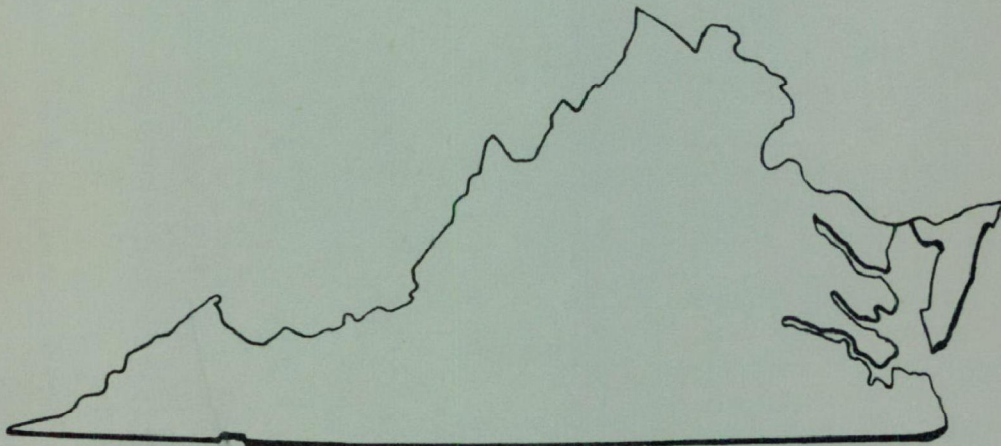


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AIR POLLUTION CONTROL IN THE STATE OF VIRGINIA

**AN EVALUATION REPORT
WITH RECOMMENDATIONS
FOR PROGRAM IMPROVEMENTS**



**U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air Programs**

AIR POLLUTION CONTROL

IN THE

STATE OF VIRGINIA

An Evaluation Report With
Recommendations for Program Improvements

J. Michael Joyce

and

Tom Williams

ENVIRONMENTAL PROTECTION AGENCY

Office of Air Programs

September 1971

COMMONWEALTH OF VIRGINIA



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December 18, 1970

Mr. Stephen R. Wassersug
Regional Air Pollution Control Officer
Region III, APCO, EPA
P. O. Box 12900
Philadelphia, Pennsylvania 19108

Dear Steve:

As discussed with you, the State Air Pollution Control Board in Virginia would appreciate the assistance of the APCA program review team in order to provide the State Air Pollution Control Board with supporting data for any improvements required and for development of a sound growth program.

In addition, your offer of assistance in getting our emission inventory underway is much appreciated. Any information you may have on the date of arrival of the inventory survey team would be appreciated.

Yours sincerely,


W. R. Meyer

WRM/dp

DEC 22 1970

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Apco - 41

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Chapter 1

SUMMARY OF RECOMMENDATIONS

The summary of recommendations presented herein addresses each of the State and local agencies separately. In addition, recommendations are further classified according to the appropriate program function: e.g., organization and administration, engineering, enforcement, etc.

1. STATE OF VIRGINIA

a. Specific recommendations relative to legal aspects

Recommendation No. 4.1. Reevaluate Section 10-17.19 and the entire control district concept. If the concept is to be pursued, then the powers and duties of a local committee functioning in the air pollution control district should be clarified and include enforcement authority (See Section on Local Ordinances).

Recommendation No. 4.2. Revise this section to authorize specific authority to require periodic reports of emission data and make these reports available for public inspection, as required by section 110 of the Federal Law.

Recommendation No. 4.3. Establish a maximum penalty of at least \$1000 per day. Several states now have provisions for fines of up to \$10,000 per day. This section should also make it clear that each day of violation is a separate offense regardless of whether a conviction has been obtained or not.

Recommendation No. 4.4. Require that each local jurisdiction with an existing local agency adopt by reference the State legislation. Thus, each local agency becomes in effect an agent of the state with authority to enforce such rules. Should any locale desire stricter regulation, the proposed rules would then have to be cleared by the State Board.

Recommendation No. 4.5. Secure authority to implement emergency action, comparable to section 303 of the Clean Air Act, as amended.

Recommendation No. 4.6 . Obtain authority to require periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards.

Recommendation No. 4.7 . Adopt land use and transportation controls (to the extent necessary to achieve and maintain National air quality standards).

Recommendation No. 4.8 . Secure authority to require installation of equipment by the owner or operator of stationary sources to monitor emissions and to conduct source tests.

Recommendation No. 4.9 . Obtain specific authority to prevent construction or modification of new sources including prior review of location and compliance with appropriate rules and regulations. (Basically a permit to construct system).

