

MAINE STATE LEGISLATURE

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Maine Department of Environmental
Protection Implementation Plan
for Air Quality Control



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AUGUSTA, MAINE

Maine Department of Environmental
Protection Implementation Plan
for Air Quality Control



Published under appropriation 1320-1025

November 2, 1972

Honorable Kenneth M. Curtis
Governor of Maine
State House
Augusta, Maine 04330

Dear Governor Curtis:

It is with great pleasure that I inform you of Administrator William D. Ruckelshaus' approval of Maine's plan for the attainment and maintenance of the national air quality standards.

For the record, I am enclosing a copy of the **Federal Register** notice of October 28, 1972, in which this approval statement appeared. May I congratulate you on your State's plan and the progress you are making toward the goal of clean air.

Sincerely yours,

John A. S. McGlennon
Regional Administrator

Enclosure

cc w/cy. encl: William Adams

State of Maine
Department of Environmental Protection
Bureau of Air Quality Control
Augusta, Maine 04330

RULES AND REGULATIONS
RELATED TO AIR QUALITY CONTROL

REGION I	December 13, 1971
REGION II	December 14, 1971
REGION III	December 22, 1971
REGION IV	December 21, 1971
REGION V	December 15, 1971
ALL REGIONS	July 12, 1972
ADOPTED	January 28, 1972
ADOPTED	January 28, 1972

Effective Date—January 31, 1972

E.P.A. conditional approval—May 31, 1972 FEDERAL REGISTER

REVISION OF #10-8-4 ADOPTED—JULY 28, 1972

FINAL E.P.A. APPROVAL—October 28, 1972 FEDERAL REGISTER

NOTE: COPIES OF THE MAINE IMPLEMENTATION PLAN ADOPTED BY THE BOARD OF ENVIRONMENTAL PROTECTION AND APPROVED BY THE ADMINISTRATOR OF REGION I ENVIRONMENTAL PROTECTION AGENCY ARE AVAILABLE AT THE FOLLOWING PLACES:

Portland Regional Office
415 Congress Street
Portland, Maine

Augusta Regional Office
Vickering-Hill Building
Chapel Street
Augusta, Maine.

Bangor Regional Office
31 Central Street
Bangor, Maine

Presque Isle Regional Office
Presque Isle, Maine

Bingham Public Library
Main Street
Bingham, Maine

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CHAPTER I
LEGAL AUTHORITY

1.0 Legislative Intent

In accordance with Maine State Law, Title 38, Chapter 4, "Protection and Improvement of Air", the Board of Environmental Protection is given authority to adopt an implementation plan including reasonable emission standards and other regulations relating to procedures and practices which result in the production of air contaminants. The intent of Title 38 is to establish a "coordinated state-wide program to control present and future sources of emissions of air contaminants to the end that air polluting activities of every type shall be regulated in a manner that reasonably insures the continued health, safety and general welfare of all citizens and protects property values and plant and animal life."

1.1 Authority to adopt emission standards

In section 585 of said law, the Board of Environmental Protection is given authority to establish and amend emission standards and regulations limiting and regulating in a just and equitable manner the amount and types of air contaminants which may be emitted into the ambient air within an air quality control region. The Board has authority to adopt emission standards that will achieve and maintain the ambient air quality standards within the region. Though the statute makes no mention of national standards, it is clear the Board of Environmental Protection has authority to adopt standards as stringent as the national standards.

1.2 Enforcement, Injunctive Relief

Section 591 prohibits the discharge of air contaminants in such a manner as to violate the ambient air quality standards or the emission standards. Section 592 provides for enforcement by empowering the Board of Environmental Protection to conduct a hearing when it discovers a violation of ambient air quality or emission standards, or when it discovers an emission that requires a license by section 591 and no license has been obtained. Under section 595 an order of the Board relating to any violation of the Act is to be enforced by the Attorney General, who may commence action in the Superior Court of any

county where a violation of a Board order has occurred. The Attorney General is, under this paragraph, enabled to seek injunctive relief to prohibit further violations. Penalties are covered in section 453, Article 3. Any person, corporation, or other legal entity, who fails, neglects or refuses to obey any order of the Board or who violates any provision of Chapter 4 shall be punished by a fine of not less than \$1,000 for each day of the violation.

1.3 Emergency Episode Powers

Under section 593 of Title 38, the Board of Environmental Protection, after investigation, may order the immediate reduction or cessation of any emission or condition creating a substantial and immediate danger to public health or safety. The Board order may be served by the sheriff or deputy from the county in which the source is located. Though no hearing is necessary, initially, one must be held within 48 hours after application for hearing is received from any person against whom an order is issued. Within 7 days after the hearing the Board of Environmental Protection must make findings and may continue, modify or revoke the original order.

1.4 Licensing Authority

Under section 590 of Title 38, the Board of Environmental Protection may require all sources of air emissions, without exceptions, to properly apply for and obtain a license from the Board. The Board shall grant or deny the license or order a hearing on the application for the license. The license shall be granted if the Board shall find the proposed emission will be receiving the best practicable treatment, and will not violate or can be controlled so as not to violate applicable emission standards and ambient air quality standards. The Board may impose appropriate and reasonable conditions on the license to secure compliance with air quality and emission standards.

In addition to the above licensing authority, Title 38, Chapter 3, section 484, authorizes the Board of Environmental Protection to approve applications for construction and operation of new commercial or industrial developments, which (1) require a license from the Board, such as the air emission license noted above, (2) occupy 20 or more acres, (3) involve drilling or excavating for natural resources or (4)

involve structures in excess of 60,000 square feet of ground area. Such developments must prove, among other things, financial and technical ability to meet air quality control standards and the control of offensive odors.

It should be noted that under Title 36, air pollution control facilities are exempt from real estate and personal tax and the sale of any air pollution control facilities or part thereof is exempt from state sales tax providing the facility is certified by the Department of Environmental Protection.

1.5 Authority to Conduct Investigations, Inspections and Tests

Implicit in the powers of the Board, as with any regulatory agency, is the power to conduct investigations by its staff members. Under sections 592 and 593, the Board is permitted to make an in depth investigation by means of a public hearing whenever it appears there is a violation of any standard or regulation. The Board may issue subpoenas compelling the production of books, record and other data related to matters of emission of air contaminants at any Board hearing.

The Board under section 589 may require registration of any activity which emits air contaminants and may require such persons to submit reports relating to their activities which cause air pollution, install and maintain emission monitoring devices, and submit tests results on the rate, period and composition of air contaminants; thus assisting the Board to determine compliance with existing standards and regulations.

Authorized representatives of the Department of Environmental Protection are, for certain purposes, given the status of a 'law enforcement officer'. Whoever assaults, intimidates or in any manner willfully obstructs, intimidates or hinders an authorized representative of the Department of Environmental Protection while in the lawful discharge of his official duties, whether with or without process shall be punished by a fine of not more than \$500 or by imprisonment for not more than 11 months.

Pursuant to Title 38, Section 361, all hearings may be conducted either by a Board member or a member of the Department, at the Board's discretion.

Licenses issued pursuant to section 592 will contain a condition that staff members have the right of access to the licensed facility for purposes of testing and inspection.

1.6 Authority to Require Stationary Sources to Self Monitor

Under section 589 of Title 38, the Board may require owners or operators of stationary sources to install, maintain and use emission monitoring devices and to make such reports to the Board on the data obtained there from as required.

1.7 Motor Vehicle Emission Testing

Under Maine State Law, Title 29, Section 2127, the Maine State Police Department has been given the responsibility and authority to inspect motor vehicle emission control devices. Such devices include the exhaust manifolds, crossover pipe, muffler and the vent valve or positive crankcase ventilation valve. The language of section 590 of Title 38 empowers the Board if it so chooses, to license, and inspect **all** emission sources. This would include mobile as well as stationary sources. Given the low priority for carbon monoxide, nitrogen dioxide and photochemical oxidants for the state an inspection program by the Board is not thought necessary at this time.

1.8 Public Disclosure of Information

Emission data and ambient air quality sampling data will be available for public inspection and will be related to all applicable regulations and standards. Public disclosure of such information is not prohibited by Title 38. However, the Emission License Regulation provides that any process or product and other information so designated by the applicant, but not emissions information, shall be considered confidential and not for public disclosure.

CHAPTER 2

CONTROL STRATEGY

2.0 Approach

Ambient Air sampling data is analyzed continually. Summary tables of the ambient air quality data obtained by the Department of Environmental Protection are included as appendices C and D to this plan. When an annual average concentration exceeds the applicable air quality standard for a pollutant some con-

control action to reduce the emission of that pollutant is necessary or the air quality standard for that pollutant continues to be violated.

When it has been determined that emission reductions are necessary to achieve ambient air quality standards the amount of emission reduction necessary can be predetermined by using the proportional model as described in the Federal Register, volume 36, number 158, August 14, 1971;

$$\frac{CE}{AQ(\max)-B} = \frac{X}{AQ(\text{std})-B}$$

- where CE = current emissions in tons/yr
- X = allowable emissions to satisfy air quality standards in tons/yr
- AQ(max) = maximum measured annual average air quality concentration in ug/m³
- AQ(std) = ambient air quality standard in ug/m³
- B = natural background concentration in ug/m³

Applying this model to existing ambient air quality data and national secondary ambient air quality will generate a required reduction of emissions in percent. The exact calculations are presented separately for each example region.

Since data exists only for the Portland Region and in Augusta in the Central Maine Region, an example region approach is used. Example regions are used when ambient air quality data is available for one but not all of several air quality control regions, that have similar emissions, and the same emission controls will be applied in all the regions as in the example region.

The Portland Air Quality Control Region is the example region for the rest of the state for particulate matter. It has, however, high annual average concentrations of sulfur dioxide. Since this region has no single large source of sulfur dioxide, but that pollutant results mainly from fuel combustion, the Portland region has a control strategy for sulfur dioxide different from the rest of the state; it is not used as an example region for sulfur dioxide.

The City of Augusta was selected as the example region for the Central Maine and Down-

east Air Quality Control Regions for evaluating the sulfur dioxide control strategy for those regions. This region was selected because ambient air quality data was available and this region contains a sulfite pulp mill, a primary source of sulfur dioxide and the means of reducing sulfur dioxide emissions.

2.1 Growth Factors

The possibility of future growth in emissions has been examined. The total population of the State of Maine has grown only 2.4 percent since 1960 and no rapid future growth is expected. In addition the heavy industries in the state, mainly the biggest polluters, have not experienced any significant growth, and future growth as a trend appears to be toward lighter, more technologically oriented industries and service industries which are not significant polluters.

Maine is fortunate and some what unique in that it is one of the few states having a Site Selection Law. This law is appended to the plan and requires prior review of all developments, requiring a license from the Board of Environmental Protection, or using 20 acres or more, or constructing a building with 60,000 square feet of ground area. The Board must consider, in addition to other pertinent factors, whether the new development will violate ambient air quality standards. Should it determine that such standards will be violated, it can deny approval for development and in essence can control growth to ensure that air quality standards will not be violated.

2.2 Summary of the Control Strategy for the Metropolitan Portland Region

Because the major emissions in this region are concentrated in Cumberland County, this subdivision was considered more representative for control strategy evaluation. A number of different control strategies were evaluated by Walden Research Corporation, however, only the optimum strategy that best attains the required reductions considering the economic impact, and one subsequently adopted by the Board are presented here. The results derived for this region were extended to provide appropriate control strategies for the other regions, primarily for particulate emissions.

Air quality data for the State of Maine consists of sampling sites operated by the Bureau

of Air Quality Control including stations in the National Air Surveillance Network. All sulfur dioxide and suspended particulate observations available were processed to provide appropriate statistical summaries consistent with Appendix H of the August 14, 1971 "Federal Register" and this data is presented in Appendix C and D to this plan. The tabulations show that the highest concentrations in the Portland Air Quality Control Region are recorded by the Technicon air monitor at Portland High School. The annual arithmetic mean at this site is 83.6 micrograms per cubic meter during calendar year 1971. Appendix F presents a justification of this site as the site of maximum pollutant concentration based on emission density. This site was also validated by a pollution rose constructed by the Bureau of Air Quality Control. The results of this study did not indicate any prominent directional bias in data and therefore no influence by nearby emission sources. The maximum annual geometric mean suspended particulate concentration was recorded at the NASN sampler station in Portland. The value for this site is 80.5 micrograms per cubic meter. The minimum annual average value for the state was 24.5 micrograms per cubic meter at the NASN sampler site in Acadia National Park. This level was taken to be representative of the ambient background suspended particulate concentration.

The optimum strategy, based on the required emission reduction and the expected economic import of these controls was:

- (a) One and one half percent sulfur content in all fuels
- (b) Process weight rate limit on particulate emissions for kraft mills, based on the Federal Register dated August 14, 1971.
- (c) Kraft pulp mill particulate emissions at 4 pounds per air dried ton of pulp from the recovery boiler, 1 pound per air dried ton of pulp from the lime kiln and 0.5 pound per air dried ton of pulp from the smelt tank.
- (d) Particulate emission standard of 0.2 grains per standard cubic foot of dry flue gas adjusted to 12% CO₂ excluding the auxiliary fuel for incineration.
- (e) Particulate emission standards for all fuel combustion sources based on boiler capacity as shown in the curve in Regulation 10.3.

- (f) Ban on all open burning.
- (g) Sulfur emission standard for sulfite pulp mills of 40 pounds per air dried ton of pulp.

The following tables 2.2A and 2.2B summarize the present emissions for Cumberland County and the emissions obtained by the application of the above control strategy. The proportional Model calculates a **28.2** percent reduction in sulfur dioxide emissions and a **36.6** percent reduction in particulate emissions are required to achieve the National Ambient Air Quality Standards. The control strategy provides a **24.0** percent reduction in sulfur dioxide emissions and a **46.29** percent reduction in particulate emissions.

Even though the control strategy provides a 24.0 percent reduction in sulfur dioxide emission and a 28.2 percent reduction is required, it is suspected that ambient air quality data is abnormally high in that it includes data from January to March 1971 during which Maine experienced abnormally low temperatures. The Portland Weather Bureau reported January as the coldest winter month since the bureau was established in 1871. In any case the low sulfur oil strategy will be in effect prior to June, 1, 1975 and data will be collected and analyzed to determine the adequacy of this strategy in light of achieving the secondary ambient air quality standards.

2.3 Summary of the Control Strategy for the Central Maine Air Quality Region

The Central Maine Air Quality Control Region was selected as an example for evaluating control strategies for Priority IA regions in the State of Maine. This region is characteristic of Priority IA regions in which high local pollutant concentrations are primarily due to large point emission sources. Because the emission from these sources is highly concentrated geographically, a subdivision of the Central Maine Air Quality Control Region was considered more representative for control strategy evaluation. The City of Augusta was selected as an appropriate subregion for evaluating control strategies, primarily for satisfying air quality standards on sulfur dioxide.

The only data available for this region is the Technicon data for sulfur dioxide at Cony High School in Augusta. Appendix D shows the annual arithmetic mean concentration of

sulfur dioxide to be 94.1 micrograms per cubic meter. This station also shows the highest average 24 hour concentration of 709 micrograms per cubic meter. These observations primarily reflect the influence of a sulfite paper mill located upwind from the sampling station. From previous computer studies this proves to be close to the site of maximum pollutant concentration.

Application of the proportional model to existing sulfur dioxide emissions and air quality data in the City of Augusta yield an annual allowable emission of 4301 tons or a 36.2 percent reduction from current levels.

The optimum control measures are:

- (a) The application of the emission standard of 40 pounds per air dried ton to sulfite paper mills.
- (b) The effect of a ban on all open burning.

Tables 2.3A and 2.3B summarize the existing emission and the projected emissions with application of the control strategy. In the Augusta area, a 31.4 percent reduction in sulfur dioxide emissions is achieved by this strategy.

The sulfur dioxide control strategy for this example region provides all but 4.8 percent of the required sulfur dioxide reduction required. It is suspected that this 4.8 percent will barely be detected. Also there are no emission factors for sulfite pulp mills and additional mill leaks are probably greater than suspected. Therefore, it is possible that the sulfur dioxide emissions are greater than the Emission Inventory shows. If this is so, the sulfite pulp mill emission standard will reduce the emissions to a greater extent than shown in this plan.

However, the sulfite pulp mill emission standard as adopted in this plan is a very stringent standard for this type of pulp mill. The Great Northern Paper Company has a sulfite pulp mill with most modern recovery process and data from this mill indicates it has not achieved this standard.

2.4 Additional Control Strategy Evaluations

The following control strategy was also evaluated for the entire Central Maine Region and the Downeast Air Quality Control Regions:

- (a) Process weight rate limit on particulate emissions, except for kraft mills, based

on the Federal Register dated August 14, 1971.

- (b) Kraft Pulp mill particulate emissions at 4 pounds per air dried ton of pulp from the recovery boiler, 1 pound per air dried ton of pulp from the lime kiln and 0.5 pound per air dried ton of pulp from the smelt tank.
- (c) Particulate emission standard of 0.2 grains per standard cubic foot of dry flue gas adjusted to 12% CO excluding the auxiliary fuel for incineration.
- (d) Particulate emission standards for solid fuel combustion sources on boiler capacity as shown in the curve in Regulation 10.3.
- (e) Ban on all open burning.
- (f) Sulfur emission standard for sulfite pulp mill of 40 pounds per air dried ton of pulp.

Tables 2.4A and 2.4B summarize these existing emissions and projected emissions upon application of this control strategy respectively for the Central Maine Air Quality Control Region. Tables 2.4C and 2.4D summarize the existing emissions and projected emissions upon application of this control strategy respectively for the Downeast Air Quality Control Region. Additional summaries will be included for the Northwest Maine and Aroostook County Air Quality Control Regions and appended to the plan when the data is summarized.

2.5 Control Strategy for Carbon Monoxide, Hydrocarbons, Photochemical Oxidants and Nitrogen Dioxide

No ambient air quality data is available for these pollutants and no region has an 1970 urban place population that exceeds 200,000, therefore all regions in the State of Maine have been classified priority III for these pollutants. Therefore it is assumed that the Federal motor vehicle emission standards will result in the emission reductions shown in appendix I to the August 14, 1971 Federal Register and that such emission reductions are sufficient to maintain the present levels which are assumed below national standards.

TABLE 2.2A
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, PORTLAND AIR QUALITY CONTROL REGION (CUMBERLAND COUNTY)
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	60	169				8,464	thou gal
2. Distillate Oil	530	3,811				105,872	mil cu ft
3. Natural Gas	4	0				355	tons
4. Wood	1,352	75				100,156	tons
5. Other							
6. Total	1,946	4,055					
B. Comm-Instl and Ind							
1. a. Coal-Area Source	213	331				9,182	tons
b. Coal-Point Source							
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	413	2,540				55,039	thou gal
b. Distillate Oil-Point Source	46	411				6,134	thou gal
4. a. Residual Oil-Area Source	229	3,963				19,941	thou gal
b. Residual Oil-Point Source	498	8,389				43,634	thou gal
5. a. Natural Gas-Area Source	4	0				453	mil cu ft
b. Natural Gas-Point Source	0	0				11	mil cu ft
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source	128	13				8,600	tons
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	1,531	15,647					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil	92	261				12,260	thou gal
4. Residual Oil	227	17,565				111,000	thou gal
5. Natural Gas							
6. Other							
7. Total	319	17,826					

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion	3,796	37,528					
II. Process Losses							
A. Area Sources (Solvents)							
B. Point Sources	3,720	479					
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	326	70			93,047	tons	
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	747	47			93,310	tons	
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source	340	19				not reported	
C. 1. Other-Area Source	130	8				not reported	
2. Other-Point Source							
D. Total Solid Waste Disposal	1,543	144					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	375	227			1,137,237	thou vehi mi	
2. Motor Vehicles-Diesel	88	157			7,008	thou gal	
B. Off-Highway Fuel Usage							
C. Aircraft	410	192				not reported	
D. Railroads	40	103			3,155	thou gal	
E. Vessels	331	0			26,461	unknown	
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation	1,244	679					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	5,122	11,685					
B. Point Source	5,181	27,145					
C. Total	10,303	38,830					

TABLE 2.2B
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, PORTLAND AIR QUALITY CONTROL REGION (CUMBERLAND COUNTY)
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970—(OPTIMUM STRATEGY)

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	60	169				8,464	tons
2. Distillate Oil	530	3,811				105,872	thou gal
3. Natural Gas	4	0				355	mil cu ft
4. Wood	1,352	75				100,156	tons
5. Other							
6. Total	1,946	4,055					
B. Comm-Instl and Ind							
1. a. Coal-Area Source	72	198				9,182	tons
b. Coal-Point Source							
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	413	2,540				55,039	thou gal
b. Distillate Oil-Point Source	46	411				6,134	thou gal
4. a. Residual Oil-Area Source	229	2,377				19,941	thou gal
b. Residual Oil-Point Source	498	5,204				43,634	thou gal
5. a. Natural Gas-Area Source	4	0				453	mil cu ft
b. Natural Gas-Point Source	0	0				11	mil cu ft
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source	23	13				8,600	tons
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	1,285	10,743					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil	92	261				12,260	thou gal
4. Residual Oil	227	13,237				111,000	thou gal
5. Natural Gas							
6. Other							
7. Total	319	13,498					

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion	3,550	28,296					
II. Process Losses							
A. Area Sources (Solvents)							
B. Point Sources	424	479					
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	326	70			93,047	tons	
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source							
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
D. Total Solid Waste Disposal	326	70					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	375	227			1,137,237	thou vehic mi	
2. Motor Vehicles-Diesel	88	157			7,008	thou gal	
B. Off-Highway Fuel Usage							
C. Aircraft	410	192				not reported	
D. Railroads	40	103			3,155	thou gal	
E. Vessels	331	0			26,461	unknown	
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation	1,244	679					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	4,234	9,919					
B. Point Source	1,310	19,605					
C. Total	5,544	29,524					

TABLE 2.3 A
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, CENTRAL MAINE AIR QUALITY CONTROL REGION (AUGUSTA)
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal		15				768	tons
2. Distillate Oil		346				9,611	thou gal
3. Natural Gas							
4. Wood		7				9,145	tons
5. Other							
6. Total		368					
B. Comm-Instl and Ind							
1. a. Coal-Area Source		32				875	tons
b. Coal-Point Source		16				400	tons
2. Coke-Point Source							
3. a. Distillate Oil-Area Source		247				5,077	thou gal
b. Distillate Oil-Point Source		3				77	thou gal
4. a. Residual Oil-Area Source		216				1,810	thou gal
b. Residual Oil-Point Source		2,667				13,525	thou gal
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source							
9. Total		3,181					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil							
5. Natural Gas							
6. Other							
7. Total							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion		3,549					
II. Process Losses							
A. Area Sources (Solvents)							
B. Point Sources		3,127					
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source		6				8,495	tons
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source		4				7,348	tons
b. on Site-Point Source		12				22,027	tons
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
D. Total Solid Waste Disposal		22					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline		21				103,840	thou vehic mi
2. Motor Vehicles-Diesel		14				640	thou gal
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads		9				288	thou gal
E. Vessels							
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation		44					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source		917					
B. Point Source		5,825					
C. Total		6,742					

TABLE 2.3B
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, CENTRAL MAINE AIR QUALITY CONTROL REGION (AUGUSTA)
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970-(OPTIMUM STRATEGY)

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
	1. Coal	15				768	tons
	2. Distillate Oil	346				9,611	thou gal
	3. Natural Gas						
	4. Wood	7				9,145	tons
	5. Other						
	6. Total	368					
B. Comm-Instl and Ind							
	1. a. Coal-Area Source	32				875	tons
	b. Coal-Point Source	16				400	tons
	2. Coke-Point Source						
	3. a. Distillate Oil-Area Source	247				5,077	thou gal
	b. Distillate Oil-Point Source	3				77	thou gal
	4. a. Residual Oil-Area Source	216				1,810	thou gal
	b. Residual Oil-Point Source	2,667				13,525	thou gal
	5. a. Natural Gas-Area Source						
	b. Natural Gas-Point Source						
	6. Process Gas-Point Source						
	7. a. Wood-Area Source						
	b. Wood-Point Source						
	8. a. Other-Area Source						
	b. Other-Point Source						
	9. Total	3,181					
I. C. Steam-Electric Power Plant							
	1. Anthracite Coal						
	2. Bituminous Coal						
	3. Distillate Oil						
	4. Residual Oil						
	5. Natural Gas						
	6. Other						
	7. Total						

