. (1)				
63	740	39.63	77.41	25. (1)		82. (1)				
64	740	39.52	77.58	45. (1)	10. (1)	74. (1)	38. (1)	25. (1)		
65	740	39.42	77.43	57. (1)						
66	740	39.31	77.62	37. (1)		151. (1)	80. (3)			
67	800	39.58	79.34	54. (1)	13. (1)	71. (1)	27. (1)	15. (1)		
68	800	39.48	79.07	109. (1)	35. (1)	104. (1)	59. (2)	27. (1)		
69	920	39.70	76.34	19. (1)	6. (1)	88. (1)	40. (1)	25. (1)		
70	920	39.54	76.35	70. (1)	17. (1)	100. (1)	47. (1)	43. (1)		
71	960	39.19	76.88	55. (1)	19. (1)	91. (1)	45. (1)	36. (1)		
72	1160	39.21	77.14			96. (1)	47. (1)			
73	1160	39.14	77.40	65. (1)	16. (1)	79. (1)	42. (1)			
74	1160	39.02	77.07			80. (1)	44. (1)			
75	1160	39.14	77.40					25. (1)		
76	1160	39.03	77.15			89. (1)	51. (1)			
77	1160	39.08	77.15	240. (1)						
78	1160	39.08	77.15					45. (1)		
79	1160	39.13	77.19							
80	1160	39.14	77.20	63. (1)	21. (1)	89. (1)	45. (1)	46. (1)	11. (3)	353. (4)
81	1160	39.11	76.99	78. (1)	16. (1)	105. (1)	46. (1)	47. (1)		
82	1160	39.02	77.03	73. (1)					14. (4)	294. (4)
83	1160	39.06	77.04			90. (1)	43. (1)	49. (1)		
84	1160	39.05	76.99			90. (1)	41. (1)			
85	1160	39.00	77.10	60. (1)					17. (4)	392. (4)
86	1300	38.85	76.91			86. (1)	51. (1)			
87	1300	38.92	76.90	73. (1)					15. (4)	
88	1300	38.93	76.92	70. (1)	21. (1)	102. (1)	44. (1)	52. (1)		
89	1300	38.92	76.90							392. (4)
90	1300	38.85	76.93	41. (1)					10. (2)	451. (4)
92	1300	38.77	76.95	33. (1)	9. (1)	75. (1)	41. (1)	35. (1)		

Table continued on next page

Table III.21. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
93	1300	39.03	76.92	59. (1)	14. (1)	26. (1)	45. (1)	50. (1)		
94	1300	38.82	76.87	45. (1)	9. (1)	83. (1)	33. (1)	32. (1)		
95	1300	38.69	76.93	20. (1)	7. (1)	121. (1)	39. (1)	20. (1)		
96	1300	38.31	76.76	44. (1)	8. (1)	85. (1)	38. (1)	35. (1)		
97	1300	38.89	76.83			83. (1)	39. (1)			
98 *	1300	38.97	74.74	25. (1)	8. (1)	65. (1)	34. (1)			
99	1300	38.93	76.88			111. (1)	49. (1)			
100	1300	38.81	77.00			101. (1)	50. (1)			
101	1300	38.90	75.76			77. (1)	32. (1)			
102 *	1300	38.97	76.74					33. (1)		
104	1300	38.98	76.94			92. (1)	50. (1)			
105	1300	38.97	76.97						11. (3)	
106	1400	38.36	76.71	17. (1)		33. (1)				
107	1680	39.65	77.72	59. (1)				9. (2)		
108	1680	39.64	77.72			130. (1)	63. (2)			
110	1680	39.64	77.72	66. (1)	8. (1)			46. (1)		
111	1740	38.38	75.60			195. (1)	59. (2)			
112	1740	38.37	75.58			45. (1)				
113	1740	38.37	75.59			50. (1)				
114	1740	38.36	75.60	35. (1)	8. (1)			30. (1)		

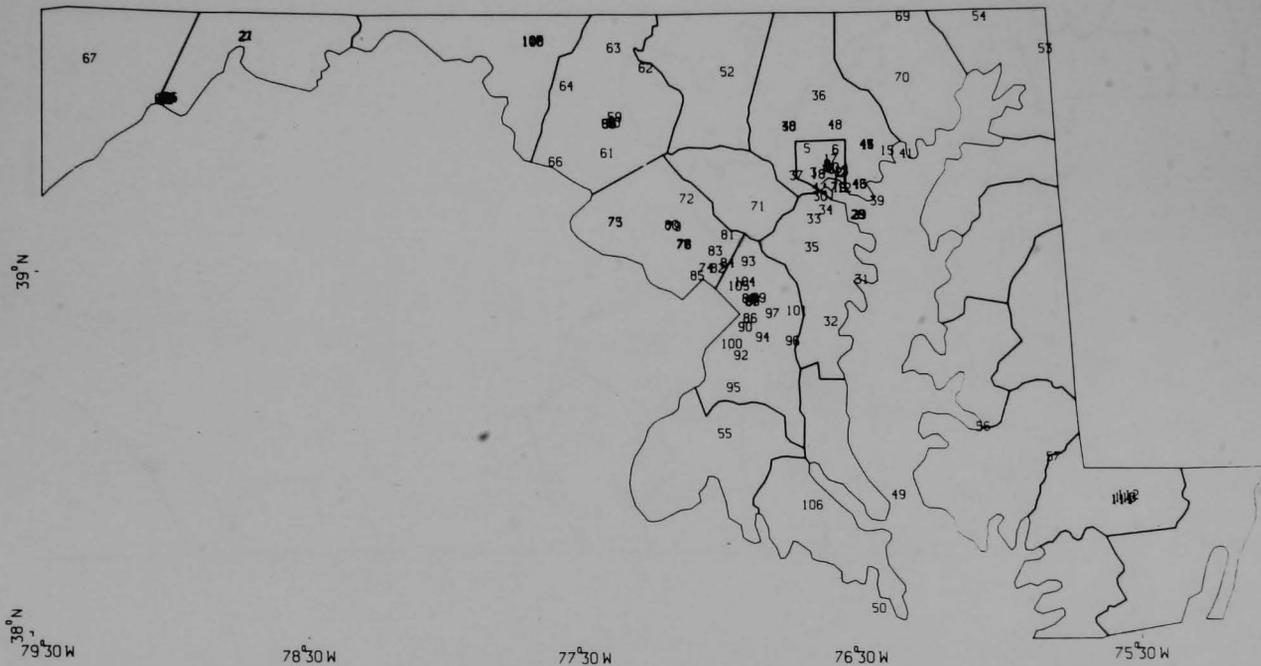


Fig. III.119. Maryland: Locations of SAROAD Monitors (See Table III.21 for Monitor Numbers)

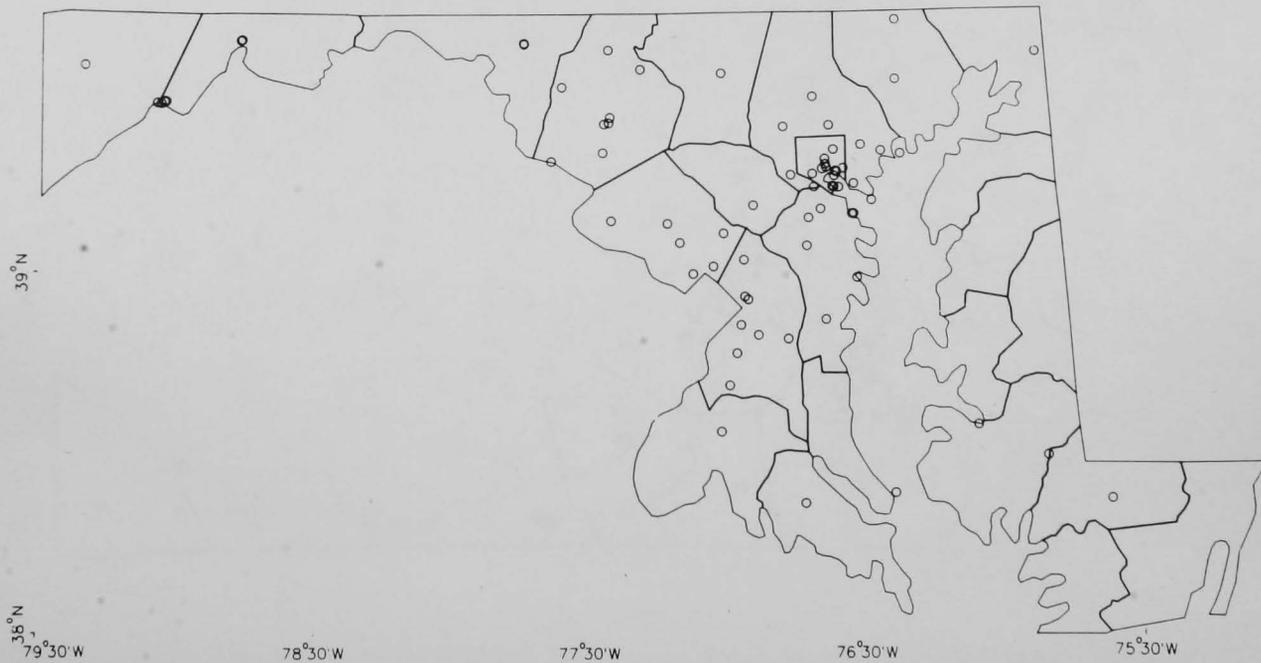


Fig. III.120. Maryland: Monitors Reporting Adequate Data on 24-hr Average SO_2 ; No Violations

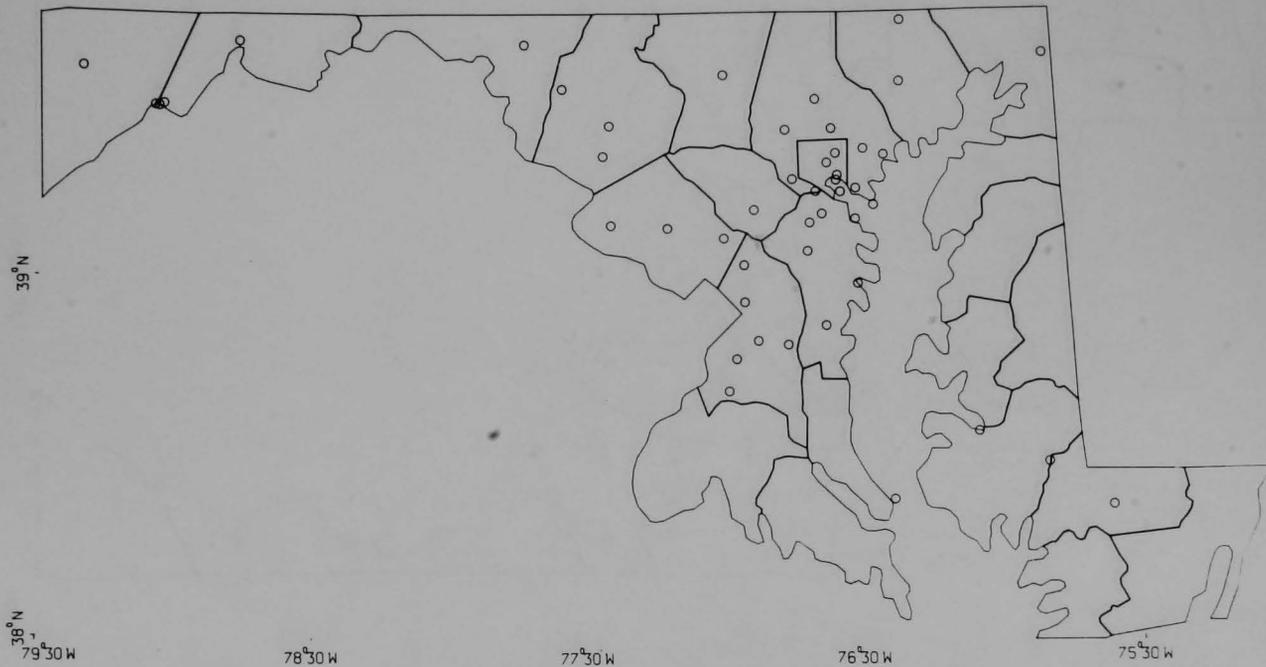


Fig. III.121. Maryland: Monitors Reporting Adequate Data on Annual Average SO₂; No Violations

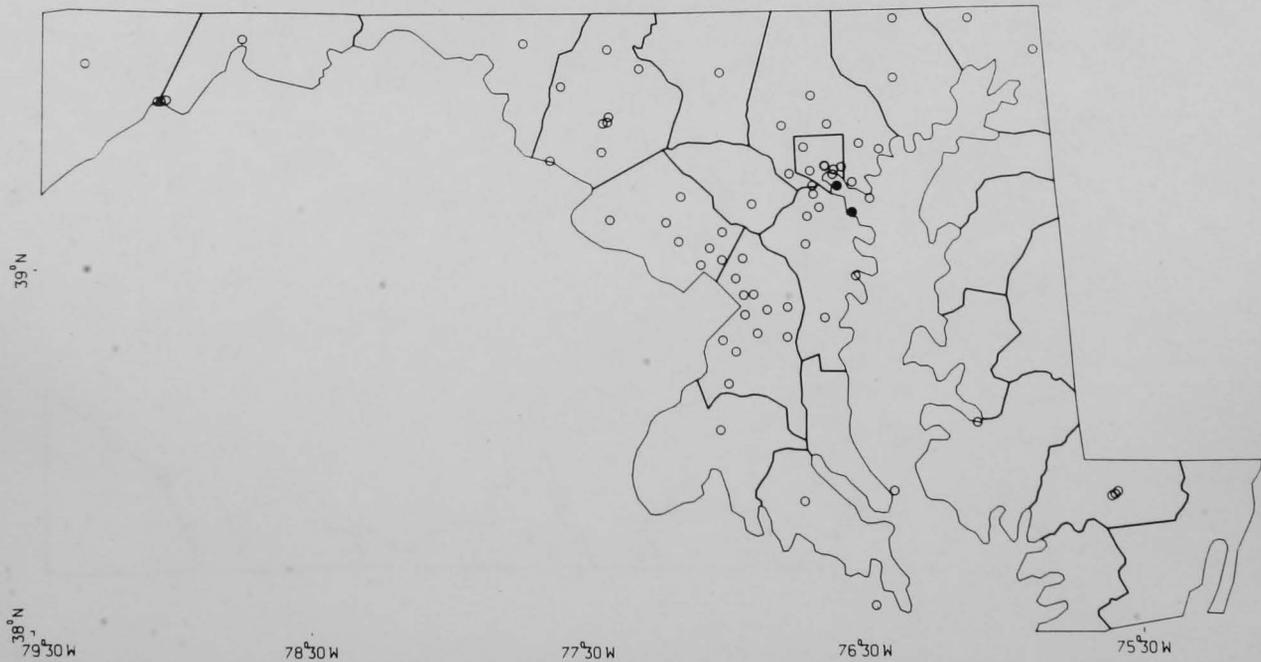


Fig. III.122. Maryland: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

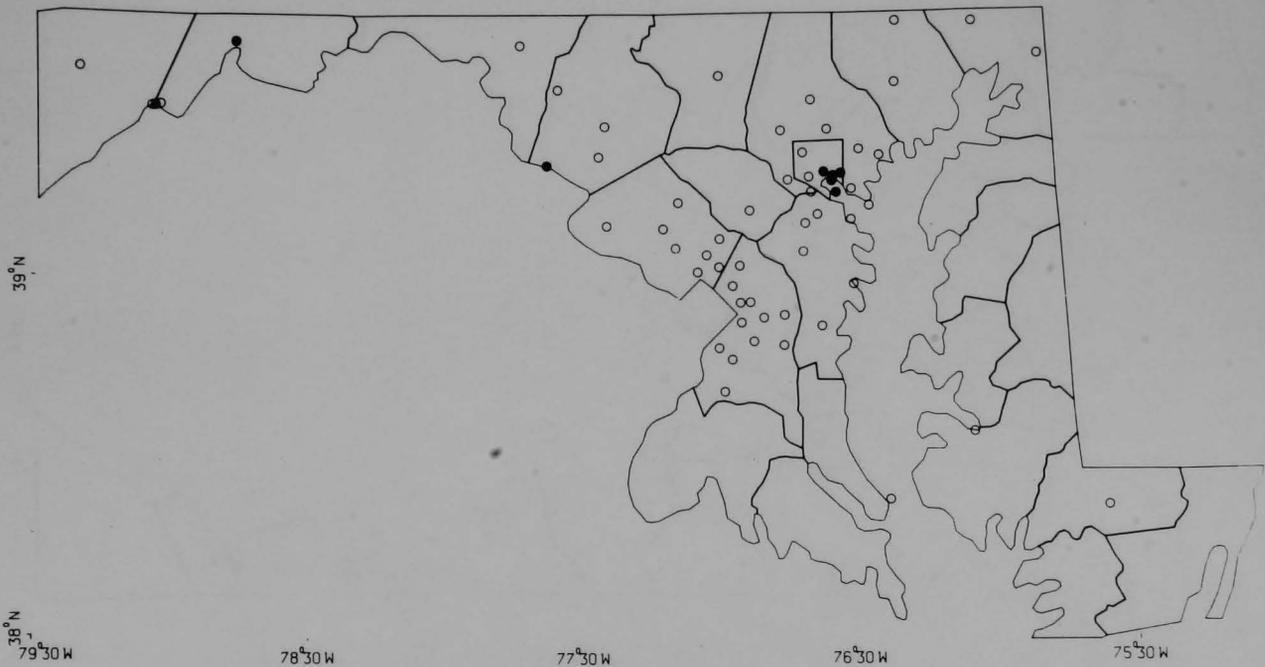


Fig. III.123. Maryland: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

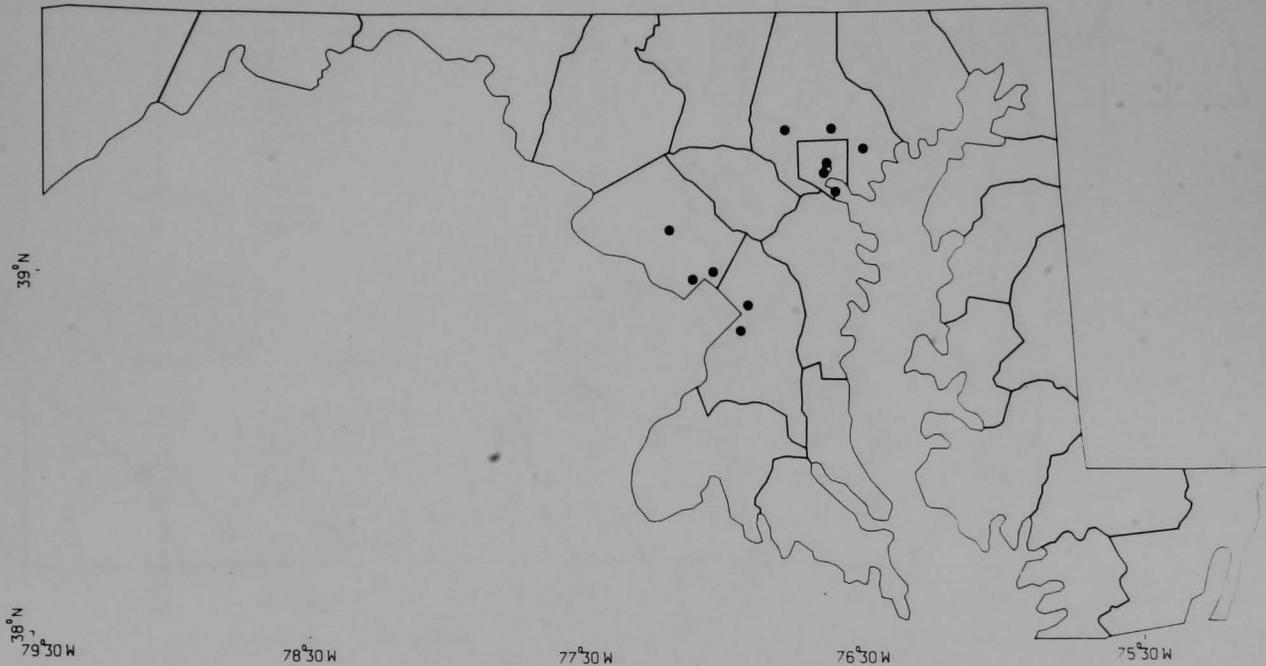


Fig. III.125. Maryland: Monitors Reporting Adequate Data on 1-hr Average O_x ; Violations Shown by Shaded Circles

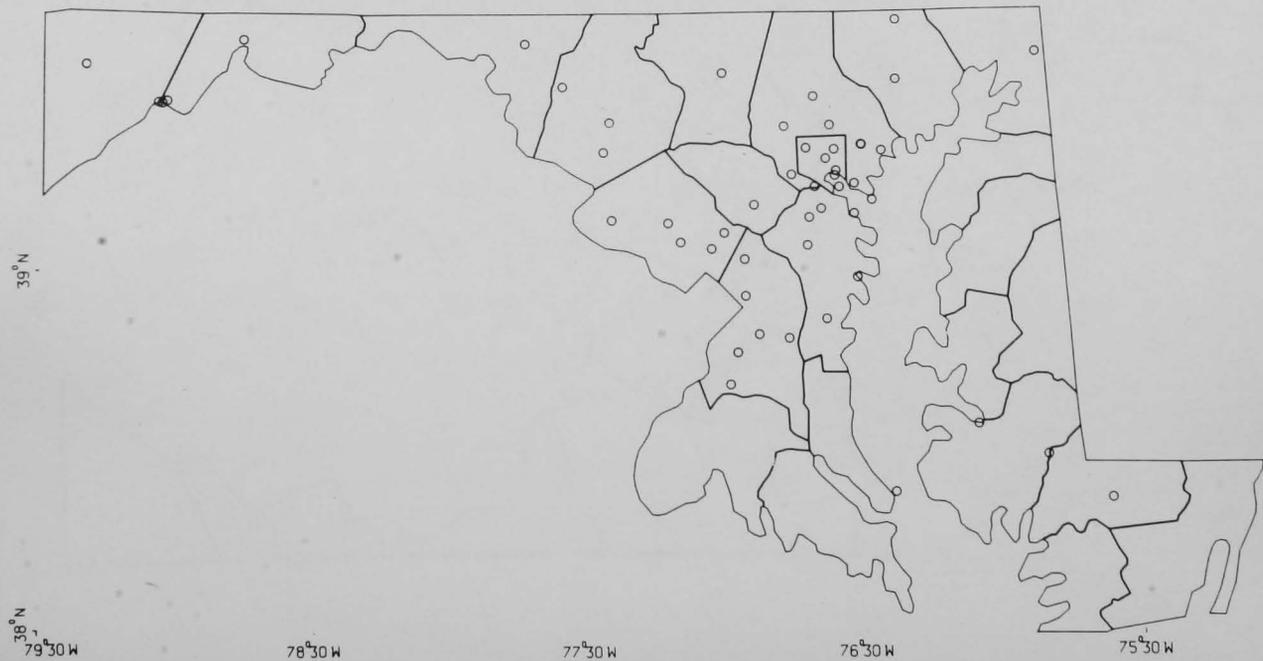


Fig. III.126. Maryland: Monitors Reporting Adequate Data on Annual Average NO_x ; No Violations

Table III.22. Maryland: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	BRANDON SHORES 1&2	39.01	76.63	16.70	0.0
2	N CALVERT CLIFFS	33.55	76.59	915.00	0.0
3	CHALK POINT	33.33	76.65	1329.00	0.0
4	CRANE	39.32	76.37	399.80	404.60
5	DICKERSON	39.21	77.46	500.00	0.0
6	SCULD STREET	39.26	76.59	173.50	0.0
7	MORGANTOWN	33.36	76.93	1252.00	1143.00
8	RIVERSIDE	39.24	76.81	333.50	153.40
9	SMITH	39.66	77.03	109.50	0.0
10	VIENNA	38.48	75.83	222.50	0.0
11	WAGNER	39.18	76.93	990.30	263.00
12	NESTPORT	39.26	76.63	194.00	0.0