Recommendation No. 4.10 . Grant the Executive Secretary authority to issue orders directly. This should alleviate the involved procedure which now exists.

Recommendation No. 4.11 . Reduce the visible emission limitation to a No. 1 Ringelmann and the equivalent 20% opacity. Also exemptions should be limited to five minutes in any sixty minute period.

Recommendation No. 4.12 . Seek immediate approval for the proposed amendment to Rule 4.

Recommendation No. 4.13 . Base the standard on a "sliding scale" whereby the requirements increase with increasing plant size and are independent of stack height. The standard should be consistent with modern control practices. Stack height should only be dependent upon local meteorological and aesthetic considerations so that maximum dispersion of residual particulate matter will be accomplished.

Recommendation 4.14 . Develop procedures for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards.

Recommendation No. 4.15 . Expand Rule 9 to include incinerator design standards and prior review of plans and specifications.

b. Specific recommendations relative to administration.

Recommendation No. 4.16 . Set guidelines for both the membership and responsibilities of the Technical Advisory Committee.

Recommendation No. 4.17 . Drop the title "Executive Secretary" in favor of "Director, State Air Pollution Control Program."

Recommendation No. 4.18 . Take immediate steps to organize and structure the air pollution control activity so lines of responsibility and authority are clearly delegated. It is suggested that the format of organization Figure 4.2 be considered.

Recommendation No. 4.19 . Proceed immediately to formulate program plans that delineate organizational responsibilities, outline specific meaningful program objectives and set forth procedures for monitoring effectiveness. Such program plans should include activities to meet the requirements of the Federal Clean Air Act in grant support and implementation plans for the Air Quality Control Regions.

Recommendation No. 4.20 . Investigate the potential and feasibility of formalizing the Program Planning and Budgeting system (PPBS) as an operating program procedure. The PPBS concept of operation has continuing program evaluation as an integral part of the procedure. This readily facilitates program adaptations and modifications in accordance with the dynamic nature of an environmental program.

Recommendation No. 4.21 . Accelerate the development of a comprehensive program of coordination and technical support to local areas. This is sufficiently important to consider the development of a fourth program sub-unit concerned with local agency affairs.

Recommendation No. 4.22 . Conduct periodic meeting with local control officials to discuss problems and develop solutions.

Recommendation No. 4.23 . Devote a concerted effort in a program to coordinate and interface air pollution activities with other governmental agencies and programs having peripheral responsibilities, (i.e., Health Department, Governor's Environmental Council).

Recommendation No. 4.24 . Develop a program of information and education that effectively serves the interests and objectives of the air pollution control program. This program should be a budgeted activity to include such aspects as the planning and development of news copy, publication of information material, periodic publication of a news letter, development of visual aids and display material, liaison with citizen groups, speeches, lectures, etc.

Recommendation No. 4.25 . Develop a training program for orientation of new employees and training of professional and non-professional employees. This program should be delegated as a responsibility of a specific individual.

Recommendation No. 4.26 . Initiate a training program that encourages local agency personnel participation. The State should review local agency competency and skills in the design of such a program. In providing observer training, the State should record and retain individual proficiency records.

Recommendation No. 4.27 . Increase salaries for professional personnel and have studies made to eliminate problems of limited pay step increase.

Recommendation No. 4.28 . Require monthly reports from each program element (technical, control, local assistance) and make these reports available for the Board's review.

c. Specific recommendations relative to engineering

Recommendation No. 4.29 . Initiate a comprehensive state-wide emission inventory. Accordingly, the agency must develop procedures to follow up questionnaires and set up a mechanism to keep estimates up to date. The procedure used in the State of Maryland could serve as a guide.

Recommendation No. 4.30 . Develop a data storage and retrieval system that will properly assist the staff in emission inventory analysis and reporting.

Recommendation No. 4.31 . Develop and implement a permit system that provides adequate prevention capability. Such a system must be complimented by a permit to operate renewable on a periodic basis and would involve local agencies to a degree determined by the State.

Recommendation No. 4.32 . Develop a program that is enforcement oriented and provides adequate assistance to the Control Division in engineering matters. This would include the development of control programs and source testing capability.

d. Specific recommendations relative to enforcement.

Recommendation No. 4.33 . Develop specific enforcement alternatives to the present control program review. This would include strengthening the Board's authority to issue a cease and desist order and also to bring injunctive action.

Recommendation No. 4.34 . Establish reporting procedures for local agencies to monitor compliance programs within their respective jurisdictions.