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion		3,549					
II. Process Losses							
A. Area Sources (Solvents)							
B. Point Sources		1,021					
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source		6				8,495	tons
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source							
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
D. Total Solid Waste Disposal		6					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline		21				103,840	thou vehic mi
2. Motor Vehicles-Diesel		14				640	thou gal
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads		9				288	thou gal
E. Vessels							
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation		44					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source		913					
B. Point Source		3,707					
C. Total		4,620					

TABLE 2.4A
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, CENTRAL MAINE AIR QUALITY CONTROL REGION
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	104	291				14,580	tons
2. Distillate Oil	912	6,566				182,387	thou gal
3. Natural Gas	3	0				331	mil cu ft
4. Wood	2,343	130				173,545	tons
5. Other							
6. Total	3,362	6,987					
B. Comm-Instl and Ind							
1. a. Coal-Area Source	402	363				16,598	tons
b. Coal-Point Source	19	45				1,190	tons
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	723	4,680				96,347	thou gal
b. Distillate Oil-Point Source	8	73				1,128	thou gal
4. a. Residual Oil-Area Source	395	6,828				34,354	thou gal
b. Residual Oil-Point Source	1,493	23,312				127,168	thou gal
5. a. Natural Gas-Area Source	2	0				197	mil cu ft
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source	3,297	3,787				1,182,400	tons
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	6,338	39,088					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil	3	45				225	thou gal
5. Natural Gas							
6. Other							
7. Total	3	45					

	Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
			SO ₂	CO	HC	NO _x	Quantity	Units
	D. Total Fuel Combustion	9,703	46,120					
	II. Process Losses							
	A. Area Sources (Solvents)							
	B. Point Sources	11,557	12,757					
	III. Solid Waste Disposal							
	A. Incineration							
	1. a. On Site-Area Source	564	121			161,226	tons	
	b. On Site-Point Source							
	2. Municipal, etc.-Point Source							
	B. Open Burning							
	1. a. On Site-Area Source	2,045	128			255,598	tons	
	b. On Site-Point Source							
	2. a. Dumps-Area Source							
	b. Dumps-Point Source	1,392	89				not reported	
	C. 1. Other-Area Source							
	2. Other-Point Source	209	14			839	tons	
	D. Total Solid Waste Disposal	4,210	352					
21	IV. Transportation-Area Source							
	A. 1. Motor Vehicles-Gasoline	650	395			1,970,527	thou vehi mi	
	2. Motor Vehicles-Diesel	152	273			12,143	thou gal	
	B. Off-Highway Fuel Usage							
	C. Aircraft							
	D. Railroads	68	178			5,467	thou gal	
	E. Vessels	74	0			5,919	unknown	
	F. Gasoline Hndlg. Evap. Losses							
	G. Other							
	H. Total Transportation	944	846					
	V. Miscellaneous-Area Sources							
	A. Agricultural Burning							
	B. Other							
	C. Total Miscellaneous							
	VI. Grand Total							
	A. Area Source	8,436	19,953					
	B. Point Source	17,987	40,122					
	C. Total	26,414	60,075					

TABLE 2.4B
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, CENTRAL MAINE AIR QUALITY CONTROL REGION
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970— (OPTIMUM STRATEGY)

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	104	291			14,580	tons	
2. Distillate Oil	912	6,566			182,387	thou gal	
3. Natural Gas	3	0			331	mil cu ft	
4. Wood	2,343	130					
5. Other							
6. Total	3,362	6,987					
B. Comm-Instl and Ind							
1. a. Coal-Area Source	130	363			16,598	tons	
b. Coal-Point Source	7	45			1,190	tons	
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	723	4,680			96,347	thou gal	
b. Distillate Oil-Point Source	8	73			1,128	thou gal	
4. a. Residual Oil-Area Source	395	6,828			34,354	thou gal	
b. Residual Oil-Point Source	1,493	23,312			127,168	thou gal	
5. a. Natural Gas-Area Source	2	0			197	mil cu ft	
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source	2,342	3,787			1,182,400	tons	
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	5,100	39,088					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil	3	45			225	thou gal	
5. Natural Gas							
6. Other							
7. Total	3	45					

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion	8,465	46,120					
II. Process Losses							
A. Area Sources (Solvents)	1,495	6,134					
B. Point Sources							
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	564	121			161,226	tons	
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source							
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
28 D. Total Solid Waste Disposal	564	121					
IV. Transportation-Area Source	650	395			1,970,527	thou vehi mi	
A. 1. Motor Vehicles-Gasoline							
2. Motor Vehicles-Diesel	152	273			12,143	thou gal	
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads	68	178			5,467	thou gal	
E. Vessels	74	0			5,919	unknown	
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation	944	846					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	6,120	19,825					
B. Point Source	5,348	33,396					
C. Total	11,468	53,221					

TABLE 2.4C
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE, DOWNEAST AIR QUALITY CONTROL REGION
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	59	166				8,329	tons
2. Distillate Oil	521	3,750				104,180	thou gal
3. Natural Gas							
4. Wood	1,338	74				99,130	tons
5. Other							
6. Total	1,918	3,990					
B. Comm-Instl and Ind							
1. a. Coal-Area Source	208	325				8,996	tons
b. Coal-Point Source	27	89				2,468	tons
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	406	2,484				54,082	thou gal
b. Distillate Oil-Point Source	3	15				413	thou gal
4. a. Residual Oil-Area Source	226	3,510				19,623	thou gal
b. Residual Oil-Point Source	2,610	43,060				256,460	
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	5,993	50,218					
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil	2	1				200	thou gal
4. Residual Oil	134	6,678				33,600	thou gal
5. Natural Gas							
6. Other							
7. Total	136	6,679					

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion	8,047	60,887					
II. Process Losses							
A. Area Sources (Solvents)							
B. Point Sources	1,559	3,952					
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	322	69			92,092	tons	
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	1,322	83			165,292	tons	
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source	667	41				not reported	
C. 1. Other-Area Source							
2. Other-Point Source	184	10			15,714	tons	
D. Total Solid Waste Disposal	2,495	203					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	372	225			1,125,567	thou vehi mi	
2. Motor Vehicles-Diesel	87	156			6,936	thou gal	
B. Off-Highway Fuel Usage							
C. Aircraft	400	92					
D. Railroads	39	101			3,123	thou gal	
E. Vessels	13	0			1,044	unknown	
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation	911	574					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	5,313	11,035					
B. Point Source	7,699	54,581					
C. Total	13,012	65,616					

TABLE 2.4D
EMISSIONS INVENTORY SUMMARY
 FOR THE STATE OF MAINE DOWNEAST AIR QUALITY CONTROL REGION
 DATA REPRESENTATIVE OF CALENDAR YEAR 1970—(OPTIMUM STRATEGY)

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	59	166				8,329	tons
2. Distillate Oil	521	3,750				104,180	thou gal
3. Natural Gas							
4. Wood	1,338	74				99,130	tons
5. Other							
6. Total	1,918	3,990					
B. Comm-Instl and Ind							
1. a. Coal-Area Source							
b. Coal-Point Source	13	89				8,996	tons
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	406	2,484				54,082	thou gal
b. Distillate Oil-Point Source	3	15				413	thou gal
4. a. Residual Oil-Area Source	226	3,510				19,623	thou gal
b. Residual Oil-Point Source	2,610	42,060				185,460	thou gal
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source	2,500	1,735				1,291,000	tons
8. a. Other-Area Source							
b. Other-Point Source							
9. Total	5,829	50,218					
I. C. Steam-Electric Power Plant	2						
1. Anthracite Coal							
2. Bituminous Coal	2	1				200	thou gal
3. Distillate Oil	134	6,678				33,600	thou gal
4. Residual Oil							
5. Natural Gas							
6. Other							
7. Total	136	6,679					

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
D. Total Fuel Combustion	7,883	60,887					
II. Process Losses							
A. Area Sources (Solvents)	1,237	8,780					
B. Point Sources							
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	322	69			92,092	tons	
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source							
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
D. Total Solid Waste Disposal	322	69					
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	372	225			1,125,567	thou vehi mi	
2. Motor Vehicles-Diesel	87	156			6,936	thou gal	
B. Off-Highway Fuel Usage	400	92				not reported	
C. Aircraft	39	101			3,123	thou gal	
D. Railroads	13	0			1,044	unknown	
E. Vessels							
F. Gasoline Hndlg. Evap. Losses							
G. Other							
H. Total Transportation	911	574					
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	3,854	10,952					
B. Point Source	6,499	66,350					
C. Total	10,353	77,302					

CHAPTER 3 COMPLIANCE SCHEDULES

3.0 Compliance with Ambient Air Standards

In that this plan is implementing national secondary ambient air quality standards for particulate matter and sulfur dioxide, a reasonable time is permitted to achieve such standards. However, it appears that such standards can be achieved by applying the control strategy herein proposed and that this control strategy uses reasonably available pollution abatement techniques. A reasonable time then is considered to be 3 years, as is indicated in the "Federal Register", volume 36, number 158, August 14, 1971, section 420, paragraph 8. Therefore, this plan is designed to implement national secondary ambient air standards and attainment of such standards within three years of approval of the plan or approximately by June, 1975. All emission standards and regulations will be in effect by June 1, 1975.

Attainment of the sulfur dioxide ambient air quality standard in the Metropolitan Portland Air Quality Control Region is by the use of low sulfur fuel. Regulation 10.6 requires the use of 1.5 percent sulfur fuel in the metropolitan Portland Region continually after November 1, 1974. However, prior to that, i.e. the winter beginning November 1, 1973 through April 30, 1974 1.5% sulfur oil will be burned and ambient air quality data analyzed to determine if a fuel switching strategy would be feasible.

Sulfur dioxide control in other regions is on a point source basis. Control of sulfite type pulp mills by limiting sulfur dioxide emissions to 40 pounds SO₂ per air dried ton will control the point sources emitting the largest quantities of sulfur dioxide. This emission standard is to be obtained by June 1, 1975.

There are 4 particulate emission standards: fuel-burning equipment, incinerators and kraft pulp mill and general process weight. These emission standards apply throughout the State and are to be in effect by June 1, 1975.

In addition there is a prohibition on open burning. However, the compliance date for open burning dumps has been moved to July 1, 1974, with certain extensions to July 1, 1975 to mesh with the Solid Waste Management Plan.

In that attainment of secondary ambient air quality standards is more than 18 months from the adoption of the plan, the following reports as read by Federal Register will be required of sources not meeting the requirements of this plan.

- (a) Open burning—all persons using open burning as a method of solid waste disposal shall file the reports required in regulation 10.2.5. These reports are designed to indicate progress in adopting an acceptable alternative to solid waste disposal.
- (b) Emission Standards—all major sources emitting approximately 25 tons per year or more of any pollutant will be licensed. At the time of obtaining or reviewing a license, if new emission standards, or more stringent ones than those currently in effect have been determined and are scheduled to take effect by a certain date, sources must submit a timetable of modifications which will bring them into compliance by that date. Sources which already meet these standards need not submit a timetable.

3.1 Compliance of ambient air quality surveillance system

Proposed ambient air quality surveillance systems are to be in operation not later than 2 years after the Administrator approves the plan. However, sampling sites to be used in conjunction with the Emergency Episode Plan must be in operation not later than 1 year after the Administrator approves the plan.

In accordance with these requirements all proposed sampling sites will be operational by May, 1974. The Bangor continuous monitoring site shall be operational by May, 1973, and the other two regions requiring emergency episode plans have existing monitors.

3.2 Table of Compliance

The following table indicates the date at which the indicated regulations must be complied with.

Regulation	Compliance Date
Visible Emission	October 1, 1973
Open Burning	
(a) tires, or rubber products or by-products	June 30, 1972

(b) reports 1.	January 10, 1973
2.	June 30, 1973
3.	January 10, 1974
(c) prohibition of open burning	June 1, 1974
Fuel Burning Emission Standard	Immediately all new equipment June 1, 1975 existing
Incinerator Emission Standard	Immediately new equipment June 1, 1975 existing
General Process Source Emission Standard	Immediately all new equipment June 1, 1975 existing
Low Sulfur Fuel (1.5%)	November 1, 1973
SO ₂ for Sulfite Pulp Mills	Immediately new sources June 1, 1975 existing
Emission License	By January 1, 1973

Variations will be permitted for good cause, but only if they will not interfere with attainment of national secondary ambient air quality standards.

CHAPTER 4

PREVENTION OF AIR POLLUTION EMERGENCY EPISODES

4.0 Introduction

Maine contains 5 Air Quality Control Regions of which three require Emergency Episode Contingency Plans. These are: the Metropolitan Portland classified I for particulate matter and II for sulfur dioxide the Central Maine Region classified priority IA for particulate emissions and sulfur dioxide, and the Downeast Region classified priority IA for particulate emissions and sulfur dioxide.

Legal authority for the emergency episode plan is contained in M.R.S.A. 38, Section 593. The Board, may after investigation order a person or persons to immediately reduce or discontinue the emission of air contaminants creating a substantial and immediate danger to public health or safety.

4.1 Stages of Activation

There are four stages of activation: forecast, alert, warning and emergency. The criteria for activating them is that proposed in "Federal Register," number 158, volume 36, August 14,

1971 and "Federal Register," number 206, volume 36, October 23, 1971.

The forecast stage is activated upon the receipt of an Air Stagnation Advisory from the United States Weather Bureau. No emission control action would be taken at this stage but the Bureau of Air Quality Control would have a greater lead time to insure its monitoring stations are properly functioning and to give greater attention to any possible increases in pollutant concentration.

The alert stage is activated when actual pollutant concentrations reach levels defined by the Administrator, Environmental Protection Agency as severe enough to require emission reduction action. Both the levels at which this stage is activated and the corresponding control action are given in Regulation 10.9.

Should the pollutant concentrations continue to increase due to a persistent atmospheric stagnation the warning stage is activated. Both the pollutant concentrations at which this stage is activated and the corresponding control action are given in Regulation 10.9.

At the fourth and final stage, the emergency stage, the pollutant levels are reaching the point where significant harm to the health of persons results and the most stringent control of emissions is required. The emission controls and levels for activation for this stage are given in Regulation 10.9 also.

At such time as pollutant concentrations begin to decrease each lower stage may be reactivated and when the pollutant concentrations again drop below alert levels, termination will be declared and each person or organization notified of the other stages will be notified of the termination of the episode.

4.2 Public Announcement

Whenever an episode stage has been determined to exist, an emergency control center will be activated in Augusta at the headquarters which will be manned on a 24 hour basis during the episode. In addition, each of the three regional offices involved in the episode will be manned on a 24 hour basis.

When an episode stage is declared to exist, a declaration sheet is filled out in Augusta, and a statement for public release is drafted and given to the regional offices. Each regional office will telephone those contacts on its com-

munication checklist and relay the statement for public release. Contacts on the communication checklists are major officials in state government, an official in each town with a population of 15,000 or greater and major sources that will be required to take emission control action. In addition the Augusta Center will establish contact with the New Hampshire Air Pollution Control Commission, Region I Environmental Protection Agency and will contact from the list of radio stations, those reaching the most people and will read a statement for general public information and emission control action. All such declaration sheets, communication checklists and telephone directories are located in the Communication Manual—4.6.

4.3 Air Quality Surveillance

In each of the three regions there is a monitoring site capable of continuously sampling for suspended particulates and sulfur dioxide. Such stations are designated primary monitoring sites, from which the Augusta emergency control center will be provided with air quality data each 4 hours.

4.4 Acquisition of Meteorological Data

During episode periods, both predictive and observational weather information is required. The Environmental Science Services Administration provides for the following meteorological network operation for the State of Maine:

Wind Soundings are taken at 6:15 a.m. and p.m. EST at: Portland, Caribou, Albany, New York, Chatham, Mass.

Hourly wind data is received from: Caribou, Portland, Houlton, Millinocket, Augusta, Bangor, Old Town.

Other stations provide six-hour wind data.

The Portland Weather Bureau is the meteorological information center for both Maine and New Hampshire and it has the responsibility for informing the area of Air Stagnation Advisories. The station informs the Department of Environmental Protection at Augusta as well as the Civil Defense warning network (NA-WAS) and during advisories provides 12 hour information updates.

The State will maintain weather instruments at each of the primary monitoring sites.

4.5 Inspection of Sources

To insure the compliance of major sources with their preplanned abatement strategies, on site inspection will be conducted by all regional personnel on an around-the-clock basis. These inspectors shall maintain frequent contact with the Emergency Control Center in Augusta.

4.6 Communication Manual

The following section is the Communication Manual, a copy of which is to be kept at each regional office.

COMMUNICATIONS MANUAL

EPISODE CONTROL COMMUNICATIONS

This manual includes references to all communications required during the progress of an air pollution episode in the Maine Air Quality Control Regions. It includes checklists containing the communications required as well as sheets for recording episode variables. These sheets are filled out by personnel at the Emergency Control Center and then are posted on the Control Center status board, and ultimately filed in the Episode Logbook.

1. CONTROL CENTER

The DEP offices in Augusta will be utilized during an episode situation and become the Control Center for all episode actions. The DEP staff will immediately assume their pre-arranged episode duties upon notification of an emergency episode condition. The following responsibilities are to be assumed by the Control Center staff:

- a. The frequent gathering of pertinent air quality and meteorological data.
- b. The analysis of this data and the determination of what actions will be taken to prevent the deterioration of the air quality.
- c. The communication of episode status to the individuals and agencies listed on the Communications Checklist for the Central Maine AQCR.
- d. The coordination of the activities of the field inspection force through frequent contact with them. (Radio equipped cars may be necessary.)
- e. The coordination of the activities of the Regional Centers in Portland and Bangor.

2. REGIONAL CENTERS

Because of the geographical situation in Maine and the manpower availability, all three Air Quality Control Regions requiring an Episode Plan will rely upon the Augusta Control Center as the primary means of coordinating episode activity. However, a Regional Center will be located at the Portland Continuous Monitoring site as well as at the Bangor Continuous Monitoring site. These centers will be manned around-the-clock during episode periods.

The responsibilities of the Regional Centers are as follows:

- a. Upon notification of an episode condition, to contact those individuals and agencies which are listed on the Communications Checklist for their region.
- b. To advise the Augusta Control Center of all pertinent facts related to the episode situation.

3. DECLARATION SHEETS

For each stage of the Episode Control Plan there is a Declaration Sheet. The sheet is filled out by the Control Center staff. When an episode stage is declared, a Declaration Statement is recorded on the Declaration Sheet. This Declaration Statement includes concise information on the air quality, the region affected, and the meteorological forecast.

The Declaration Statement contains the basic information to be communicated to each of the contacts listed on the Communications Checklist. When the Statement has been made available to persons responsible for making the required communications, the sheet is posted in the Control Center. This provides an easily accessible status report to staff and other interested parties. A preplanned press release is to be made available to the news media as each stage of an episode is reached. Depending upon the circumstances, it may be appropriate to hold a press briefing or a press conference, or to hold interviews for various media representatives.

If a higher or lower episode stage is declared, the final entry is made on the current Declaration Sheet. It is then removed from display and filed in the Episode Logbook and the new Declaration Sheet is posted in its place. The final sheet posted will always be the All Clear Sheet.

4. COMMUNICATIONS CHECKLIST

For each episode stage there is a Communications Checklist. Each contact on the Checklist must be telephoned from the Control Center and be notified of the situation by reading the Declaration Statement. The person making the contact indicates the time of the call on the Checklist and enters the initials of the person receiving the call.

When the contacts have all been completed, the Checklist is filed in the Episode Logbook.

5. **EPISODE LOGBOOK**

All of the Declaration Sheets and Checklists form a part of the permanent record of

the Control Center. They are the objective evidence of actions taken during the course of an episode. After the episode is over and after all the sheets have been put into the Episode Logbook, it can serve as the primary source for analysis of the episode and the effectiveness of control actions.

DECLARATION SHEET

Indicate Stage Declared _____ Date _____ Time _____

Air Stagnation Advisory Received _____ Date _____ Time _____

Stage in effect prior to this declaration _____

Air Quality Data Summary: (last 24 hr., 4 hr., 1 hr.)

Indicate Effect of previous
Control Strategy

Indicate time all notifications

have been made Date _____ Time _____ Signed _____

Declaration Statement (include air quality, region affected and general action's for emission reductions)

Post this sheet on the Emergency Control Center Status Board

File this sheet in the Episode Logbook

COMMUNICATIONS CHECKLIST FOR AUGUSTA CONTROL CENTER

Indicate Stage Declared: _____ Time _____ Date _____

The following contacts must be made from the Control Center to communicate the Proper Declaration Statement.

Contact	Telephone Number	Received by (Initials)	Time
Commissioner, Maine D.E.P.	289-2811	_____	_____
Portland Regional Center	772-0586	_____	_____
Bangor Regional Center	947-8433	_____	_____
Governor's Office	289-3531	_____	_____
New Hampshire Pollution Control Commission	603-271-1181	_____	_____
Auburn City Manager	784-4019	_____	_____
Augusta City Manager	623-8540	_____	_____
Lewiston Mayor	782-6511	_____	_____
Department of Public Health	289-2431	_____	_____
Waterville City Administrator	873-4586	_____	_____
Rockland City Manager	594-8431	_____	_____
Belfast City Manager	338-3370	_____	_____
Gardiner City Manager	582-4200	_____	_____
Rumford Town Manager	364-4576	_____	_____
Region I EPA Office	617-223-6883	_____	_____
Central Maine Power	623-3521	_____	_____

Indicate News Media Contacted

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Notified by _____

COMMUNICATIONS CHECKLIST FOR AUGUSTA CONTROL CENTER (Cont.)

Indicate Stage Declared: _____ Time _____ Date _____

SOURCES: Select action plans for sources in the affected region and make the required contacts from the list below.

Contact	Telephone Number	Received by (Initials)	Time
Marine Colloid Inc.	594-4436	_____	_____
Dragon Cement Co.	594-5555	_____	_____
Oxford Paper Co.	364-4521	_____	_____
A. C. Lawrence Leather	743-8951	_____	_____
Pioneer Plastics	784-9111	_____	_____
International Paper, Jay	897-3432	_____	_____
Bates Mfg., Augusta	623-8481	_____	_____
Lisbon Mills	353-4371	_____	_____
Central Maine General Hospital	795-0111	_____	_____
U. S. Gypson	353-4311	_____	_____
Marcas Paper Co.	345-8461	_____	_____
International Paper, Chisholm	897-3432	_____	_____
Lipman Poultry	623-8484	_____	_____
State Hospital, Augusta	622-6281	_____	_____
Statler Paper Co.	623-4731	_____	_____
Yorktown Paper Mills	582-3230	_____	_____
Wyandotte Worsted Co.	873-1181	_____	_____
Thayer Hospital, Waterville	873-0621	_____	_____
Colby College	873-1131	_____	_____
Hartland Tanning Mills	938-4496	_____	_____
North Anson Reel Co.	635-2101	_____	_____
Delta Chemical	548-2525	_____	_____

Notified by _____

COMMUNICATIONS CHECKLIST FOR THE PORTLAND REGIONAL CENTER

Indicate Stage Declared: _____ Time _____ Date _____

The following contacts must be made
from the Regional Center to communicate
the PROPER DECLARATION STATEMENT

Contact	Telephone Number	Received by (Initials)	Time
Portland City Manager	774-8221	_____	_____
Biddeford Mayor	283-4881	_____	_____
Sanford First Selectman	324-4121	_____	_____
Brunswick Town Manager	725-7522	_____	_____
Westbrook Mayor	854-9105	_____	_____
Saco, Mayor	284-4830	_____	_____
South Portland City Manager	799-6652	_____	_____
Kittery Town Manager	439-1633	_____	_____

Notified by _____

COMMUNICATIONS CHECKLIST FOR PORTLAND REGIONAL CENTER (Cont.)