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	BRANDON SHORES 1&2	0.0	0.0	0.0	0.0	0.0
2	N CALVERT CLIFFS	0.0	0.0	0.0	0.0	0.0
3	CHALK POINT	1.92	973.20	1.60	1432.10	0.0
4	CRANE	2.00	0.35	0.73	3115.30	0.0
5	DICKERSON	1.81	1177.20	0.0	0.0	0.0
6	SCULD STREET	0.0	0.0	0.85	731.19	0.0
7	MORGANTOWN	1.85	968.30	1.82	5693.70	0.0
8	RIVERSIDE	0.0	0.0	0.91	1234.62	0.0
9	SMITH	1.35	251.90	0.25	2.21	0.0
10	VIENNA	0.0	0.0	1.30	1103.00	0.0
11	WAGNER	0.89	500.30	0.67	3521.14	0.0
12	NESTPORT	0.0	0.0	0.87	626.35	0.0

N NUCLEAR * NOT PLOTTED

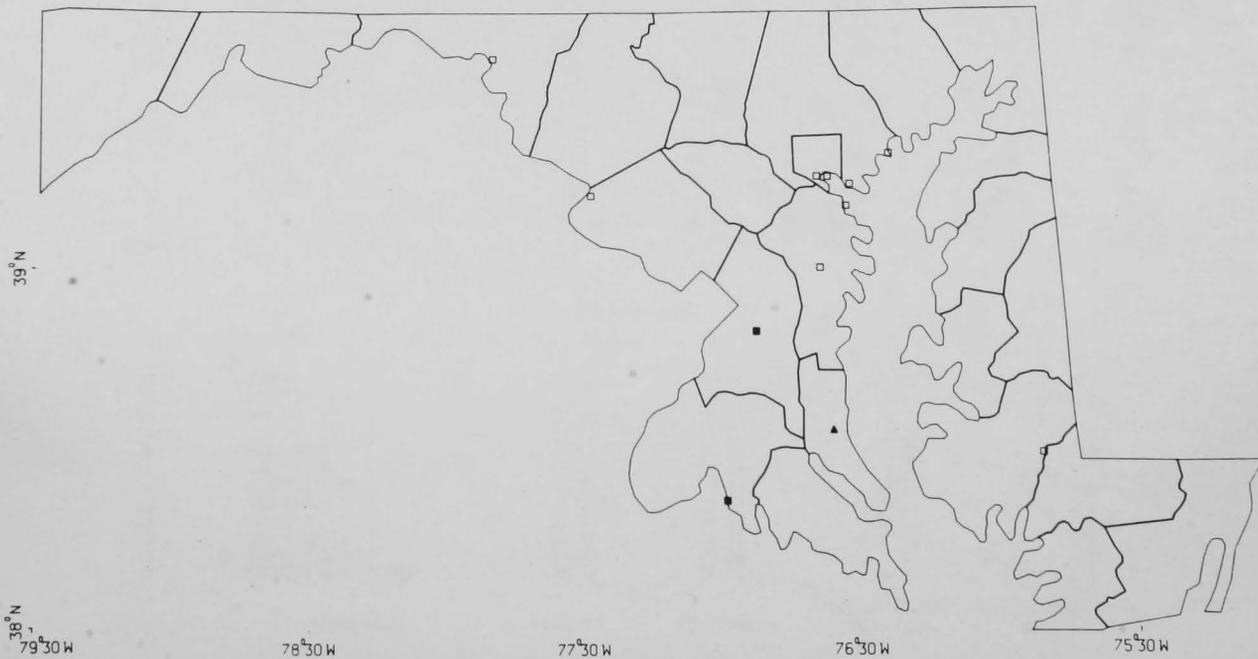


Fig. III.127. Power Plant Locations (Square = Fossil Fuel: Shaded, > 1000 MW; Open, < 1000 MW. Triangle = Nuclear)

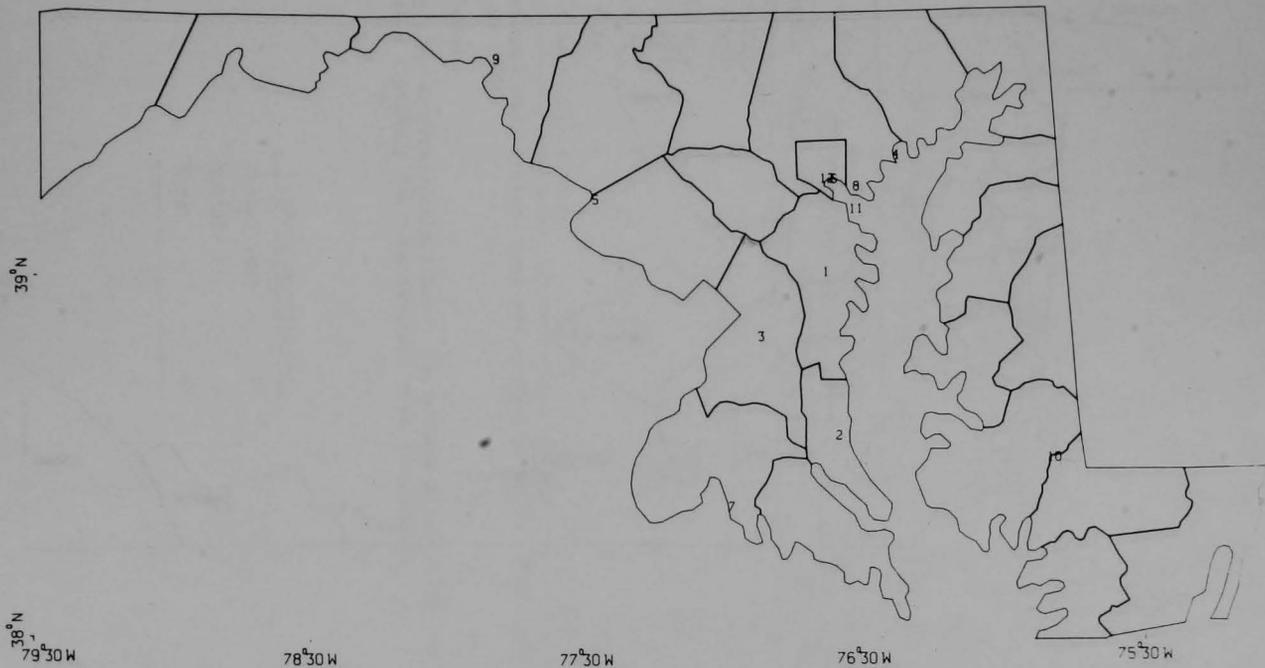


Fig. III.128. Power Plant Key (See Table III.22 for Identification and Fuel Use Data)

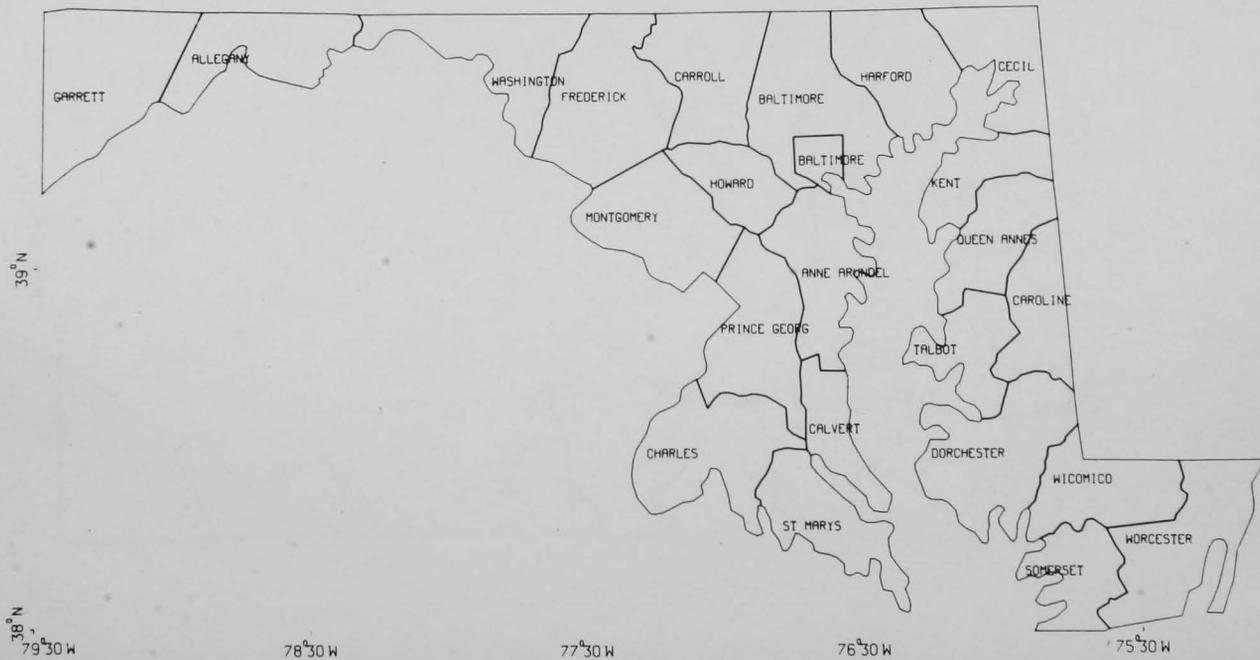


Fig. III.129: Maryland: Key to Counties

REGION III: PENNSYLVANIA

Air Quality Summary

Pollutant and Standard	Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
		Primary	Secondary		
SO ₂	24 hr	7	1	60	4
	1 yr			6	1
TSP	24 hr	15 ^c	4	148	24
	1 yr			27	20
NO _x	1 yr	0 ^b	-	2	0
CO	8 hr	2	-	32	10
O _x	1 hr	Whole state ^b		30	30

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

^cThe mapping program erroneously deletes the northwest corner of the state, which contains a primary TSP nonattainment area around Erie.

Energy Facilities

Fossil Fuel	39
Nuclear	3
Total	42

PENNSYLVANIA: Final SIP, 4/79

I. SOURCES OF THE PROBLEM

Pennsylvania designated SO₂ nonattainment areas in the center of Philadelphia; in Northumberland County; around Pennsylvania Power and Light's Sunbury power plant in Snyder County; in Warren County near United Refinery (which processes petroleum products) and Penelec's Warren power plant; in Armstrong County, as a result of emissions from Penelec's Keystone plant and Allegheny Public Service's Armstrong plant; and in Allegheny County and the Monongahela Valley air basin around Pittsburgh (covering portions of the counties of Washington, Fayette, and Westmoreland), a major industrial area with steel mills and coal and oil-fired power plants.

There are numerous small TSP nonattainment areas in Pennsylvania. The SIP maintains that the violations are caused by nontraditional sources, such as fugitive particulate emissions from industrial areas (the plants themselves, material handling, storage piles, roads, and wind erosion). The existing limitations on particulate matter emissions from point sources represent RACT, according to the SIP. In the urban, industrialized areas of Allentown/ Bethlehem (Lehigh and Northampton counties), York (York Co.), Harrisburg (Cumberland and Dauphin), Lancaster (Lancaster Co.), Reading (Berks) and Scranton/Wilkesbarre (Lackawanna and Luzerne), road dust constitutes more than half of estimated particulate matter emissions. In the Beaver Valley Air Basin (Lawrence and Beaver counties), Erie (Erie Co.), and Johnstown (Cambria), the state estimates that resuspended road dust accounts for 35-45% of the total particulate load. In Altoona (Blair Co.), road dust accounts for 15% of emissions, area fuel combustion 35%, and miscellaneous fugitive sources 20%. In Williamsport (Lycoming County), miscellaneous fugitive sources account for more than half of the particulate emissions, with 20% attributed to road dust and 22% to area fuel combustion. In Sharon and Farrell (Mercer County), just east of Youngstown, Ohio, industrial point and fugitive emissions are each estimated to account for approximately 40% of TSP tonnage. In Allegheny County, analysis of samples typically showed 20-40% of emissions from point sources, 20% from fugitive industrial emissions and 40-60% from nontraditional sources. Violations in the urban center of Philadelphia and the surrounding suburban counties of Chester and Montgomery are attributed to nontraditional urban sources of fugitive dust.

Under the ozone NAAQS of 0.08 ppm the entire state of Pennsylvania was nonattainment. Under the new 0.12-ppm standard, the rural areas could be designated attainment, but the major population and industrial centers in southeast Pennsylvania (Philadelphia), southwest (Pittsburgh), Harrisburg, Lehigh, Northampton, Luzerne, and Lackawanna counties must still achieve attainment by reducing emissions. In the southeast, motor vehicles produce 50% of hydrocarbon precursors to ozone and 45% is from stationary sources, with miscellaneous small sources accounting for the rest. In the southwest the percentages are 58% from motor vehicles, 35% from stationary, and 7% from miscellaneous sources; in Lehigh and Northampton, 57% motor vehicles, 36% stationary, and 7% miscellaneous. Harrisburg and the other regions have similar origins of ozone. Pennsylvania's ozone nonattainment is exacerbated by pollutant transport from sources south and west (D.C., Ohio, Kentucky, and points beyond).

CO nonattainment areas resulting from motor vehicle emissions are limited to Pittsburgh and Philadelphia. Presently there are no NO_x nonattainment areas in Pennsylvania.

II. ATTAINMENT STRATEGIES

A. SO₂

1. Emissions limitations on large utility and industrial boilers ranging from 0.6 lbs/MM Btu in Philadelphia to 4.0 lbs/MM Btu in most other places (see IV, below)
2. Limits on sulfur in oil:
 - a. Distillate oil:
 - 0.2% in Philadelphia
 - 0.3% elsewhere
 - b. Residual oil:
 - 0.5% in Philadelphia
 - 1% in Philadelphia metropolitan area
 - 1.5% in Reading, Allentown, and Johnstown
 - 2.8% elsewhere

- c. Regulations on sulfur in fuel oil to help suppress area as well as point source emissions
 3. Emission limitations for steel mills and refineries
 - a. Will not be tightened further because RACT or better already required
 - b. Will be enforced and sources brought into compliance
 4. Allegheny plan to be submitted late due to modeling problems
- B. TSP
 1. Allentown, Monongahela Valley, York, Harrisburg, Lancaster, Reading, Scranton, Beaver Valley, Erie, and Johnstown:
 - a. Enforcement of RACT regulations for existing point sources
 - b. Request extension of deadline to prepare plan to control fugitive dust and achieve secondary NAAQS
 - study and evaluate fugitive dust measures
 - begin programs of road and parking-lot paving, oiling, wetting, and cleaning
 - improve construction practices to reduce uncovered soil and revegetate faster
 - c. Limit fugitive industrial emissions
 - by requiring RACT
 - demanding more stringent emissions limitations (measured at the boundaries of property)
 2. Allegheny County and Sharon:
 - a. Develop fugitive dust measures
 - b. Replacement of obsolete open hearth furnaces with basic oxygen furnaces at steel mills

- c. Reduction of fugitive emissions at steel mills from storage piles, traffic, and steel-making processes
- d. Rely on EPA to enforce cleanup in states upwind, particularly to prevent formation of aerosols from SO₂ and NO_x

C. O_x

- 1. Emission reduction measures for all non-attainment areas
 - a. Federal Motor Vehicle Emissions Control Program
 - b. RACT regulations for 16 sources of VOC:
 - surface coating
 - gasoline distribution
 - degreasing
 - cutback asphalt
- 2. Additional measure for major metropolitan areas (except Harrisburg):
 - a. Inspection and maintenance of motor vehicles
- 3. Additional measures for Philadelphia and Pittsburgh areas:
 - a. Transportation control measures
 - carpooling and vanpooling
 - mass transit improvements, including parking
 - exclusive bus and carpool lanes
 - bicycle lanes and storage facilities
 - b. Traffic flow improvements
 - road widening and road construction
 - coordination of traffic signals
 - staggered work hours

D. CO

1. Current nonattainment limited to downtown Pittsburgh and Philadelphia
2. Strategies entail the same measures as for ozone (except for the VOC regulations)
3. Additional monitoring for hotspots: congested intersections and street canyons (between skyscrapers)

III. NEW SOURCE REVIEW

Pennsylvania will use an emissions offset program for new sources of TSP, SO₂, and VOC. In primary nonattainment areas new sources must obtain a commitment for a reduction in emissions from existing sources in a ratio of 1.3 to 1 for stack emissions of TSP, SO₂, and VOC. In secondary nonattainment areas the ratio is 1.1 to 1 for TSP and SO₂. It is possible to offset additional stack emissions by reducing fugitive emissions but only at a ratio of 5 to 1 in primary nonattainment areas and 3 to 1 in secondary areas. Emissions reductions in excess of those ratios may be banked for future use by the applicant for a permit, but only if use is applied for within five years of the initial application for a construction permit. Emissions reductions due to source shutdown may also be banked for five years if a petition is filed including a schedule for new construction or modification. Banked reductions can be transferred.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. General statewide limit of 4.0 lb of SO₂ per MM Btu, one-hour average
2. Solid-fuel combustion:
 - a. Sources larger than 250 MM Btu/hr of fuel input:
 - 3.7 lb of SO₂ per MM Btu, 30-day average
 - 4.0 lb of SO₂ per MM Btu, 24-hr average, not to be exceeded more than twice in a 30-day period
 - maximum emission of 4.8 lb of SO₂ per MM Btu, 24-hr average

- b. Sources of 250 MM Btu/hr or less can petition to be covered by the limits listed in 2.a. instead of the statewide limit
3. Limits on Allentown, Bethlehem, Easton, Reading, and Johnstown air basins:
 - a. 2.8 lb of SO₂ per MM Btu, 30-day average
 - b. 3.0 lb of SO₂ per MM Btu, 24-hr average, not to be exceeded more than twice in 30 days
 - c. Maximum emission of 3.6 lb of SO₂ per MM Btu, 24-hr average
 4. Limits in Allegheny County, Beaver Valley, and Monongahela Valley air basins:
 - a. Sources with fuel input between 2.5 MM Btu/hr and 50 MM Btu/hr: 1.0 lb of SO₂ per MM Btu
 - b. Sources larger than 2000 MM Btu/hr: 0.6 lb per MM Btu
 - c. Limits interpolated within this range for sources of intermediate size
 5. Limits in southeast Pennsylvania air basin:
 - a. General limits for sources using 250 MM Btu/hr or less:
 - Inner Zone (Philadelphia County, Delaware County, and portions of Bucks County): 1.0 lb of SO₂ per MM Btu
 - Outer Zone (Chester and Montgomery Counties and portions of Bucks not in Inner Zone): 1.2 lb of SO₂ per MM Btu
 - b. General limit for sources larger than 250 MM Btu/hr:
 - Inner Zone: 0.6 lb of SO₂ per MM Btu
 - Outer Zone: 1.2 lb of SO₂ per MM Btu

B. TSP

1. Statewide limits:
 - a. Sources with fuel input between 2.5 MM Btu/hr and 50 MM Btu/hr: 0.4 lb of particulates per MM Btu
 - b. Sources larger than 600 MM Btu/hr: 0.1 lb of particulates per MM Btu
 - c. Limits interpolated within this range for sources of intermediate size

2. Allegheny County:

- a. Sources between 0.5 MM Btu/hr and 50 MM Btu/hr of fuel input: 0.4 lb of PM per MM Btu
- b. Sources larger than 850 MM Btu/hr: 0.08 lb of PM per MM Btu
- c. Limits interpolated within this range for sources of intermediate size

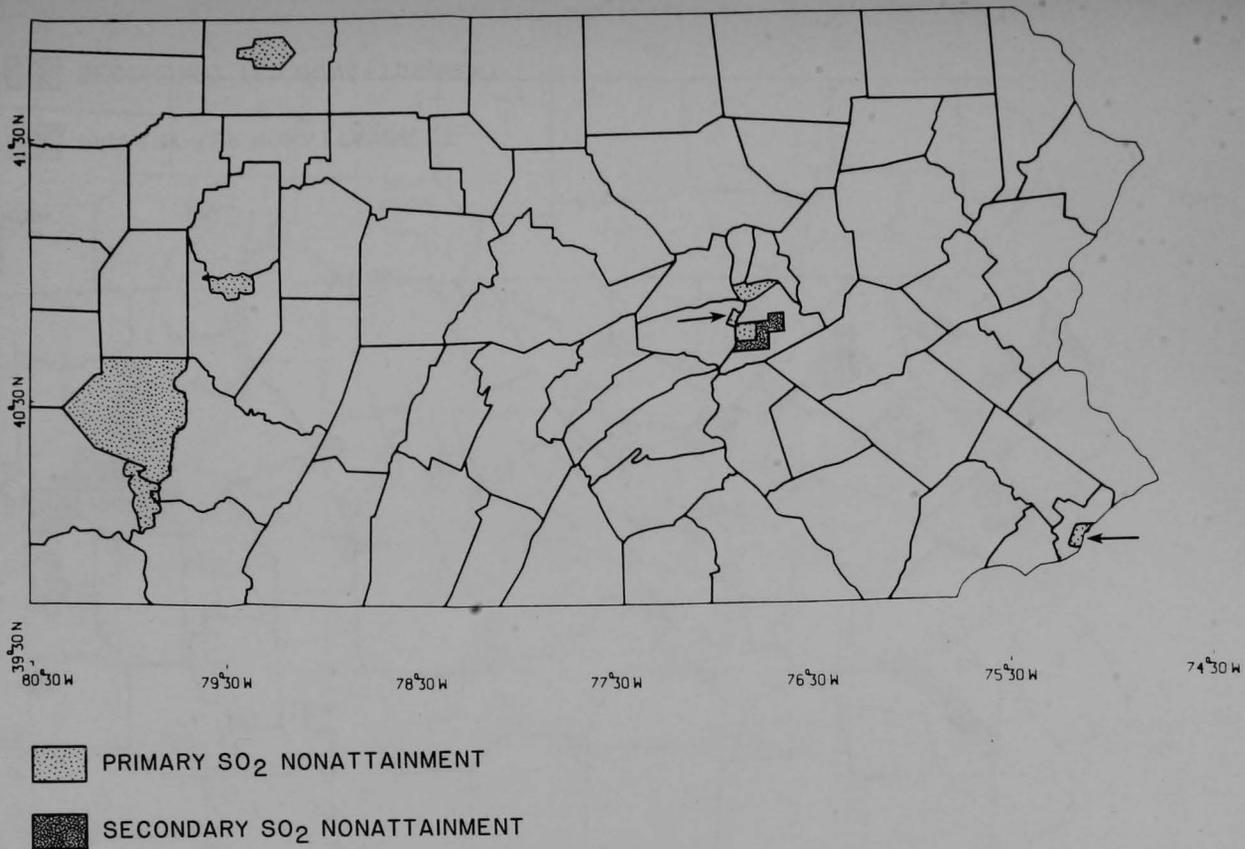
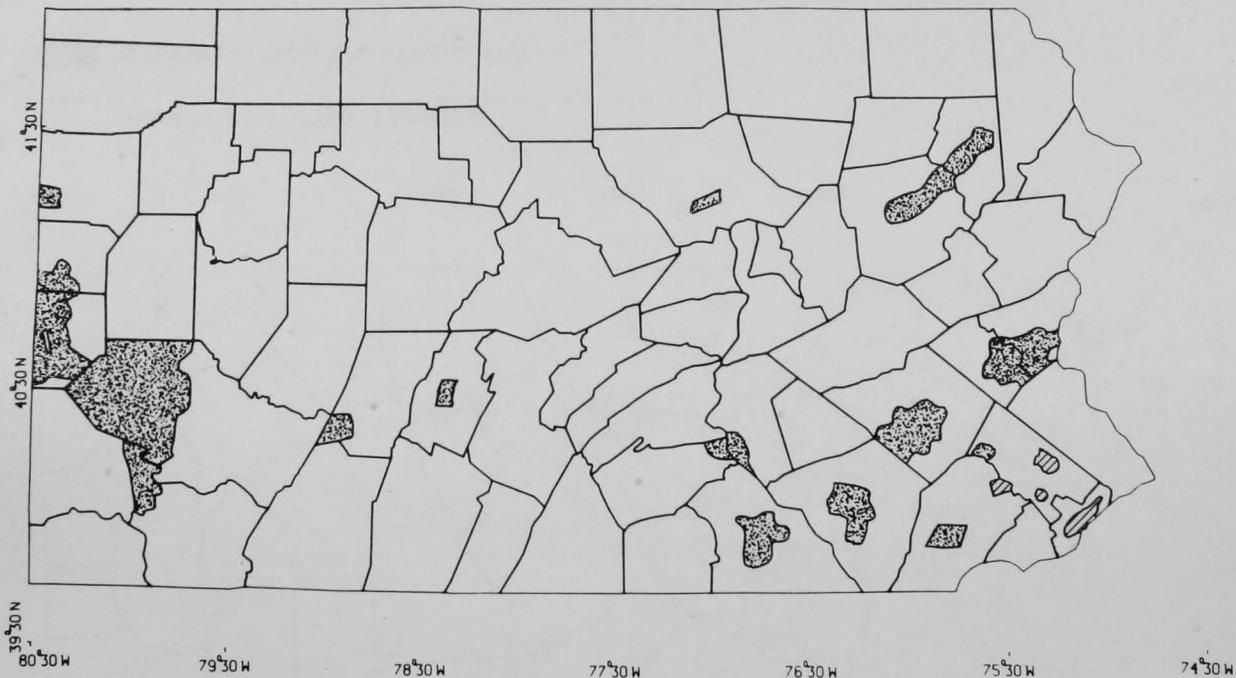