Recommendation No. 4.35 . Increase the number of administrative areas to correspond to the proposed seven air quality control regions. Headquarters within each region are designated in Figure 4.3.

Recommendation No. 4.36 . Develop specific guidelines for enforcement responsibility with regards to headquarter, district offices, and local programs. This would include the stipulation of criteria for priorities, respective role of the State and local agencies, enforcement procedures, forms, reporting procedures, etc.

Recommendation No. 4.37 . Break each region into sectors and assign specific responsibilities within each sector.

Recommendation No. 4.38 . Develop statewide standard enforcement procedures including a standard complaint form, violation notice, time span for compliance, follow-up, reporting, etc. In this regard the State should assemble a manual covering these areas.

Recommendation No. 4.39 . Require that inspectors receive periodic training in reading visible emissions on at least an annual basis. In this regard the State should operate a smoke school, maintain records, and provide the service to local agencies and regional staff.

Recommendation No. 4.40 . Develop as soon as possible an emergency plan of action in accordance with the Emergency Episode Plan requirements.

e. Specific recommendations relative to technical operations.

Recommendation No. 4.41 . Clarify job responsibilities within the Technical Division to eliminate duplication and wasted effort.

Recommendation No. 4.42 . Establish a network which recognizes the statewide air quality monitoring needs. (See proposed network in Table 4.3).

Recommendation No. 4.43 . Make sample collection the specific responsibilities of the area representatives and their subordinates. A program could be developed where local program assists in the collection, but not volunteers. Also high volume samples should be collected every third day, with no deviations due to weekends.

Recommendation No. 4.44 . Provide special training for individuals who will be responsible for any State CAMP Stations.

Recommendation No. 4.45 . Develop a total program of data reduction which would include air quality data (both State and local), permits and emission inventory information. The State's computer could be utilized in this regard.

Recommendation No. 4.46 . Reevaluate the need for 3 full-time personnel in the laboratory operation. Some of this effort could be channeled into data reduction or technical assistance to local agencies.

Recommendation No. 4.47 . Develop a statewide service program in meteorology. The State agency is in a position to satisfy all meteorological and pollutant transport functions for the State.

2. CITY OF RICHMOND

a. Specific recommendations relative to legal aspects.

Recommendation No. 5.1. Expand the director's authority to include requiring periodic emission data reports. These reports should then be available for public inspection as required by section 110 of the Federal Law.

Recommendation No. 5.2. Drop the requirement that the Technical Advisory Board approve all regulations before passage.

Recommendation No. 5.3. Develop, in conjunction with the State, specific authority for episode or emergency action.

Recommendation No. 5.4. Secure authority to require installation of equipment by the owner or operator of stationary sources to monitor emissions and to conduct source tests.

Recommendation No. 5.5. Obtain adequate authority (to the extent necessary to achieve and maintain National air quality standards) to adopt land use and transportation control.

Recommendation No. 5.6. Adopt, by reference, those rules and regulations promulgated by the State. Should stricter or additional provisions be desired, these should first be approved by the State Board before adoption.

b. Specific recommendations relative to administration.

Recommendation No. 5.7. Take steps to organize and structure the air pollution control activity so that the various unit responsibilities are clearly understood.

Recommendation No. 5.8. Keep the Boards notified, on a scheduled basis, of developments within the program.

Recommendation No. 5.9. Establish lines of communication within the city government in order to marshal support for air pollution control.

Recommendation No. 5.10 . Develop realistic program objectives which reflect sound program development and are within the scope of the agency's resources.

Recommendation No. 5.11 . Develop in conjunction with the State a system of reporting program activities and progress on a monthly basis.

Recommendation No. 5.12 . Develop better working relations and communications with the City Personnel Department in order to facilitate staff procurement.

c. Specific recommendations relative to engineering.

Recommendation No. 5.13 . Assign one man, full time, to work on the emission inventory until it has been completed.

Recommendation No. 5.14 . Develop specific procedures to follow-up questionnaires and data requests not returned to the agency. This would include personal contact, plant surveys, and some stack testing. These procedures should be developed in conjunction with the State agency.

Recommendation No. 5.15 . Expand the permit operation to include all pollutant sources in the city and take steps to insure that this system compliments any statewide permit proposal.

Recommendation No. 5.16 . Develop specific guidelines for requiring submission of control programs and schedules for their implementation.

d. Specific recommendations relative to enforcement.