Indicate Stage Declared: _____ Time _____ Date _____

Sources: Select action plans for sources
in the affected region and make the
required contacts from the list below:

Source	Telephone Number	Received by (Initials)	Time
Lachance Bros. Brick Co.	839-3301	_____	_____
Harding Plant	443-3311	_____	_____
Bowdoin College	725-8731	_____	_____
University of Maine, Gorham	839-3351	_____	_____
Burnham and Morrill	772-8341	_____	_____
Bliss and Company	799-3341	_____	_____
Fairchild	774-6211	_____	_____
Maine Medical Center	871-0111	_____	_____
Crosby-Laughlin	773-1791	_____	_____
Cook Concrete	775-3727	_____	_____
Cape Station	772-7411	_____	_____
S. D. Warren	854-2511	_____	_____
Bath Iron Works	443-3311	_____	_____
Pejepscot Paper Co.	729-3301	_____	_____
Prime Tanning Co.	698-1100	_____	_____
West Point Pepperell	283-3717	_____	_____
Portsmouth Naval Shipyard	439-1000	_____	_____
Simplex Wire and Cable	676-9921	_____	_____
Saco Tannery	284-4581	_____	_____
New England Maremont Co.	283-3611	_____	_____
Suttons Mill	324-3080	_____	_____
American Cyanamide	324-6000	_____	_____

Notified by _____

COMMUNICATIONS CHECKLIST FOR THE BANGOR REGIONAL CENTER

Indicate Stage Declared: _____ Time _____ Date _____

The following contacts must be made from the Regional Center to communicate the PROPER DECLARATION STATEMENT.

Contact	Telephone Number	Received by (Initials)	Time
Bangor City Manager	947-0341	_____	_____
Old Town	827-5985	_____	_____

SOURCES: Select action plans for sources in the affected region and make the required contacts from the list below.

Source	Telephone Number	Received by (Initials)	Time
Georgia Pacific Co., Woodland	427-3311	_____	_____
St. Regis Paper Co., Bucksport	469-3200	_____	_____
Penobscot Shoe, Old Town	827-4431	_____	_____
Bangor Hydroelectric	945-5621	_____	_____
Bangor State Hospital	947-7386	_____	_____
Eastern Paper Co., Bangor	945-5700	_____	_____
Charleston Radar Station	945-5878	_____	_____
Eastland Woolens, Corinna	278-3101	_____	_____
Great Northern Paper Co., East Millinocket	723-5131	_____	_____
Pine Tree Tanning	732-2255	_____	_____
Lincoln Pulp and Paper Co.	794-6521	_____	_____
Foster Mfg. Co., Inc.	645-2578	_____	_____
Great Northern Paper Co., Millinocket	723-5131	_____	_____
University of Maine	581-1110	_____	_____
Guilford Inc.	876-3331	_____	_____
American Thread, Milo	943-7381	_____	_____
Penobscot Co., Old Town	827-4411	_____	_____

Notified by _____

RADIO AND TV STATION-TELEPHONE DIRECTORY

Downeast Air Quality Control Region

WABI Bangor	947-8321
WEMT Bangor	945-6457
WGUY Bangor	947-7354
WLBZ Bangor	942-4656
WQDY Calais	454-7545
WLKN Lincoln	794-6555
WMCS Machias	255-4452
WMKR Millinocket	723-9657

Central Maine Air Quality Control Region

WMTW Poland Springs	998-4311
WFAU Augusta	623-3878
WRDO Augusta	623-4735
WBME Belfast	338-2277
WABK Gardiner	582-3303
WCOU Lewiston	784-6921
WRKD Rockland	594-8451
WRUM Rumford	364-3701
WTVL Waterville	873-3311
WKTJ Farmington	778-3000
WLAM Lewiston	784-5401
WNMY Norway	743-6200
WGHM Skowhegan	474-9094
WKTQ South Paris	743-2311

Metropolitan Portland Air Quality Control Region

WCSH News Portland	772-0181
WGAN News Portland	772-4661
WJAB News Westbrook	854-8409
WCME News Brunswick	725-5507
WLOB News Portland	775-2336
WPOR News Portland	773-8111
WIDE News Biddeford	882-5121
WSME News Sanford	324-2464
WJTO News Bath	725-4373

CHAPTER 5
AIR QUALITY SURVEILLANCE

5.0 Objective

The establishment of this air quality surveillance system enables the Department of Environmental Protection to evaluate: the state of the air quality; the effectiveness of this implementation plan; and the need for invoking the emergency episode plan.

5.1 Monitoring Site Specifications and Locations

Table 5.1A indicates the population of each Air Quality Region for the State as of the 1970 census and Tables 5.1B through 5.1F indicates for each region the minimum monitoring requirements as specified by the "Federal Register," volume 36, number 158, August 14, 1971. Tables 5.1G through 5.1K list the monitoring site specifications for the proposed air quality surveillance network. Exact locations are given for all existing monitoring sites, however general locations are given for proposed sites.

The general locations for the proposed sites were determined by examining the emissions inventory and locating sites in an area having either a large point source or an urban area.

The exact placement of these sites will be determined by examining the meteorological information available such as wind roses and LCD's and examining diffusion equations for the most prevalent wind conditions, considering topographical features and available locations, and following the Sampling Location Guidelines in Appendix C.

As near as possible each site will be placed at the location of maximum pollutant concentration.

In addition to the stationary monitoring sites there will be two mobile monitors. A Chevrolet van presently equipped to monitor sulfur dioxide and particulate matter will be changed to monitor carbon monoxide and hydrocarbons when the mobile laboratory becomes operational. A mobile laboratory is being built by Gerstenslager and should be ready for operation late 1972. The mobile laboratory will have the ability to sample six pollutants: sulfur dioxide, particulates, carbon monoxide, hydrocarbons, nitrogen dioxide, and photochemical oxidants. Both mobile sites carry their own source of power and will be capable of conducting ambient air surveys in remote locations around major point sources in the priority IA regions.

Table 5.1A
Population by Region

Region I	Metropolitan Portland	Air Quality Control Region	332,440
Region II	Central Maine	Air Quality Control Region	353,461
Region III	Downeast	Air Quality Control Region	203,736
Region IV	Aroostook County	Air Quality Control Region	90,327
Region V	Northwest Maine	Air Quality Control Region	12,084

Table 5.1B**Region I Minimum Monitoring Requirements**

Pollutant	Priority	Minimum monitoring requirements
Suspended Particulates	I	1 continuous sampler 6 High volume sample sites: one: 24 hr sample every 6 days
Sulfur Dioxide	II	1 continuous sampler 3 Bubbler Box Sites: one 24 hr sample every 6 days
Carbon Monoxide	III	None
Nitrogen Dioxide	III	None
Photochemical Oxidants	III	None

Table 5.1C**Region II Minimum Monitoring Requirements**

Pollutant	Priority	Minimum monitoring requirements
Suspended Particulates	IA	2 continuous samplers 6 High volume sampler sites: one 24 hr. sample every 6 days
Sulfur Dioxide	IA	2 continuous samplers 4 Bubbler box sites; one 24 hr. sample every 6 days
Carbon Monoxide	III	None
Nitrogen Dioxide	III	None
Photochemical Oxidants	III	None

Table 5.1D**Region III Minimum Monitoring Requirements**

Pollutant	Priority	Minimum Monitoring Requirements
Suspended Particulates	IA	1 continuous sampler 5 High volume sampler sites; one 24 hr. sample every 6 days
Sulfur Dioxide	IA	1 Continuous sampler 4 Bubbler Box sites; one 24 hr sample every 6 days
Carbon Monoxide	III	None
Nitrogen Dioxide	III	None
Photochemical Oxidants	III	None

Table 5.1E**Region IV Minimum Monitoring Requirements**

Pollutant	Priority	Minimum Monitoring Requirements
Suspended Particulates	III	1 High volume sampler site; one 24 hr. sample every 6 days
Sulfur Dioxide	III	1 Bubbler Box site; one 24 hr. sample every six days
Carbon Monoxide	III	None
Nitrogen Dioixde	III	None
Photochemical Oxidants	III	None

Table 5.1F

Region V Minimum Monitoring Requirements

Pollutant	Priority	Minimum Monitoring Requirements
Suspended Particulates	III	1 High volume sampler site; one 24 hr. sample every 6 days
Sulfur Dioxide	III	1 Bubbler Box site; one 24 hr. sample every 6 days
Carbon Monoxide	III	None
Nitrogen Dioxide	III	None
Photochemical Oxidants	III	None

Table 5.1G
Region I Monitoring Sites ^a

Site Location	UTM grid Coordinates	Date Startup	Pollutant	Averaging Time	Method
Portland High School Portland, Maine	4834620 398480	exist. exist. exist. exist.	particulate particulate sulfur diox. sulfur diox.	continuous 24 hour continuous 24 hour	nephelometry high volume pararosaniline pararosaniline
SMVTI, South Portland, Maine	4833170 400950	exist. exist.	particulate sulfur diox.	24 hour 24 hour	high volume pararosaniline
South Portland High School	4830400 397640	exist. exist.	particulate sulfur diox.	24 hour 24 hour	high volume pararosaniline
NASN Station Portland, Maine	4834620 398480	exist.	particulate	24 hour	high volume
Portland Airport Portland, Maine	4833540 394410	exist. exist.	particulate sulfur diox.	24 hour 24 hour	high volume pararosaniline
Biddeford City Hall Biddeford, Maine	481640 382175	exist. exist.	particulate sulfur diox.	24 hour 24 hour	high volume pararosaniline

^aAll monitoring sites having 24 hour averaging times sample once per 6 days.

^bPrimary monitoring site providing real time data for emergency episodes.

Table 5.1H
Region II Monitoring Sites^a

Site Location	UTM grid Coordinates	Startup Date	Pollutant	Averaging Time	Method
Cony High School ^b Augusta, Maine	497000 478450	10/72	particulate	continuous	nephelometry
		exist.	sulfur diox.	continuous	pararosaniline
		10/72	particulate	24 hour	high volume
		10/72	sulfur diox.	24 hour	pararosaniline
Lewiston, Maine ^b		10/72	particulate	continuous	nephelometry
		10/72	sulfur diox.	continuous	pararosaniline
Waterville, Maine		5/72	particulate	24 hour	high volume
		5/72	sulfur diox.	24 hour	pararosaniline
Rockland, Maine		5/72	particulate	24 hour	high volume
		5/72	sulfur diox.	24 hour	pararosaniline
Belfast, Maine		5/72	particulate	24 hour	high volume
		5/72	sulfur diox.	24 hour	pararosaniline
Rumford, Maine		10/72	particulate	24 hour	high volume
		10/72	sulfur diox.	24 hour	pararosaniline
Livermore Falls, Maine		10/72	particulate	24 hour	high volume
		10/72	sulfur diox.	24 hour	pararosaniline
Wiscasset, Maine		5/72	particulate	24 hour	high volume
		5/72	sulfur diox.	24 hour	pararosaniline

^aAll monitoring site having 24 hour averaging times sample once per 6 days.

^bPrimary monitoring site providing real time data for emergency episodes.

Table 5.1I
Region III Monitoring Sites^a

Site Location	UTM grid Coordinates	Startup Date	Pollutant	Averaging Time	Method
Bangor, Maine ^b		5/73	particulate	continuous	nephelometry
		5/73	sulfur diox.	continuous	pararosaniline
		5/73	particulate	24 hour	high volume
		5/73	sulfur diox.	24 hour	pararosaniline
Old Town, Maine		10/73	particulate	24 hour	high volume
		10/73	sulfur diox.	24 hour	pararosaniline
Dover-Foxcroft, Maine		10/73	particulate	24 hour	high volume
		10/73	sulfur diox.	24 hour	pararosaniline
Millinocket, Maine		10/73	particulate	24 hour	high volume
		10/73	sulfur diox.	24 hour	pararosaniline
Lincoln, Maine		10/73	particulate	24 hour	high volume
		10/73	sulfur diox.	24 hour	pararosaniline
Bailey, Maine		4/74	particulate	24 hour	high volume
		4/74	sulfur diox.	24 hour	pararosaniline

^aAll monitoring sites having 24 hour averaging times sample once per 6 days.

^bPrimary monitoring site providing real time data for emergency episodes.

Table 5.1J
Region IV Monitoring Sites^a

Site Location	UTM grid Coordinates	Startup Date	Pollutant	Averaging Time	Method
Presque Isle, Maine		5/74	particulate	24 hour	high volume pararosaniline
		5/74	sulfur diox.	24 hour	
Madawaska, Maine		5/74	particulate	24 hour	high volume pararosaniline
		5/74	sulfur diox.	24 hour	

Table 5.1K
Region V Monitoring Sites^a

Site Location	UTM grid Coordinates	Startup Date	Pollutant	Averaging Time	Method
Bingham, Maine		10/72	particulate	24 hour	high volume pararosaniline
		10/72	sulfur diox.	24 hour	

^aAll monitoring sites having 24 hour averaging times sample once per 6 days.

5.2.1 PARTICULATE 24 HOUR SAMPLING VIA HIGH VOLUME SAMPLER

EQUIPMENT—8" x 9 $\frac{3}{4}$ " glass fiber filter; desiccator; balance capable of weighing to nearest milligram (three decimal places); high volume sampler with calibrated flow meter, capable of moving 1.13—1.70 m³/minute (40—60 ft³/minute) through the glass fiber filter. Such apparatus, properly operated, should take an adequate sample in atmosphere having concentrations as low as 1 ug/m³ and collect particles within the size range of 0.1—100 um diameter. Sampling period should be 24 hours to the nearest 2 minutes. Flow rates should be determined to the nearest 1.0 ft³/minute (0.03 m³/minute).

SAMPLING PROCEDURES

1. Hold an 8" x 9 $\frac{3}{4}$ " glass fiber filter to the light and examine it for pinholes and imperfections. Discard imperfect filters.

2. Mark with a magic marker or felt pen, the glass fiber filter with an identifying number and desiccate the filter for 24 hours to approximately 0% relative humidity. Weigh the filter to the nearest milligram immediately upon removal from the desiccator.

3. At the sampling site, open the shelter, remove the nuts and the face plate on the filter holder. Place a preweighted filter, rough side up on the screen and carefully replace the face plate. Tighten the nuts securely to preclude any leakage between the filter and gasket. Do not tighten the filter plate so tight the filter is damaged. A light application of talcum powder on the gasket can be used to prevent the filter from sticking to the gasket. Close the shelter.

4. Run the sampler for five minutes and record the initial reading on the flowmeter. Set the timer to take a twenty-four hour sample. When the high volume sampler is used with a bubbler box, the timer in the bubbler box is used for both the high volume sampler and the air mover for the bubbler box.

5. At the end of twenty-four hours, record the final flow reading on the flow meter and remove the filter. If the sampler has stopped when you arrive at the sampling site, start it and run it for five minutes and then record the final flow reading.

6. If for some reason the glass fiber filter is damaged on removal, void the sample on the data card. Otherwise desiccate it again for

twenty-four hours and weigh as in item two. Record all data on the sampling record form —DEP form number 91.

CALCULATIONS

1. Average the initial and final flow readings. From the calibration curve for the particular sampler used determine the actual average flow rate in cubic meters/minute, multiply this number by the time in minutes sampled—1440 minutes for a twenty four hour sample; this is the total sample size.

2. Subtract the initial filter weight from final weight—this is the weight gain.

3. Calculate the suspended particulate concentration;

$$\text{Concentration} \frac{\text{ug}}{\text{m}^3} = \frac{\text{weight gain grams} \times 10^6 \text{ ug}}{\text{Total sample size m}^3}$$

CALIBRATION

1. The high volume sampler must be calibrated after each change of brushes or after each disassembly for maintenance or at least once per year. The sampler is calibrated with an orifice that has been calibrated against a primary standard. A calibration curve is maintained for each calibrated orifice in cubic meters per minute versus pressure drop across the orifice. Various readings on the flowmeter for the sampler are obtained by varying the voltage to the motor with a powerstat transformer.

2. Record the ambient temperature and atmospheric pressure prior to starting the calibration. Connect the filter holder and filter to the sampler motor and set the flowmeter to read approximately 60. Remove the filter holder at the sampler and install the calibrated orifice.

3. Connect the sampler to the electrical supply through the powerstat variable transformer and connect the pressure tap on the calibrated orifice to a water manometer capable of reading at least 16 inches of water. (refer to figure 5.2.1A)

4. Vary the transformer to vary the motor speed and thereby obtain different readings on the flowmeter. Record, for about five flowmeter readings from 60—40 cubic feet per minute, the flowmeter reading and the manometer reading (being sure to add both legs of the water column). Refer to the power calibration curve for the calibrated orifice and con-

vert flowmeter readings to cubic meters per minute flow.

MAINTENANCE

1. Replace the brushes after every 500 hours of operation.
2. Replace the desiccant when it starts to turn pinkish.

5.2.2 SULFUR DIOXIDE 24 HOUR SAMPLING, PARAROSANILINE METHOD

Equipment

Tri Craft sampler or other device containing a tube capable of holding approximately 80 ml; vacuum pump capable of maintaining at least 20 inches of mercury vacuum with a flow of 350 ml per minute; membrane filters; calibrated 25 gauge hypodermic needle; spectrophotometer. See figure 5.2.2A for a diagram of sampling train. When Tri Craft samplers are used for one sample, the other 4 sampling trains must be blocked at the intake manifold and at the orifice connection.

Reagents:

Absorbing Reagent—(0.04M potassium tetrachloromercurate) Dissolve 10.86 grams of mercuric chloride, 0.066 grams of ethylenediaminetetraacetic acid disodium salt (EDTA) and 6.0 grams of potassium chloride in distilled water and dilute to 1000 ml in a volumetric flask. This reagent is normally stable for six months but refrigerate.

Sulfamic Acid—(0.6%) Dissolve 0.6 grams of sulfamic acid in distilled water and dilute to 100 ml in a volumetric flask. Prepare fresh daily.

Formaldehyde—(0.2%) Dilute 5ml of 36-38% formaldehyde solution to 1000ml with distilled water. Prepare fresh daily.

Iodine Stock and Reagent Solutions—Prepare iodine stock solution by dissolving 12.7 grams of resublimed iodine, 40 grams of potassium iodide in 25ml of distilled water in a 250 ml beaker. Dilute this stock solution to 1000 ml with distilled water and determine the normality with 0.01N Sodium Thiosulfate solution. Dilute the correct amount of iodine stock solution with distilled water to obtain 1000 ml of 0.01N Iodine reagent.

Pararosaniline Stock and Reagent Solutions—Prepare pararosaniline stock solution by dissolving 0.200 grams of 99-100% pararosaniline

hydrochloride dye in 100 ml of 1N hydrochloric acid in a glass stoppered graduated cylinder. Prepare pararosaniline reagent solution by adding to a 250 ml volumetric flask, 20 ml of pararosaniline stock solution, 25 ml of 3M phosphoric acid and dilute to volume with distilled water.

Preparation of Standards—Dissolve 0.640 grams of sodium metabisulfite in distilled water and dilute to 1000 ml. Determine the normality of this solution with 0.01N iodine reagent using starch as an indicator.

Dilute the correct amount of the above solution with distilled water to obtain 100 ml of 0.0123N sodium metabisulfite solution, which contains 150 ul/ml SO₂ at 25°C and 760 millimeters of mercury pressure. Pipette 2 ml of this solution into a 100 ml volumetric flask and dilute to 100 ml with absorbing solution. This solution contains 3 ul/ml SO₂ at 25°C and 760 millimeter of mercury pressure. Prepare the following standards by pipetting the indicated quantity of the 3 ul/ml solution into a 100 ml volumetric flask and diluting to volume with absorbing reagent.

ul/ml	ug/ml	ml added
0	0	0
0.03	0.078	1
0.09	0.235	3
0.15	0.393	5
0.3	0.786	10
0.9	2.36	30

Pipette 20 ml into an analysis container and treat like a sample. Prepare a curve on rectangular coordinate paper of concentration ug/ml versus absorbance of these standards. Draw the best straight line through all the calibration points and use this curve to determine the concentration of the samples. Prepare standards fresh daily.

Sampling:

Place 50 ml of absorbing solution in the absorbing tube with an impinger and connect the sampling train as indicated in figure 5.2.2A. Be sure to have a membrane filter ahead of the intake manifold to prohibit particulates from entering the absorbing solution and have a membrane filter ahead of the hypodermic needle. Sample for 24 hours. Remove the samples as soon as possible after sampling. If the samples must be stored refrigerate them at

5 C. There is no loss of SO₂ at this temperature but at 22°C, SO₂ is lost at 1% per day.

A 25 gauge hypodermic needle is calibrated and used as a critical orifice. The large end of the hypodermic needle is attached to a vacuum pump capable of maintaining 20" of Hg vacuum across the orifice.

Analysis:

1. Measure the absorbing solution for losses in volume after sampling and adjust to 50 ml by adding distilled water.

2. Pipette 5 ml of sample or control solution or water for blank, into an analysis container and then pipette 5 ml of absorbing solution into this container and wait 20 minutes to allow ozone to decompose.

3. To each analysis container add 1 ml of sulfamic acid reagent and wait 10 minutes for nitrites from oxides of nitrogen to decompose.

4. Add 2 ml of formaldehyde reagent and then 5 ml of pararosaniline reagent to each analysis container, dilute to 25 ml and mix the solutions.

5. After 30 minutes but before 60 minutes read the absorbance of the solution at 548 mμ in the spectrophotometer. Solutions with high absorbances can be reduced six fold with a reagent blank, made by treating absorbing solution with sulfamic acid, formaldehyde, and pararosaniline reagent in the above fashion, and the absorbance found should be within 10% of true.

6. For a blank, treat distilled water in the same fashion as a sample.

Calculations:

1. To calculate the total volume of air sampled: multiply the calibrated flow rate for this orifice used by the total number of minutes sampled.

$$V_s = R_{co} \times T_s$$

Time=time in minutes
R_{co}=m³/min critical flow
for orifice used
V_s=total volume of air
sampled m³

2. To calculate the concentration of sulfur dioxide in the air sampled:

$$C_a = \frac{C_s \times 50}{V_s}$$

C_a=Content in air sampled
ug/m³
C_s = Conc in sample ug/ml

Calibration:

1. The hypodermic needle must be calibrated

to determine the actual flow at the critical point. The flow at the critical point is called the critical flow. The critical point is defined as the point where an increase in pressure across the orifice will not cause any increase in flow. A diagram for calibrating hypodermic needles is included in figure 5.2.2B.

Maintenance:

1. Do not allow colored solution to stand in the absorbance cell of the spectrophotometer. Clean cell with alcohol after use.

2. Hypodermic needles should be recalibrated every six months.

3. Make sure the vacuum gauge works on the vacuum pump and that when sampling at least 20 inches of mercury vacuum is maintained.

4. Renew membrane filters when they start showing signs of dirt building upon them.

5. Renew fiber glass wool in trap every six months.

General Considerations:

1. Concentrations of sulfur dioxide in the air in the range of 25—1050 ug/m³ (0.01—0.40 ppm) can be measured by this method. Concentration less than 25 ug/m³ can be determined by sampling larger volumes but absorption efficiency must be determined.

2. Beer's Law is followed through the range 0.03 to 1.0 absorbance units (0.8—27 ug of sulfite ion in 25 ml of final solution computed as SO₂). In this method, if the sample solution concentration exceeds 3.6 ug/ml, dilute an aliquot of the sample with a known amount of reagent blank until the solution concentration is below 3.6 ug/ml. This is an ambient air concentration of 437 ug/m³.

5.2.3 PARTICULATE MATTER CONTINUOUS MONITORING

EQUIPMENT

Continuous monitoring for suspended particulates will be done by using integrating nephelometers with recording systems. In that nephelometry is not an equivalent method, this equipment will be correlated to the high volume sampler.

RESOLUTION OF DATA

The data from the strip chart recorder should be removed and resolved weekly. Hourly averages should be estimated from the chart and recorded on DEP form number 98.

PROCEDURES

The following procedures have been taken from the instruction manual for the equipment used.