Fig. III.130. Pennsylvania: SO₂ Nonattainment Areas as Designated May 1979

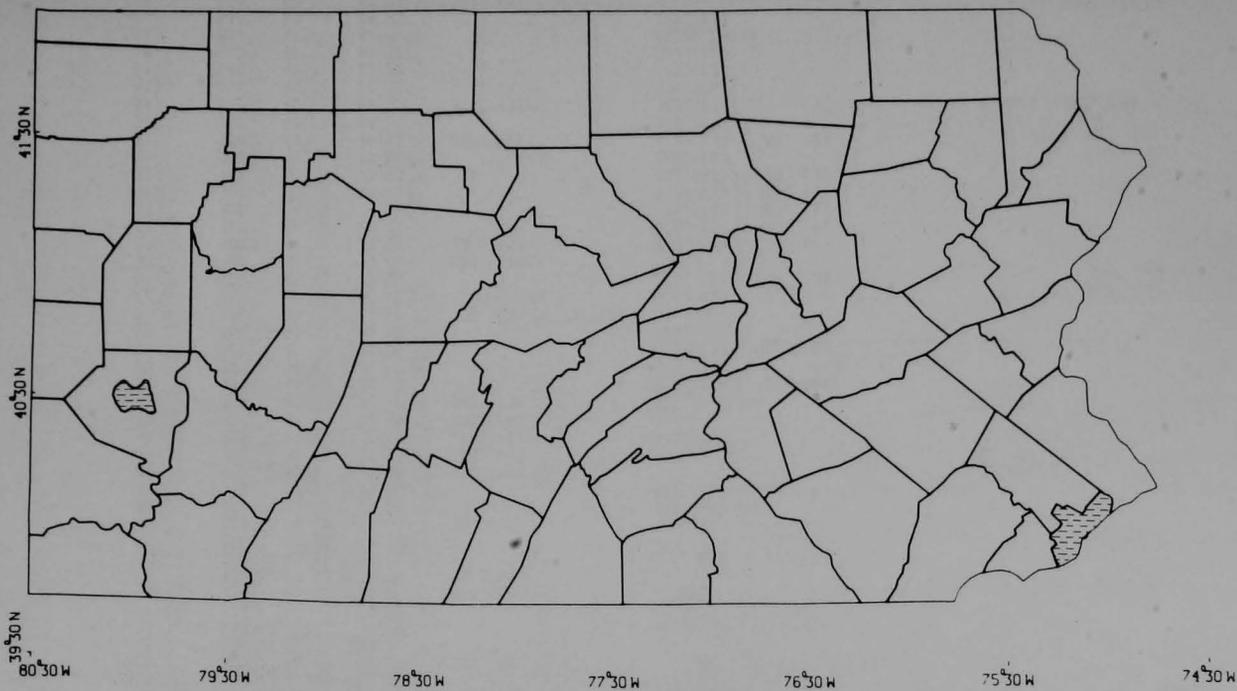


PRIMARY TSP NONATTAINMENT



SECONDARY TSP NONATTAINMENT

Fig. III.131. Pennsylvania: TSP Nonattainment Areas as Designated May 1979



CO NONATTAINMENT

Fig. III.132. Pennsylvania: CO Nonattainment Areas as Designated May 1979

Table III.23. Pennsylvania: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1	100	40.32	79.87			462. (4)	106. (4)			
2	100	40.55	79.76	146. (1)		114. (1)				
3	100	40.50	80.22			181. (1)	79. (3)			
4	100	40.32	79.87	296. (2)						
5	100	40.39	79.79			157. (1)				
6	100	40.63	79.70			60. (1)				
7	100	40.32	79.86			265. (3)	90. (3)			
8	100	40.32	79.87	156. (1)						
9	100	40.55	79.76	537. (4)						
10	100	40.44	80.24			115. (1)	60. (2)			
11	100	40.38	80.19			112. (1)	56. (1)			
13	100	40.40	79.86	389. (3)		350. (4)				
14	100	40.40	79.86			312. (3)				
15	100	40.40	79.85			419. (4)	144. (4)			
16	100	40.49	80.06	138. (1)					8. (2)	
17	100	40.49	80.06	83. (1)					12. (3)	
19	100	40.44	80.00	45. (1)		111. (1)				
20	100	40.41	79.94	544. (4)						
21	100	40.44	80.00	142. (1)		234. (2)			25. (4)	
22	100	40.44	79.96			229. (2)	103. (4)			
23	100	40.41	79.94			183. (1)				
24	100	40.44	80.00			456. (4)	162. (4)			
25	100	40.42	79.97			106. (1)	76. (3)			
26 *	100	53.23	81.79	375. (3)	71. (2)					
27	100	40.44	80.00			206. (2)				
28	100	40.43	79.93			229. (2)	93. (3)			
30	100	40.32	79.89	203. (1)						
31	100	40.32	79.89	231. (1)		213. (2)	94. (4)			
32	100	40.37	79.87			322. (3)	142. (4)			
33	100	40.37	79.85			250. (2)	107. (4)			
34	100	40.30	79.83			277. (3)	109. (4)			
35	100	40.35	79.93			278. (3)	76. (3)			
36	100	40.42	79.83			380. (4)				
37	100	40.55	79.78	337. (2)		161. (1)	59. (2)			
38	560	40.78	80.32			140. (1)				
39	560	40.75	80.32	270. (1)		142. (1)			9. (2)	202. (4)
40	560	40.71	80.33			514. (4)				
41	560	40.70	80.28			227. (2)				
42	560	40.63	80.32			227. (2)				
43	560	40.84	80.32			255. (2)				
44	560	40.63	80.23			279. (3)				
45	560	40.64	80.23	187. (1)					6. (1)	359. (4)
46	560	40.59	80.23			226. (2)				

Table III.23. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR	
47	560	40.64	80.45			344.	(4)				
48	720	40.34	76.00			119.	(1)				
50	720	40.39	75.92			179.	(1)				
51	720	40.31	75.97			72.	(1)				
52	720	42.02	75.94			133.	(1)				
53	720	40.32	75.93			138.	(1)				
54	720	40.32	75.93	53.	(1)			4.	(1)	331.	(4)
55	720	40.33	75.92	54.	(1)						
56	720	40.44	75.97			70.	(1)				
57	720	40.42	75.92			181.	(1)				
59	720	40.33	75.92			66.	(1)				
62	820	40.54	78.39			204.	(3)				
63	820	40.52	78.40			155.	(1)				
64 *	820	0.0	0.0			149.	(1)				
66	1000	41.88	79.64							225.	(4)
67	1200	40.05	74.88	100.	(1)			7.	(1)	625.	(4)
69	1200	40.23	75.12	3.	(1)	85.	(1)				
70	1200	40.38	75.29			80.	(1)				
71	1200	40.22	74.73			82.	(1)				
72	1200	40.43	75.35			79.	(1)				
73	1200	40.27	75.13			104.	(1)				
74	1200	40.10	74.86			138.	(1)				
76	1260	40.86	79.90	131.	(1)						
77	1300	40.35	78.89			398.	(4)				
78	1300	40.30	78.91			147.	(1)				
79	1300	40.25	78.92	261.	(1)			4.	(1)		
80	1300	40.30	75.91			104.	(1)				
81	1300	40.33	75.92			131.	(1)				
82	1300	40.34	75.94			203.	(2)				
83	1300	40.25	78.92							325.	(4)
84	1300	40.32	78.95			63.	(1)				
86	1660	39.97	75.54	44.	(1)	64.	(1)				
87	1660	40.14	75.52			157.	(1)				
89	1660	40.01	75.70			125.	(1)				
90	1660	39.96	75.61			108.	(1)				
91	1660	39.98	75.82	97.	(1)						
92	1660	39.97	75.82			312.	(3)				
93	1760	42.35	79.22			33.	(1)				
95	2180	40.31	76.92			105.	(1)				
96	2180	40.25	75.90			155.	(1)				
97	2340	40.22	76.83			238.	(2)				
98	2340	40.19	75.73			150.	(1)				
100	2340	40.26	75.78			139.	(1)				
101	2340	40.28	76.84			90.	(1)				
102	2340	40.25	76.87	217.	(1)			7.	(1)	333.	(4)

Table continued on next page

Table III.23. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NDX 1-YR	CO 8-HR	OX 1-HR	
104	2340	40.21	76.89			53.	(1)				
105	2360	39.84	75.37			143.	(1)				
106	2360	39.83	75.33	200.	(1)			6.	(1)	349.	(4)
107	2360	39.92	75.35			126.	(1)				
108	3030	42.10	80.03			181.	(1)				
109	3030	42.12	80.03			140.	(1)				
110	3030	42.09	80.18			93.	(1)				
111	3060	42.14	80.05	209.	(1)			9.	(2)	496.	(4)
112	3030	42.13	80.10	9.	(1)	84.	(1)				
114	3030	42.12	79.99			93.	(1)				
116	3030	42.15	80.04			250.	(2)				
117	3220	39.96	79.89			149.	(1)				
118	3930	40.26	76.88			151.	(1)				
120	4640	41.47	75.57			104.	(1)				
121	4640	41.46	75.62			213.	(2)				
124	4640	41.42	75.67	3.	(1)	747.	(4)				
125	4640	41.44	75.62	144.	(1)			6.	(1)		
126	4640	41.41	75.66			133.	(1)				
127	4640	41.44	75.62							347.	(4)
130	4700	40.05	75.75	5.	(1)	119.	(1)				
131	4700	40.04	76.29	113.	(1)			4.	(1)		
132	4700	40.07	76.29			101.	(1)				
133	4700	40.10	76.30			132.	(1)				
134	4700	40.04	76.29			103.	(1)				
135	4700	40.04	76.34			84.	(1)				
136	4700	40.07	76.32			167.	(1)				
137	4700	40.06	76.31			103.	(1)				
138	4700	40.04	76.29			113.	(1)				
139	4700	40.04	76.29							306.	(4)
140	4840	40.93	80.49			573.	(4)				
142	4840	41.00	80.35			276.	(3)				
143	4840	41.00	80.35	50.	(1)			6.	(1)	235.	(4)
144	4940	40.60	75.47			78.	(1)				
146	4940	40.62	75.45	28.	(1)			10.	(2)	400.	(4)
147	4940	40.60	75.47	35.	(1)						
148	4940	40.58	75.46			107.	(1)				
150	4940	40.54	75.51			93.	(1)				
151	5220	40.95	75.98			142.	(1)				
154	5220	41.34	75.73			175.	(1)				
155	5220	41.25	75.89			232.	(2)				
157	5220	41.29	75.88			1465.	(4)				
159	5220	41.32	75.79			111.	(1)				
160	5220	41.17	75.89	60.	(1)			6.	(1)	272.	(4)
161	5220	41.25	75.88			114.	(1)				
163	5220	41.19	76.01			108.	(1)				

Table III.23. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
164	5220	41.32	75.75			166. (1)				
165	5240	41.24	77.02			141. (1)				
166	5240	41.25	76.99			127. (1)				
163	5660	41.22	80.50	201. (1)		139. (1)				
169	5660	41.23	80.51			131. (1)				
171	6000	40.14	75.12			126. (1)				
172	6000	40.11	75.31	21. (1)					5. (1)	335. (4)
175	6000	40.25	75.63			160. (1)				
176	6000	40.25	75.65	151. (1)						
178	6000	40.24	75.23			87. (1)				
179	6000	40.25	75.29	127. (1)						
180	6000	40.08	75.30			126. (1)				
181	6580	40.69	75.22			136. (1)				
182	6580	40.72	75.51			116. (1)				
183	6580	40.72	75.26			132. (1)				
184	6580	40.63	75.34			151. (1)				
185	6580	40.62	75.37			126. (1)				
186	6580	40.62	75.36	144. (1)					20. (4)	482. (4)
187	6700	40.61	75.38			48. (1)				
189	7160	39.96	75.17	258. (1)		151. (1)			11. (3)	274. (4)
190	7160	39.98	75.12			157. (1)	86. (3)			
191	7160	40.01	75.15							255. (4)
193	7160	39.96	75.17			206. (2)				
195	7160	39.96	75.17	298. (2)					11. (3)	
196	7160	39.98	75.10			269. (3)	98. (4)			
197	7160	40.05	75.24	147. (1)		104. (1)	53. (1)		7. (1)	451. (4)
198	7160	40.01	75.10	35. (1)		104. (1)				
199	7160	40.01	75.10	327. (2)	54. (1)	212. (2)	69. (2)	98. (2)	14. (4)	412. (4)
201	7160	39.94	75.17			153. (1)	71. (2)			
202	7160	39.96	75.17	96. (1)		109. (1)				
203	7160	39.96	75.17							314. (4)
204	7160	39.95	75.16	339. (2)				97. (2)		
205	7160	40.01	75.15	114. (1)		208. (2)	105. (4)		16. (4)	
206	7160	39.95	75.16		86. (3)	201. (2)	113. (4)		13. (4)	255. (4)
207	7160	40.08	75.01	119. (1)		151. (1)	62. (2)		14. (4)	392. (4)
208	7160	39.91	75.15	222. (1)		236. (3)	90. (3)		7. (1)	431. (4)
209	7160	39.92	75.19	309. (2)	57. (1)	163. (1)	89. (3)		6. (1)	451. (4)
210	7160	39.88	75.23	146. (1)	35. (1)	229. (2)	97. (4)		9. (2)	372. (4)
211	7160	40.00	75.22	166. (1)		112. (1)			6. (1)	392. (4)
212	7160	39.98	75.10	193. (1)	50. (1)				11. (3)	412. (4)
213	9200	40.08	79.89			185. (1)				
214	9200	40.11	79.94			110. (1)				
215	9200	40.17	80.25	175. (1)						
216	9200	40.22	79.97			205. (2)				
218	9200	40.15	79.50	104. (1)					4. (1)	416. (4)

Table continued on next page

Table III.23. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	S02 24-HR	S02 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
219	9330	40.30	79.55	195. (1)						
220	9330	40.17	79.81			108. (1)				
221	9330	40.16	79.80			302. (3)				
222	9570	39.95	76.77			164. (1)				
223	9570	39.95	76.77			356. (4)				
225	9570	39.94	76.79			104. (1)				
226	9570	39.97	76.72			152. (1)				
228	9570	40.03	76.75			81. (1)				
229	9570	39.98	76.67			153. (1)				
232	9570	39.96	76.73			103. (1)				
234	9570	39.96	76.73	11. (1)						
235	9570	39.91	76.70	225. (1)				7. (1)		370. (4)

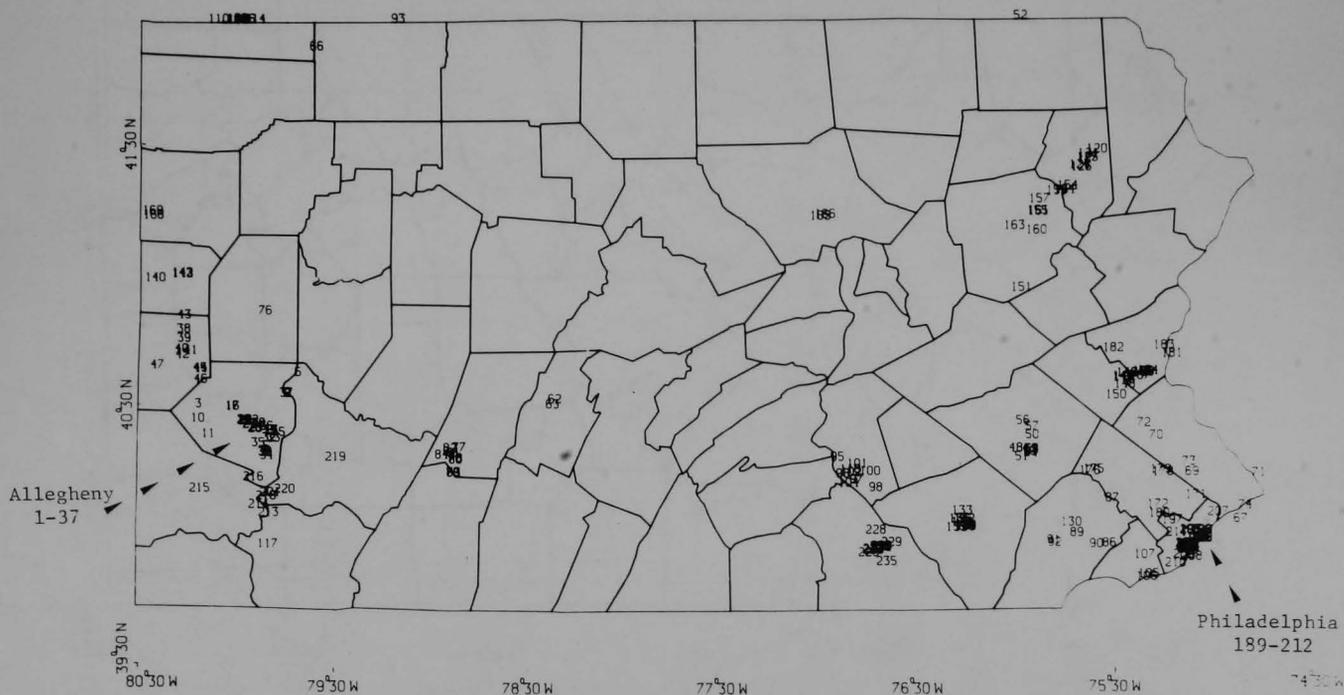


Fig. III.133. Pennsylvania: Locations of SAROAD Monitors (See Table III.23 for Monitor Numbers)

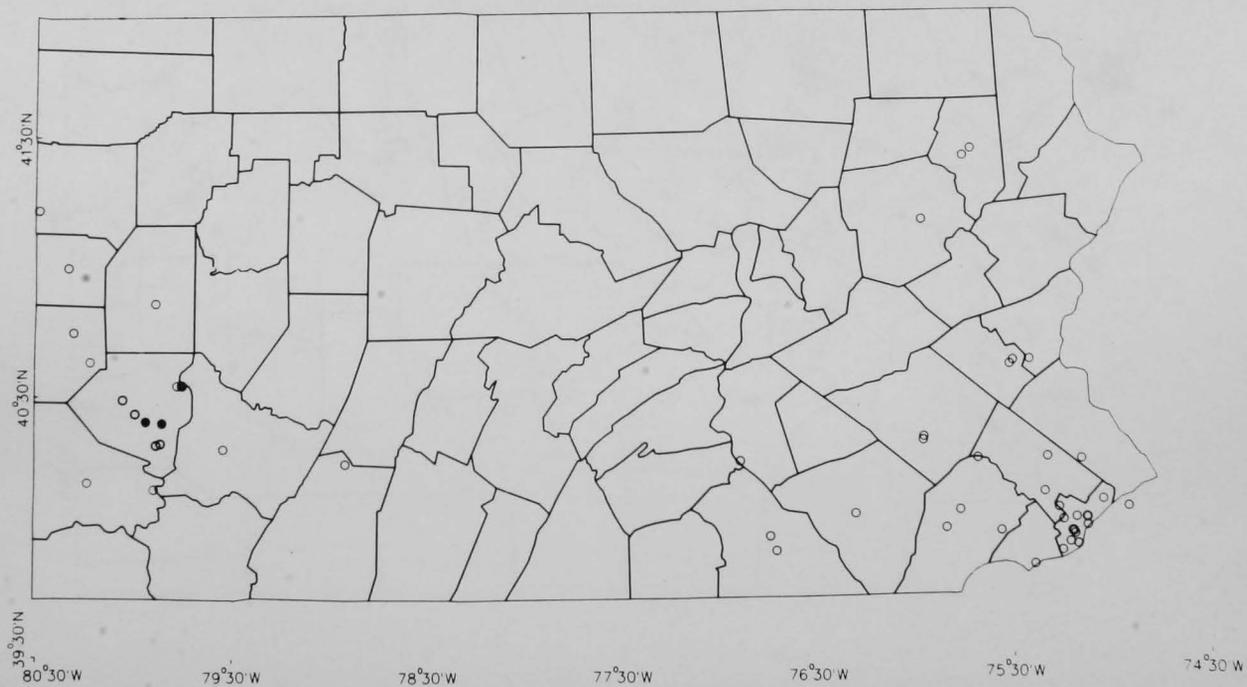


Fig. III.134. Pennsylvania: Monitors Reporting Adequate Data on 24-hr Average SO₂; Violations Shown by Shaded Circles

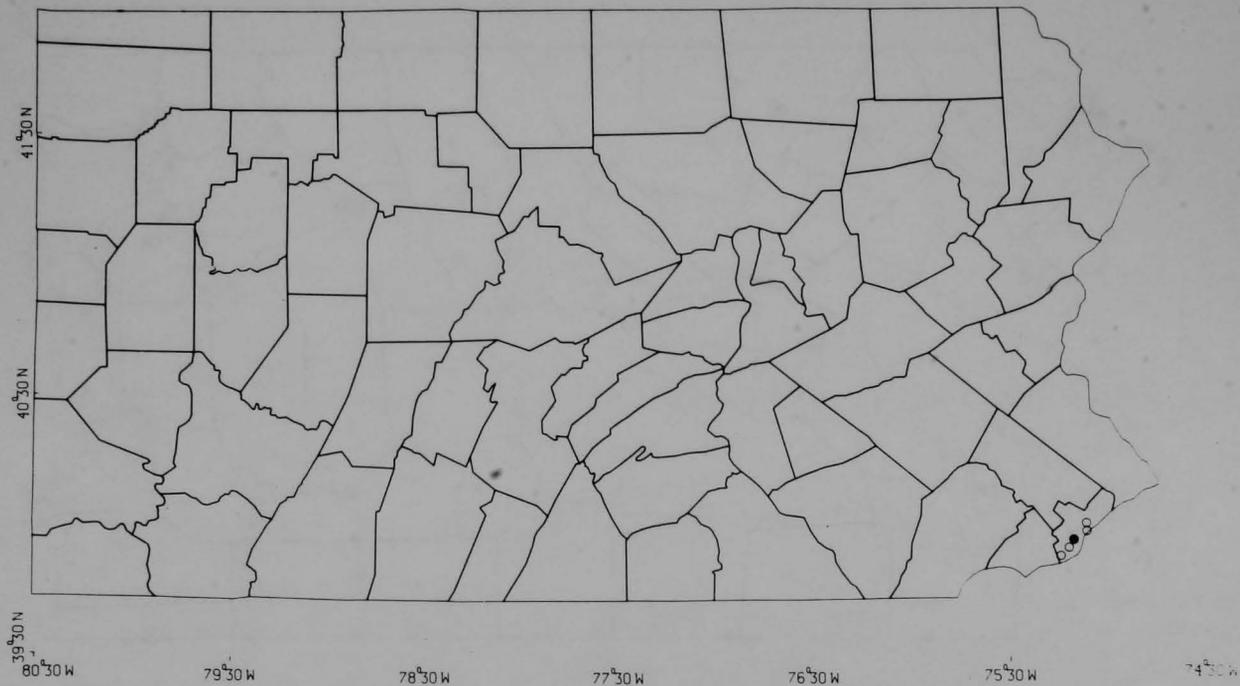


Fig. III.135. Pennsylvania: Monitors Reporting Adequate Data on Annual Average SO₂; Violations Shown by Shaded Circles