OPERATING INSTRUCTIONS

Operating Controls

Front Panel

Function Switch	This switch turns the system power on and off and selects the mode of operation with four positions: OFF—No power input RUN—For Operation AIR—For Clean Air Calibration CAL—For System Reference Calibration
Panel Light	This light verifies power is being supplied to the system.
Range Switch	This switch selects one of three sensitivity ranges with two scales each—Local Visual Distance and Scattering Coefficient: A-C—Most sensitive, direct meter reading B-D—One-fourth as sensitive as A-C, also direct reading Ax10 & Cx0.1—Least sensitive, readings must be multiplied as indicated.
Background Control	This vernier locking knob adjusts system output near zero for clean air calibrations.
Gain Control	This locking knob adjusts system gain sensitivity for Freon and Reference Calibrations.

NOTE: The Background and Gain Controls interact.

Internal Controls

Flash/Sec Switch	This switch selects the desired rate from one flash every four seconds to 16 flashes per second.
Time Constant Switch	This switch selects the averaging time for the output signal. Time Constant numbers are in seconds, from 0.1

to 200. Low numbers provide fast response but also produce a higher signal-to-noise ratio. NOTE: In some early models the zero and decimal point were omitted in front of the shortest time constant. All systems are actually 0.1 second.

Recorder for System 2050 or Separate Model 450

Power Switch	This ON-OFF toggle switch controls power to the recorder servo and drive motor only.
Chart Switch	This three-position toggle switch controls the chart drive motor. (1) Fast—1 inch/min chart speed (2) Center OFF—Drive motor off, Servo remains active (3) Slow—1 inch/hour chart speed.
Zero Adjust	This screwdriver adjustment is used to set the recorder pen to zero.

NOTE: See Section 6 for Calibration Controls on rear panel of recorder.

Operation

For Stationary Monitoring:

1. Set the **Flash/Sec Switch** to $\frac{1}{4}$.
2. Set the **Time Constant Switch** to 100 sec and close the panel.
3. Set the **Range Switch** to match local conditions:
A-C—Clear to lightly polluted air
B-D—Moderately polluted air
Ax10&
Cx0.1—Heavily polluted air
4. Turn the **Function Switch** from **OFF** to **RUN**.
5. Set the **Recorder Power Switch** to **ON**.
6. Set the Recorder **Chart Switch** to the desired chart speed.
7. Verify **Flashlamp** operation visually through the blue lens on the flashlamp cover box.
8. System is in full operation following a 15-minute warmup.

For Mobile Monitoring at Slow Speeds to 40 mph:

1. Set the **Flash/Sec Switch** to 4 per second.
2. Set the **Time Constant Switch** to 5 seconds and close the panel.
3. Repeat steps 3 through 8 above.

For Aircraft Monitoring:

1. Set **Flash/Sec Switch** to 16 per second.
2. Set **time Constant Switch** to either 0.1 or 2 seconds and close the panel.
3. Repeat steps 3 through 8 above.

For Air Sample Heater-Equipped Systems:

1. Set up and turn the Nephelometer **Function Switch** to **RUN**. Activate the recorder.
2. Connect the **Heater power cord** to a **115 VAC** power source.
3. Allow a 15-minute warmup for the heater.

CAUTION: Use the heater only when the Nephelometer is in the **RUN** mode with air circulating through the system. **DO NOT** operate the heater with the **Function Switch** in the **OFF**, **AIR**, or **CAL** positions.

NOTE: In cases where the Nephelometer has been operating without the heater in moist conditions and the chamber is already saturated, it may require up to one hour to clear the chamber for very humid conditions, or as little as 15 minutes to evaporate light fog. Uncoupling the outside air intake hose and circulating room air through the heater and Nephelometer will materially shorten these dehumidifying time periods.

Calibration Checks

Panel Meter Zero Check:

1. Set **Function Switch** to **OFF** and wait 1 minute for system to zero balance and capacitors to discharge.
2. Verify **Zero** meter reading or make adjustment if required.

MRI Servo Recorder Zero Check:

1. Set Nephelometer **Function Switch** to **OFF**

and wait 1 minute or disconnect input leads at recorder.

2. Set **Chart Switch** to **Fast**.
3. Set **Recorder Power Switch** to **ON**.
4. Verify a zero pen trace or make a front panel **Zero Adjust** to achieve reading.
5. Turn **Power Switch OFF**.
6. Reconnect recorder input leads.

Calibration Check, Refer to Drwg. Plate D-101161

Following a first-time installation and at regular intervals of two to four weeks, it is recommended that the system be given this calibration check:

1. Remove the outside air intake hose at the Nephelometer inlet and close the inlet tube with a soft cloth or Kimwipes.
 2. Remove exhaust hose and close Nephelometer outlet with rubber plug provided.
 3. Set the **Flash/Sec Switch** to **0.1 second**.
 4. Set the **Time Constant Switch** to **5 seconds** and close the panel.
 5. Set the **Range Switch** to the **A-C** scale.
 6. Turn the **Function Switch** from **OFF** to **AIR**.
 7. Allow 20 minutes of operation for warmup and for the filtered air to purge the sampling chamber.
 8. Verify that the output is $+0.23$ on the meter, as indicated by a little circle on the **A** scale, and 0.0 on the other two scales.
 9. Set the **Range Switch** to the **A-C** scale.
 10. Move the **Function Switch** to **CAL**.
 11. Verify that the output is within $+5\%$ of the reference calibration number listed in this manual and on the sticker attached to the 115-V safety shield covering the back side of the **Function Switch**. See manual section 4.5.
 12. Unplug the system and reconnect the air hoses.
 13. Reset the switches for normal operation.
- Remember** to be cautious of the **High Voltages** when working with the control panel open.

Altitude Variations

Your Nephelometer was calibrated at sea level using the appropriate values from the chart below. It can be taken up to 14,000 feet and will produce consistently accurate data.

When you make a Calibration Check for AIR or complete a Freon calibration while at higher altitudes, the results should agree with, and adjustments should be made in accordance with, the chart. The reference calibration, CAL, will not vary with altitude. Therefore, an instrument calibrated using the chart at any particular altitude can be checked and will be accurate for any altitude—whether higher or lower.

Effect of Altitude on Scattering from Calibration Gases

	Air*	Freon*	Cal.
Sea Level	0.23×10^{-4}	3.6×10^{-4}	As listed
5000 ft	0.20	3.1	Remains the same
10,000 ft	0.17	2.6	Remains the same

*Assuming the gases are at standard temperature and pressure for the given altitude.

Calibration Adjustment

Each Nephelometer undergoes a complete absolute calibration prior to shipment. If the system has had reasonable handling and the controls have not been altered, the calibration check for AIR and CAL should correspond and further calibration will not be necessary. If, however, you have found the AIR and CAL readings are not the same, or you suspect the Background and Gain controls may have been moved, the following adjustments may be made without altering the absolute calibration:

1. Plug the air inlet and set **all switches** as listed in steps 1 through 6 of Calibration Checks.
2. If system has been OFF or set on RUN, allow a 20-minute warmup and clean air purge cycle with **Function Switch** set on **AIR**.
3. Check for the +0.23 meter reading on the A scale in the A-C range. If it checks, go to step 6.
4. If the reading does not check, unlock **BACKGROUND knob** and adjust until meter reads +0.23. Allow one minute for a complete response following each change. Lock the control following adjustment.
5. Verify Zero readings in the other ranges.
6. Move **Function Switch** to **CAL**.
7. Reset **Range Switch** to **A-C scale**.

8. Check the output that should be equal to the reference calibration listed on the sticker. If it corresponds, the calibration adjustments are completed.
9. If the numbers do not correspond, unlock the **GAIN knob** and adjust until meter and factory CAL numbers agree.
10. Repeat above steps 2, 3, 4, 5, 6, 7, 8, and 9 several times to balance the existing interactions.
11. With the **Function Switch** in **CAL**, set the recorder to agree with the meter by adjusting the **Full Scale Span** pot located on the recorder rear panel. There will be some interaction between the **Recorder Zero Adjust** and **Full Scale Span** which can be balanced out using the Nephelometer's **AIR 0.23** and **CAL** number for reference points.
12. If these calibration check adjustments cannot be completed satisfactorily, first review the Troubleshooting section 5.5, and then the Absolute Calibration section 5.7, and complete as required.

Calculation of Mass Concentration

The approximate formula for determining Mass Concentration of particles is presented on the panel meter of the Integrating Nephelometer. It may be more easily understood if written:

$$\text{Mass (g/m}^3\text{)} = 0.38 \text{ b}_{\text{scat}}$$

As an example, a full scale reading of 10 on the scale, ($\text{b}_{\text{scat}} = 1 \times 10^{-3} \text{m}^{-1}$), corresponds to:

$$\begin{aligned} \text{Mass} &= 0.38 \times 10^{-3} \text{ g/m}^3 \\ &= 380 \text{ ug/m}^3 \end{aligned}$$

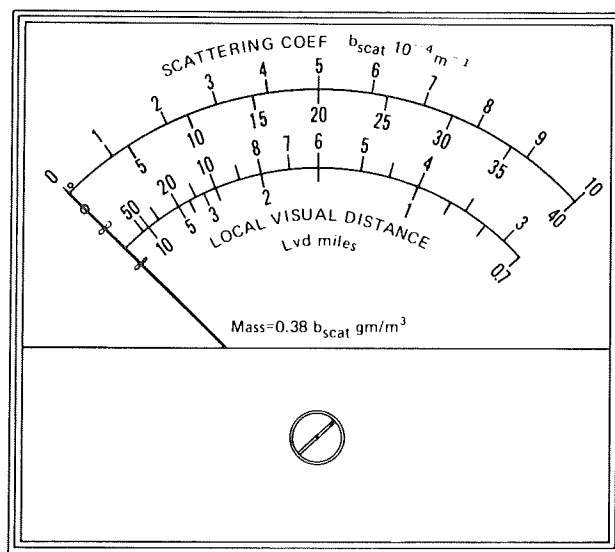


Fig. 6 Panel Meter, Integrating Nephelometer

5.2.4. SULFUR DIOXIDE CONTINUOUS MONITORING

EQUIPMENT

Technicon Corporation air monitoring equipment will be used for continuous sulfur dioxide monitoring. This equipment uses the pararosaniline method. Strip chart recorders are an integral part of this equipment.

DATA RESOLUTION

The data from the strip chart recorder should be removed and resolved weekly. Hourly averages should be estimated from the chart and recorded on DEP form number 98.

PROCEDURES

Prepare the following reagents and renew them weekly.

Absorbing solution—dissolve 43.44 grams of mercuric chloride, 24.0 grams of potassium chloride and 0.264 grams of EDTA in glass distilled water and dilute to 4 liters.

Formaldehyde—dilute 5 ml of 37% formaldehyde to 1 liter with glass distilled water.

Sulfamic acid—dissolve 2.0 grams of sulfamic acid in glass distilled water and dilute to 1 liter.

Pararosaniline stock—dissolve 1.0 grams of pararosaniline hydrochloride in 500 ml of distilled water and allow to stand for 3 days. Filter and store in an air-tight amber container.

Pararosaniline reagent—place 80 ml of pararosaniline stock solution into a one liter volumetric flask and add 125 ml of concentrated phosphoric acid. Allow to stand for 5 minutes and dilute to 1 liter.

Prepare standards as in section 5.2.2.

Each week the new reagents must be calibrated as follows:

- (a) set standard calibration dial at 1.0 with reference absorbing reagent being used and set zero.
- (b) put on standard of 780 $\mu\text{g}/\text{m}^3$ and increase the standard calibration until a reading on the strip chart recorder indicates 78. This gives a full scale reading of 1000 $\mu\text{g}/\text{m}^3$ and makes each division equal to 10 $\mu\text{g}/\text{m}^3$.
- (c) check linearity by using another standard.

CALIBRATION OF EQUIPMENT

Both the absorbing reagent pump tube and the flow meter should be calibrated. Pump

tubes should have a flow of 0.4 liter per minute and the air flow through the flowmeter should be 0.404 liters per minute.

MAINTENANCE

Replace pump tubes every 2 weeks to one month.

Flush system weekly with 2N HCl.

5.3 Methods of Data Handling

There are six data reporting forms. One for recording sampling information for each 24 hour sample taken at each site and one for reporting each month the concentration found. Continuous monitors having strip chart recorders are reported on another form permitting one hour as well as 24 hour averages to be reported—midnight to midnight. There are two forms for reporting meteorological data, one for regular monitoring stations and recording data taken from official weather stations and one for reporting data from diffusion instruments. Finally there is a form for reporting the annual averages for the 24 hour averages each calendar year. Each form is discussed below and a copy is included herein.

All records will be available for public inspection and will be available to the Administrator of the Environmental Protection Agency upon written request. Copies will be available to individuals at the cost of reproduction to the Department of Environmental Protection. News releases of the annual averages will be made and the refined data will be published in the newspaper of the Department of Environmental Protection.

All sampling data for each 24 hour sample at each site should be recorded on a 4 x 6 card, DEP form number 91, figure 5.3A. This form contains all necessary information to determine the pollutant concentration for the sample. Each month the concentrations found for each sample at each location should be reported on DEP form number 98, figure 5.3B and sent to the Augusta office.

Data from continuous monitoring instruments having strip chart recorders will be removed and resolved weekly as prescribed in section 5.2. This data should be sent to Augusta monthly on DEP form number 99, figure 5.3C, showing hourly averages and a 24 hour average—midnight to midnight for each day the instrument operated.

Meteorological data obtained from standard weather instruments or official weather stations should be reported on DEP form number 100, figure 5.3D. If a diffusion instrument is used for calculating the standard deviation of a component of the wind direction, DEP form number 101, figure 5.3E should be used. Meteorological data should be sent to the Augusta office monthly.

At the end of each calendar year, the 24 hour averages for each site will be appropriately averaged to determine the annual average for each pollutant monitored at that site and reported on DEP form number 102, figure 5.3F.

PARAMETER	ON		OFF		
	ORIFICE	TOTAL SAMPLE 20°C	QTY absg Sol.	Abs	u/m ³
1					
2					
3					
4					
5					

PARTICULATES

Filter No. _____ Initial Flow _____
 Final Wt. _____ Final Flow _____
 Initial Wt. _____ Average Flow _____
 Gain _____ TOT. SAMPLE SIZE 20°C _____

_____ ug/m³ 20°C

MONITORING DATA
(24 Hour Average Data)

Month _____
Sheet _____ of _____

Method _____

POLLUTANT

SITE LOCATION

DATE

DATE										

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Figure 5.3B

DEP—99

Continuous Monitoring Data

Sampling Site

Method

Month

Sheet

of

		Hourly Average (ug/m ³)																						Daily Average			
Time	Date	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100		2200	2300	

Figure 5.3C DEP Form Number 99

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WEATHER DATA

Month _____
 Sheet _____ of _____

Date	Data	Time of Day																							
		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
	Wind Dir. (deg.)																								
	Speed																								
	Temperature (°F)																								
	Wind Dir. (deg.)																								
	Speed																								
	Temperature (°F)																								
	Wind Dir. (deg.)																								
	Speed																								
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	Temperature (°F)																								
	Wind Dir. (deg.)																								
	Speed																								
	Temperature (°F)																								
	Wind Dir. (deg.)																								
	Speed																								
	Temperature (°F)																								

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Figure 5.3D DEP Form Number 100

WEATHER DATA

Month
Sheet

of

Date	Data	Time of Day																								
		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
09	Wind Dir. (deg.)																									
	Speed (mph)																									
	sigma																									
	Wind Dir. (deg.)																									
	Speed (mph)																									
	sigma																									
	Wind Dir. (deg.)																									
	Speed (mph)																									
	sigma																									
	Wind Dir. (deg.)																									
	Speed (mph)																									
	sigma																									
Wind Dir. (deg.)																										
Speed (mph)																										
sigma																										
Wind Dir. (deg.)																										
Speed (mph)																										
sigma																										

Figure 5.3E DEP Form Number 101

ANNUAL AIR QUALITY DATA SUMMARY

Sampling Site _____ Year Beginning _____ ending _____

Pollutant	No. of Samples	Maximum 1 hr. POx & CO only	Maximum 8 hr. CO only	Maximum 24 hr. Part. & SO ₂ only	Annual Arith. Mean, SO ₂ & NO ₂	Annual Geo. Mean, Part. only	Geo. std. deviation

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Figure 5.3F DEP—102

CHAPTER 6
REVIEW OF NEW SOURCES AND
MODIFICATIONS

6.0 Introduction

In this plan, review of new sources is covered separately from review of modifications to existing sources. M.R.S.A. 38, Article 6 requires sources greater than a specific size or those who must obtain a license under another requirement of the Department of Environmental Protection to apply to the Board for approval for site location. Within the organization of the Department there is a Bureau of Land Quality that processes such applications and coordinates its efforts with other Department bureaus concerning discharges and emissions.

Review of modifications will be handled as part of the licensing organization in the Bureau of Air Quality Control. By authority of M.R.S.A. 38, Section 590, the Board will issue emission licenses as discussed below. A standard condition in all emission licenses will be a requirement to obtain a new emission license prior to effecting any modification that changes type or quantity of emissions to an existing source.

6.1 Review of New Sources

Any person intending to construct or operate a development which may substantially affect the environment (including a commercial or industrial development which would require an emissions license under regulation 10.8 or which occupies a land area in excess of 20 acres or which occupies on a single parcel a structure or structures in excess of 60,000 square feet of ground area) must notify the Board in writing of his intent before commencing construction. Within 14 days of receipt of such notification, the Board shall either schedule a hearing or approve the proposed location.

The Board will evaluate the application based on its impact on all aspects of the environment. The burden of proof is on the applicant to prove that adequate provision has been made for fitting the project harmoniously into the existing natural environment; not adversely affecting natural resources, scenic character and existing uses of the environment; providing financial capacity and technical ability to meet air quality control standards, including the control of offensive odors.

It is Board policy to hold, Site Location Hearings, Waste Discharge Hearings and Emission License Hearings simultaneously when possible. Application forms may be obtained from any regional office. Granting approval for site location or any Board license does not relieve the applicant of the responsibility to comply with all applicable rules, regulations, orders, emission and ambient air standards. Should approval for site location be denied by the Board, the applicant may appeal the Board's decision to the State Supreme Court providing he announces his intention to do so within 30 days of the Board's decision.

6.2 Review of Modifications—Emission Licensing

All process sources, fuel-burning equipment with 10 million B.T.U. per hour or greater input capacity and incinerators except Class I,IA, as defined by the Incinerator Institute of America will be licensed by January 1973. A sample application for emission license is included as figure 6.2A. A license, unless otherwise specified in the conditions on the license, shall be reviewed every 2 years.

Within 30 days of receipt of an application, the Board must either grant the license, deny the license or order a hearing thereon. In the event the Board determines to hold a hearing, it shall be held within 30 days of such determination and shall give public notice as required in M.R.S.A. 38, Section 590. Following a finding of facts the Board shall issue an order granting or denying the license.

Each application for a license shall be judged on the nature of the emission, its effect on existing air quality standards, availability and effectiveness of air pollution control apparatus and the expense of purchasing and installing such equipment.

However, no license shall be issued unless the Board finds that the proposed emission:

- (a) is receiving the best practicable treatment.
- (b) will not violate applicable emission standards or can be controlled so as to not violate same.
- (c) either alone or in conjunction with existing emissions, will not violate applicable ambient air quality standards.

The Board is empowered to attach any reasonable conditions it feels necessary to secure

compliance with emission and ambient air quality standards. The following standard conditions will be attached to each license:

- (a) State inspectors shall be allowed entrance to the premises to inspect or monitor a source at any reasonable hour and frequency;
- (b) Provisions shall be made for sampling ports adequate for test methods applicable to the source, and for utilities and safe access to these ports;
- (c) A new emission license shall be required prior to the commencement of any modification affecting quantity and or type of emissions;
- (d) Sources emitting in excess of 100 tons per year of any pollutant shall submit to the Department a standby emergency episode plan within 30 days after receipt of their license.
- (e) All applicable emission standards, regulations and Board orders and local ordinances shall be complied with.
- (f) Sources required to obtain an emission license shall maintain sufficient records to accurately complete the application for an emission license.
- (g) If at the time of obtaining or reviewing a license, new emission standards, or

more stringent ones than those currently in effect, have been determined and are scheduled to take effect by a certain date, sources must submit a timetable of modifications which will bring them into compliance by that date. Sources which already meet these standards need not submit a timetable.

Modifications will be reviewed as a new application must be submitted and the new license obtained for the modification as required by the condition on the existing license. New sources and existing sources, that after the modifications must be licensed shall submit their license applications at least 60 days prior to commencing construction.

Should an emission license be denied by the Board the applicant may appeal this decision to the State Superior Court. The granting of emission licenses does not relieve the applicant of the responsibility to comply with all applicable regulations, orders, emission standards, ambient air quality standards and local ordinances.

Process and any proprietary information will be kept confidential, however, present and allowable emission will be available for public inspection.

STATE OF MAINE
Department of Environmental Protection
Augusta, Maine 04330
APPLICATION FOR EMISSION LICENSE

- () new license
- () renewal
- () modification

Date _____

 (Corporate Name and Address of Licensee)

 (address of source) (mailing address of source)

 (town) (zip) (town) (zip)

Contact during day _____ Contact during night _____

Telephone Number _____ Telephone Number _____

Indicate Air Quality Control Region containing source:
 () Portland-I; () Central Maine-II; () Downeast-III; () Aroostook-IV; () Northwest-V;
 (See Map)

TYPE OF BUSINESS	MAJOR ACTIVITIES OF BUSINESS (please specify)
Industrial () _____	_____
Commercial () _____	_____
Other () _____	_____

Number Employees _____; Hours/day Operation _____; Days/week Operation _____;
 If seasonal or intermittent business indicate operating periods and hours per year operating.

_____ Total hours per year _____

TYPE OF FUEL BURNED	SULFUR CONTENT	% ASH	QUANTITY BURNED—1971
() #6—oil	_____	_____	_____
() #5—oil	_____	_____	_____
() #4—oil	_____	_____	_____
() #2—oil	_____	_____	_____
() Coal	_____	_____	_____
() Gas	_____	_____	_____
() Wood	_____	_____	_____
() Other _____	_____	_____	_____

Please append a separate sheet of paper listing your monthly fuel usage by month for 1971.

A. FUEL-BURNING EQUIPMENT

Boiler Number	Type Fuel	Rated input Capacity million BTU/hr	Stack number used for emissions	Uncontrolled Emissions Particulates # /hr	Emission control Device (indicate details in D.)	Period of operation hr/yr
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

B. SOLID WASTE DISPOSAL

	Type of Waste	Quantity (lb/day)
<input type="checkbox"/> Open Burning	_____	_____
<input type="checkbox"/> Incineration	_____	_____
<input type="checkbox"/> Sanitary Landfill	_____	_____
<input type="checkbox"/> Municipal Dump	_____	_____

INCINERATION

Class	Rated Charging Rate lb/hr	Average Charging Rate lb/hr	Type Auxiliary Fuel Used if None Say None	Exhaust Temp °F	Stack Number Used For Emissions	Emission Control Devices (indicate details in D)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

If you have one of the following types of incinerators check the appropriate blanks.
 Teepee burner, Open pit, Pathological, Multiple Chamber.

E STACK DATA

Stack Identification	_____	_____	_____	_____
Height	_____	_____	_____	_____
Inside Dia	_____	_____	_____	_____
Exit Velocity	_____	_____	_____	_____
Temperature	_____	_____	_____	_____
Process Involved	_____	_____	_____	_____
Total Volume of Gas	_____	_____	_____	_____
Reduced to 12% CO ₂	_____	_____	_____	_____
760 mm Hg, and 20C°	_____	_____	_____	_____

F Any emission source requiring additional treatment to achieve the emission standards adopted by the Board shall submit a list of the actions planned to bring the source into compliance and a date such actions are expected to be completed. If such plans are unknown at the time of submittal of this application, a conditional license may be granted requiring the submission of such plans within one year of the conditional license.

G On a separate sheet of paper, please submit a schematic block diagram showing points of emission control devices and instrumentation.

H Please append on a separate sheet of paper operating conditions indicative of normal operation for each emission source and control devices listed in this application. This does not mean the entire operating procedures. (See guidelines for details.)

Signature of Owner or Responsible Officer

Title

DEP—103

CHAPTER 7

SOURCE SURVEILLANCE

7.0 Objectives

The source surveillance system monitors the compliance of air pollution sources with regulations and emission standards of the Department of Environmental Protection throughout the State of Maine in order to insure attainment and maintenance of national and State ambient air quality standards.