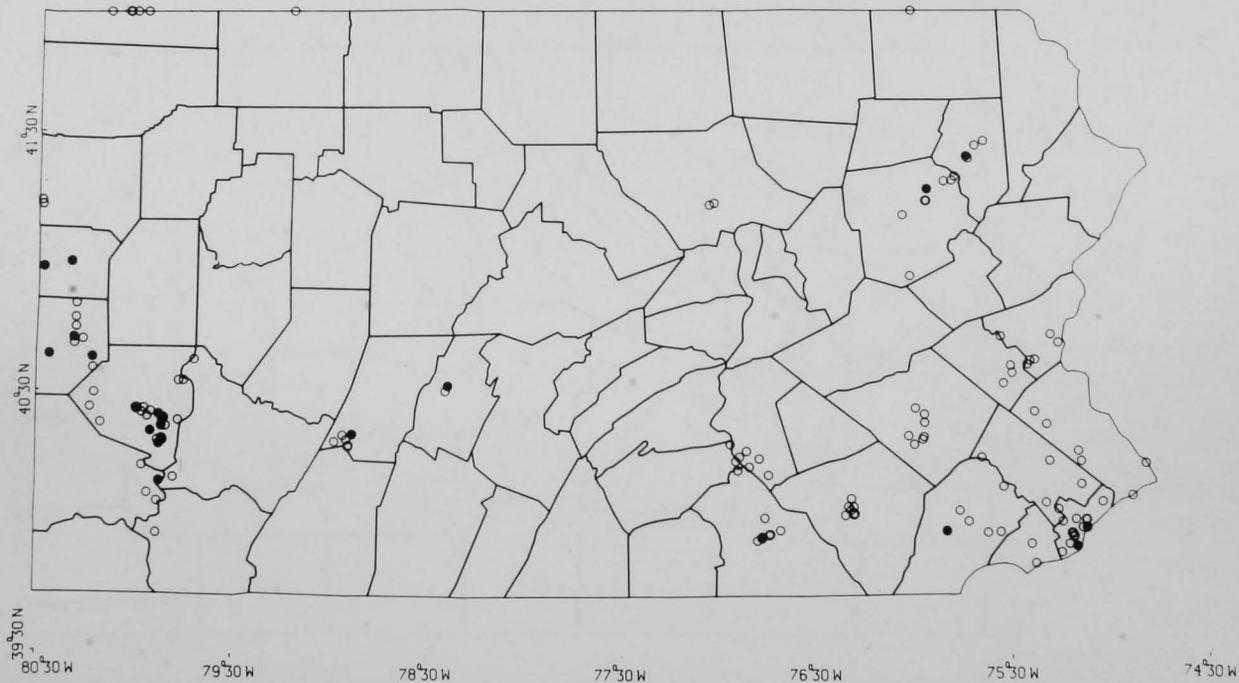


Fig. III.136. Pennsylvania: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

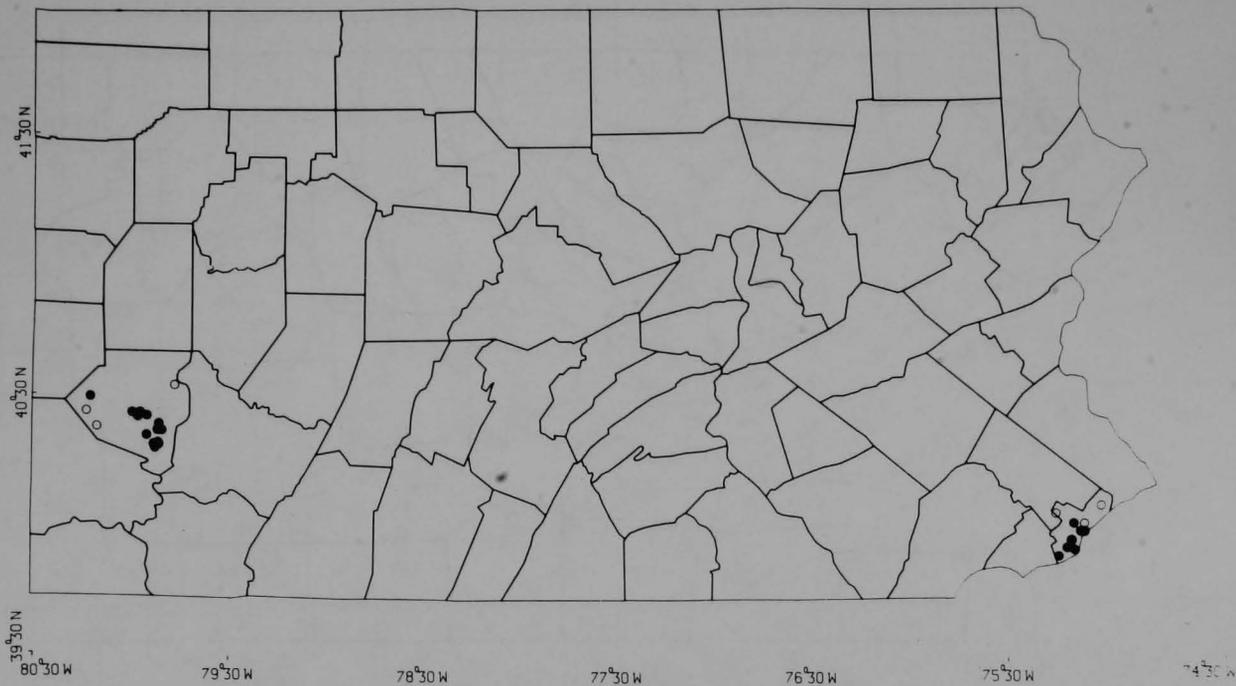


Fig. III.137. Pennsylvania: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

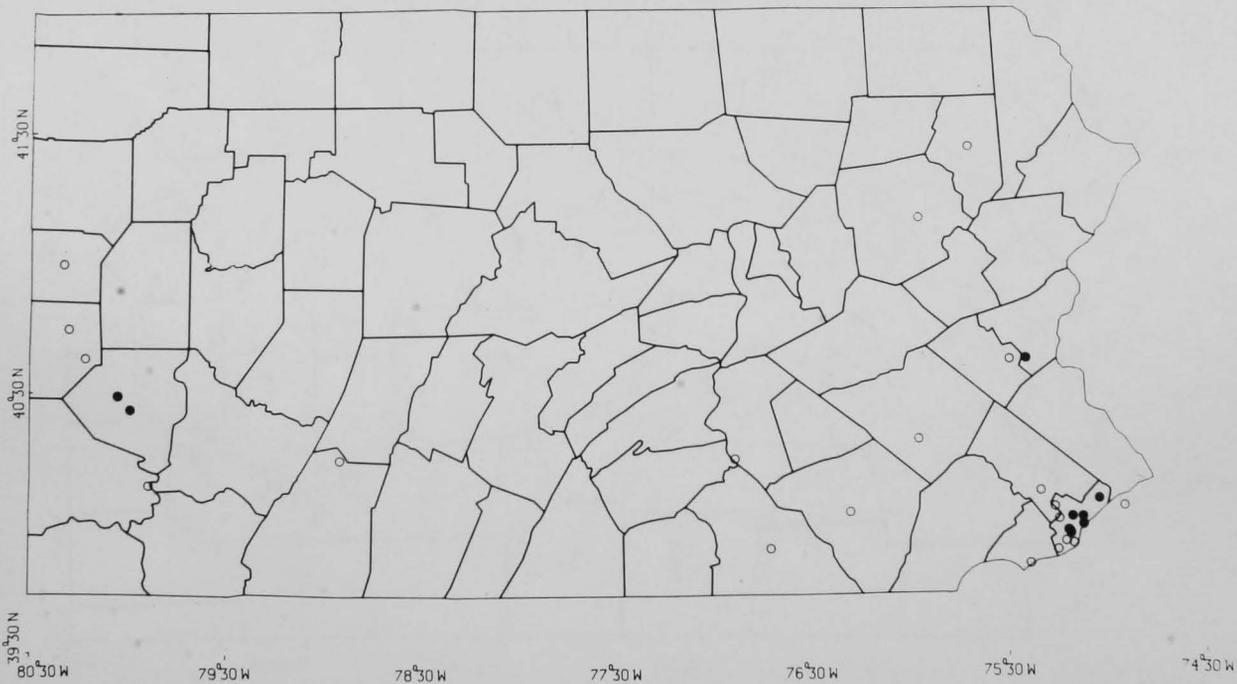


Fig. III.138. Pennsylvania: Monitors Reporting Adequate Data on 8-hr Average CO; Violations Shown by Shaded Circles

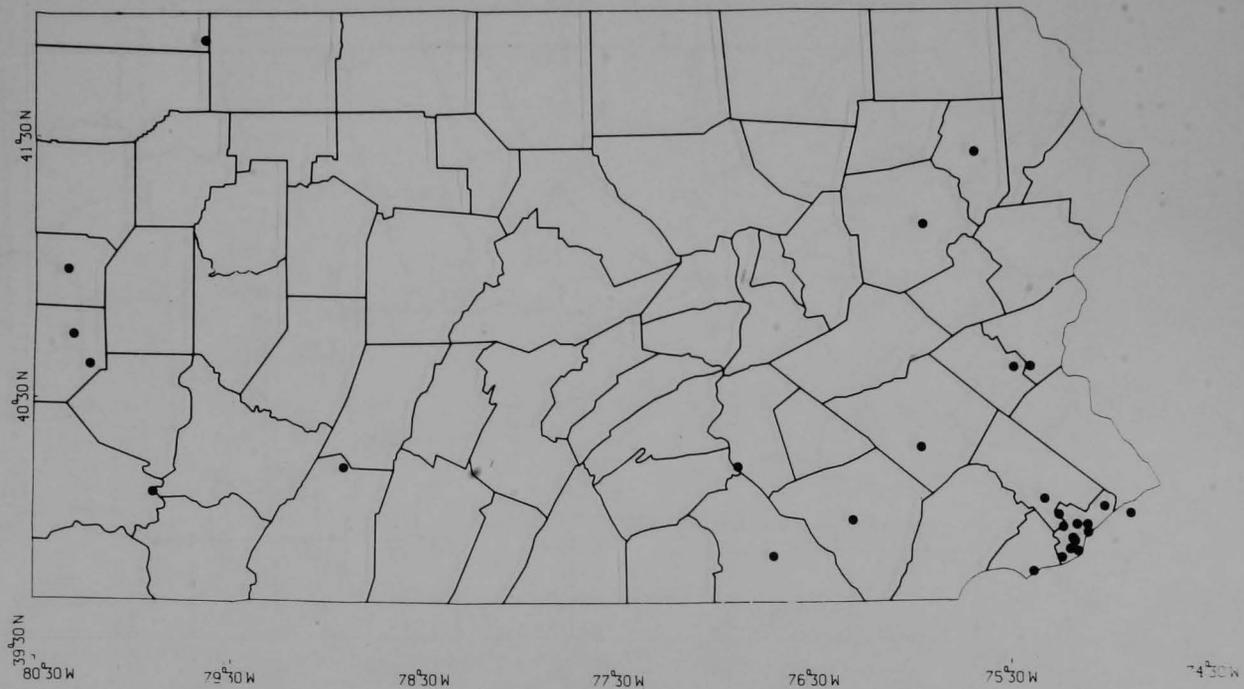


Fig. III.139. Pennsylvania: Monitors Reporting Adequate Data on 1-hr Average O_3 ; Violations Shown by Shaded Circles

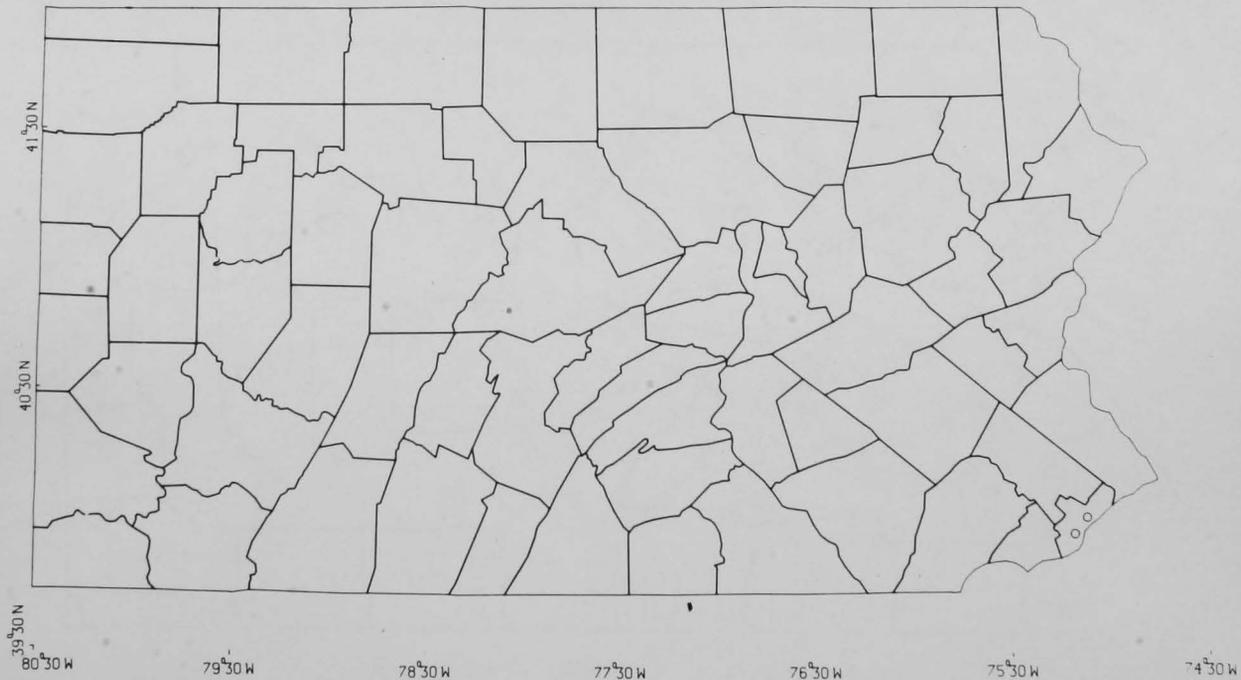


Fig. III.140. Pennsylvania: Monitors Reporting Adequate Data on Annual Average NO_x ; No Violations

Table III.24. Pennsylvania: Power Plant Data

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	ARMSTRONG	40.93	79.47	325.40	0.0
2	B MANSFIELD 1 & 2	40.68	80.35	120.00	0.0
3	BARDADOES	40.11	75.36	132.00	0.0
4	N DEAVER VALLEY	40.68	80.35	60.20	0.0
5	BRUNNER ISLAND	40.10	76.70	1558.73	0.0
6	CHESTER	39.83	75.39	130.00	0.0
7	CHESTNICK	40.54	79.79	545.00	0.0
8	CONEMAUGH	40.33	79.06	1372.00	0.0
9	CRAWFORD	40.19	76.74	136.70	0.0
10	CROSBY	40.15	75.53	417.50	0.0
11	DELAWARE	39.97	75.13	312.50	0.0
12	EDDYSTONE	39.66	75.33	1039.20	0.0
13	ELMIRA	40.25	79.92	510.00	0.0
14	EXLER	40.33	75.94	84.00	0.0
15	FRONT STREET	42.14	80.09	118.00	0.0
16	HATFIELD	39.86	76.93	1720.00	0.0
17	HOLTWOOD	39.83	76.33	75.00	0.0
18	HOMER CITY	40.51	79.16	1320.00	0.0
19	HUNLOCK CREEK	41.29	76.07	89.00	0.0
20	KEYSTONE	40.66	79.34	1872.00	0.0
21	LIVERICK	40.22	75.37	25.60	0.0
22	MARTINS CREEK	40.80	75.11	1153.00	0.0
23	MEESBURG	40.94	77.79	46.00	0.0
24	MITCHELL	40.22	79.97	448.70	0.0
25	MONTGOMERY	41.07	76.67	1641.70	0.0
26	NEW CASTLE	40.94	80.37	425.80	0.0
27	N PEACH BOTTOM	39.93	76.73	2042.60	0.0
28	PHILLIPS	40.57	80.25	411.00	0.0
29	PORTLAND	40.91	75.03	426.70	0.0
30	RECHARD	39.93	75.07	334.00	0.0
31	SCHUYLKILL	39.94	75.13	275.40	0.0
32	SEWARD	40.61	77.03	280.20	0.0
33	SHARPSVILLE	41.07	73.20	640.00	0.0
34	* SHIPPERSFORD	0.0	0.0	87.00	0.0
35	SOUTHWORK	39.91	75.14	345.00	0.0
36	SPRINGDALE	40.54	79.77	210.38	0.0
37	SWADLEY	40.84	76.82	409.73	0.0
38	SUSSUNUNNA	41.18	75.99	45.00	0.0
39	N THREE HILE ISLAND	40.61	76.78	871.06	0.0
40	TITUS	40.31	75.91	225.00	0.0
41	WARREN	41.84	79.19	39.60	0.0
42	HILLMANBURG	40.47	76.21	25.00	0.0

N NUCLEAR * NOT PLOTTED

Table III.25. Pennsylvania: Fuel Use Data

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	ARMSTRONG	2.27	891.20	0.25	2.94	0.0
2	B N. NSFIELD 1 & 2	0.0	0.0	0.0	0.0	0.0
3	BARRACLOS	0.0	0.0	0.43	270.00	222.00
4	N BEAVER VALLEY	0.0	0.0	0.0	0.0	0.0
5	DELFUER ISLAND	2.22	3520.20	0.10	195.00	0.0
6	CHESTER	0.0	0.0	0.39	584.00	0.0
7	CHESTER	2.21	1399.25	0.0	0.0	0.0
8	CONEMAUGH	2.05	3734.00	0.40	79.00	0.0
9	CRAWFORD	1.41	101.00	0.43	56.20	0.0
10	CROWDY	2.54	345.00	0.37	1243.00	0.0
11	DELAWARE	0.0	0.0	0.43	1052.00	0.0
12	EDDYSTONE	2.23	1032.00	0.45	1302.00	0.0
13	ELRAMA	2.18	1244.98	0.0	0.0	0.0
14	EXLER	0.0	0.0	0.33	26.10	0.0
15	FRONT STREET	1.52	331.00	0.10	6.40	0.0
16	HATFIELD	2.15	3954.50	0.25	9.37	0.0
17	HOLTHOOD	0.34	323.50	0.35	5.70	0.0
18	HOMER CITY	2.55	2035.00	0.13	112.00	0.0
19	HUNLOCK CREEK	0.70	250.50	0.12	25.60	0.0
20	KEYSTONE	2.15	4168.00	0.10	82.00	0.0
21	LEMERICK	0.0	0.0	0.0	0.0	0.0
22	MARTINS CREEK	2.23	727.00	0.90	1004.40	0.0
23	MILLSBURG	0.0	0.0	0.01	59.20	0.0
24	MITCHELL	2.42	750.50	0.62	68.24	15.17
25	MONTGOMERY	1.59	3933.00	0.19	195.20	0.0
26	NEW CASTLE	2.67	813.00	1.50	6.34	0.0
27	N PEACH BOTTOM	0.0	0.0	0.0	0.0	0.0
28	PHILLIPS	1.85	941.65	0.0	0.0	0.0
29	PORTLAND	2.23	912.00	0.25	91.00	0.0
30	RICHMOND	0.0	0.0	0.41	360.00	0.0
31	SCHUYLKILL	0.0	0.0	0.38	3292.00	0.0
32	SEWARD	2.54	646.00	0.10	33.43	0.0
33	SHNIVILLE	2.19	1742.00	0.10	42.72	0.0
34	* SHIPPINGPORT	0.0	0.0	0.0	0.0	0.0
35	SOUTHMARK	0.0	0.0	0.43	1107.00	0.0
36	SPRINGDALE	1.43	75.00	0.59	57.27	0.0
37	SUNBURY	2.10	1521.10	0.19	8.80	0.0
38	SUSQUEHANNA	0.0	0.0	0.6	0.0	0.0
39	N THREE MILE ISLAND	0.0	0.0	0.0	0.0	0.0
40	TITUS	1.01	515.00	0.33	31.40	0.0
41	WARREN	2.18	291.00	0.10	1.44	0.0
42	WILLIAMSBURG	1.64	111.00	0.18	1.85	0.0

N NUCLEAR * NOT PLOTTED

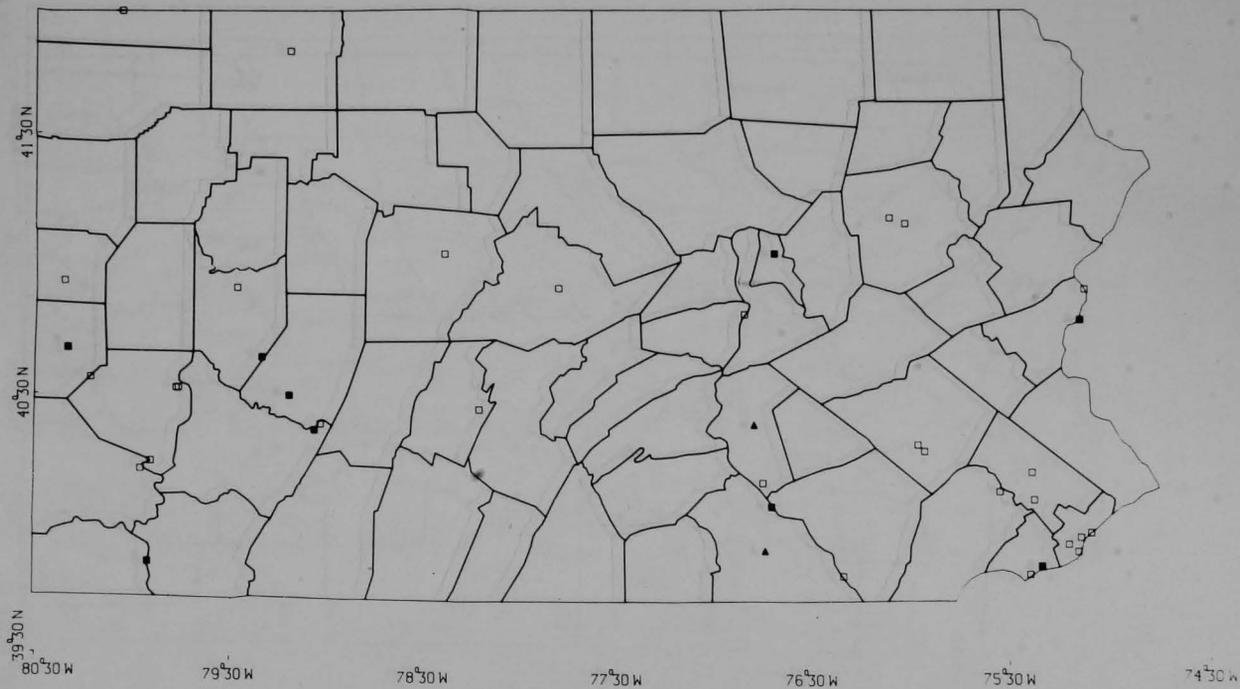


Fig. III.141. Power Plant Locations (Square = Fossil Fuel: Shaded, \geq 1000 MW; Open, $<$ 1000 MW. Triangle = Nuclear)

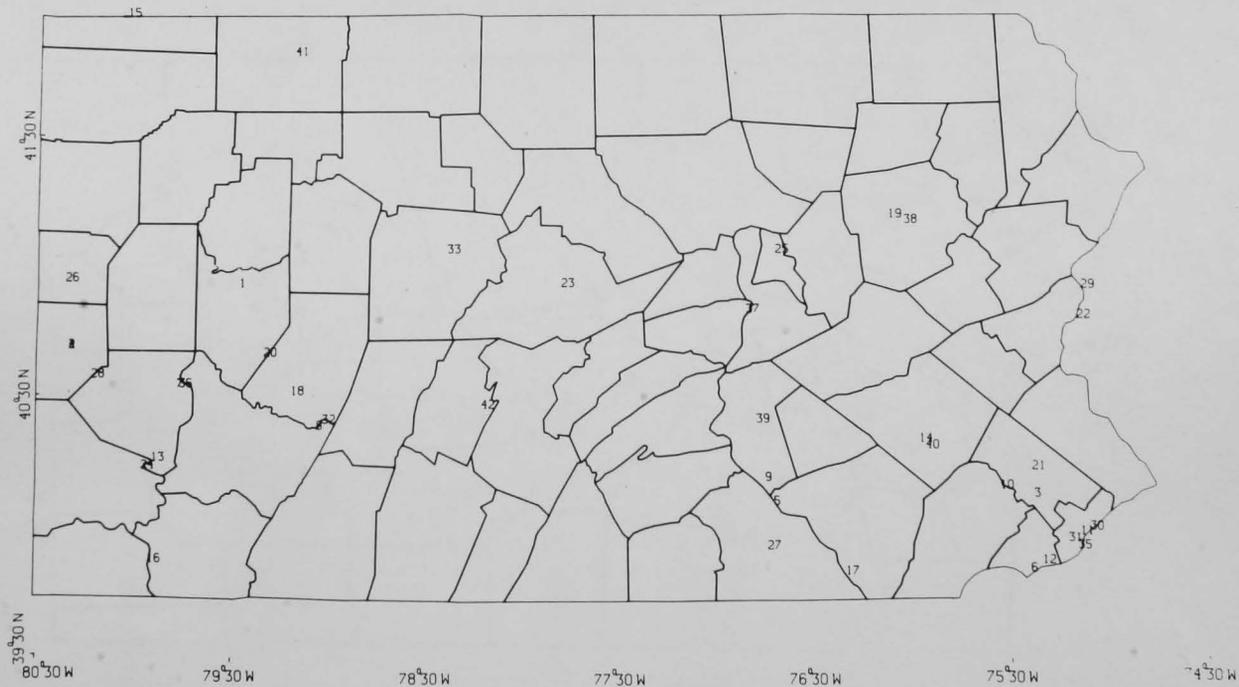


Fig. III.142. Power Plant Key (See Tables III.24 and III.25 for Identification and Fuel Use Data)

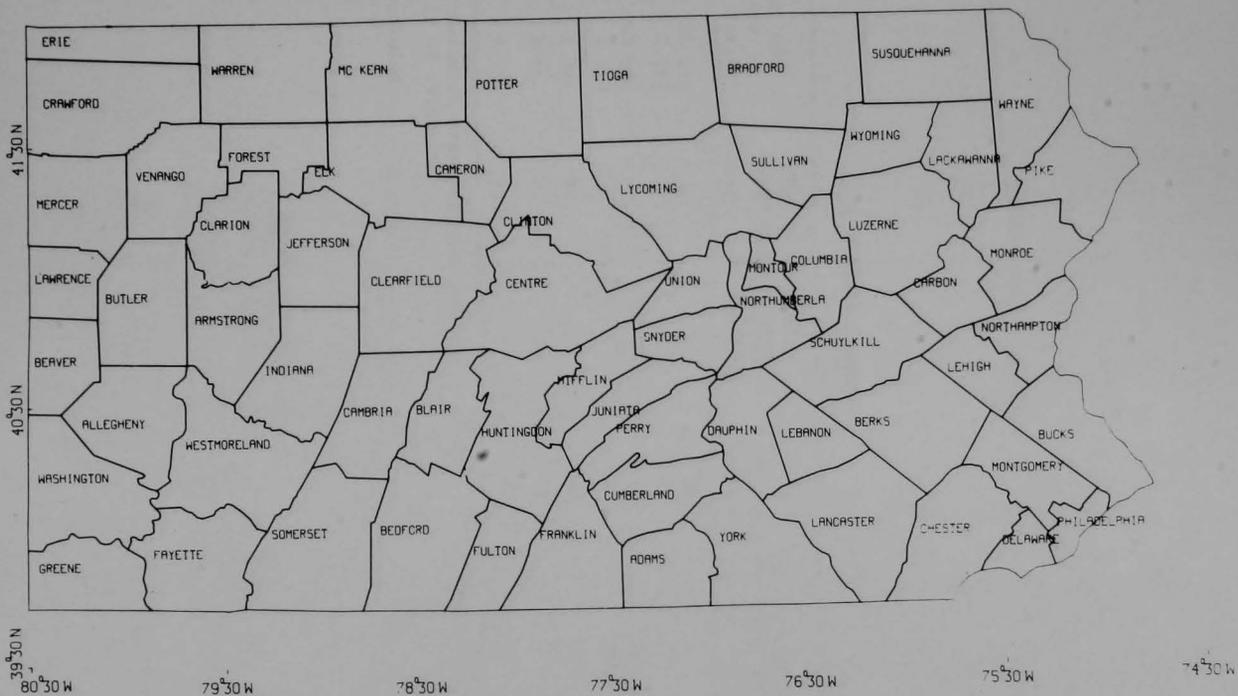


Fig. III.143: Pennsylvania: Key to Counties

REGION III: VIRGINIA

Air Quality Summary

Pollutant and Standard Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
	Primary	Secondary		
SO ₂ 24 hr } 1 yr }	0 ^b	0	86	0
			69	0
TSP 24 hr } 1 yr }	0 ^b	0	177	4
			133	6
NO _x 1 yr	0 ^b	-	13	1
CO 8 hr	3	-	12	7
O _x 1 hr	6	-	16	15

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

<u>Energy Facilities</u>	
Fossil Fuel	13
Nuclear	1
Total	14

VIRGINIA: Official SIP, 2/79

I. SOURCES OF THE PROBLEM

Virginia has divided its counties and incorporated independent cities into Air Quality Control Regions (AQCR) for the purpose of air quality management. Nonattainment designations were made on the basis of AQCRs. There are no nonattainment areas for TSP or SO₂. In AQCR 7, Alexandria City and Arlington and Fairfax counties are designated nonattainment for CO, as a result of high motor vehicle traffic in the metropolitan D.C. area.

Virginia has oxidant nonattainment in 6 out of 7 AQCRs. In AQCR 7 (northern Virginia) 64% of the VOC emissions come from traffic. In the southeastern nonattainment area (AQCR 6: Chesapeake, Norfolk, Suffolk, and Virginia Beach) the traffic accounts for 57% of VOC. In AQCR 5 (Richmond), traffic is responsible for 43% of the VOC. Traffic contributes 80% of VOC emissions in AQCR 4 (Stafford), 57% in AQCR 2 (Roanoke-Salem) and 34% in AQCR 1 (Smith County).

II. ATTAINMENT STRATEGIES

A. CO

1. FMVECP alone will provide attainment
2. Localized concentrations will be dealt with by indirect source permit regulation

B. O_x

1. FMVECP for emissions from new vehicles
2. RACT on stationary sources (some variations from EPA guidelines in certain areas; e.g., in northern Virginia, methylene chloride was deleted from the nonmethane category, the auto coating standard was loosened to avoid burdening a single source, and compliance with an EPA control technique guidance on can coating was judged technologically infeasible)
3. Request made for extension to 1987

4. Transportation control measures are necessary in northern Virginia, Richmond, southeastern Virginia, and the Peninsula (Norfolk), but only northern Virginia will include the measures listed in b. (below)
 - a. Vehicle inspection and maintenance program (not yet passed by legislature)
 - b. Traffic and transit measures will be analyzed and some implemented in the North Virginia nonattainment area:
 - construction of Interstate 66 includes provision for METRO rail in the median
 - preferential lanes for buses and high-occupancy vehicles
 - bikeways and sidewalks planned
 - studies of computerized traffic signals and freeway ramp metering

III. NEW SOURCE REVIEW

Virginia will use an emission offset approach to the siting of major new sources in nonattainment areas.

IV. EMISSION LIMITATIONS FOR FUEL COMBUSTION

A. SO₂

1. AQCR 7 (National Capital Interstate)
 - a. Includes Arlington, Fairfax, Loudon, and Prince William counties, and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park
 - b. Emission limit: solid fuel, 1.52 lb of SO₂ per MM Btu of heat input; oil and gas, 1.06 lb of SO₂ per MM Btu
2. Rest of state:
 - a. 2.64 lb of SO₂ per MM Btu of fuel input

B. TSP

1. AQCR 7
 - a. For sources smaller than 100 MM Btu/hr fuel input: 0.3 lb of particulates per MM Btu

- b. For sources larger than 10,000 MM Btu/hr:
0.1 lb of particulates per MM Btu
 - c. Limits interpolated within this range for
sources of intermediate size
2. Rest of state:
- a. For sources smaller than 10 MM Btu/hr: 0.6 lb
of particulate matter per MM Btu
 - b. For sources larger than 10,000 MM Btu/hr: 0.1 lb
of particulates per MM Btu
 - c. Limits interpolated within this range for sources
of intermediate size
3. Exemptions
- a. All solid fuel sources smaller than 350,000 Btu/hr
 - b. All gas or oil-fueled sources smaller than 1 MM Btu/hr

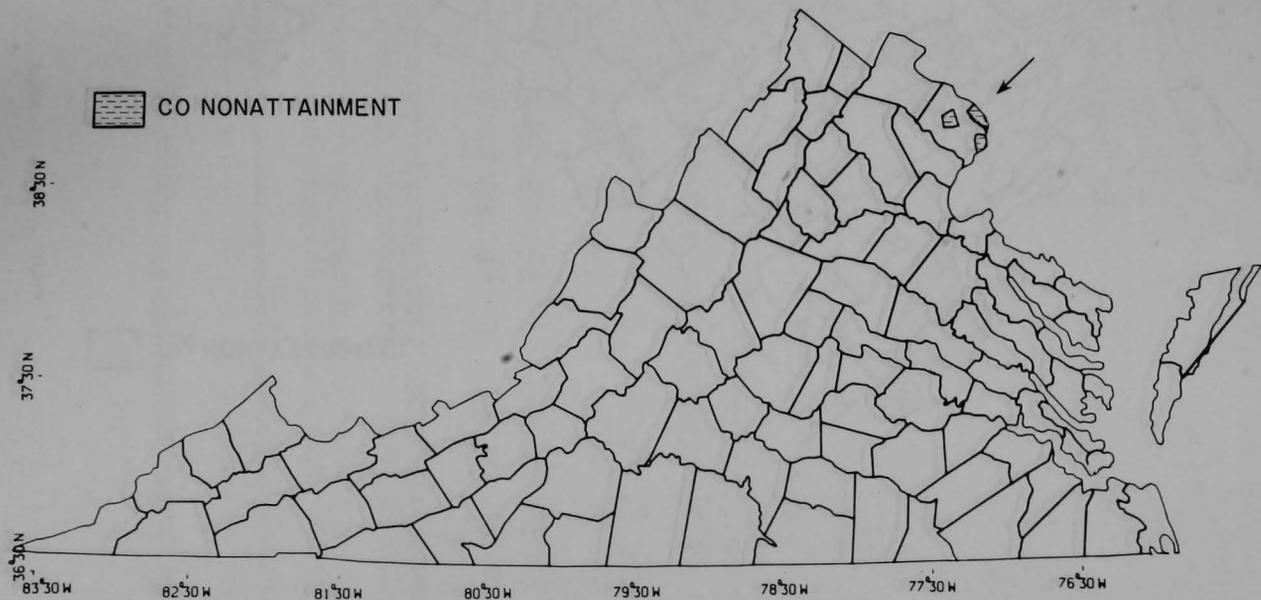


Fig. III.144. Virginia: CO Nonattainment Areas as Designated May 1979

Table III.26. Virginia: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO ₂ 24-HR	SO ₂ 1-YR	TSP 24-HR	TSP 1-YR	NO _X 1-YR	CO 8-HR	OX 1-HR
1	0	38.81	77.04	156. (1)	68. (2)	118. (1)	63. (2)		15. (4)	
2	0	38.81	77.09			112. (1)	55. (1)			
3	0	38.81	77.11			106. (1)	53. (2)			
4	0	38.84	77.06			311. (3)	80. (3)			
5	0	38.77	77.06	66. (1)	13. (1)	127. (1)	55. (1)			
6	0	38.83	77.08	79. (1)	14. (1)	87. (1)	51. (1)			
7	0	38.82	77.06			118. (1)	60. (2)			
8	0	38.83	77.11			93. (1)	52. (1)			
9	0	38.81	77.04					67. (1)		451. (4)
10	0	37.00	76.40						15. (4)	
11	0	37.03	76.35			34. (1)				
12	0	37.01	76.41			79. (1)				
14	0	36.66	80.92	26. (1)	5. (1)	146. (1)	72. (2)			
15	0	38.31	77.45							157. (2)
16	0	38.29	77.47	52. (1)	13. (1)	87. (1)	40. (1)			
17	0	36.69	76.94	26. (1)	4. (1)	93. (1)	34. (1)			
18	0	38.87	77.17			96. (1)	50. (1)			
19	0	38.89	77.19	79. (1)	15. (1)					
20	0	38.84	77.31	120. (1)	33. (1)	93. (1)	41. (1)	51. (1)	7. (1)	402. (4)
21	0	38.86	77.31			110. (1)	46. (1)			
22	0	36.69	77.54			98. (1)	52. (1)			
24	0	36.58	79.39	105. (1)	16. (1)					
25	0	36.60	79.39	52. (1)	13. (1)					
26	0	36.57	79.41			98. (1)	47. (1)			
27	0	36.58	79.40			113. (1)				
28	0	37.81	79.99	52. (1)	16. (1)	123. (1)	47. (1)			
29	0	37.25	77.41			82. (1)	44. (1)			
30	0	37.83	79.82			115. (1)	34. (1)			
31	0	36.82	76.27			114. (1)				
32	0	36.73	76.29	183. (1)		310. (3)			5. (1)	
33	0	36.77	76.29	283. (2)	42. (1)	164. (1)	38. (1)			
34	0	36.82	76.27			183. (1)				
35	0	36.82	76.28	145. (1)	34. (1)	135. (1)				
36	0	38.03	78.43	26. (1)	4. (1)	110. (1)	54. (1)			
37	0	37.73	79.36			82. (1)	40. (1)			
38	0	36.60	82.16			171. (1)	57. (2)			
39	0	36.61	82.16	151. (1)	34. (1)	86. (1)	47. (1)			
40	0	36.57	79.53	52. (1)						
41	0	37.34	79.51			141. (1)	57. (2)			
42	0	37.33	79.52	26. (1)	8. (1)	77. (1)				
43	0	39.20	78.13	52. (1)	20. (1)					
44	0	37.27	76.71			90. (1)				
45	0	38.07	78.88			131. (1)	49. (1)			
46	0	38.03	78.88			154. (1)	53. (1)			

Table continued on next page

Table III.26. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
47	0	38.07	78.89	79. (1)	15. (1)					
48	0	36.85	75.98			81. (1)	44. (1)			
49	0	36.85	76.13	52. (1)	14. (1)	81. (1)	41. (1)			
50	0	36.72	76.58	79. (1)	10. (1)	124. (1)	50. (1)			
51	0	38.17	79.05			55. (1)	26. (1)			
52	0	36.70	78.91			90. (1)	39. (1)			
53	0	37.33	79.98			93. (1)				
54	0	37.29	79.98			34. (1)				
57	0	37.27	79.93			68. (1)				
58	0	37.52	77.44	63. (1)	23. (1)	174. (1)	89. (3)	67. (1)		
59	0	37.45	77.46			112. (1)	43. (1)			
60	0	37.55	77.44			131. (1)	66. (2)			
61	0	37.51	77.40	76. (1)	15. (1)	124. (1)	57. (2)	33. (1)		
62	0	37.54	77.39			110. (1)	52. (1)			
63	0	37.55	77.46	136. (1)	34. (1)	108. (1)	59. (2)	40. (1)		
64	0	37.59	77.45	68. (1)	21. (1)	155. (1)	48. (1)	42. (1)		
65	0	37.50	77.47							343. (4)
66	0	37.57	77.46	125. (1)		169. (1)			16. (4)	
67	0	37.57	77.52			93. (1)	47. (1)			
68	0	37.53	77.42			126. (1)	60. (2)			
69	0	37.57	77.46			104. (1)	56. (1)			
70	0	37.54	77.43	241. (1)	35. (1)	139. (1)	68. (2)	81. (2)		259. (4)
72	0	37.55	77.45						18. (4)	
73	0	37.14	80.55			92. (1)				
74	0	36.83	76.34	79. (1)	19. (1)	127. (1)	60. (2)			
75	0	36.84	76.30	21. (1)		124. (1)				
77	0	37.23	77.39	52. (1)	15. (1)	108. (1)	56. (1)			
78	0	36.94	82.59	3. (1)		126. (1)				
79	0	36.91	76.24	105. (1)		104. (1)				
80	0	36.91	76.24	131. (1)	18. (1)	139. (1)	53. (1)			
81	0	36.89	76.21							274. (4)
82	0	36.85	76.28	135. (1)	35. (1)	136. (1)			18. (4)	
83	0	36.89	76.31	105. (1)	31. (1)	165. (1)	61. (2)			
84	0	36.85	76.29	10. (1)		76. (1)				
86	0	37.05	76.48	52. (1)	10. (1)	99. (1)	39. (1)			
87	0	36.98	76.43			150. (1)	65. (2)			
91	0	36.71	79.87			120. (1)	47. (1)			
92	0	36.69	79.83	52. (1)	13. (1)	163. (1)	65. (2)			
93	0	37.40	79.18			69. (1)	34. (1)			
94	0	37.45	79.21			72. (1)	29. (1)			
95	0	37.40	79.15			107. (1)	62. (2)			
96	0	37.41	79.14	26. (1)	10. (1)	149. (1)	75. (2)			
97	0	37.41	79.14			99. (1)				
99	0	37.79	79.43			106. (1)	41. (1)			
100	0	37.30	77.28	222. (1)	54. (1)					

Table III.26. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
101	0	37.30	77.23	52. (1)	14. (1)	154. (1)	69. (2)			
102	0	38.45	78.85			99. (1)	46. (1)			
103	0	37.02	76.35			117. (1)	52. (1)			
104	0	37.00	76.40			115. (1)	47. (1)			
105	0	37.00	76.40	128. (1)	35. (1)					251. (4)
106	40	37.84	75.48			116. (1)	56. (1)			
107	40	37.71	75.67			91. (1)	31. (1)			
108 *	140	0.0	0.0			181. (1)	44. (1)			
109	160	37.60	79.06			72. (1)	30. (1)			
110	160	37.41	79.12			133. (1)	51. (1)			
111	180	37.49	78.90			72. (1)	32. (1)			
112	180	37.35	78.83			68. (1)				
113	180	37.49	78.90	26. (1)	6. (1)					
114	200	38.84	77.05	26. (1)	6. (1)	141. (1)	72. (2)			
115	200	38.84	77.08			131. (1)		19. (4)		
116	200	38.89	77.13			89. (1)				
117	200	38.84	77.03			148. (1)				
118	200	38.84	77.03	146. (1)	29. (1)					314. (4)
119	200	38.88	77.14	52. (1)		101. (1)				
120	200	38.87	76.99			108. (1)	69. (2)			
121	200	38.89	77.13	52. (1)						
122	340	37.37	79.50			75. (1)				
123	340	37.45	79.60	3. (1)		59. (1)				
124	340	37.53	79.36			90. (1)	49. (1)			
125	400	37.53	79.67			253. (2)	65. (2)			
126	500	36.77	77.85			65. (1)				
127	520	37.23	82.04	52. (1)		199. (2)				
128	540	37.54	78.46	25. (1)		74. (1)				
129	580	37.39	79.10			84. (1)				
130	580	37.05	78.94			106. (1)	42. (1)			
131	580	37.36	79.21			73. (1)	41. (1)			
132	580	37.39	79.10			89. (1)				
133	580	37.11	79.29			108. (1)	49. (1)			
134	720	37.44	77.44	52. (1)	14. (1)	96. (1)	48. (1)			
135	760	39.09	78.06			76. (1)	37. (1)			
135 *	880	38.50	83.99			108. (1)	33. (1)			
137	1000	37.93	76.86			107. (1)	45. (1)			
138	1060	38.89	77.47			83. (1)	37. (1)			
139	1060	33.73	77.10			120. (1)	53. (1)			
140	1060	38.89	77.47	36. (1)	7. (1)				11. (3)	
141	1060	33.73	77.10		33. (1)					
142	1060	38.70	77.26			162. (1)	55. (1)			
143	1060	38.73	77.10	112. (1)				60. (1)		363. (4)

Table continued on next page

Table III.26. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
144	1060	38.70	77.26	89. (1)	15. (1)					
145	1060	38.64	77.13	80. (1)	17. (1)	92. (1)	41. (1)			
146	1060	38.85	77.12	70. (1)	16. (1)	119. (1)	50. (1)			
147	1060	38.83	77.19			100. (1)	44. (1)			
148	1060	38.97	77.39			94. (1)	44. (1)			
149 *	1050	38.93	77.20	107. (1)	38. (1)	103. (1)	42. (1)	65. (1)	10. (2)	402. (4)
150	1060	38.97	77.31	31. (1)	7. (1)	86. (1)	38. (1)			
151	1050	38.87	77.14					79. (2)	7. (1)	411. (4)
152	1060	38.78	77.18	48. (1)	13. (1)	113. (1)	47. (1)			
153	1060	38.91	77.26	36. (1)	10. (1)	87. (1)	43. (1)			
154	1060	38.81	77.26	30. (1)	9. (1)	103. (1)	46. (1)			
155 *	1120	38.71	83.61			64. (1)	32. (1)			
156 *	1160	37.71	83.97			89. (1)	43. (1)			
157	1160	37.54	78.46	3. (1)		67. (1)				
158	1200	37.01	79.88			155. (1)	49. (1)			
159	1220	39.26	78.03			276. (3)	77. (3)			
160	1300	37.33	80.73			21. (1)				
161	1300	37.33	80.73			132. (1)	56. (1)			
162	1320	37.25	76.50			95. (1)	38. (1)			
163	1500	37.59	77.50							332. (4)
164	1500	37.51	77.31	52. (1)		76. (1)				
165 *	1500	37.59	83.42							353. (4)
166	1500	37.44	77.35	79. (1)	14. (1)	95. (1)	35. (1)			
167	1500	37.58	77.40	105. (1)	20. (1)	90. (1)	39. (1)			
168	1500	37.60	77.56	157. (1)	26. (1)	86. (1)	37. (1)			
169	1520	36.74	79.96			215. (2)	79. (3)			
170	1520	36.63	79.95	26. (1)	5. (1)					
171	1520	36.76	80.00			120. (1)	56. (1)			
172	1520	36.77	80.00			213. (2)	82. (3)			
173	1660	37.56	76.20			77. (1)	36. (1)			
174	1760	39.11	77.53			90. (1)	46. (1)			
175	1760	39.12	77.57	52. (1)						
176	1760	39.08	77.49			67. (1)				
177	1760	39.05	77.52			147. (1)				
178	1980	36.73	78.12	52. (1)	10. (1)	78. (1)	34. (1)			
179	2060	36.90	76.44							274. (4)
180 *	2260	37.07	72.91			91. (1)	39. (1)			
181	2320	38.67	78.37			32. (1)				
183	2340	36.63	80.26			198. (2)	66. (2)			
184	2380	36.61	79.36			134. (1)	54. (1)			
185	2380	36.63	79.38			93. (1)	42. (1)			
187	2480	37.30	78.39			92. (1)				
188	2500	37.30	77.22	52. (1)	10. (1)	78. (1)	30. (1)			
189	2520	38.67	77.25			178. (1)	52. (1)			
190	2520	38.53	77.35	26. (1)	10. (1)	157. (1)	52. (1)			
191	2520	38.75	77.48	26. (1)	8. (1)	143. (1)	65. (2)			

Table III.26. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
192	2520	38.60	77.29	52. (1)	12. (1)	112. (1)	48. (1)			
193	2580	37.04	80.75	3. (1)	4. (1)					
194	2580	37.05	80.79			95. (1)	47. (1)			
195	2580	37.05	80.77			122. (1)	49. (1)			
196	2720	37.27	79.40	23. (1)	6. (1)	106. (1)	53. (1)	101. (3)		
197	2720	37.29	80.07			133. (1)	56. (1)			
198	2720	37.30	80.07	19. (1)	6. (1)	106. (1)	55. (1)	99. (2)		
199	2720	37.30	80.07	62. (1)	6. (1)			73. (1)		225. (4)
200	2720	37.20	79.98			480. (4)	94. (4)			
201 *	2720	79.95	37.20			84. (1)	37. (1)			
202	2720	37.34	79.95			64. (1)	34. (1)			
203	2720	37.32	80.11			98. (1)	54. (1)			
204	2720	37.23	80.02			80. (1)	39. (1)			
205	2720	37.23	80.03			100. (1)	44. (1)			
206	2720	37.30	80.07			86. (1)	46. (1)			
207	2720	37.37	80.07			53. (1)			9. (2)	
208	2760	38.66	73.79			37. (1)	41. (1)			
209	2780	36.91	82.27	26. (1)	5. (1)	82. (1)	33. (1)			
210	2900	36.90	81.75	3. (1)		120. (1)				
211	2900	36.85	81.49	65. (1)	20. (1)	62. (1)	34. (1)			235. (4)
212 *	3120	0.0	0.0			211. (2)				
213	3160	37.10	81.79	52. (1)	8. (1)	111. (1)	43. (1)			
214	3160	37.27	81.21	26. (1)	5. (1)	112. (1)	42. (1)			
215	3260	38.93	78.20	131. (1)	26. (1)	223. (2)	75. (2)			
216	3300	36.87	81.79			232. (2)	67. (2)			
217	3420	36.95	82.49	79. (1)	12. (1)					
218	3420	36.96	82.40	26. (1)		228. (2)				
220	3440	36.96	81.07			65. (1)	27. (1)			
221 *	3440	3.30	78.25			31. (1)				