A flow diagram for operation of the source surveillance system is shown in Figure 7.0A. The diagram illustrates the surveillance procedures to be followed for periodic inspections, citizen complaints, and for visible emissions. In addition, another possible investigation may arise during review of a facility's application for renewal of its emission license. This situation has not been illustrated, but the procedures to be followed would be similar in sequence.

7.1 Records and Reports of Emissions

Source surveillance begins with the grant of an emission license as all existing air pollutant sources may be required to apply for and obtain an emission license. Those sources which will be required to obtain emission licenses include: all process sources, fuel-burning equipment with 10 million B.T.U. per hour input or greater, and incinerators except for Class I, IA. All licensed sources must file for a biennial renewal of the emission license.

The license application will contain information concerning the quantity and nature of the emissions, type and effectiveness of the control equipment, operation schedule, and any other data necessary to evaluate the effect of a source's emission on the surrounding environment and to determine compliance with applicable emission standards and regulations.

As a special condition to the license, the Department of Environmental Protection may require a source to continuously self-monitor for certain pollutants and may require periodic reports on a more frequent basis than the license renewal period on the nature and amounts of air pollutant emissions.

7.2 Periodic Testing and Inspection of Sources

All licensed sources will be inspected at least once per year. Inspections will be for the purpose of:

- a) Confirming the accuracy of the emission license data.
- b) Confirming compliance with the conditions of the emission license.
- c) Investigating possible violations of emission standards and regulations.
- d) Updating the emissions inventory.

If violations are noted action will be taken as outlined in the enforcement procedures detailed in Section 7.4.

As a condition of the emission license, the Board may require any source to perform a source test to verify the emission data submitted in the emission license application. The Bureau of Air Quality Control also will have the capability to conduct source tests and it will retain the option to perform its own testing program.

Sources burning fuel in boilers with a capacity heat input of 3 million B.T.U. per hour up to but not including 10 million B.T.U. per hour will not be licensed, but will be required to achieve the emissions reduction. Sources burning solid fuel in such boilers will be inspected at least once per year and periodically checked for visible emissions. Should violations appear, the Department of Environmental Protection will make a full investigation as per 38 M.R.S.A., Section 592.

7.3 Investigation of Complaints and Visible Emission Violations

The Department of Environmental Protection will have inspectors in all urban areas who will detect visible emission violations, enforce open burning regulations, investigate citizen complaints, investigate equipment breakdown which result in increased emissions, and enforce emergency episode regulations during air pollution episodes. Also, other Bureau of Air Quality Control personnel may perform these functions while performing other routine duties. In rural areas, the investigation of open burning and visible emission violations will be conducted by local Civil Defense personnel.

Visible emission surveillance will be performed through the use of field patrols. The amount of time allotted to field patrols is a function of the number of available personnel. As the staff of the Bureau of Air Quality Control is increased more time will be devoted to field patrol. When an inspector encounters a possi-

ble visible emission violation during patrol, he will subsequently inspect the source involved. The degree of inspection will depend on the inspector's familiarity with the type of operation of the source and his own assessment of the situation. If, infact, a violation is found, the inspector will request action. If the violation is not corrected, the enforcement procedures outlined in section 7.4 will be initiated. Should the investigation turn up no violation, but there is reason to believe that a violation could be occurring sporadically, periodic observation of the source will be made. When a final disposition is reached, a report will be filed by the inspector.

All inspectors will be certified for proficiency in the evaluation of visible emissions. Without this certification, the testimony of an inspector in a court case involving a possible visible emission violation would not be acceptable evidence. Inspectors will be re-certified every six months. As many technical personnel on the Bureau staff and Civil Defense personnel also will be trained in the observation of visible emissions.

All persons in the State of Maine will be encouraged through the Department's public education program in the news media to register air pollution complaints at the Augusta Office. When a complaint is received by the Department, an official record is maintained of every action taken on the complaint and the ultimate disposition of the complaint. An example of

the complaint record form is presented in Figure 7, 3A. After a complaint is received an actual field investigation is made. The investigation results in two possible outcomes, either a violation or no violation. In the case of no violation, a report would be filed, the complaint form completed, and the complainant notified of the results of the investigation. In the case where a violation is detected, the source would be notified that corrective actions are necessary.

7.4 Enforcement Procedures

When a violation is detected, the violator is notified that corrective action is necessary through a 30 day written notice issued by the Board of Environmental Protection. If after re-inspection the violation continues the Board will schedule a hearing and issue an order requiring the violator to cease the violation within a reasonable period of time. If such orders are not complied with, the violation will be turned over to the Attorney General for immediate legal action.

7.5 Availability of Emission Data

If either by letter or personal appearance any member of the public requests emission data for any source in the emissions inventory, such information will be provided including the allowable emissions under present regulations.

FIGURE 7.0A

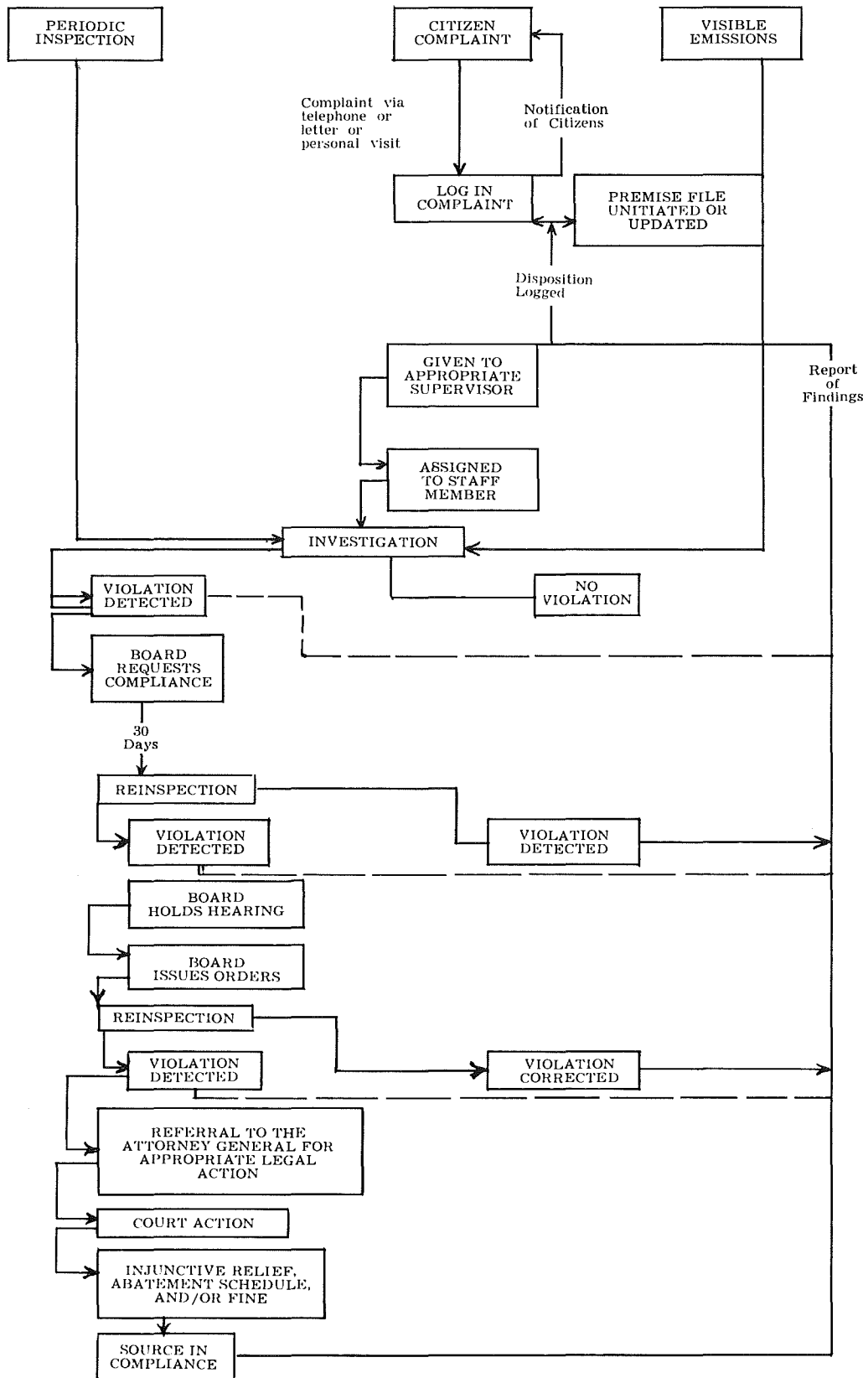


FIGURE 7.3A
AIR POLLUTION COMPLAINT FORM

Date of Complaint: _____ Name of Complainant: _____

Address: _____ Tel. Number: _____

Received by DEP Staff Member (Name): _____

Nature of Complaint: _____

Polluting Source (Name): _____

Address: _____ Tel. Numbers: _____

Date of Inspection: _____

Official(s) Interviewed: _____

Inspection and Action: _____

Violation of existing regulation? Yes _____ No _____

Signature of Inspector: _____

OFFICE USE ONLY

Board Action: _____

Hearing: _____

Complainant Notified: _____

CHAPTER 8

RESOURCES

8.0 Introduction

Inherent in any projection of resources is the uncertainty facing an agency of obtaining increases in the budget, especially rapid increases. The Maine State Legislature meets in regular session biennially. The next regular session will start in January, 1973. Therefore, funds for 1972 and part of 1973 are already determined. The 1973 session of the Legislature will determine those funds the Department of Environmental Protection will have available for fiscal years 1973 and 1974, which includes part of 1975. This means the January, 1973 session will face a large budget increase for Air Quality Control funds.

8.1 Estimated Projections

Figure 8.1A delineates the present organization of the Bureau of Air Quality Control, De-

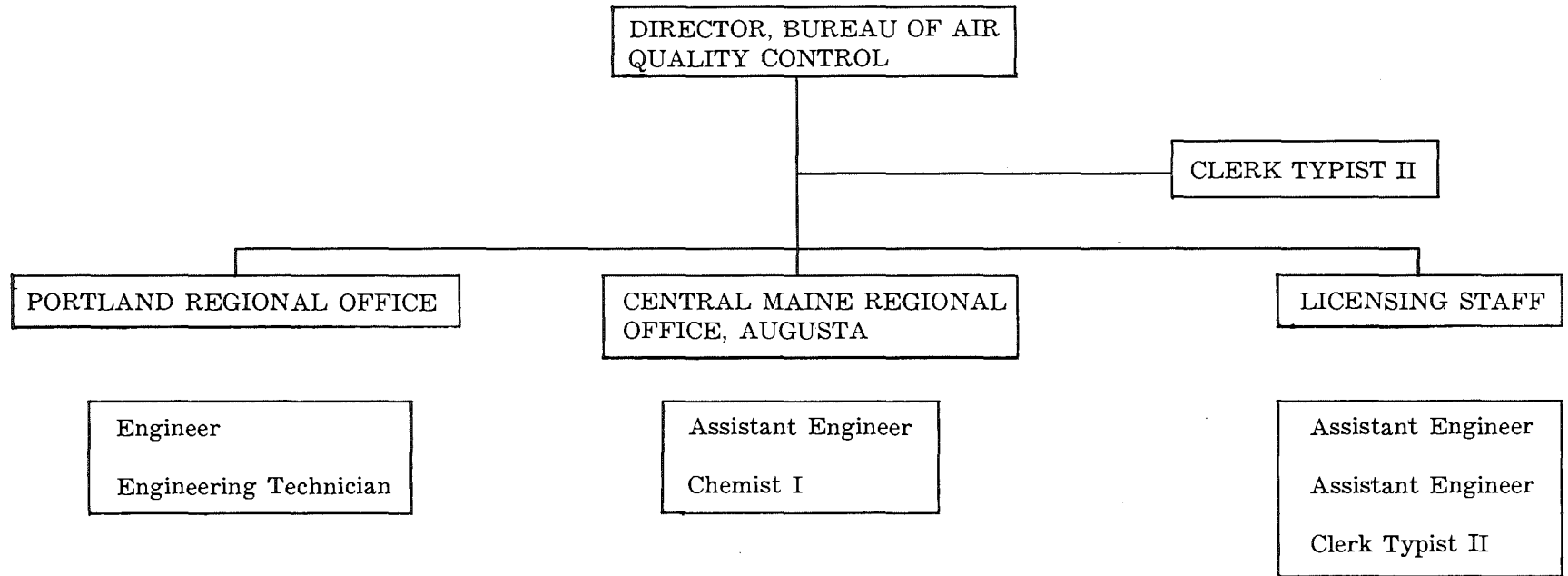
partment of Environmental Protection and this organization must remain through fiscal year 73, therefore, the same chart applies for the 1 year projected estimates. However, an increased budget will be proposed to the 1973 session with the ultimate aim of obtaining the organization in figure 8.1B by the end of fiscal year 1974 or June 30, 1975. Following budgets will be of a maintenance nature with no increases in personnel. A figure of 5 percent has been used to account for pay raises and inflation from 1975 to 1976.

All funds and man-year estimates are exclusive of Federal grants and Federal assignees.

Figure 8.1B and Table 8.1D represent the absolute minimum staffing requirement for implementing this plan. The advisability of adding the following people is under study: 1-Engineer, 3-Assistant Engineers, 4- Engineering Technicians, 2-Clerk Typists, 1-Computer Programmer, 1-Punch Card Operator and 1- Meteorologist.

Figure 8.1A

1972-73 STAFF ORGANIZATION



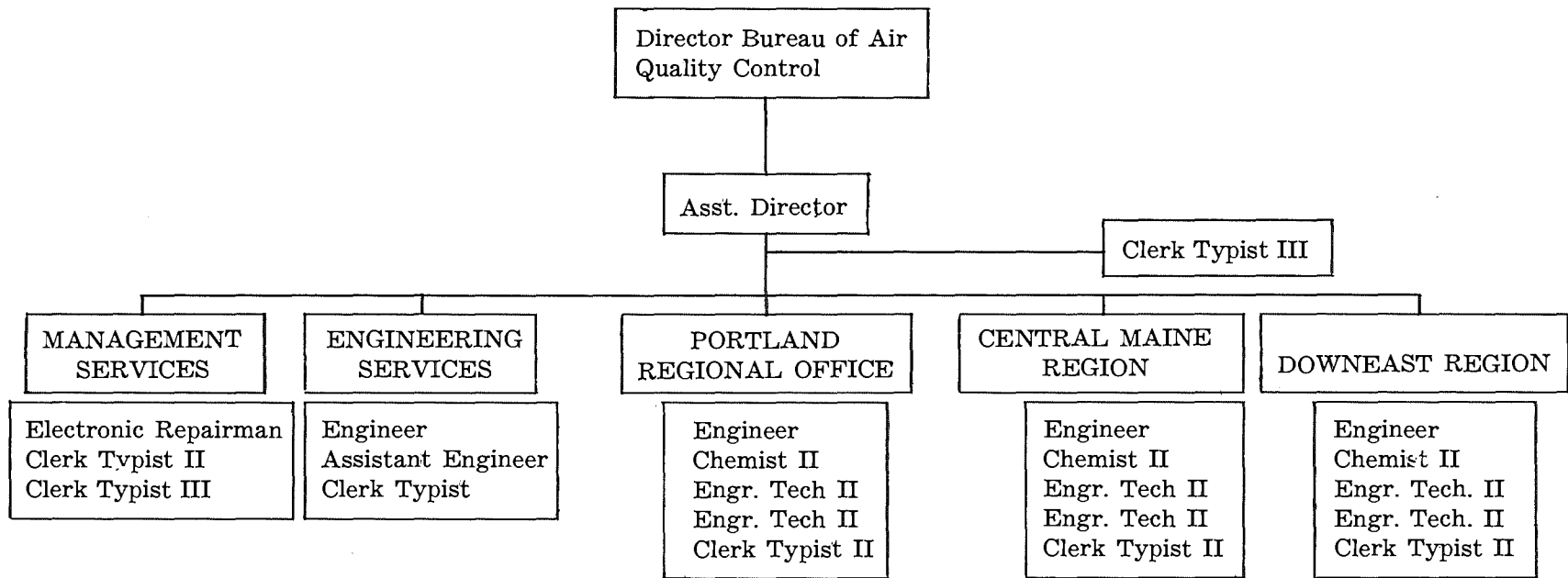


Figure 8.1B 1975 STAFF ORGANIZATION

Table 8.1C

Man-Year Estimates

For the State of Maine
Year

FUNCTION	1972	1973	1975	1976
Industrial Services				
Scheduled Inspections	0.75	0.75	4.0	4.0
Licensing System	1.00	1.00	1.5	1.5
Emission Estimates	0.15	0.15	0.25	0.25
Reports, New				
Legislation	0.1	0.1	0.25	0.25
Data Processing	0.75	0.75	2.0	2.0
Administrative				
Services	2.5	2.5	5.0	5.0
SUB TOTAL	5.25	5.25	13.0	13.0
Air Quality Services				
Laboratory				
Operations	0.75	0.75	2.0	2.0
Instrument				
Maintenance	0.25	0.25	2.0	2.0
Monitoring Network	2.25	2.25	4.0	4.0
SUB TOTAL	3.25	3.25	8.0	8.0
Enforcement Services				
Complaint				
Investigation	0.25	0.25	2.0	2.0
Case Development	0.25	0.25	1.0	1.0
SUB TOTAL	0.5	0.5	3.0	3.0
TOTAL	9.0	9.0	24.0	24.0

Table 8.1D

Fund Estimates for the State of Maine

FUNCTION	FY 72	FY 73	FY 75	FY 76
Industrial Services				
Operating Funds	66,141	65,092	178,312	187,228
Capital Funds	12,415	12,257	9,385	9,854
Contract Funds	7,287	7,185	19,684	20,668
Air Quality Services				
Operating Funds	41,069	40,417	109,959	115,456
Capital Funds	7,709	7,612	5,787	6,076
Contract Funds	4,525	4,462	12,138	12,745
Enforcement Services				
Operating Funds	6,239	6,141	41,936	44,033
Capital Funds	1,171	1,156	2,207	2,317
Contract Funds	688	678	4,629	4,860
Total Operating				
Funds	113,449	111,650	330,207	346,717
Total Capital Funds	21,295	21,025	17,379	18,247
Total				
Contract Funds	12,500	12,325	36,451	38,273
TOTAL FUNDS	147,244	145,000	384,037	403,237

CHAPTER 9

INTERGOVERNMENTAL COOPERATION

9.0 National Cooperation

The Department of Environmental Protection will submit to the Administrator, Environmental Protection Agency the appropriate quarterly and semiannual reports and will make available to the Administrator, at his written request, all ambient air sampling data.

The Region I office in Boston will receive copies of all rules and regulations and correspondence to the Administrator.

The Department of Environmental Protection will make available to all states, upon written request, copies of the applicable laws, rules and regulations, ambient air quality standards and emission standards.

9.1 Interstate Air Quality Control Region Cooperation

Portions of the Central Maine Air Quality Control Region are in an interstate region with Coos County, New Hampshire. Maine will transmit to the New Hampshire Air Pollution Control Commission all information on sampling site location, air quality data and emissions data for the state on a routine basis. In addition, New Hampshire will be informed any time emergency episode procedures are activated, and of all new sources licensed in the Androscoggin Valley Interstate Air Quality Control Region.

9.2 Cooperation within State Government

The Department of Environmental Protection has primary responsibility to implement and enforce this plan. However, other state departments are involved.

The Forestry Department is directly responsible for the administration of the Forest Rangers and Town Fire Wardens who will be re-

sponsible for issuing permits for open burning. The Forestry Department has training sessions for these individuals and will make time available for the Bureau of Air Quality Control and Personnel to instruct on acceptable open burning.

The Office of the Attorney General, Division of Environmental Protection is responsible for the enforcement of all Board orders and regulations. The Board works very closely with the Attorney General's Office in matters of enforcement, licensing and writing proposed legislation and regulations.

The Maine State Police has responsibility for inspection of emissions control devices on motor vehicles. At this time, given the priorities for carbon monoxide and hydrocarbons for the State of Maine, emission testing of vehicles is not thought necessary. However, the Department of Environmental Protection will keep abreast of automobile emission control devices and their inspection and testing and keep the Maine State Police informed.

The Bureau of Land Quality Control, Department of Environmental Protection, Sanitary Engineering Division is responsible for State solid waste disposal plans. The Department of Environmental Protection has been and will continue to coordinate open burning prohibition and incinerator regulations with this division.

The Department of Civil Defense and Public Safety has county directors throughout the state and a complex communication network. County offices are manned during the normal workday and if necessary have someone who would be on 24 hour call. These individuals will assist the Department of Environmental Protection personnel by reporting to the commission office violations of the visible emission and open burning regulations.

CHAPTER 10

RULES AND REGULATIONS

Consistent with a coordinated state-wide program to control present and future sources of emissions to the end that air polluting activities of every type shall be regulated in a manner that reasonably insures the continued health, safety and general welfare of all the citizens of the state; protects property values and protects plant and animal life; and pursuant to 38 M.R.S.A., Section 585, the Department of Environmental Protection adopts the following emission standards and regulations designed for the achievement and maintenance of ambient air quality standards and the prevention of air pollution:

10.0 Definitions

Air contaminants include, but are not limited to, dust, fumes, gas, mist, particulate matter, smoke, vapor or any combination thereof.

Air pollution control apparatus means and includes any appliance, equipment, machinery, installation or structures which remove, control, reduce, eliminate, dispose of or render less noxious the emission of air contaminants into the ambient air.

Ambient air means all air outside of buildings, stacks or exterior ducts.

Best practical treatment means that method which controls or reduces emissions of air contaminants to the lowest possible level considering:

1. The then existing state of technology;
2. The effectiveness of available alternatives for reducing emissions from the source being considered;
3. The economic feasibility for the type of establishment involved.

Board means the Board of Environmental Protection.

Commissioner means the Commissioner of the Department of Environmental Protection.

Emission means a release of air contaminants into ambient air.

Emission source means any and all sources of emissions of air contaminants, whether privately or publicly owned or operated.

Fuel-burning equipment means any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

Fugitive dust means solid air-borne particulate matter emitted from any source other than a flue or stack.

General Process source means any emission source except fuel-burning equipment, incinerators, mobile sources, open burning sources and sources of fugitive dust.

Incinerators means any device, apparatus, equipment or structure used for destroying, reducing or salvaging by fire any material or substance.

CLASSIFICATION OF WASTES

Type O—Trash, a mixture of highly combustible waste such as paper, cardboard cartons, woodboxes and combustible floor sweepings, from commercial and industrial activities. The mixtures contain up to 10% by weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags and plastic or rubber scraps. This type of waste contains about 10% moisture and 5% incombustible solids and has a heating value of approximately 8500 B.T.U. per pound as fired.

Type 1—Rubbish, a mixture of combustible waste such as paper, cardboard cartons, wood scrap, foliage and combustible floor sweepings, from domestic, commercial and industrial activities. The mixture contains up to 20% by weight of restaurant or cafeteria waste, but contains little or no treated papers, plastic or rubber wastes. This type of waste contains about 25% moisture and 10% incombustible solids and has a heating value of approximately 6500 B.T.U. per pound as fired.

Type 2—Refuse, consisting of an approximately even mixture of rubbish and garbage by weight. This type of waste is common to apartment and residential occupancy, consisting of up to 50% moisture, 7% incombustible solids, and a heating value of approximately 4300 B.T.U. per pound as fired.

Type 3—Garbage, consisting of animal and vegetable wastes from restaurants, cafeterias, hotels, hospitals, markets and like installations. This type of waste contains up to 70% moisture, and up to 5% incombustible solids and has a heating value of approximately 2500 B.T.U. per pound as fired.

Type 4—Human and animal remains, consisting of carcasses, organs and solid organic wastes from hospitals, laboratories, abattoirs,

animal pounds, and similar sources, consisting of up to 85% moisture, 5% incombustible solids and having a heating value of approximately 1000 B.T.U. per pound as fired.

Type 5—By-product waste, gaseous, liquid or semi-liquid, such as tar, paints, solvents, sludge, fumes, etc., from industrial operations. B.T.U. values must be determined by the individual materials to be destroyed.

Type 6—Solid by-product waste, such as rubber, plastics, wood waste, etc., from industrial operations. B.T.U. values must be determined by the individual materials to be destroyed.

CLASSIFICATION OF INCINERATORS

Class I—Portable, packaged, completely assembled, direct fed incinerators 5 to 15 cubic feet primary chamber volume; or a burning rate of 25 to 100 pounds per hour of type 1 or type 2 waste; or a burning rate of 25 to 75 pounds per hour of type 3 waste.

Class IA—Portable, packaged or job assembled, direct feed incinerators with 5 to 14 cubic feet primary chamber volume; or a burning rate of 25 to 100 pounds per hour of type 1 or type 2 waste; or a burning rate of 25 to 75 pounds per hour of type 3 waste.

Class II—Flue-fed, single chamber incinerators with more than 2 square feet burning area, for type 2 waste. This type of incinerator is served by one vertical flue functioning both as a chute for charging waste and to carry the products of combustion to atmosphere. This type of incinerator has been installed in apartment houses or multiple dwellings.

Class IIA—Shute-fed multiple chamber incinerators, for apartment buildings with more than 2 square feet burning area, suitable for type 1 or type 2 waste. (Not recommended for industrial installation) This type of incinerator is served by a vertical chute for charging wastes from two or more floors above the incinerator and a separate flue for carrying the products of combustion to the atmosphere.

Class III—Direct fed incinerators with a burning rate of 100 pounds per hour and over, suitable for type 3 waste.

Class IV—Direct fed incinerators with a burning rate of 75 pounds per hour or over, suitable for type 3 waste.

Class V—Municipal incinerators suitable for type 0, type 1, type 2 or type 3 wastes, or a combination of all four wastes, and are rated in tons per 24 hours.

Class VI—Crematory and pathological incinerators, suitable for type 4 waste.

Class VII—Incinerators designed for specific by-product wastes, type 5 or type 6.

Modification means any physical change to or change in the method of operation of, an affected facility which increases the amount of any air pollutant (to which a standard applied) emitted by such facility or which results in the emission of any air pollutant (to which a standard applies) not previously emitted, except that:

1) Routine maintenance, repair, and replacement shall not be considered physical changes and

2) The following shall not be considered a change in the method of operation:

(a) An increase in the production rate, if such increase does not exceed the operating design capacity of the affected facility:

(b) An increase in hours of operation:

(c) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to such facility, the affected facility is designed to accommodate such alternative use.

Opacity means the degree of light obscuring capability of non black emissions of visible air contaminants expressed as a percentage. (For example complete opacity shall be expressed as 100 percent)

Open burning means the burning of any type of combustible material in the open ambient air without being completely enclosed, and where the products of combustion are emitted directly into the ambient air without passing through a stack, chimney or duct.

Person means any individual, partnership, corporation, whether private, public or quasi-municipal, municipality, state governmental agency or other legal entity.

Process weight rate means the average total weight of all materials, not including any gaseous or liquid fuels or combustion air, introduced into any manufacturing, industrial or combustion process that may result in the

emission of particulate matter to the ambient air, computed on an hourly basis, and shall be expressed in terms of weight per unit of time.

Region means those air quality regions established by the Department of Environmental Protection pursuant to 38 M.R.S.A., Section 583.

Ringelmann Chart shall mean the chart published and described in the U.S. Bureau of Mines Information Circular 8333, on which are illustrated graduated shades of gray for use in estimating the light obscuring density or device for the measurement of the light obscuring density of black air contaminant emissions which may be approved by the Department of Environmental Protection.

VISIBLE EMISSION REGULATION

100.1

100.1.1 Scope

This regulation shall be effective in all ambient air quality regions in the State of Maine as follows:

- (a) Immediately for all new sources, the construction or installation of which begins after the Department of Environmental Protection adopts this emission standard unless that equipment is required to meet a stricter standard of performance;
- (b) October 1, 1973 for all existing sources.

100.1.2 Prohibition

No person shall emit or cause to be emitted any visible air contaminants from any emission source that exceed a number 2 on the Ringelmann Chart or an opacity of 40 percent except for periods of not exceeding 5 minutes in any hour or 15 minutes in any 3 hours.

100.1.3 Exemptions

The emission of water vapor shall be exempt from this regulation. The emission of visible air contaminants for the purposes of training, research, recreation and permitted open burning shall be exempt from this regulation.

Existing general process sources that have been given a longer time to comply with a particulate emission standard shall be exempt from this regulation until such time as that particulate emission standard must be complied with. Incinerators are exempt from this regulation as visible emissions from this source category is included in regulation 100.4.

OPEN BURNING REGULATION

100.2.1 Scope

This regulation shall be effective in all ambient air quality control regions as of the date indicated in each section.

100.2.2 Prohibitions

Open burning of tires or rubber products or by-products shall be prohibited after July 1, 1972.

Open burning of waste of any kind shall be prohibited after July 1, 1974 except that municipalities qualifying for an extension under the Solid Waste Management Plan shall cease using open burning as a means of solid waste disposal by July 1, 1975.

100.2.3 Exemptions

Open burning may be permitted for the following purposes provided a permit is obtained in accordance with paragraph 100.2.4:

- (a) Open burning for the control or prevention of any disease, virus or similar hazard to public health;
- (b) Open burning for agricultural purposes such as land clearing, blueberry control, or burning for similar prescribed cultural purposes.
- (c) Open burning for the disposal of any material generated by the demolition of any building or the clearing of any land for the erection, modification or construction of any highway, railroad, power or communication line or pipeline, or commercial or industrial or recreational building or development.
- (d) Open burning for training, research and recreational purposes except that fires for recreational purposes on a person's own property are not required to obtain a permit.

100.2.4 Open Burning Permits

Open burning permits may be granted by the Forest Ranger or Town Forest Fire Warden having jurisdiction over the location where the fire is to be set, or should complicated circumstances warrant the Ranger or Warden may refer the person requesting a permit to the Department of Environmental Protection for final approval on items, (a) (b) and (c) below. Such permits will be issued if it is determined:

- (a) There is no local, private or municipal rubbish collection for such materials nor

any reasonably located municipal or private dump to which such material may be transported;

- (b) There is no other suitable method for disposal of such materials that will not create or aggravate a hazard to public health or safety or public or private property not violate any provision of State or Local Law;
- (c) The existing wind speed and atmospheric stagnating conditions will not create any nuisance conditions;
- (d) Such burning will not take place within 50 feet of a public way;
- (e) Such burning will take place under such conditions as will prevent the uncontrolled spread of the fire;
- (f) The burning will comply with all applicable regulations of the State of Maine Forestry Department and any applicable local fire regulations.

100.2.5 Reports

The below listed progress reports shall be submitted to the Department by the date indicated by all persons using open burning as a method of solid waste disposal, except that if similar reports are required under the Solid Waste Management Plan, these reports need not be filed. The Solid Waste Management Department shall keep the Department advised as to the status of open burning dumps.

- (a) January 10, 1973—preliminary report of plans and investigations made as to the selection of a suitable site for sanitary landfill and other feasible alternatives, including estimated costs and regional arrangements investigated.
- (b) June 30, 1973—final report of plans as to the selection of suitable site or other alternative and the capital and operating cost thereof, including administrative procedures required to implement these plans.
- (c) January 1, 1974—indicate status of site acquisition and equipment procurement and any other necessary agreements.

100.3 FUEL-BURNING EQUIPMENT PARTICULATE EMISSION STANDARD

100.3.1 Scope

This regulation shall be applicable to all fuel-burning equipment that is fired at a rate of 3 million BTU/hr or greater regardless of fuel

type, and shall be effective in all ambient air quality control regions in the State of Maine as follows:

- (a) immediately for all new fuel-burning equipment, the construction or operation of which begins after the effective date of this emission standard unless such equipment is otherwise required to meet a stricter standard of performance;
- (b) June 1, 1975 for all existing sources.

100.3.2 Emission Standard

Any person operating fuel-burning equipment within the scope of this regulation shall limit the particulate emissions from such fuel-burning equipment in accordance with Figure 10.3A for a two hour sampling period.

100.3.3 Equipment Malfunction or Breakdown

Any person owning or operating fuel-burning equipment within the scope of this emission standard that malfunctions or suffers a breakdown in any component part which malfunction or breakdown causes this emission standard to be violated shall notify the Department of Environmental Protection within 48 hours in writing.

100.3.4 Test Methods and Procedures

Test methods 1 and 5 as promulgated by the Administrator, Environmental Protection Agency Rules and Regulation 60.85, "Federal Register", Volume 36, Number 247, Thursday, December 23, 1971, or such methods as are deemed equivalent by the Department of Environmental Protection shall be those used to determine compliance with this regulation.

100.4 INCINERATOR PARTICULATE EMISSION STANDARD

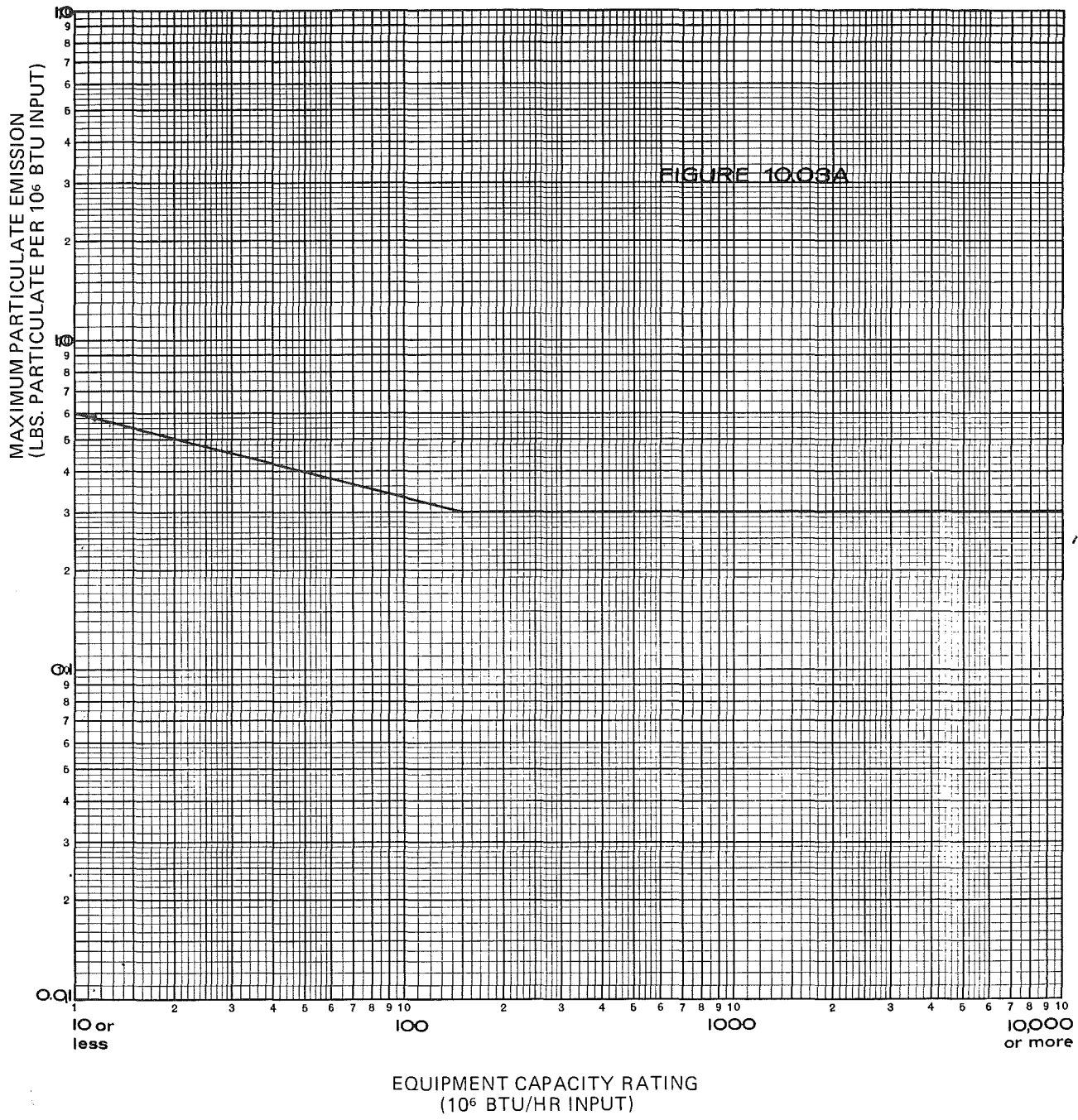
100.4.1 Scope

This regulation shall be applicable to all incinerators and shall be effective in all regions in the State of Maine as follows:

- (a) immediately for all new incinerators, the construction or operation of which begins after the effective date of this emission standard unless such incinerators are required to meet a stricter standard of performance;
- (b) June 1, 1975 for all existing incinerators.

100.4.2 Emission Standard

No person shall emit or cause to be emitted any particulate air contaminants from:



- (a) any incinerator darker than a number 1 on the Ringelmann Chart, excluding the emission of water vapor;
- (b) any Class III, IV, V, VI, and VII incinerator having a designed charging rate of 50 tons per day or less, that exceed 0.2 grains per standard cubic foot of dry flue gas for a two hour sampling period corrected to 12 percent carbon dioxide without the contribution of carbon dioxide from the auxiliary fuel.
- (c) any class incinerator having a designed charging rate greater than 50 tons per day, that exceed 0.08 grains per standard cubic foot of dry flue gas for a 2 hour sampling period, corrected to 12 percent carbon dioxide without the contribution of carbon dioxide from the auxiliary fuel.

100.4.3 Incinerator Malfunction or Breakdown

Any person owning or operating incinerators under the scope of this emission standard, except class I, IA, II, and IIA incinerators that malfunction or suffer a breakdown in any component part which malfunction or breakdown causes this emission standard to be violated shall notify the Department of Environmental Protection within 48 hours in writing.

100.4.4 Test Methods and Procedures

Test methods 1, 3 and 5 as promulgated by the Administrator, Environmental Protection Agency Rules and Regulations 60. 85, "Federal Register", Volume 36, Number 247, Thursday, December 23, 1971 or such other methods as are deemed equivalent by the Department of Environmental Protection shall be those used to determine compliance with this regulation.

100.5 GENERAL PROCESS SOURCE PARTICULATE EMISSION STANDARD

100.5.1 Scope

A general process source shall be any emission source except fuel-burning equipment, incinerators, mobile sources, open burning sources, and sources of fugitive dust. This emission standard shall be effective in all regions in the State of Maine as follows:

- (a) immediately for all new process sources the construction of which begins after the Board adopts this emission standard unless such sources are required to meet a stricter standard of performance;

- (b) June 1, 1975 for all existing sources.

100.5.2 Emission Standard

Any person operating any general process source within the scope of this regulation, except kraft pulping processes, shall limit the emission of particulate air contaminants from such emission source in accordance with Section 100.5.4, for a 2 hour sampling period.

Any person operating any kraft pulping process shall limit the emission of particulate air contaminants from such emission source as follows: 4 pounds of particulate emissions per air dried ton of kraft pulp from the recovery boiler, 1 pound of particulate air contaminants per air dried ton of kraft pulp from the lime kiln, 0.5 pound of particulate air contaminants per air dried ton of kraft pulp from the smelt tank for a 2 hour sampling period.

All similar units, processes operated by the same person at the same general location shall be combined in computing the process weight rate for use in Table 100.5A.

100.5.4 Table 100.5A

Process Weight rate (lbs./hr.)	Emission rate (lbs./hr.)
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

Interpolation of Table I for process weight rates up to 60,000 lbs./hr. shall be computed by use of the following equation:

$$E = 3.59P \quad P \leq 30 \text{ tons/hr.}$$

and interpolation and extrapolation of Table I for rates in excess of 60,000 lbs./hr. shall be computed by use of the equation:

$$E = 17.31P \quad P \leq 30 \text{ tons/hr.}$$

Where E=Emissions in pounds per hour and P=process weight rate in tons per hour.

100.5.0 Malfunction or breakdown

Any person owning or operating a source under the scope of this emission standard that malfunctions or suffers a breakdown in any component part that causes this emission standard to be violated shall notify the Department within 48 hours in writing.

100.5.6 Test Methods and Procedures

Test methods 1 and 5 as promulgated by the Administrator, Environmental Protection Agency Rules and Regulations 60.85, "Federal Register", volume 36, number 247, Thursday, December 23, 1971 or such other methods as are deemed equivalent by the Department of Environmental Protection shall be used to determine compliance with this regulation.

100.6 LOW SULFUR FUEL REGULATION

100.6.1 Scope

This regulation shall apply to those air quality control regions in the State of Maine as indicated in Section 100.6.2.

100.6.2 Prohibitions

In Metropolitan Portland Air Quality Control Region it shall be prohibited to sell, distribute, buy or use any fuel with a sulfur content greater than 1.50 percent during the following periods:

- (a) November 1, 1973 to April 30, 1974 inclusive;
- (b) Any time after November 1, 1974.

In the Central Maine, Downeast, Aroostook County and Northwest Maine Air Quality Control regions it shall be prohibited to sell, distribute, buy or use any fuel with a sulfur content greater than 2.5 percent any time after November 1, 1973.

100.6.3 Records

Any person importing or shipping residual oil or coal into the Metropolitan Portland Air Quality Control Region shall maintain a record of the sulfur content of such fuel for a period of 3 years.

100.6.4 Exemptions

A source that installs sulfur collecting devices that reduce sulfur dioxide emissions to

the equivalent of burning 1.50 percent sulfur fuel shall be exempt from this regulation.

100.7 SULFUR DIOXIDE EMISSION STANDARD FOR SULFITE PULP MILLS

100.7.1 Scope

This emission standard shall apply to all emissions from sulfite type pulp mills except that sulfur dioxide produced from the burning of coal or petroleum fuels are not to be included in this emission standard. This emission standard shall become effective in all regions as follows:

- (a) immediately for any new sulfite type pulp mill, the construction or operation of which begins after the effective date of this emission standard;
- (b) June 1, 1975 for all existing sources.

100.7.2 Emission Standard

No person shall emit or cause to be emitted any sulfur dioxide emissions from any emission source within the scope of this emission standard in excess of 40 pounds per air dried ton of sulfite pulp produced.

100.7.3 Malfunction or Breakdown

Any person owning or operating pulp mills under the scope of this emission standard that malfunction or suffer a breakdown in any component part, which malfunction or breakdown causes this emission standard to be violated shall notify the Department within 48 hours in writing.

100.7.4 Test Methods and Procedures

Test methods 1 and 6 as promulgated by the Administrator, Environmental Protection Agency Rules and Regulations 60.85, "Federal Register", volume 36, number 247, Thursday, December 23, 1971, or such other methods as are deemed equivalent by the Department of Environmental Protection shall be used to determine compliance with this regulation.

100.8 EMISSION LICENSE REGULATION

100.8.1 Scope

This regulation shall be effective in all ambient air quality control regions in the State of Maine.

100.8.2 Emission License

Any license operating an existing emission source which is not exempted under paragraph 100.8.6 shall file an application for an Emis-

sion License in accordance with the schedule given in paragraph 100.8.7.

Any person planning to operate a new emission source not exempted under paragraph 100.8.6 or modify either an exempt existing source or licensed source such that following construction or modification the source would require an emission license under this regulation, shall submit an application for an Emission License at least 60 days prior to starting construction.

100.8.3 Criteria for Granting the License

Issuance of licenses shall be governed by 38 M.R.S.A., Section 590. Within 30 days of receipt of a properly completed Application for Emission License, the Board must either grant the license, deny the license or order a hearing on the license. The burden shall be upon the person requesting the emission license to affirmatively demonstrate to the Board of Environmental Protection that each of the following criteria have been met.

- (a) the emission is receiving the best practical treatment;
- (b) the emission will not violate applicable emission standards or can be controlled so as to not violate the applicable emission standards;
- (c) the emission either alone or in conjunction with existing emissions will not violate applicable ambient air quality standards;
- (d) the equipment to be used is both reliable in conforming to design specifications and expected operating characteristics, and dependable in performance.

100.8.4 Conditions on the License

The Board of Environmental Protection may impose any appropriate and reasonable conditions to insure compliance with emission and ambient air quality standards, regulations and orders. However, every license shall be subject to the following standard conditions:

- (a) Employees and representatives of the Department of Environmental Protection shall be allowed access to the premises of the licensee to perform such tests and inspections and examine all records relating to emissions during nor-

mal business or operating hours and at such other times as the Commissioner of the Department of Environmental Protection deems necessary;

- (b) The licensee shall make provision for sampling ports or facilities adequate for test methods applicable to the source, and for utilities and safe access to these ports or facilities;
- (c) A new Emission License shall be required prior to the commencement of any modification;
- (d) Sources emitting in excess of 100 tons per year of any pollutant shall submit to the Board, within 30 days after receipt of their license;
- (e) All applicable emission standards, regulations and orders and local ordinances shall be complied with;
- (f) Sources required to obtain an Emission License shall maintain sufficient records to accurately complete the application for an Emission License;
- (g) A licensee not presently meeting an emission standard or regulation which will be effective June 1, 1975 shall, as a condition of its license, be required to comply with the following requirements prior to the dates set forth below.

COMPLIANCE SCHEDULE

Latest Date for Completion	Increment of Progress
July 1, 1973	Submit to the Department preliminary plans indicating anticipated control equipment or process changes necessary to meet emission standards or regulations.
January 1, 1974	Submit to the Department detailed engineering plans and specifications and anticipated equipment delivery dates.
July 1, 1974	Submit to the Department proof of execution of all necessary contracts.
January 1, 1975	Submit to the Department a report indicating status of all necessary construction.

- May 1, 1975 Submit to the Department proof of completion of construction or installation of control equipment and/or process changes and commencement of operations.
- June 1, 1975 Submit to the Department data demonstrating compliance with all standards and regulations.

In addition to the standard conditions imposed on any license, the following special conditions may be imposed on a license if necessary:

- (a) A source shall install and maintain adequate monitoring equipment and shall make public periodic reports in a manner specified by the Department of Environmental Protection of the data obtained from these instruments.
- (b) A source shall have performed a stack test for those pollutants specified in the condition;
- (c) A source shall be required to renew its license at a more frequent interval than 2 years;
- (d) Any other appropriate and reasonable conditions necessary to insure compliance with emission standards and regulations.

100.8.5 Terms of the Emission License

All Emission Licenses shall be renewed bi-annually from the date they were initially granted. Obtaining an emission license does not relieve the source from complying with all applicable emission standards and ambient air quality standards.

100.8.6 Exemptions

The following sources are exempted from obtaining an Emission License as required in Section 100.8.2:

- (a) fuel burning equipment whose total heat input is less than 10 million BTU per hour;
- (b) Incinerators of class I and IA;
- (c) Moving Sources;
- (d) open burning dumps.

100.8.7 Schedule for Compliance

Submission of Applications for an Emission License shall be in accordance with the following table to permit sufficient time for the Board to consider initial applications:

	If source is in this region	and this county	do not submit before this date	but submit by this date
I	Oxford			
	York		March 1, 1972	March 30, 1972
	Sagadahoc			
I	Cumberland		April 1, 1972	April 30, 1972
II	Oxford			
	Franklin		May 1, 1972	May 30, 1972
	Somerset			
	Androscoggin			
II	Kennebec			
	Waldo			
	Knox		June 1, 1972	June 30, 1972
	Lincoln			
III	Piscataquis		July 1, 1972	July 30, 1972
	Penobscot			
III	Washington			
	Hancock		August 1, 1972	August 30, 1972
IV	Aroostook		September 1, 1972	September 30, 1972
V	Whole region		October 1, 1972	October 30, 1972

100.8.8 Prohibition

No person shall emit or cause to be emitted any air contaminant from any emission sources without a license from the Board after January 1, 1973.

100.8.9 Confidential and Proprietary Information

All process, product and other information designated proprietary by the applicant, but not the emissions information, submitted in an application for an emission license shall be considered confidential and not for public disclosure.

100.9 EMERGENCY EPISODE REGULATION

100.9.1 Scope

This regulation shall apply in any region in which the ambient air quality reaches those levels defined in Section 100.9.2.