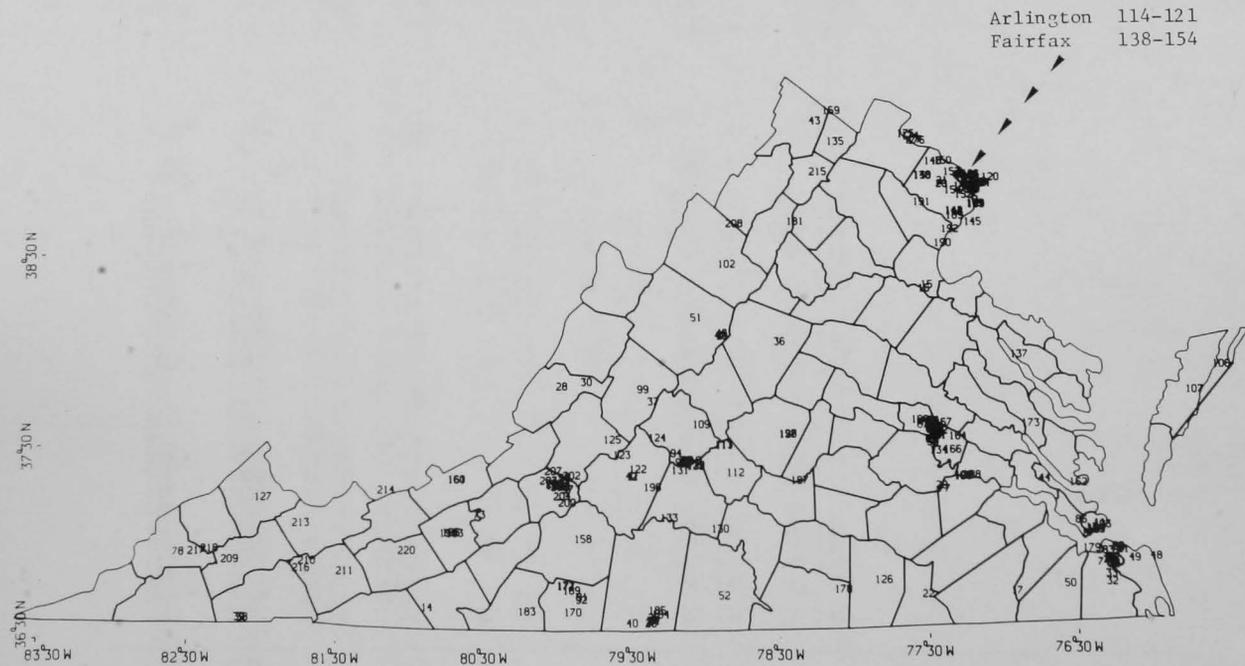


Fig. III.146. Virginia: Locations of SAROAD Monitors (See Table III.26 for Monitor Numbers)

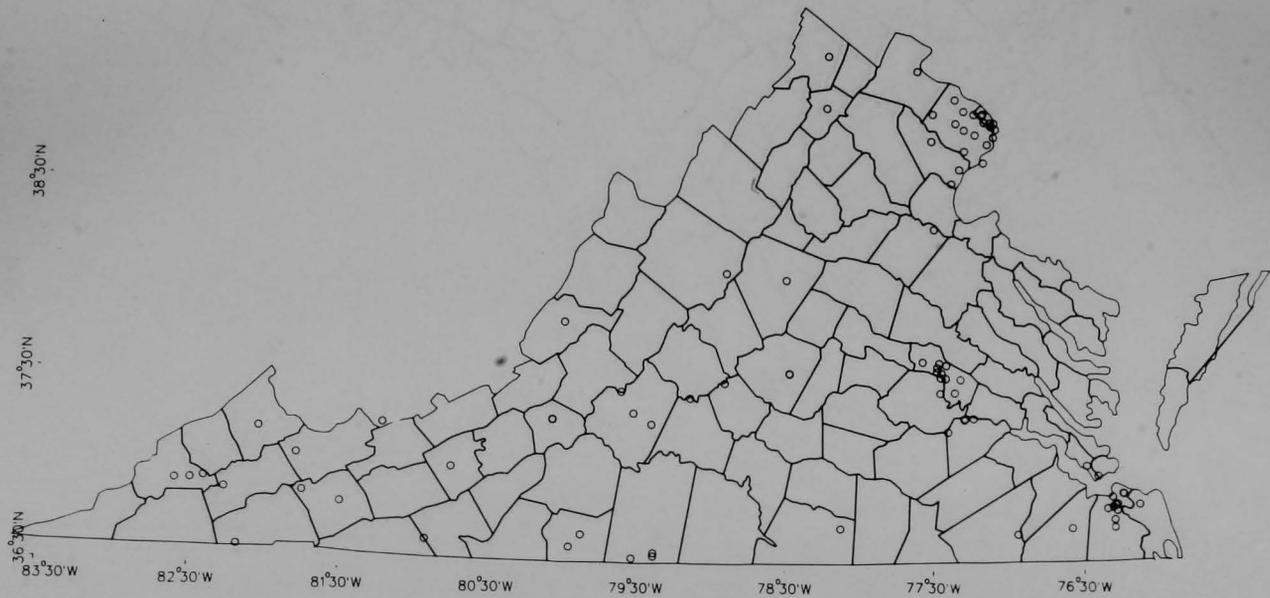


Fig. III.147. Virginia: Monitors Reporting Adequate Data on 24-hr Average SO_2 ; No Violations

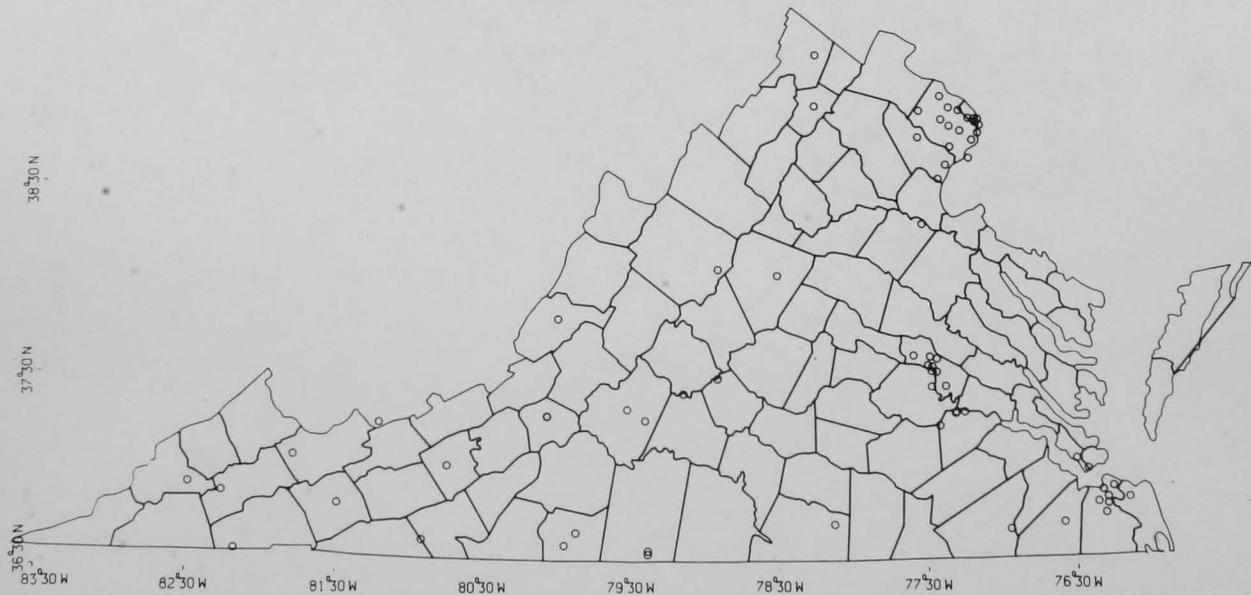


Fig. III.148. Virginia: Monitors Reporting Adequate Data on Annual Average SO₂; No Violations

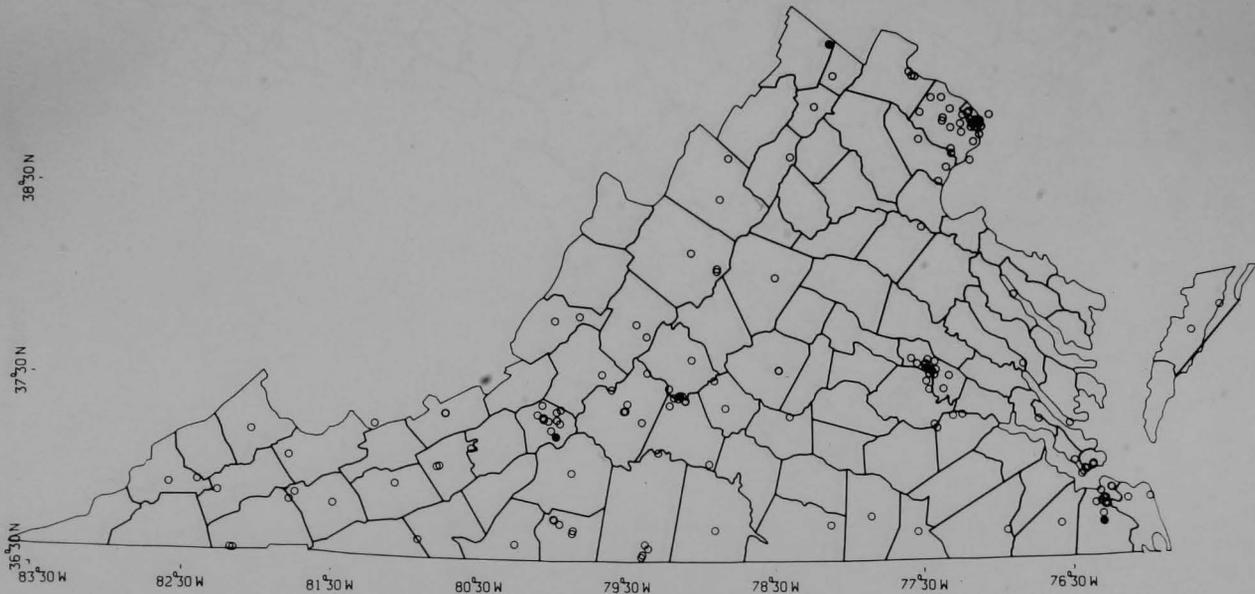


Fig. III.149. Virginia: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

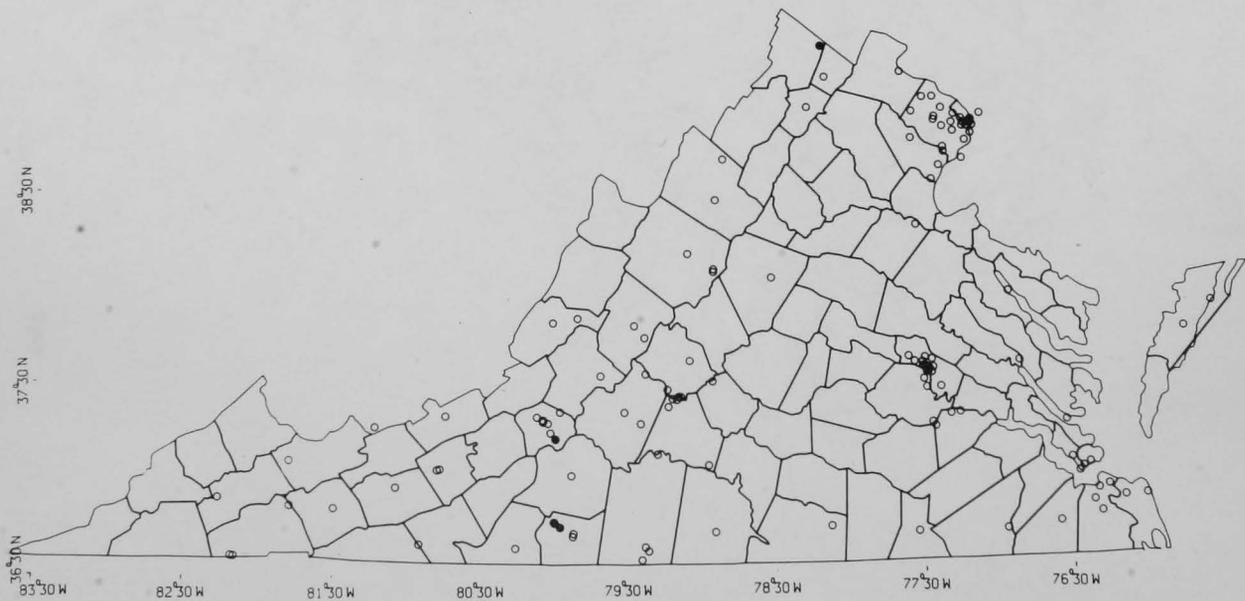


Fig. III.150. Virginia: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

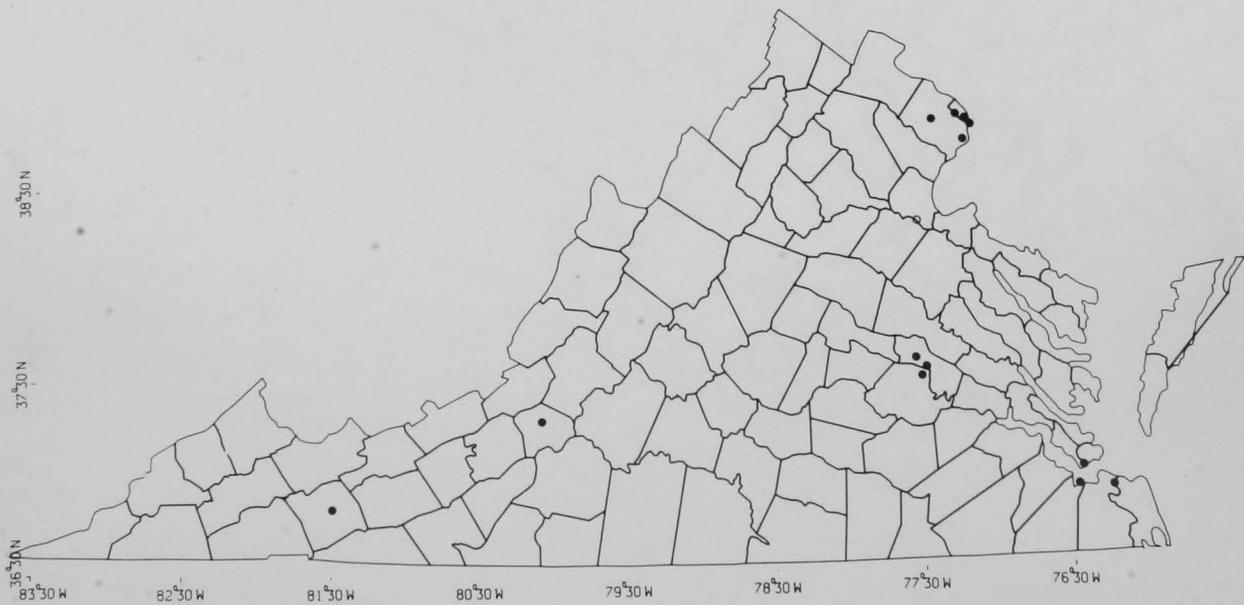


Fig. III.152. Virginia: Monitors Reporting Adequate Data on 1-hr Average O₃; Violations Shown by Shaded Circles

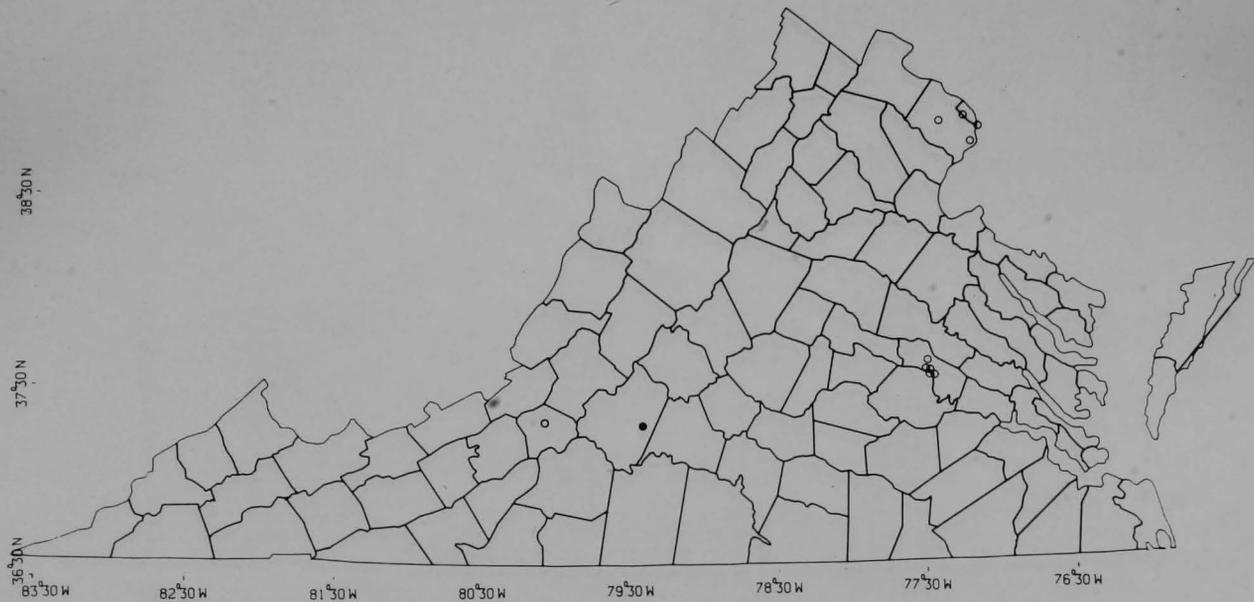


Fig. III.153. Virginia: Monitors Reporting Adequate Data on Annual Average NO_x ; Violations Shown by Shaded Circles

Table III.27. Virginia: Power Plant and Fuel Use Data

POWER PLANT DATA

PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)
1	BRANTLY	36.59	79.39	29.00	0.0
2	BREMO BLUFF	37.71	78.29	256.28	0.0
3	CHESTERFIELD	37.38	77.38	1184.64	1352.90
4	CLINCH RIVER	36.93	82.20	669.00	0.0
5	GLEN LYN	37.37	80.86	401.10	0.0
6	NORTH ANNA	37.98	77.96	70.70	0.0
7	PORTSMOUTH	36.77	76.30	689.64	649.70
8	FOSCUM POINT	36.53	77.27	1373.00	0.0
9	POTOMAC RIVER	38.82	77.04	38.82	0.0
10	REEVES AVENUE	36.84	76.27	100.00	0.0
11	RIVERTON	38.96	78.18	34.50	0.0
12	SURRY (GT)	37.10	76.90	1646.60	0.0
13	THIRLFTH STREET	37.53	77.64	102.50	0.0
14	YORK TOWN	37.22	76.46	1257.00	375.00

FUEL-USE DATA

PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	BRANTLY	0.90	47.49	0.50	2.10	300.64
2	BREMO BLUFF	0.83	551.26	0.0	0.0	0.0
3	CHESTERFIELD	1.05	374.96	2.30	7475.45	0.0
4	CLINCH RIVER	0.70	1765.70	0.10	7.90	0.0
5	GLEN LYN	0.99	568.20	0.10	24.00	0.0
6	NORTH ANNA	0.0	0.0	0.0	0.0	0.0
7	PORTSMOUTH	0.0	0.0	2.44	3920.07	0.0
8	FOSCUM POINT	0.0	0.0	1.34	6833.17	0.0
9	POTOMAC RIVER	0.93	643.30	0.14	17.20	0.0
10	REEVES AVENUE	0.0	17.43	0.10	65.40	0.0
11	RIVERTON	0.0	0.0	0.21	18.75	0.0
12	SURRY (GT)	0.0	0.0	0.0	0.0	0.0
13	THIRLFTH STREET	0.0	0.0	0.10	41.87	0.0
14	YORK TOWN	0.0	0.0	6.95	7019.50	96.95

N NUCLEAR * NOT PLOTTED

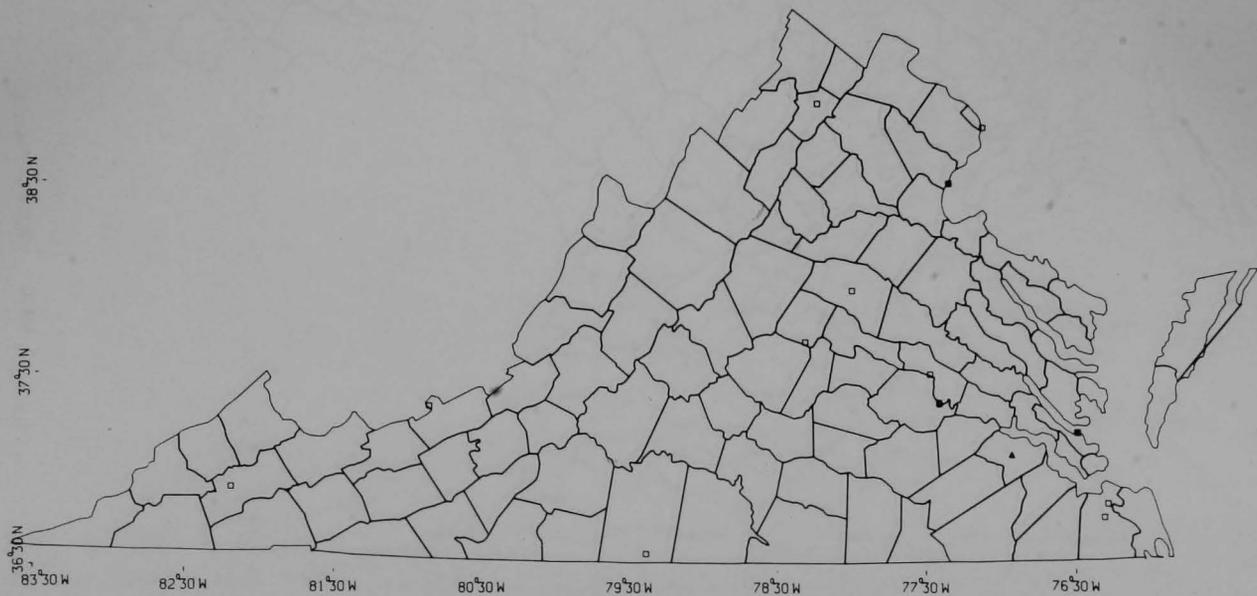


Fig. III.154. Power Plant Locations (Square = Fossil Fuel: Shaded, \geq 1000 MW; Open, $<$ 1000 MW. Triangle = Nuclear)

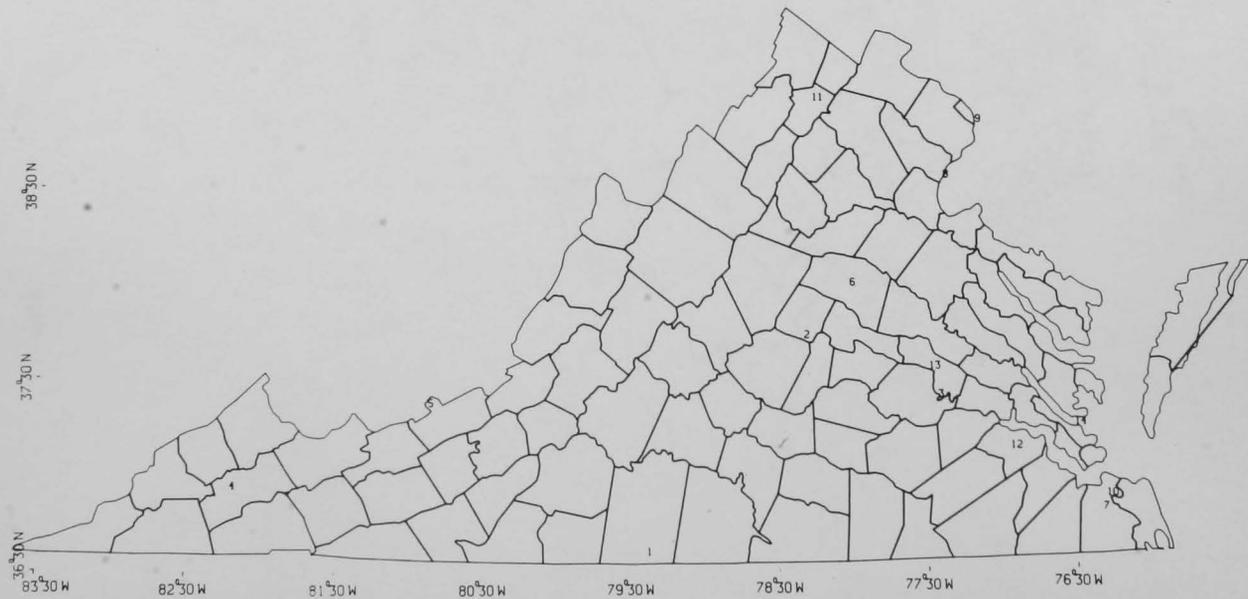


Fig. III.155. Power Plant Key (See Table III.27 for Identification and Fuel Use Data)

REGION III: WEST VIRGINIA

Air Quality Summary

Pollutant and Standard Averaging Period	No. of Discrete Nonattainment Areas ^a		No. of Monitors	No. of Monitors Recording Primary Violations
	Primary	Secondary		
SO ₂ 24 hr } 1 yr }	2	0	35 24	2 5
TSP 24 hr } 1 yr }	3	1	48 35	9 13
NO _x 1 yr	0 ^b	-	0 ^b	0
CO 8 hr	0 ^b	-	0 _b	0
O _x 1 hr	1	-	1	1

^aThe nonattainment area designations are as of May, 1979. Other information is as of 1975.

^bNo map included.

<u>Energy Facilities</u>	
Fossil Fuel	12
Nuclear	0
Total	12

WEST VIRGINIA: Draft SIP, 6/79

I. SOURCES OF THE PROBLEM

There are two SO₂ nonattainment areas in West Virginia. Nonattainment in the New Manchester-Grant Magisterial District of Hancock County is linked to emissions from the Sammis Power plant in Stratton, Ohio, although emissions from other Ohio point sources and local coal combustion add to SO₂ levels. The greater part of ambient SO₂ levels in the Wellsburg Magisterial District in Brooke County can be traced to power plants and industrial processes in the Steubenville, Ohio, area. The state requested that the Brooke County area be redesignated as attainment.

Nonattainment of the primary standard for particulates in the four northern panhandle counties (Brooke, Hancock, Ohio, and Marshall Counties) is due to emissions from large stationary sources (coal-fired power plants and steel mills) with 70% of the emissions from Ohio, transported by wind into West Virginia. In the secondary nonattainment area in Kanawha Valley (Charleston) fugitive dust from paved and unpaved roads, construction activities, and parking lots accounts for 40 to 50% of TSP found in samples taken from monitors. Primary TSP nonattainment in the Winfield and Union Magisterial Districts of Marion County is due to emissions from the Sharon steel plant in Fairmont. The SIP suggests that these emissions are magnified in the spring when particulate matter trapped in snow is released with the thaw and resuspended by the wind. Fugitive dust is the prime source of TSP in the secondary nonattainment area of the Tygart Magisterial District in Wood County.

The Kanawha Valley is the only area in West Virginia that is not in attainment of the ozone NAAQS. Motor vehicles are the source of the majority of hydrocarbon (VOC) emissions. Petroleum refining and storage, marketing, and transportation of petroleum are the largest stationary sources. Background and out-of-state transport of ozone account for a third of the ambient levels. There currently are no carbon monoxide or nitrogen dioxide nonattainment areas in West Virginia.

II. ATTAINMENT STRATEGIES

A. SO₂

1. Hancock Co. (attainment by the end of 1979):
 - a. Compliance with Ohio's SIP for SO₂ by Ohio Edison's Sammis power plant
 - b. All other sources in compliance with SIP
2. Brooke Co. (attainment by December 31, 1982)
 - a. Compliance with Ohio's SIP for SO₂ by Ohio power plants and industries
 - b. No SIP control strategy submitted
 - c. Area should be in attainment

B. TSP

1. Northern Panhandle (attainment by December 31, 1982)
 - a. Enforcement of RACT regulations for West Virginia power plants and steel mill flue emissions
 - b. Compliance by Ohio sources with RACT regulations for flue exhaust
 - c. Development and implementation of controls for fugitive industrial dust
 - covering and wetting down storage piles
 - placing exhaust hoods over some steel-making processes
 - d. Development and implementation of controls on resuspended road dust
2. Kanawha Valley (attainment by December 31, 1985)
 - a. Continued enforcement of RACT regulations on point sources
 - b. Development and implementation of fugitive dust controls
 - paving roads and parking lots
 - regulating construction practices
 - revegetating exposed soil
 - controlling fugitive industrial emissions

3. Winfield and Union (attainment of primary standards by 1982, secondary by 1985)
 - a. Shutdown of Sharon steel plant will bring about attainment
4. Tygart (attainment by 1985)
 - a. Fugitive dust controls
 - reduced speed limit on unpaved roads
 - prevention of access to unpaved playgrounds by motor vehicles
- C. O_x (attainment by December 31, 1982)
 1. FMVECP
 2. RACT for petroleum refining, marketing, storage, and transportation

III. NEW SOURCE REVIEW

West Virginia officials indicate a preference for an accommodative SIP, with a growth allowance. However, the growth allowance has not been quantified. An emissions offset regulation is therefore included.

IV. EMISSION LIMITATION FOR FUEL COMBUSTION

A. SO_2

1. State provides source-specific limitations:

Plant	Limit (lb of SO_2 per MM Btu fuel input)
Ohio Power Co.'s Kammer Plant	6.8
Ohio Power Co.'s Mitchell Plant	7.5
Monongahela Power Co.'s Willow Island Station	2.7
Virginia Electric & Power Co.'s Mt. Storm	2.7
Appalachian Power Co.'s John Amos	1.6
Appalachian Power Co.'s Kanawha River	1.6
Monongahela Power Co.'s Harrison	6.0
Monongahela Power Co.'s Rivesville	3.2
Monongahela Power Co.'s Albright	3.2
Monongahela Power Co.'s Fort Martin	3.1
Central Operating Co.'s Philip Sporn	3.2

B. TSP

1. Electric power plants, statewide
 - a. Emission limit: 0.05 lb of PM per hr
 - b. Maximum discharge rate: 1200 lb/hr

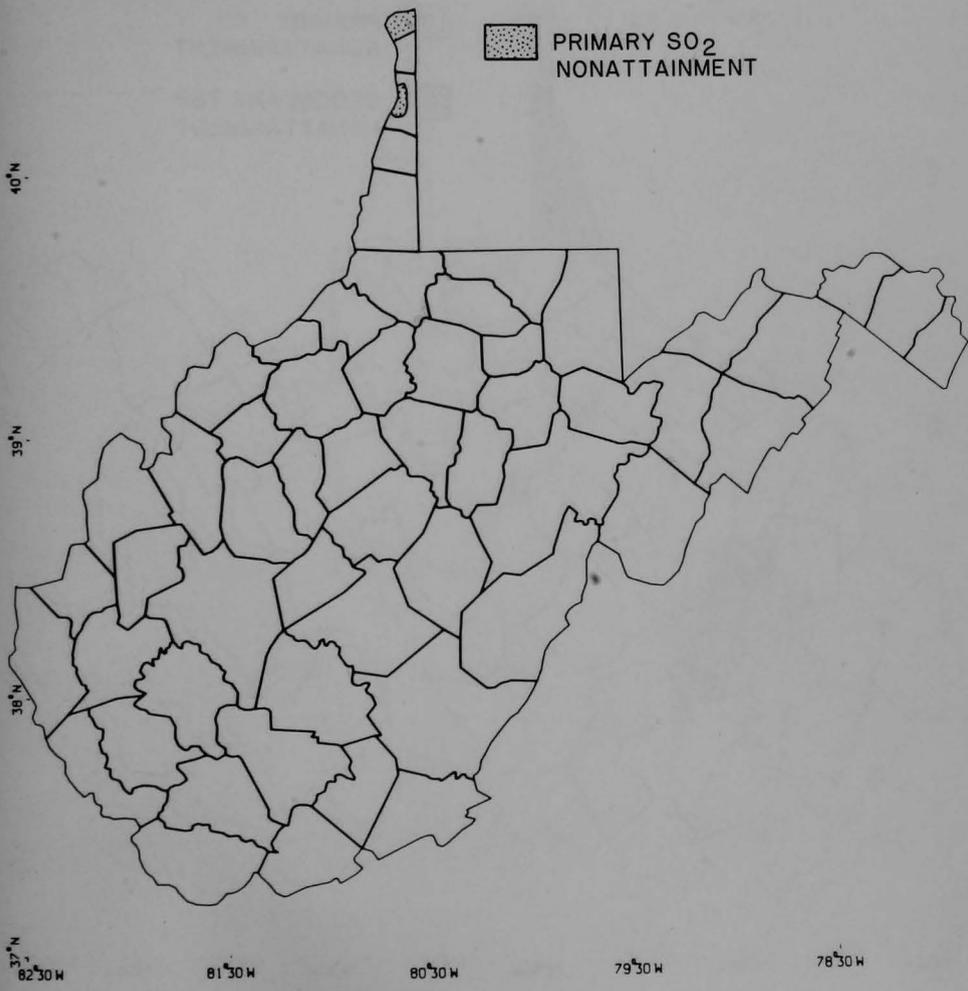


Fig. III.157. West Virginia: SO₂ Nonattainment Areas as Designated May 1979

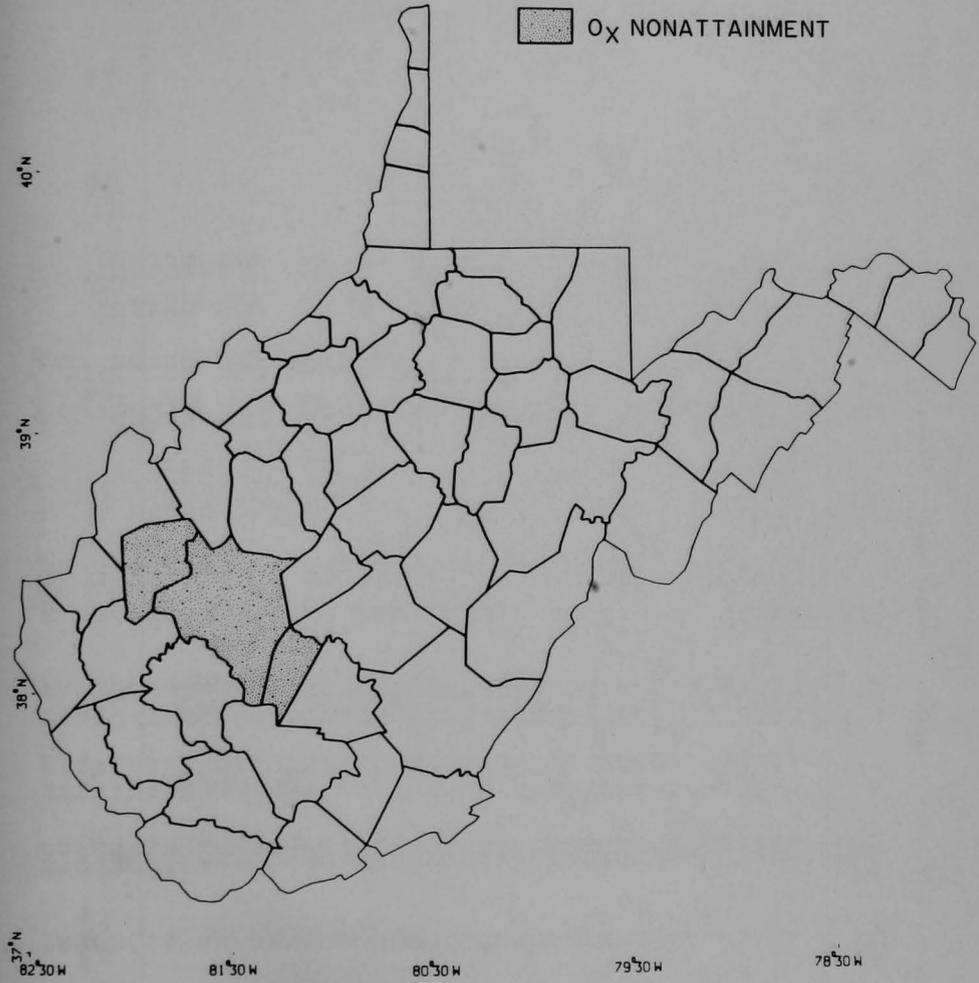


Fig. III.159. West Virginia: O_x Nonattainment Areas as Designated May 1979

Table III.28. West Virginia: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1 *	100	39.46	83.97	107. (1)	31. (1)	180. (1)	70. (2)			
2	200	40.29	80.61	331. (2)	113. (4)	339. (4)	137. (4)			
3	200	40.34	80.60	291. (2)	50. (3)	511. (4)	173. (4)			
5	240	39.37	82.55			117. (1)	49. (1)			
6	240	39.42	82.45	44. (1)	22. (1)	179. (1)	60. (2)			
7 *	240	0.0	0.0			107. (1)				
8	460	39.13	81.24			93. (1)	48. (1)			
9	460	39.18	81.33			178. (1)				
10	530	37.78	80.47						208. (4)	
11	620	40.49	80.60			275. (3)	110. (4)			
12	620	40.53	80.55	536. (4)	123. (4)	252. (2)	83. (3)			
13	620	40.49	80.60	249. (1)	81. (3)					
14	620	40.40	80.59	457. (4)		344. (4)				
15	620	40.40	80.59	150. (1)		351. (4)				
16	660	39.25	80.32	60. (1)	15. (1)	84. (1)	45. (1)			
17	660	39.29	80.35			151. (1)	69. (2)			
18	760	38.37	81.67	107. (1)		97. (1)				
19	760	38.35	81.64			193. (1)	94. (4)			
20	760	38.34	81.62	189. (1)	49. (1)	353. (4)				
21	760	38.44	81.68	199. (1)	50. (1)	94. (1)	43. (1)			
22	760	38.25	81.57			173. (1)	83. (3)			
23	760	38.37	81.59			122. (1)	49. (1)			
24	760	38.32	81.53			218. (2)	97. (4)			
25	760	39.34	81.61	33. (1)		160. (1)				
27 *	760	0.0	0.0	84. (1)						
28	760	38.42	81.85			189. (1)	43. (1)			
29 *	760	0.0	0.0			270. (3)				
30	760	38.37	81.69	270. (1)	52. (1)	270. (3)	87. (3)			
31	760	38.34	81.73	140. (1)	22. (1)	97. (1)	46. (1)			
32	760	38.35	81.71			139. (1)				
34	760	38.42	81.85	113. (1)	28. (1)					
35	840	39.04	80.46	65. (1)	16. (1)	282. (3)	79. (3)			
36	980	39.43	80.12			253. (2)	81. (3)			
37	980	39.50	80.14			117. (1)	53. (1)			
38	980	39.48	80.12	97. (1)	31. (1)					
39	1020	39.92	80.74	293. (2)	83. (3)	223. (2)	96. (4)			
40	1100	39.64	78.79	97. (1)	26. (1)	119. (1)	51. (1)			
41	1100	39.43	79.05	124. (1)	49. (1)	129. (1)	64. (2)			
42	1100	39.48	79.05	123. (1)	53. (1)	177. (1)	70. (2)			
43	1100	39.44	78.98			121. (1)	54. (1)			
44	1140	39.64	79.95	93. (1)						
45	1140	39.62	79.96			140. (1)				
46	1140	39.64	79.95			126. (1)				
47	1140	39.62	79.96	68. (1)						

Table III.28. (Cont'd)

MONITOR NUMBER	SARAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
48	1380	40.06	80.72			167. (1)	87. (3)			
49	1380	40.04	80.73			167. (1)	87. (3)			
50	1380	40.06	80.72	174. (1)	34. (1)					
51	1380	40.04	80.66			151. (1)	68. (2)			
52	1380	40.23	80.68	51. (1)	16. (1)	134. (1)	62. (2)			
53	1380	40.11	80.70			154. (1)				
54	1380	40.07	80.72	235. (1)						
55	1560	33.57	81.82			87. (1)	47. (1)			
56	1560	33.46	81.82	148. (1)	33. (1)	187. (1)	66. (2)			
57	1560	33.57	81.82	109. (1)	32. (1)					
58	1580	37.78	81.19	26. (1)	11. (1)	170. (1)	64. (2)			
59	2220	39.25	81.55	64. (1)	25. (1)	152. (1)	70. (2)			
60	2220	39.26	81.63	95. (1)		201. (2)				
61	2220	39.34	81.55			115. (1)	53. (2)			
63	2220	39.34	81.55	59. (1)						
64	2220	39.32	81.55	114. (1)						

Table III.28. West Virginia: SAROAD Monitor Numbers and 1975 Data ($\mu\text{g}/\text{m}^3$, or mg/m^3 for CO)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
1 *	100	39.46	83.97	107. (1)	31. (1)	180. (1)	70. (2)			
2	200	40.29	80.61	331. (2)	113. (4)	339. (4)	137. (4)			
3	200	40.34	80.60	291. (2)	50. (3)	511. (4)	173. (4)			
4	240	39.37	82.56			117. (1)	49. (1)			
6	240	39.42	82.45	44. (1)	22. (1)	179. (1)	60. (2)			
7 *	240	0.0	0.0			107. (1)				
8	460	35.13	81.24			98. (1)	48. (1)			
9	460	35.18	81.33			178. (1)				
10	530	37.78	80.47							208. (4)
11	620	40.49	80.60			275. (3)	110. (4)			
12	620	40.53	80.58	566. (4)	128. (4)	252. (2)	83. (3)			
13	620	40.49	80.60	249. (1)	81. (3)					
14	620	40.40	80.59	457. (4)		344. (4)				
15	620	40.40	80.59	150. (1)		351. (4)				
16	660	39.25	80.32	60. (1)	15. (1)	34. (1)	45. (1)			
17	660	39.29	80.35			151. (1)	69. (2)			
18	760	38.37	81.67	107. (1)		97. (1)				
19	760	38.35	81.64			193. (1)	94. (4)			
20	760	38.34	81.62	189. (1)	49. (1)	353. (4)				
21	760	38.44	81.68	199. (1)	50. (1)	94. (1)	43. (1)			
22	760	38.25	81.57			173. (1)	83. (3)			
23	760	38.37	81.59			122. (1)	49. (1)			
24	760	38.32	81.58			218. (2)	97. (4)			
25	760	38.34	81.61	33. (1)		160. (1)				
27 *	760	0.0	0.0	84. (1)						
28	760	38.42	81.85			189. (1)	43. (1)			
29 *	760	0.0	0.0			270. (3)				
30	760	38.37	81.69	270. (1)	52. (1)	270. (3)	87. (3)			
31	760	38.34	81.73	140. (1)	22. (1)	97. (1)	46. (1)			
32	760	38.35	81.71			139. (1)				
34	760	38.42	81.85	113. (1)	28. (1)					
35	840	39.04	80.46	65. (1)	16. (1)	282. (3)	79. (3)			
36	980	39.43	80.12			253. (2)	81. (3)			
37	980	39.50	80.14			117. (1)	53. (1)			
38	980	39.48	80.12	97. (1)	31. (1)					
39	1020	39.92	80.74	293. (2)	83. (3)	223. (2)	96. (4)			
40	1100	39.64	78.79	97. (1)	26. (1)	119. (1)	51. (1)			
41	1100	39.48	79.05	124. (1)	49. (1)	129. (1)	64. (2)			
42	1100	39.48	79.05	123. (1)	53. (1)	177. (1)	70. (2)			
43	1100	39.44	78.98			121. (1)	54. (1)			
44	1140	39.64	79.95	93. (1)						
45	1140	39.62	79.96			140. (1)				
46	1140	39.64	79.95			126. (1)				
47	1140	39.62	79.96	68. (1)						

Table III.28. (Cont'd)

MONITOR NUMBER	SAROAD COUNTY CODE	LAT	LONG	SO2 24-HR	SO2 1-YR	TSP 24-HR	TSP 1-YR	NOX 1-YR	CO 8-HR	OX 1-HR
48	1380	40.06	80.72			167. (1)	87. (3)			
49	1380	40.04	80.73			167. (1)	87. (3)			
50	1380	40.06	80.72	174. (1)	34. (1)					
51	1380	40.04	80.66			151. (1)	68. (2)			
52	1380	40.23	80.68	51. (1)	16. (1)	134. (1)	62. (2)			
53	1380	40.11	80.70			154. (1)				
54	1380	40.07	80.72	235. (1)						
55	1560	33.57	81.82			87. (1)	47. (1)			
56	1560	33.66	81.82	148. (1)	33. (1)	187. (1)	66. (2)			
57	1560	33.57	81.82	109. (1)	32. (1)					
58	1580	37.78	81.19	26. (1)	11. (1)	170. (1)	64. (2)			
59	2220	39.25	81.55	64. (1)	25. (1)	152. (1)	70. (2)			
60	2220	39.26	81.63	95. (1)		201. (2)				
61	2220	39.34	81.55			115. (1)	53. (2)			
63	2220	39.34	81.55	59. (1)						
64	2220	39.32	81.55	114. (1)						

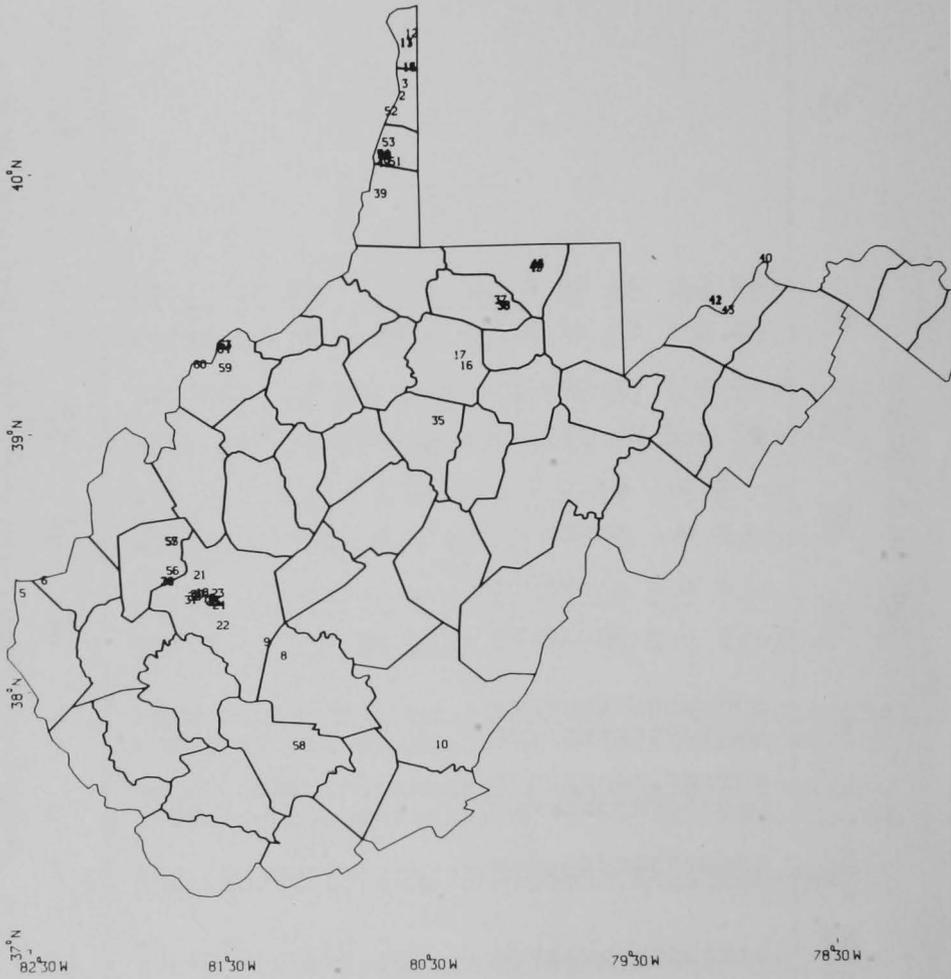


Fig. III.160. West Virginia: Locations of SAROAD Monitors (See Table III.28 for Monitor Numbers)