100.9.2 Criteria

Forecast: The forecast level will be declared upon receipt of an air stagnation advisory.

Alert: The Alert level is that concentration of pollutants at which first stage control actions is to begin. An Alert will be declared when any one of

the following levels is reached at any monitoring site:

SO₂—800 ug/m³ (0.3 p.p.m.), 24-hour average.

Particulate—3.0 COHs or 375 ug/m³, 24-hour average. SO₂ and particulate combined—product of SO₂ p.p.m., 24-hour average, and COHs equal to 0.2 or product of SO₂—ug/m³, 24-hour average, and particulate ug/m³, 24 - hour average equal to 65 x 10³.

CO—17 mg/m (15 p.p.m.), 8-hour average.

Oxidant (O₃)—200 ug/m³ (0.1 p.p.m.)—1-hour average. NO₂—1130 ug/m³ (0.6 p.p.m.), 1-hour average, 282 ug/m³ (0.15 p.p.m.), 24-hour average.

and meteorological conditions are such the pollutant concentrations can be expected to remain at the above levels for twelve (12) or more hours or increase unless control actions are taken.

Warning: The warning level indicates that air quality is continuing to degrade and that additional control actions are necessary. A warning will be declared when any one of site:

SO₂-1,600ug/m³ (0.6 p.p.m.), 24-hour average.

Particulate-5.0 COHs or 625ug/m³, 24-hour average.

SO₂ and particulate combined—product of SO₂ p.p.m., 24-hour average and COHs equal to 0.8 or product of SO₂ ug/m³, 24-hour average equal to 261 x 10³.

CO-34 mg/m³ (30 p.p.m.), 8-hour average.

Oxidant (O₃)-800 ug/m³ (0.4 p.p.m.), 1-hour average.

NO₂-2,269ug/m³ (1.2 p.p.m.)-1-hour average; 565ug/m³ (0.3 p.p.m.), 24-hour average.

and meteorological conditions are such that pollutant concentrations can be expected to remain at the above levels for twelve (12) or more hours or increase unless control actions are taken.

Emergency: The emergency level indicates that air quality is continuing to degrade toward a level of significant harm to the health of persons and that the most stringent control actions are necessary. An emergency will be declared when any one of the following levels is reached at any monitoring site:

SO₂-2100 ug/m³ (0.8 p.p.m.), 24-hour average.

Particulate-7.0 COHs or 875 ug/m³, 24-hour average.

SO₂ and particulate combined—product of SO₂ p.p.m. 24 - hour average and COHs equal to 1.2 or product of SO₂ug/m³, 24-hour average and particulate ug/m³, 24-hour average equal to 393 x 10³.

CO - 46 mg/m³ (40 p.p.m.), 8-hour average Oxidant (O₃) - 1200 ug/m³ (0.6 p.p.m.), 1-hour average.

NO₂-3,000ug/m³ (1.6 p.p.m.), 1-hour average; 750 ug/m³. (0.4 p.p.m.), 24-hour average.

and meteorological conditions are such that this condition can be expected to remain at the above levels for twelve (12) or more hours.

100.9.3 Emission Reduction During Episodes

There is no specific emission reduction required during the forecast stage, however, the Department will monitor the atmospheric concentrations of the various pollutants and the prevailing meteorology on a 24-hour basis.

The following emission reduction plan shall be instituted in any region that the alert level has been reached.

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between 12 noon and 4 p.m.
3. Persons operating fuel-burning equipment shall make maximum use of mid-day (12-noon-4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.
4. Persons operating motor vehicles should eliminate all unnecessary operations.

Source Curtailment

Any person responsible for the operation of

a source of air pollutants listed below shall take all required control actions for this Alert Level.

Source of air pollution	Control action
1. Coal or oil-fired electric power generating facilities.	a. Substantial reduction by utilization of fuels having low ash and sulfur content. b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Substantial reduction by diverting electric power generation to facilities outside of Alert Area.
2. Coal and oil-fired process steam generating facilities.	a. Substantial reduction by utilization of fuels having low ash and sulfur content. b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Substantial reduction of steam load demands consistent with continuing plant operations.
3. Manufacturing industries of the following classifications: Primary Metals Industries Petroleum Refining Operation Chemical Industries Mineral Processing Indust. Paper and Allied Products Grain Industry.	a. Substantial reduction of air pollutants from manufacturing operations by curtailing, postponing or deferring production and all operations. b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gas vapors or malodorous substances, c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

The following emission reduction plan shall be instituted in any region that the warning level has been reached.

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.
3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12 noon and 4 p.m.
4. Persons operating motor vehicles must reduce operations by the use of car pools and increased use of public transportation and elimination of unnecessary operation.

Source curtailment

Any person responsible for the operation of a source of air pollutants listed below shall take all required control actions for this Warning Level.

Source of air pollution	Control action
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content. b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Maximum reduction by diverting electric power generation to facilities outside of Warning Area.
2. Oil and oil-fired process steam generating facilities.	a. Maximum reduction by utilization of fuels having the lowest available ash and sulfur content. b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Making ready for use a plan of action to be taken if an emergency develops.

3. Manufacturing industries which require considerable lead time for shut-down including the following classifications.
 - Petroleum Refining
 - Chemical Industries
 - Primary Metals Industries
 - Glass Industries
 - Paper and Allied Products.
 - a. Maximum reduction of air contaminants from manufacturing operations by, if necessary, assuming reasonable economic hardships by postponing production and allied operation.
 - b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gases, vapors, or malodorous substances.
 - c. Maximum reduction of heat load demands for processing.
 - d. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

 4. Manufacturing industries require relatively short lead times for shut-down including the following classifications.
 - Primary Metals Industries
 - Chemical Industries
 - Mineral Processing Industries
 - Grain Industry.
 - a. Elimination of air pollutants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment.
 - b. Elimination of air pollutants from trade waste disposal processes which emit solid particles, gases, vapors, or malodorous substances.
 - c. Maximum reduction of heat load demands for processing.
 - d. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.
- The following emission reduction plan shall be instituted in any region that the emergency level has been reached.
1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
 2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.
 3. All places of employment described below shall immediately cease operations causing emissions of air contaminants.
 - a. Mining and quarrying of nonmetallic minerals.
 - b. All construction work except that which must proceed to avoid emergent physical harm.
 - c. All manufacturing establishments except those required to have in force an air pollution emergency plan.
 - d. All wholesale trade establishments; i. e., places of business primarily engaged in selling merchandise to retailers, or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.
 - e. All offices of local, county and State government including authorities, joint meetings, and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county, or state government, authorities, joint meetings and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.
 - f. All retail trade establishments except pharmacies, surgical supply distributors, and stores primarily engaged in the sale of food.
 - g. Banks, credit agencies other than banks, securities and commodity brokers, dealers, exchanges and services; offices of insurance carriers, agents and brokers, real estate offices.
 - h. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments, photographic studios; beauty shops, barber shops, shoe repair shops.
 - i. Advertising offices, consumer credit reporting, adjustment collection agencies, duplicating, addressing, blueprinting,

photocopying, mailing, mailing list and stenographic services, equipment rental services, commercial testing laboratories.

- j. Automobile repair, automobile services, garages.
- k. Establishment rendering amusement and recreational services including motion picture theaters.
- l. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.
- 4. All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air pollutants from their operation by ceasing, curtailing, or postponing operations which emit air pollutants to the extent possible without causing injury to persons or damage to equipment.
- 5. The use of motor vehicles is prohibited except in emergencies with the approval of local or State police.

Source curtailment

Any person responsible for the operation of a source of air pollutants listed below shall take all required control actions for this Emergency Level.

Source of air pollution

Control action

- 1. Coal or oil-fired electric power generating facilities.
 - a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.
 - b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.
 - c. Maximum reduction by diverting electric power generation to facilities outside of Emergency Area.
- 2. Coal and oil-fired process steam generating facilities.
 - a. Maximum reduction by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage.

- b. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

- c. Taking the action called for in the emergency plan.

- 3. Manufacturing industries of the following classifications.
 - Primary Metals Industries
 - Petroleum Refining
 - Chemical Industries
 - Mineral Processing Industries
 - Grain Industry
 - Paper and Allied Products

- a. Elimination of air pollutants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury or damage to equipment.

- b. Elimination of air pollutants from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances.

- c. Maximum reduction of heat load demands for processing.

- d. Maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

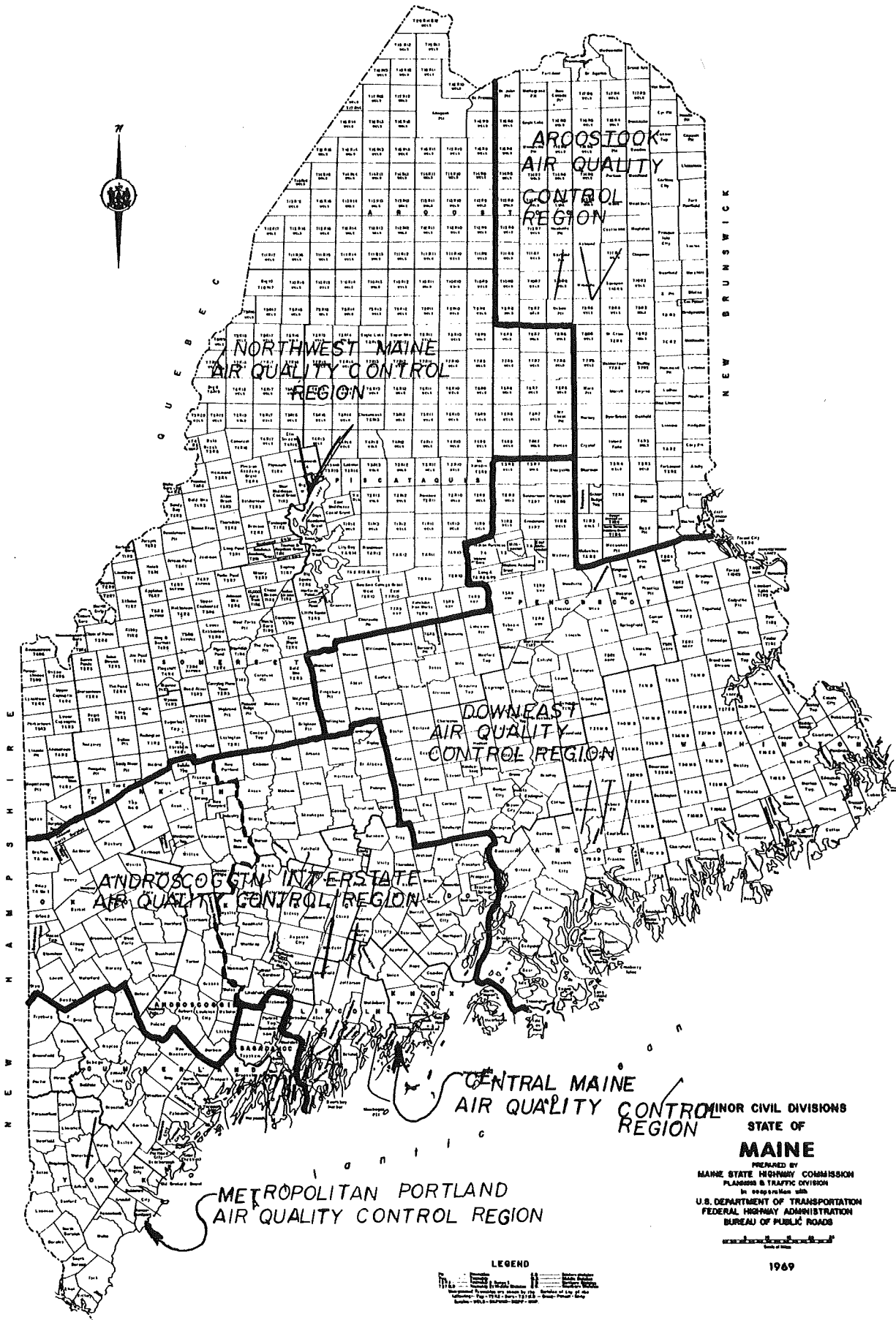
In addition as a condition to their license, each source emitting more than 100 tons per year of any pollutant shall submit an acceptable contingency plan specific for its operation.

100.9.4 Notification of Malfunction or Breakdown

Any person operating equipment that is permitted to operate during an emergency episode, that malfunctions or breakdown causing any emission standard, regulation or standby emergency episode to be violated, shall notify the Department of Environmental Protection within 4 hours by telephone.

100.9.5 Additional Orders

In addition to the emission reduction and source curtailments required above, the Board may, pursuant to 38 M.R.S.A., Section 593, issue such additional emergency orders as it deems necessary.



ARCOSTOOK
AIR QUALITY
CONTROL
REGION

NORTHWEST MAINE
AIR QUALITY CONTROL
REGION

DOWNEAST
AIR QUALITY
CONTROL REGION

ANDROSCOGGIN INTERSTATE
AIR QUALITY CONTROL REGION

CENTRAL MAINE
AIR QUALITY CONTROL
REGION

METROPOLITAN PORTLAND
AIR QUALITY CONTROL REGION

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PREPARED BY
MAINE STATE HIGHWAY COMMISSION
PLANNING & TRAFFIC DIVISION
In 8449 (1968) 2000
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS



1969

**APPENDIX B
AMBIENT AIR QUALITY STANDARDS**

FEDERAL STANDINGS

MAINE STANDINGS

Air Contaminant	Short Term				Long Term		Short Term				Long Term	
	1 hour	3 hour	8, hour	24 hour	A A M	A G M	1 hour	3 hour	8 hour	24 hour	A A M	A G M
Suspended Particulates Primary Secondary				260*		75				100		50
				150*		60						
Sulfur Dioxide (SO ₂) Primary Secondary				365*	80							
		1300*		260*	60			1100		230	57	
Carbon Monoxide (CO) Primary and Secondary	40*		10*				40*		10*			
Photochemical Oxidants as (O ₃) Primary and Secondary	160*						160*					
Hydrocarbons (Hc) corrected for methane Primary and Secondary		160*						160*				
Nitrogen Dioxide (NO) Primary and Secondary						100					100	

Note I All values are ug/M³ except CO which is mg/M³

*Maximum concentration not to be exceeded more than once a year

Note II A A M—Annual Arithmetic Mean

A G M—Annual Geometric Mean

Note IV Gases are at 25°C & 760 mm Hg

APPENDIX C

**AIR QUALITY DATA SUMMARY
(Particulate Matter)**

Sampling Site	Location (km)		Sampling Interval (months)	Start Date	End Date	Number of Samples	Maximum 24 Hours (ug/m ³)	Standard Deviation (ug/m ³)	Annual Geo. Mean (ug/m ³)	Geometric Standard Deviation
	N	E								
South Portland High School	4830	398	9	Oct. 5 1970	Jul. 30 1971	124	104	15.7	37.6	1.48
Southern Maine Vocational Technical Institute	4833	401	9	Oct. 5 1970	Jun. 30 1971	121	94	15.9	37.4	1.48
Baxter School for the Deaf	4838	401	2	Oct. 5 1970	Dec. 3 1970	22	57.5	11.9	25.1	1.56
Portland High School	4835	398	6-2/3	Dec. 10 1970	Jun. 30 1971	97	109	20.1	59.3	1.40
Biddeford City Hall	4816	382	5-1/3	Jan. 20 1970	Jun. 30 1971	52	100	24.0	36.9	1.66
Sanford High School	4812	355	5-1/3	Jan. 19 1971	Jun. 30 1971	48	86	18.1	28.2	1.68
Eliot Fire Station	4776	354	5	Jan. 19 1971	Jun. 14 1971	32	67	14.3	28.3	1.55
Portland International Jetport	4834	394	4	Mar. 2 1971	Jun. 30 1971	72	129	24.8	52.5	1.53
Acadia National Park (Federal Data)			11-1/2	Jan. 2 1970	Dec. 14 1970	26	68	17.5	24.5	1.88
Portland (Federal Data)	4835	398	11-1/2	Jan. 9 1970	Dec. 14 1970	26	169	29.8	80.5	1.43

APPENDIX D
AIR QUALITY DATA SUMMARY
(Sulfur Oxides)

Sampling Site	Location (km)		Sampling Interval (months)	Start Date	End Date	Number of Samples	Maximum 24 Hours (ug/m ³)	Standard Deviation (ug/m ³)	Annual Arith. Mean (ug/m ³)	Geometric Standard Deviation
	N	E								
South Portland High School	4830	398	8-2/3	Oct. 12 1971	Jul. 30 1971	149	86	13.0	10.6	3.44
Southern Maine Vocational Technical Institute	4833	401	8-2/3	Oct. 10 1971	Jul. 30 1971	148	96	22.9	23.0	3.79
Baxter School for the Deaf	4838	401	1-2/3	Oct. 10 1971	Dec. 2 1971	24	54	11.6	9.7	3.17
93 Portland High School	4835	398	6-2/3	Dec. 9 1971	Jul. 30 1971	118	233	33.6	56.6	3.02
Biddeford City Hall	4816	382	5-1/3	Jan. 20 1971	Jul. 30 1971	58	70	17.0	22.5	2.83
Sanford High School	4812	355	5-1/3	Jan. 20 1971	Jul. 30 1971	56	30	8.44	8.2	3.40
Eliot Fire Station	4776	354	5	Jan. 20 1971	Jul. 23 1971	37	53	14.0	23.4	2.53
Portland International Jetport	4834	394	4	Mar. 2 1971	Jul. 30 1971	83	59	9.84	11.0	2.39
Portland School (Technicon)	4835	398	12	Jan. 6 1971	Dec. 31 1971	314	368.4	70.6	83.6	3.70
Cony High School	4907	439	12	Jan. 5 1971	Dec. 31 1971	220	709	106.1	94.1	2.88

APPENDIX E

SAMPLING LOCATION GUIDELINES

1. This report has reference to "Requirements for Preparation, Adoption and Submittal of Implementation Plans," EPA, **Federal Register**, August 14, 1971, and is concerned with guidelines for installation of air monitoring instruments at particular sampling sites especially those located in the area of estimated maximum pollutant concentration and established for the purpose of determining compliance with national primary ambient air quality standards established for the purpose of protecting the public health.
2. Minimum number of air quality monitoring sites and frequency of sampling are specified in Section 420.17 of the aforementioned Federal rules and regulations. General considerations governing distribution of air quality monitoring sites within an air quality control region are described in "Guidelines: Air Quality Surveillance Networks," EPA, May 1971, Office of Air Programs Publication No. AP-98.
3. Specific guidelines for locating air monitoring instruments in areas of estimated maximum pollutant concentration are given in the table attached. Sampling station guidelines are different for defining one-hour average and eight-hour average CO concentration because people would not ordinarily be exposed to CO concentrations that occur in a high traffic density downtown area for a period of eight hours. When only a single sampling site is established to satisfy the minimum air quality surveillance requirement of the implementation plan, choose a site meeting the guidelines for 8-hour averaging time. Distance from the street is specified in the sampling location guidelines for CO because of the strong dependence on nearness to the street and CO concentration. For the same reason, height from the ground of the air inlet is more restrictive than for the other pollutants. It is desirable, however, to sample as close as possible to the breathing zone within practical considerations and sampling height limitations are specified accordingly for these pollutants. There are no well established meteorological dispersion models presently available for selecting areas of expected maximum concentration for the secondary pollutants. Selection of high concentration areas described in the table for these pollutants is based on available information on the reaction kinetics of atmospheric photochemical reactions involving hydrocarbons, nitrogen oxides, and oxidants, atmospheric data on diurnal variation in pollutant concentration, distribution of primary mobile sources of pollution and on meteorological factors. A minimum distance away from major traffic arteries and parking areas is specified for the oxidant monitoring site because NO emissions from motor vehicles consume atmospheric ozone. NO₂ is considered both as a primary stationary source pollutant and as a secondary pollutant and air monitoring stations for this pollutant should be located consistent with the respective station location guidelines. Differences in horizontal and vertical clearance distances are based on increased probability of reaction between reactive gases and vertical surfaces.
4. Sampling locations selected in areas of estimated maximum pollutant concentration should be evaluated in light of actual aerometric and meteorological data, urban and industrial growth and development and other pertinent information. Wherever feasible it is desirable to conduct a preliminary aerometric survey as a means of selecting sampling locations for maximum pollutant concentration.
5. General guidelines applicable to sampling station location in addition to the specific guidelines listed in the table include the following:
 - a. Except for the sampling station for determining one-hour carbon monoxide concentrations avoid locations where there are restrictions to air flow in the vicinity of the air inlet; such as adjacent to buildings, parapets, trees.
 - b. Avoid sampling locations that are unduly influenced by downwash from a minor local source or by reentrainment of ground dust; such as a stack located on the roof of a building where the air inlet is located or close to ground level near an unpaved road. In the latter case either elevate the sampler intake above the level of maximum ground turbulence effect or place the sampler intake away from the source of ground dust.
 - c. Avoid locations that inaccessible with due regard to adverse weather conditions, prone to vandalism or are otherwise insecure.
6. It is recognized that for practical considerations it may not be feasible to select sampling sites that meet all of the specific and

general guidelines. In this event it is especially important that the sampling stations selected be defined in such a manner that would enable comparison of results obtained with that obtained at other sampling stations meeting these guidelines. This may be accomplished by deline-

ating the critical parameters including elevation, vertical clearance, horizontal clearance, distance from curb, distance from downtown, distance from major traffic arteries or parking areas, restrictions to air flow in the vicinity of sampler, nearby local sources, and meteorological parameters.

APPENDIX E (continued)

SAMPLING LOCATION GUIDELINES FOR AREAS
OF ESTIMATED MAXIMUM POLLUTANT CONCENTRATION

96

Pollutant Category	Pollutant	Station Location	Position of Air Inlet		
			Height from Ground, ft.	Vertical Clearance Above Supporting Structure, ft.	Horizontal Clearance beyond Supporting Structure, ft. ^a
Primary Stationary Source Pollutant	1. SO ₂	Determined from atmospheric diffusion model, historical data, emission density, or other information and representative of population exposure.	<50	> 3	> 5
	2. NO ₂	Same as above.	<50	> 3	> 5
	3. Particulates	Same as above.	<50	> 3	> 3
Primary Mobile Source Pollutant	1. CO (1-hr. averaging time)	Representing area of high traffic density, slow moving traffic and obstructions to air flow (tall buildings) and pedestrian population such as major downtown traffic intersections. <20' from street curb.	<15	> 3	> 3
	2. CO (8-hr. averaging time)	Representing area of high traffic density in residential area such as major throughfare in center city or suburban area. <50' from street curb.	<15	> 3	> 3
Secondary Pollutant	1. O _x	Representing residential area downwind of downtown area (5-15 miles from downtown and ^b >300' from major traffic arteries or parking areas). ^b	<50	> 3	> 5
	2. NO ₂	Representing residential area downwind of downtown area (<5 miles from downtown).	<50	> 3	> 5

a. not applicable where air inlet is located above supporting structure
b. downwind of prevailing daytime wind direction during the oxidant season

APPENDIX F

For the Metropolitan Portland Air Quality Control Region, the monitoring site at Portland High School was selected as the site of the maximum sulfur dioxide concentrations. Figure One, an emission density map, shows that this site is in an area of high sulfur dioxide emissions. A large number of the Portland area point sources lie to the west, southwest, and south (see figure Two) which are the predom-

inate wind directions. Therefore, this site appears to be in the area of maximum sulfur dioxide concentration.

For particulates, there are a large number of point sources lying to the west, southwest, and south. This site is also in the area of highest urban density which, excluding several large point sources, indicates that Portland High School is in the area of maximum particulate concentration.