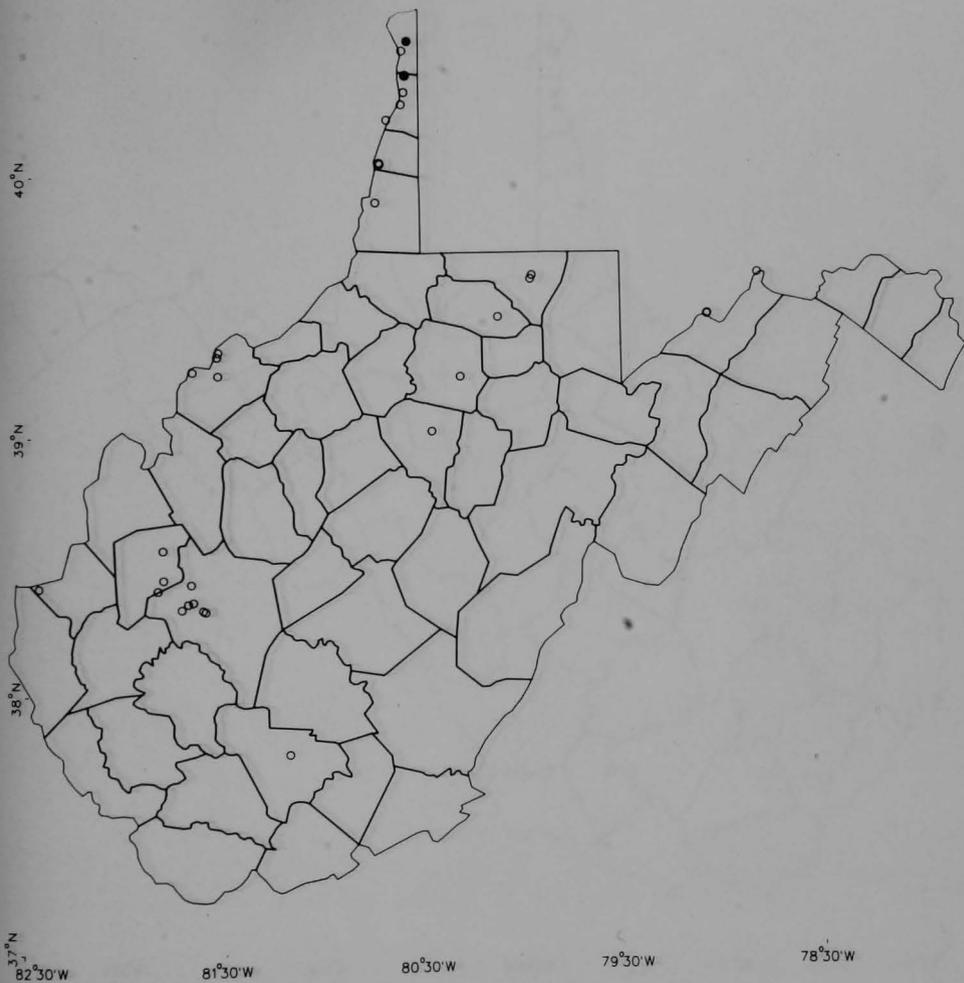


Fig. III.161. West Virginia: Monitors Reporting Adequate Data on 24-hr Average SO₂; Violations Shown by Shaded Circles

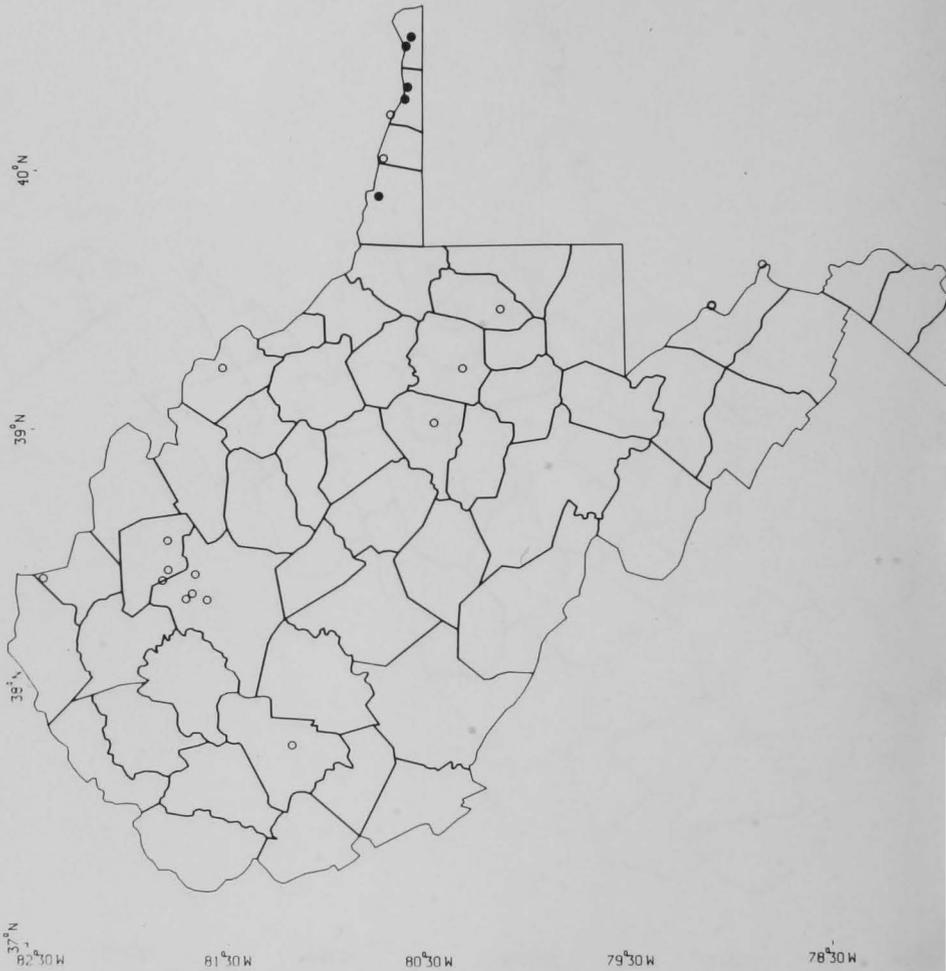


Fig. III.162. West Virginia: Monitors Reporting Adequate Data on Annual Average SO₂; Violations Shown by Shaded Circles

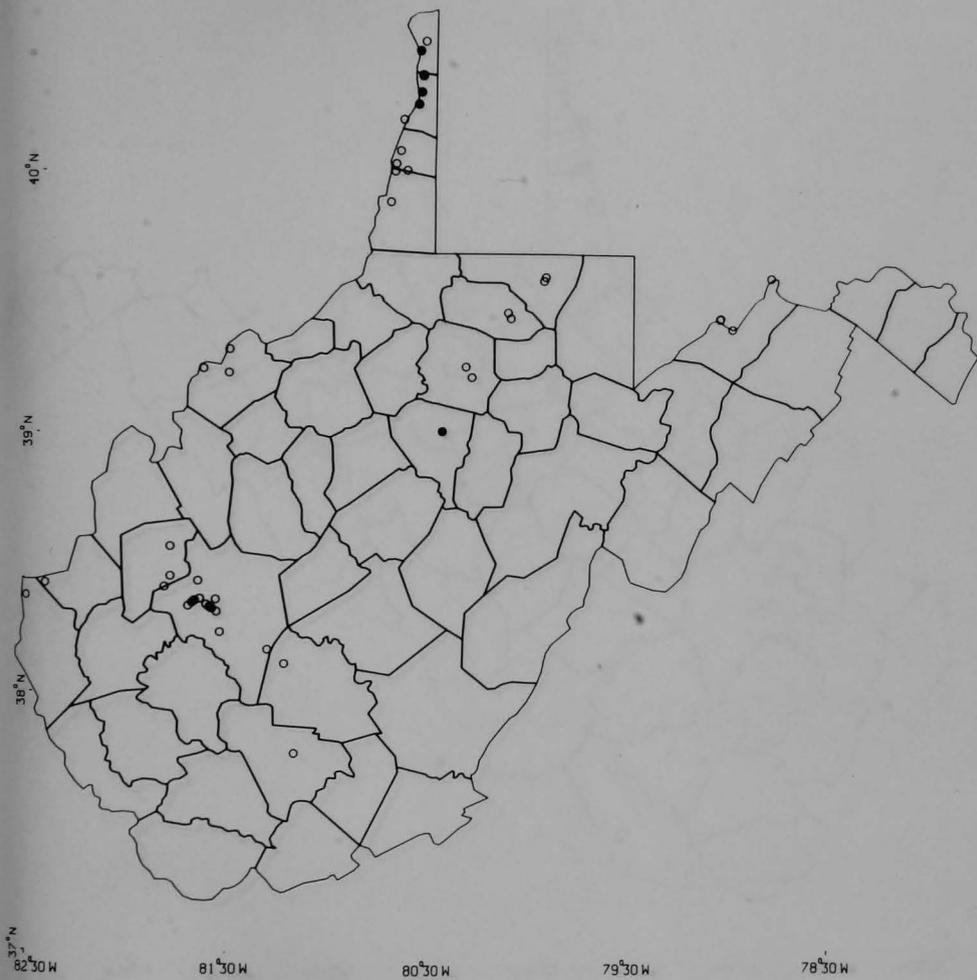


Fig. III.163. West Virginia: Monitors Reporting Adequate Data on 24-hr Average TSP; Violations Shown by Shaded Circles

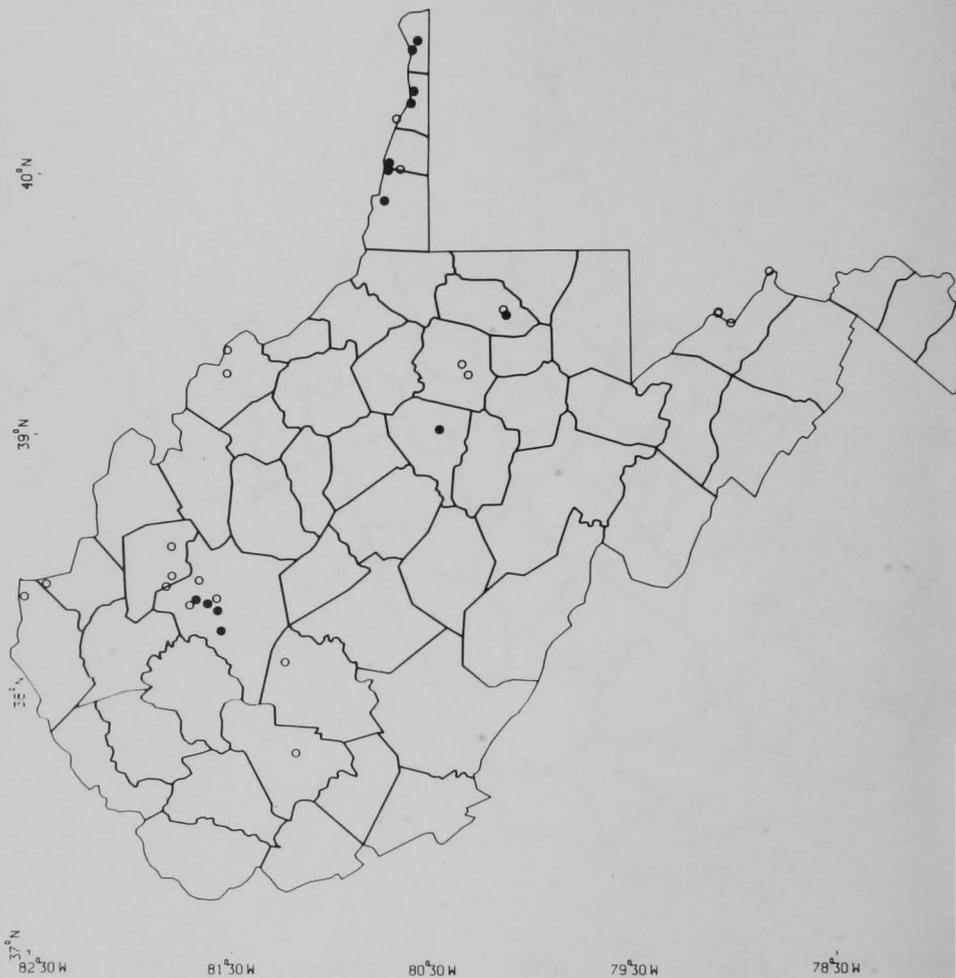


Fig. III.164. West Virginia: Monitors Reporting Adequate Data on Annual Average TSP; Violations Shown by Shaded Circles

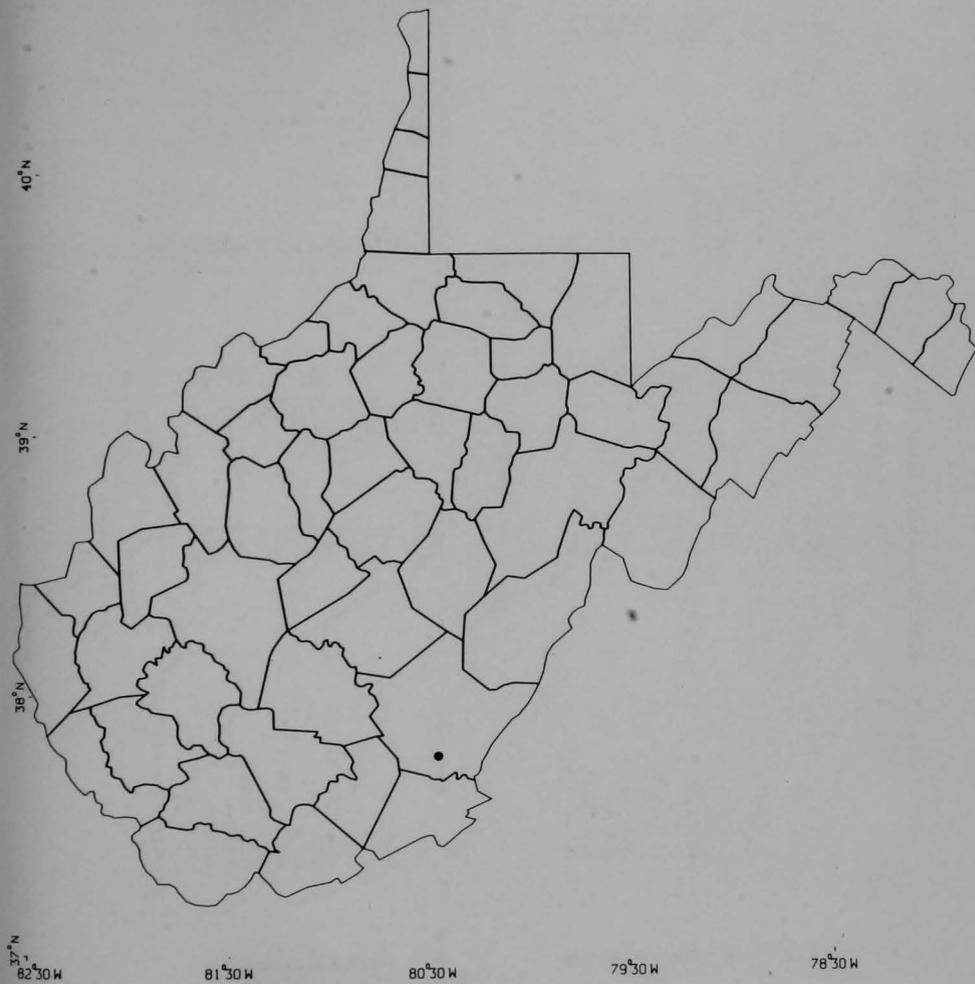


Fig. III.165. West Virginia: Monitors Reporting Adequate Data on 1-hr Average O₃; Violations Shown by Shaded Circles

Table III.29. West Virginia: Power Plant and Fuel Use Data

POWER PLANT DATA						
PLANT #	PLANT NAME	LATITUDE	LONGITUDE	OPERATING CAPACITY(MW)	CONVERTIBLE CAPACITY(MW)	
1	ALBRIGHT	39.49	79.64	278.25		0.0
2	AMOS	38.34	81.52	2800.00		0.0
3	CADIN CREEK	38.20	81.48	273.50		0.0
4	FT. MARTIN (JO)	39.72	79.80	1152.00		0.0
5	HARRISON	39.39	80.33	2052.00		0.0
6	KAMMER	39.85	80.22	675.00		0.0
7	KANAWHA RIVER	39.21	81.42	423.00		0.0
8	MITCHELL	39.83	80.52	1493.20		0.0
9	MOUNT STORM	39.20	79.26	1642.40		0.0
10	P. SPORN	39.96	81.92	1000.00		0.0
11	RIVESVILLE	39.53	80.11	109.75		0.0
12	WILLOW ISLAND	39.37	81.30	215.00		0.0

FUEL-USE DATA						
PLANT #	PLANT NAME	% SULFUR IN COAL	AMOUNT OF COAL	% SULFUR IN OIL	AMOUNT OF OIL	AMOUNT OF GAS
1	ALBRIGHT	2.11	656.60	0.25	6.27	0.0
2	AMOS	0.90	6425.60	0.10	197.90	0.0
3	CADIN CREEK	0.79	123.20	0.0	0.0	43.50
4	FT. MARTIN (JO)	2.77	2901.00	0.25	11.26	0.0
5	HARRISON	2.61	4525.90	0.0	0.0	42.05
6	KAMMER	4.23	1542.40	0.47	6.12	0.0
7	KANAWHA RIVER	0.83	1015.50	0.10	6.00	0.0
8	MITCHELL	3.59	3266.40	0.32	35.15	0.0
9	MOUNT STORM	1.86	3011.62	0.0	0.0	0.0
10	P. SPORN	1.29	1633.10	0.10	67.80	0.0
11	RIVESVILLE	2.36	215.20	0.25	1.03	269.08
12	WILLOW ISLAND	2.53	433.50	0.25	5.57	0.0

N NUCLEAR * NOT PLOTTED

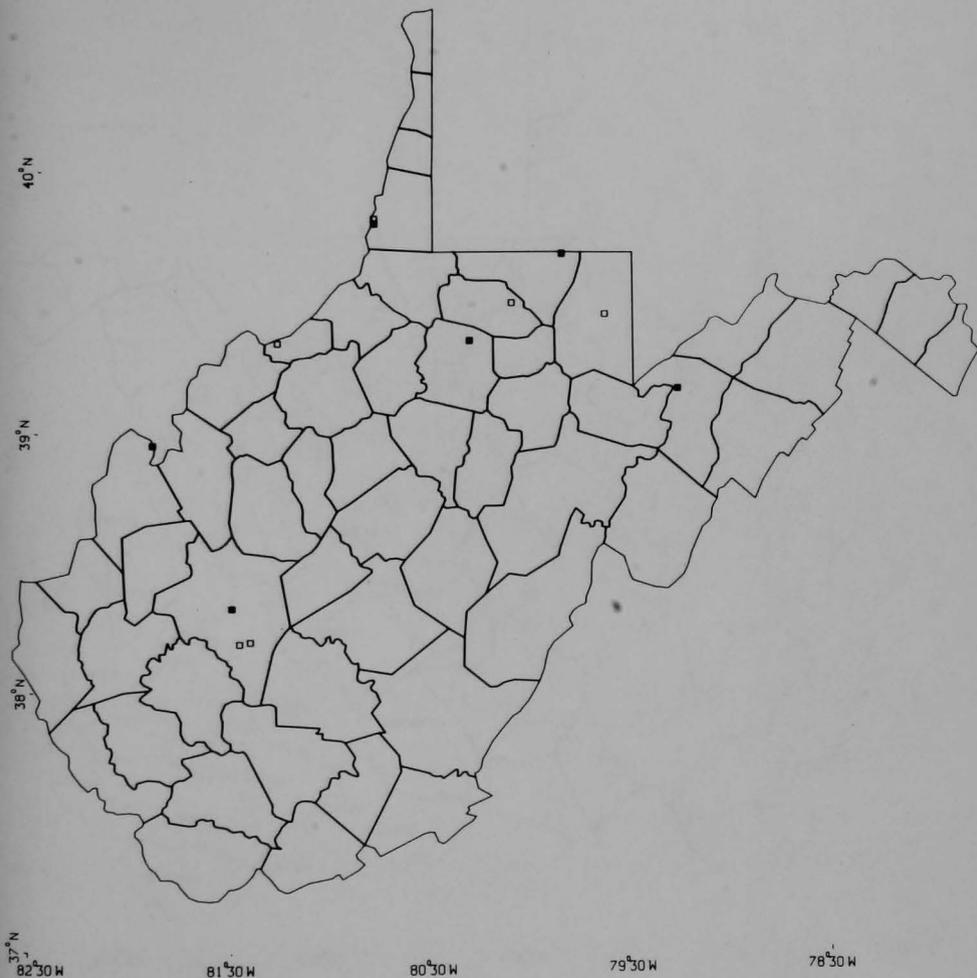


Fig. III.166. Power Plant Locations (Square = Fossil Fuel: Shaded, ≥ 1000 MW; Open < 1000 MW. Triangle = Nuclear)

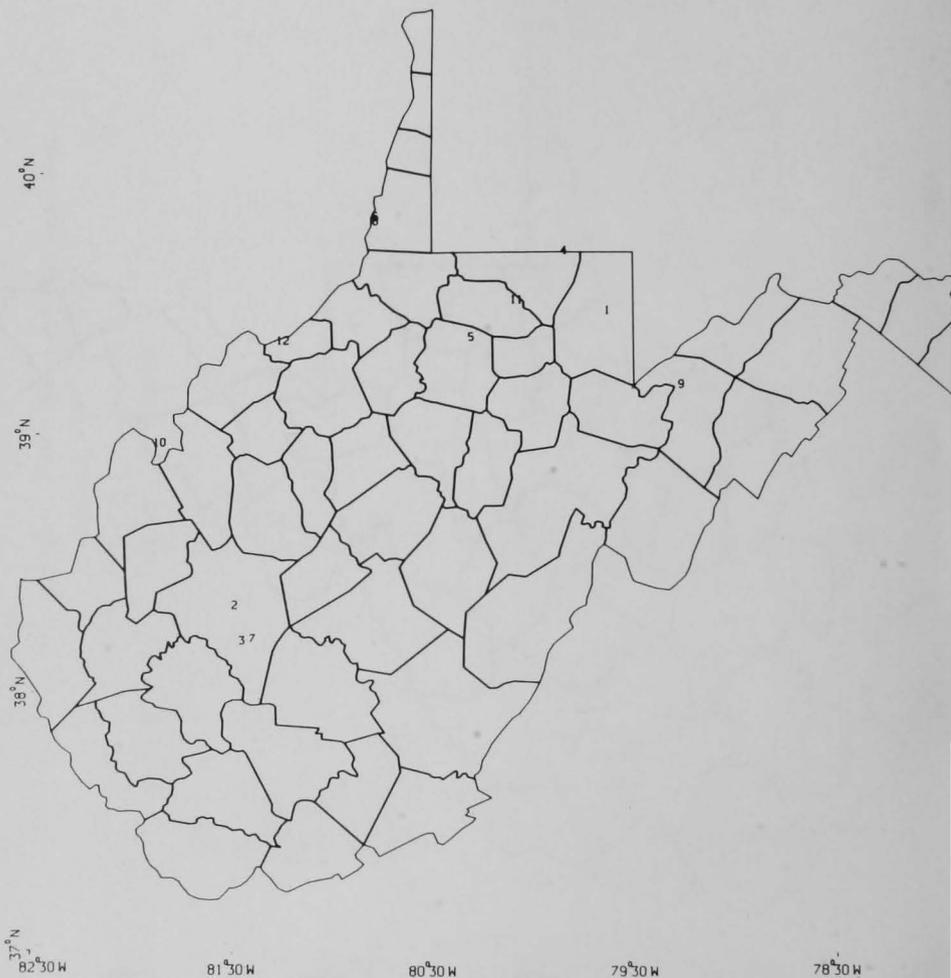


Fig. III.167. Power Plant Key (See Table III.29 for Identification and Fuel Use Data)

ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



ARGONNE NATIONAL LAB WEST



3 4444 00013088 0



3 4444 00013088 0

ARGONNE NATIONAL LAB WEST



3 4444 00013088 0