PORTLAND EMISSION DENSITY MAP SO₂

Areas are outlined in red

SO₂ ug/M³

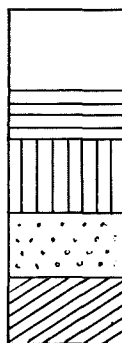
0—75

75—150

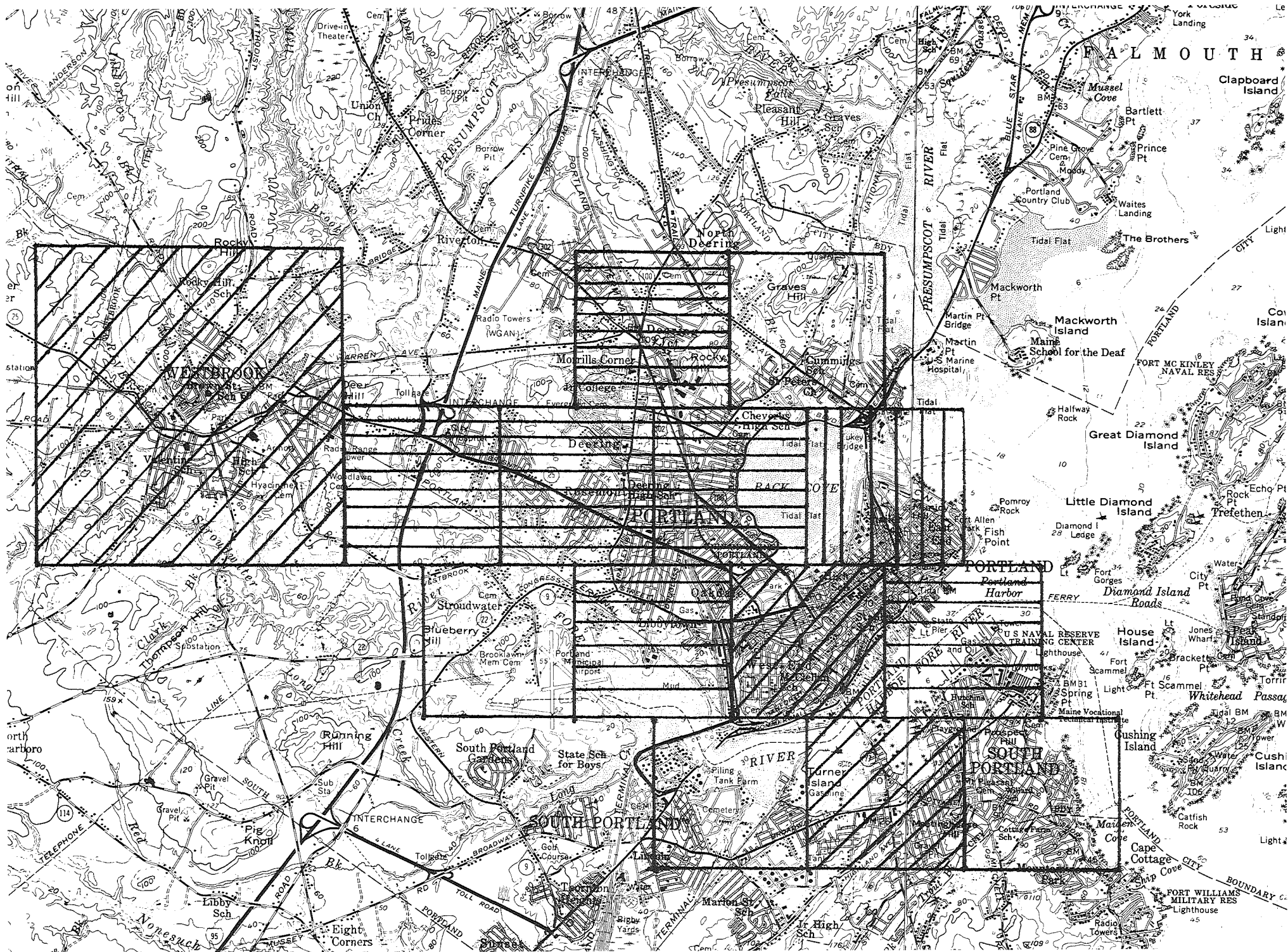
150—225

225—300

300 <



● Sampling sites



APPENDIX G

ARTICLE 6. SITE LOCATION OF DEVELOPMENT (1970, c. 571, §2)

Sec. 481. Findings and purpose

The Legislature finds that the economic and social wellbeing of the citizens of the State of Maine depend upon the location of commercial and industrial developments with respect to the natural environment of the State; that many developments because of their size and nature are capable of causing irreparable damage to the people and the environment in their surroundings; that the location of such developments is too important to be left only to the determination of the owners of such developments; and that discretion must be vested in state authority to regulate the location of developments which may substantially affect environment.

The purpose of this subchapter is to provide a flexible and practical means by which the State, acting through the Department of Environmental Protection, in consultation with appropriate state agencies, may exercise the police power of the State to control the location of those developments substantially affecting local environment in order to insure that such developments will be located in a manner which will have a minimal adverse impact on the natural environment of their surroundings.

Sec. 482. Definitions

As used in this subchapter:

1. Board. "Board" means the Department of Environmental Protection.

2. Development which may substantially affect environment. "Development which may substantially affect environment" means any commercial or industrial development which requires a license from the Department of Environmental Protection, or which occupies a land area in excess of 20 acres, or which contemplates drilling for or excavating natural resources, excluding borrow pits for sand, fill or gravel, regulated by the Department of Transportation Board of Environmental Protection and pits of less than 5 acres, or which occupies on a single parcel a structure or structures in excess of a ground area of 60,000 sq. ft.

3. Natural environment of a locality. "Natural environment of a locality" includes the character, quality and uses of land, air and waters

in the area likely to be affected by such development, and the degree to which such land, air and waters are free from non-naturally occurring contamination.

4. Person. "Person" means any person, firm, corporation or other legal entity.

Sec. 483. Notification required

Any person intending to construct or operate a development which may substantially affect local environment shall, before commencing construction or operation, notify the Board in writing of his intent and of the nature and location of such development. The Board shall within 14 days of receipt of such notification, either approve the proposed location or schedule a hearing thereon in the manner hereinafter provided.

Sec. 484. Hearings; orders; construction suspended

In the event that the Board determines to hold a hearing on a notification submitted to it pursuant to section 483, it shall hold such hearing within 30 days of such determination, and shall cause notice of the date, time and place thereof to be given to the person intending the development and in addition shall give public notice thereof by causing such notice to be published in some newspaper of general circulation in the proposed locality, or if none, in the state paper; the date of the first publication to be at least 10, and the last publication to be at least 3, days before the date of the hearing.

At such hearing the Board shall solicit and receive testimony to determine whether such development will in fact substantially affect the environment or pose a threat to the public's health, safety or general welfare.

The Board shall approve a development proposal whenever it finds that:

1. Financial capacity. The proposed development has the financial capacity and technical ability to meet state air and water pollution control standards, has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

2. Traffic movement. The proposed development has made adequate provision for loading, parking and traffic movement from the development area onto public roads.

3. No adverse affect on natural environment. The proposed development has made adequate

provision for fitting itself harmoniously into the existing natural environment and will not adversely affect existing uses, scenic character, natural resources or property values in the municipality or in adjoining municipalities.

4. Soil types. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

1970, C. 571, § 2

In case of a permanently installed power generating facility of more than 1,000 kilowatts or a transmission line carrying 125 kilovolts or more proposed to be erected within this State by an electrical company or companies, the proposed development, in addition to meeting the requirements of subsections 1 to 4, shall also have been approved by the Public Utilities Commission under Title 35, section 13-A.

1971, C. 476, § 2.

At hearings held under this section the burden shall be upon the person proposing the development to affirmatively demonstrate to the Board that each of the criteria for approval listed in the preceding paragraphs have been met, and that the public's health, safety and general welfare will be adequately protected.

A complete verbatim transcript shall be made of all hearings held pursuant to this section.

1970, C. 571, § 2; 1971, C. 256, § 5.

Within 45 days after the Board adjourns any hearing held under this section, it shall make findings of fact and issue an order granting or denying permission to the person proposing such development to construct or operate the same as proposed, or granting such permission upon such terms and conditions as the Board may deem advisable to protect and preserve the environment and the public's health, safety and general welfare.

Any person who has notified the Board, pursuant to section 483, of his intent to create a development substantially affecting local environment shall, upon receipt of notice that the Board has determined to hold a hearing under this section, immediately defer or suspend construction or operation with respect to such development until the Board has issued its order after such hearing.

1970, C. 571, § 2.

Sec. 361 (In Part) Hearing Requirements

Whenever the Board is required or em-

powered to conduct a hearing pursuant to any provision of law, such hearings may be held and conducted by the Board, or by any member of the Board or by any qualified employee or representative of the Department, as the Board may determine. If the hearing is conducted by a single board member or qualified employee or representative, such board member, employee or representative shall report his findings of fact and conclusions to the Board together with a transcript of the hearing and all exhibits. Such findings of fact and conclusions shall become a part of record. The Board shall not be bound by such findings or conclusions when acting upon such record, but shall take such action, issue such orders and make such decisions as if it had held and conducted the hearing itself.

1971, C. 414.

Sec. 485. Failure to notify Board; hearing; injunctions; orders

The Board may at any time with respect to any person who has commenced construction or operation of any development without having first notified the Board pursuant to section 483, schedule and conduct a public hearing in the manner provided by section 484 with respect to such development.

The Board may request the Attorney General to enjoin any person, who has commenced construction or operation of any development without having first notified the Board pursuant to section 483, from further construction or operation pending such hearing and order. Within 30 days of such request the Attorney General shall bring an appropriate civil action.

In the event that the Board shall issue an order, denying a person commencing construction or operation of any development without first having notified the Board pursuant to section 483, permission to continue such construction or operation, it may further order such person to restore the area affected by such construction or operation to its condition prior thereto or as near as may be to the satisfaction of the Board.

Sec. 486. Enforcement

All orders issued by the Board under this subchapter shall be enforced by the Attorney General. If compliance with any order of the Board is not had within the time per-

iod therein specified, the Board shall immediately notify the Attorney General of this fact. Within 30 days thereafter the Attorney General shall bring an appropriate civil action designed to secure compliance with such order.

Sec. 487. Judicial review

Any person, with respect to whose development the Board has issued an order after hearing pursuant to section 484 may within 30 days after notice of such order, appeal therefrom to the Supreme Judicial Court. Notice of such appeal shall be given by the appellant to the Board. The proceedings shall not be de novo. Review shall be limited to the record of the hearing before and the order of the Board. The court shall decide whether the Board acted regularly and within the

scope of its authority, and whether the order is supported by substantial evidence, and on the basis of such decision may enter judgment affirming or nulifying such determination.

§ 488. Applicability

This subchapter shall not apply to any development in existence or in possession of applicable state or local licenses to operate or under construction on January 1, 1970 or to any development the construction and operation of which has been specifically authorized by the Legislature prior to the effective date hereof, or to public service corporation transmission lines except transmission lines carrying 125 kilovolts or more.

1971, c. 571, § 2; 1971, C. 476, § 3.

**APPENDIX H
EMISSIONS INVENTORY SUMMARY**

FOR THE STATE OF MAINE, PORTLAND AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	98	276	346	83	35	13,842	tons/yr.
2. Distillate Oil	866	6,233	433	260	1,039	173,148	thou gal/yr.
3. Natural Gas	5	0	5	2	19	499	million ft ³ /yr.
4. Wood	2,224	124	165	165	824	164,753	tons/yr.
5. Other							
6. Total	3,193	6,633	949	510	1,917		
B. Comm-Instl and Ind							
1. a. Coal-Area Source	349	324	307	74	52	15,033	tons/yr.
b. Coal-Point Source		15	2	1	1	400	tons/yr.
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	675	4,161	9	135	2,701	90,047	thou gal/yr.
b. Distillate Oil-Point Source	36	488	1	11	224	7,467	thou gal/yr.
4. a. Residual Oil-Area Source	375	6,482	3	49	978	32,613	thou gal/yr.
b. Residual Oil-Point Source	823	13,384	7	107	2,149	71,863	thou gal/yr.
5. a. Natural Gas-Area Source	6	0	3	8	42	641	million ft ³ /yr.
b. Natural Gas-Point Source						11	million ft ³ /yr.
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source	207	31	14	13	64		
9. Total	2,471	24,885	346	398	6,211		
I. C. Steam-Electric Power Plant	497	27,729	6	415	8,686		
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil	19	62	0	4	77	2,560	thou gal/yr.
4. Residual Oil	478	27,667	5	412	8,609	173,600	thou gal/yr.
5. Natural Gas							
6. Other							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
7. Total	994	55,458	11	831	17,372		
D. Total Fuel Combustion	6,658	86,976	1,306	1,739	25,500		
II. Process Losses							
A. Area Sources (Solvents)				5,032			
B. Point Sources	8,247	484	5,492	18	150		
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	536	115	765	230	230	153,059	tons/yr.
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	1,279	80	6,792	2,397	479	159,813	tons/yr.
b. On Site-Point Source	639	40	3,407	1,201	239		
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source	281	18	1,050	351	88		
D. Total Solid Waste Disposal	10,982	737	17,506	9,229	1,186		
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	617	374	141,650	26,023	22,897	1,870,697	thou vehi mi
2. Motor Vehicles-Diesel	144	259	1,873	375	1,960	11,528	thou gal/yr.
B. Off-Highway Fuel Usage							
C. Aircraft	410	192	1,060	1,241	430		
D. Railroads	65	169	182	130	195	5,190	thou gal/yr.
E. Vessels	348	0	905	696	1,017	27,854	thou gal/yr.
F. Gasoline Hndlg. Evap. Losses				1,727		313,937	thou gal/yr.
G. Other							
H. Total Transportation	1,584	994	145,670	30,192	26,499		
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	7,997	18,789	154,498	38,627	32,898		
B. Point Source	11,227	69,918	9,984	2,533	20,287		
C. Total	19,224	88,707	164,482	41,160	53,185		

APPENDIX I
EMISSIONS INVENTORY SUMMARY

FOR THE STATE OF MAINE, CENTRAL MAINE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	104	291	365	87	36	14,580	tons/yr.
2. Distillate Oil	912	6,566	456	274	1,094	182,387	thou gal/yr.
3. Natural Gas	3	0	3	1	12	331	million ft ³ /yr.
4. Wood	2,343	130	174	174	868	173,545	tons/yr.
5. Other							
6. Total	3,362	6,987	998	536	2,010		
B. Comm-Instl and Ind							
1. a. Coal-Area Source	402	363	324	79	60	16,598	tons/yr.
b. Coal-Point Source	19	45	4	1	16	1,190	tons/yr.
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	723	4,680	10	144	2,890	96,347	thou gal/yr.
b. Distillate Oil-Point Source	8	73	0	2	34	1,128	thou gal/yr.
4. a. Residual Oil-Area Source	395	6,828	3	25	1,031	34,354	thou gal/yr.
b. Residual Oil-Point Source	1,493	23,312	13	195	3,902	130,077	thou gal/yr.
5. a. Natural Gas-Area Source	2	0	1	2	10	197	million ft ³ /yr.
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source	3,297	3,787	932	974	5,912		
9. Total	6,339	39,088	1,287	1,449	13,855		
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil	3	45			7	225	thou gal/yr.
5. Natural Gas							
6. Other							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
7. Total	3	45			7		
D. Total Fuel Combustion	9,704	46,120	2,285	1,985	15,872		
II. Process Losses							
A. Area Sources (Solvents)				5,301			
B. Point Sources	11,557	12,757	12,536	16	77		
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	564	121	806	242	242	161,226	tons/yr.
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	2,045	128	10,863	3,834	767	255,598	tons/yr.
b. On Site-Point Source	1,392	89	7,386	2,610	522		
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source	209	14	701	236	65	839	tons/yr.
D. Total Solid Waste Disposal	4,210	352	19,756	6,922	1,596		
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	650	395	149,209	27,411	22,012	1,970,527	thou vehi mi
2. Motor Vehicles-Diesel	152	273	1,973	395	2,064	12,143	thou gal/yr.
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads	68	178	191	137	205	5,467	thou gal/yr.
E. Vessels	74	0	192	148	216	5,919	thou gal/yr.
F. Gasoline Hndlg. Evap. Losses	19			1,819		330,690	thou gal/yr.
G. Other				1,744			
H. Total Transportation	963	846	151,565	31,654	24,497		
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area source	8,456	60,075	186,142	40,561	41,965		
B. Point Source	17,978	40,122	21,572	4,034	10,525		
C. Total	26,434	100,197	207,714	44,595	52,490		

APPENDIX J
EMISSION INVENTORY SUMMARY

FOR THE STATE OF MAINE, DOWNEAST AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	59	166	208	50	21	8,329	tons/yr.
2. Distillate Oil	521	3,750	260	156	625	104,180	thou gal/yr.
3. Natural Gas							
4. Wood	1,338	74	99	99	496	99,130	tons/yr.
5. Other							
6. Total	1,918	3,990	567	305	1,142		tons/yr.
B. Comm-Instl and Ind							
1. a. Coal-Area Source	208	194	185	45	31	8,996	tons/yr.
b. Coal-Point Source	27	89	11	3	9	2,468	tons/yr.
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	406	2,484	5	81	1,622	54,082	thou gal/yr.
b. Distillate Oil-Point Source	3	15		1	12	413	thou gal/yr.
4. a. Residual Oil-Area Source	226	3,900	2	29	589	19,623	thou gal/yr.
b. Residual Oil-Point Source	2,610	42,060	26	385	7,694	256,460	thou gal/yr.
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source	2,513	4,690	251	271	1,904		
9. Total	5,993	53,432	480	815	11,861		
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil	2	1			6	200	thou gal/yr.
4. Residual Oil	134	6,678	1	84	1,764	33,600	thou gal/yr.
5. Natural Gas							
6. Other							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
7. Total	136	6,679	1	84	1,770		
D. Total Fuel Combustion	8,047	64,101	1,048	1,204	14,773		
II. Process Losses							
A. Area Sources (Solvents)				3,027			
B. Point Sources	1,559	3,952	9,927	7	34		
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	322	69	460	138	138	92,092	tons/yr.
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	1,322	83	7,025	2,479	496	165,292	tons/yr.
b. On Site-Point Source	667	41	3,469	1,227	274		
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source	184	10	224	76	60	15,714	tons/yr.
D. Total Solid Waste Disposal	2,173	134	10,718	3,782	830		
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	372	225	85,228	15,658	12,573	1,325,567	thou vehi mi
2. Motor Vehicles-Diesel	87	156	1,127	225	1,179	6,936	thou gal/y.r
B. Off-Highway Fuel Usage							
C. Aircraft	400	92	1,040	1,220	423		
D. Railroads	39	101	109	78	117	3,123	thou gal/yr.
E. Vessels	13		34	26	38	1,044	thou gal/yr.
F. Gasoline Hndlg. Evap. Losses				1,039		188,890	thou gal/yr.
G. Other							
H. Total Transportation	911	574	87,538	18,246	14,330		
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	5,313	11,294	95,782	24,350	18,348		
B. Point Source	8,098	57,627	14,948	3,274	12,180		
C. Total	13,411	68,921	110,730	27,624	30,528		

APPENDIX K
EMISSIONS INVENTORY SUMMARY

FOR THE STATE OF MAINE, AROOSTOOK COUNTY AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	27	76	96	23	10	3,825	tons/yr.
2. Distillate Oil	239	1,723	120	72	287	47,851	thou gal/yr.
3. Natural Gas							
4. Wood	2,262	126	168	168	838	167,531	tons/yr.
5. Other							
6. Total	2,528	1,925	384	263	1,135		
B. Comm-Instl and Ind							
1. a. Coal-Area Source	84	82	85	20	12	3,886	tons/yr.
b. Coal-Point Source							
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	183	1,043	2	37	731	24,345	thou gal/yr.
b. Distillate Oil-Point Source	4	19					
4. a. Residual Oil-Area Source	104	1,791	1	14	270	9,013	thou gal/yr.
b. Residual Oil-Point Source	237	4,059	2	31	618	20,603	thou gal/yr.
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source	1,807	91	121	121	603		
9. Total	2,419	7,085	211	224	2,205		
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil							
5. Natural Gas							
6. Other							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
7. Total							
D. Total Fuel Combustion	4,947	9,010	595	487	3,340		
II. Process Losses							
A. Area Sources (Solvents)				1,390			
B. Point Sources	120	5	7	7	36		
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	148	32	211	63	63	42,299	tons/yr.
b. On Site-Point Source							
2. Municipal, etc.-Point Source	158	8	11	11	53	10,507	tons/yr.
B. Open Burning							
1. a. On Site-Area Source	475	30	2,526	892	178	59,434	tons/yr.
b. On Site-Point Source	330	24	1,935	685	147	2,500	tons/yr.
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source	842	43	396	166	278	50,683	tons/yr.
D. Total Solid Waste Disposal	2,073	142	5,086	3,214	755		
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Gasoline	171	103	39,146	7,192	5,775	516,986	thou vehi mi
2. Motor Vehicles-Diesel	40	72	518	104	542	3,186	thou gal/yr.
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads	18	47	50	36	54	1,434	thou gal/yr.
E. Vessels							
F. Gasoline Hndlg. Evap. Losses				477		86,760	thou gal/yr.
G. Other							
H. Total Transportation	229	222	39,714	7,809	6,371		
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	3,751	5,125	42,923	10,488	8,760		
B. Point Source	3,498	4,249	2,472	1,022	1,751		
C. Total	7,249	9,374	45,395	11,510	10,521		

APPENDIX L
EMISSIONS INVENTORY SUMMARY

FOR THE STATE OF MAINE, NORTHWEST MAINE AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
1. Fuel Combustion							
A. Residential Fuel-Area Source							
1. Coal	3	8	11	3	1	423	tons/yr.
2. Distillate Oil	26	191	13	8	32		tons/yr.
3. Natural Gas							
4. Wood	68	4	5	5	25	5,039	tons/yr.
5. Other							
6. Total	97	203	29	16	58		
B. Comm-Instl and Ind							
1. a. Coal-Area Source	12	10	9	2	2	488	tons/yr.
b. Coal-Point Source							
2. Coke-Point Source							
3. a. Distillate Oil-Area Source	21	138	0	4	84	2,808	thou gal/yr.
b. Distillate Oil-Point Source							
4. a. Residual Oil-Area Source	11	198	0	1	30	997	thou gal/yr.
b. Residual Oil-Point Source	3	48	0	0	7	240	thou gal/yr.
5. a. Natural Gas-Area Source							
b. Natural Gas-Point Source							
6. Process Gas-Point Source							
7. a. Wood-Area Source							
b. Wood-Point Source							
8. a. Other-Area Source							
b. Other-Point Source	33	2	2	2	11		
9. Total	80	396	11	9	134		
I. C. Steam-Electric Power Plant							
1. Anthracite Coal							
2. Bituminous Coal							
3. Distillate Oil							
4. Residual Oil							
5. Natural Gas							
6. Other							

Source Category	Part.	Tons of Pollutant/Year				Fuel, etc.	
		SO ₂	CO	HC	NO _x	Quantity	Units
7. Total							
D. Total Fuel Combustion	177	599	40	25	192		
II. Process Losses							
A. Area Sources (Solvents)				154			
B. Point Sources	44	2	3	3	15		
III. Solid Waste Disposal							
A. Incineration							
1. a. On Site-Area Source	16	4	23	7	7	4,682	tons/yr.
b. On Site-Point Source							
2. Municipal, etc.-Point Source							
B. Open Burning							
1. a. On Site-Area Source	112	7	597	211	42	14,045	tons/yr.
b. On Site-Point Source							
2. a. Dumps-Area Source							
b. Dumps-Point Source							
C. 1. Other-Area Source							
2. Other-Point Source							
D. Total Solid Waste Disposal	128	11	620	218	49		
IV. Transportation-Area Source							
A. 1. Motor Vehicles-Diesel	4	8	4,333	795	639	57,216	thou vehi mi
2. Motor Vehicles-Diesel	4	8	58	12	61	358	thou gal/yr.
B. Off-Highway Fuel Usage							
C. Aircraft							
D. Railroads	2	5	6	4	6	159	thou gal/yr.
E. Vessels							
F. Gasoline Hndlg. Evap. Losses				53		9,602	thou gal/yr.
G. Other							
H. Total Transportation	25	25	4,397	864	706		
V. Miscellaneous-Area Sources							
A. Agricultural Burning							
B. Other							
C. Total Miscellaneous							
VI. Grand Total							
A. Area Source	294	585	5,055	1,259	929		
B. Point Source	80	52	5	5	33		
C. Total	374	637	5,060	1,264	962		