Recommendation No. 5.17 . Recertify inspectors at a valid smoke school on nothing less than an annual basis. Such a school would logically be sponsored by the State agency.

Recommendation No. 5.18 . Take steps to eliminate all open burning within the city.

Recommendation No. 5.19 . Develop standard enforcement procedures which stipulate the compliance method to be followed in particular situations.

Recommendation No. 5.20 . Tailor reporting procedures so that they provide effective agents of program planning.

Recommendation No. 5.21 . Arrange for a periodic review of the files to check for chronic violators and to purge any unnecessary material.

Recommendation No. 5.22 . Develop an emergency plan which is in accordance with Emergency Episode Plan Requirements and which parallels any State Plan.

e. Specific recommendations relative to technical operations.

Recommendation No. 5.23 . Develop in conjunction with the State, a plan for development and maintenance of two continuous air monitoring stations. The State should have direct responsibility for these stations. Also, data from these stations would be processed by the State and correlated with data from other sites.

Recommendation No. 5.24 . Keep the laboratory operating at its present level. As long as Richmond has the facility it can continue to operate on a limited scale and budget. This should require only part-time effort of one staff member and any special analyses should be referred to the State.

Recommendation No. 5.25 . Outline a specific schedule for use of the mobile lab. This would include the possibility of leasing the facility to the State on a regular basis for studies in other areas of the State.

Recommendation No. 5.26 . Develop a data storage and retrieval system and familiarize the entire staff in its use and operation.

3. ROANOKE COUNTY

a. Specific recommendations relative to legal aspects.

Recommendation No. 6.1. Develop a formal agreement with the City of Roanoke, which recognizes the regional implications of air pollution. The State Board should encourage and assist in this regard.

Recommendation No. 6.2. Adopt, by reference, those rules and regulations promulgated by the State Board. Should stricter or additional provisions be desired, these should first be approved by the State Board before adoption.

b. Specific recommendations relative to administration.

Recommendation No. 6.3. Develop, in conjunction with the State, operating procedures which describe specific areas of responsibility and outline enforcement alternatives.

Recommendation No. 6.4. Notify the Boards, on a scheduled basis, of development within the program. In this regard, particular attention should be given to any impending enforcement action.

Recommendation No. 6.5. Establish formal evaluation techniques for planning purposes to determine results under existing control activities and evaluate alternatives.

Recommendation No. 6.6. Develop a system of reporting program activities and progress to the State Board on a monthly basis.

c. Specific recommendations relative to engineering.

Recommendation No. 6.7. Develop guidelines for the conduct of the emission inventory, which describe specific responsibilities of both the State and Roanoke agencies.

d. Specific recommendations relative to enforcement.

Recommendation No. 6.8. Develop a procedure of regular area-wide surveillance of the county.

Recommendation No. 6.9 . Develop a "check in" schedule. In the absence of a formal communications system, a periodic phone call would be sufficient to keep the inspector informed of any development on complaints. Another possibility is the purchase of a "Page Boy" system.

Recommendation No. 6.10 . Work through the governmental structure to provide means of disposal other than open burning. These would include sanitary landfills, recycling and adequately designed operational incinerators.

Recommendation No. 6.11 . Develop enforcement procedures which incorporate source registration and inspection.

4. ALEXANDRIA

a. Specific recommendations relative to legal aspects.

Recommendation No. 7.1 . Work through the city council to actively seek the repeal of Ordinance 1546.

Recommendation No. 7.2 . Amend Ordinance 1545 to give the Director authority to prevent construction or modification of new sources through a permit system of operation.

Recommendation No. 7.3 . Secure authority to make emission information available for public inspection.

Recommendation No. 7.4 . Seek authority to require installation of equipment by owners and operators of stationary sources to monitor emissions and conduct source test.

Recommendation No. 7.5 . Obtain authority (to the extent necessary to achieve and maintain national air quality standards) to adopt land use and transportation control.

Recommendation No. 7.6 . Adopt, by reference, rules and regulations promulgated by the State. Additional or more stringent provisions should first be approved by the State agency.

b. Specific recommendations relative to administration.

Recommendation No. 7.7 . A formalized reporting system should be developed by the Health Department so as to be informed at all times what air pollution control activities the other city departments are engaged in. This is essential to insure uniform enforcement of ordinance 1545.

Recommendation No. 7.8 . Realign the personal utilization to adequately cover the program areas as indicated in Table 7.1.

Recommendation No. 7.9 . Keep the Board notified periodically of developments within the program, particularly enforcement activities.

Recommendation No. 7.10 . Keep the respective attorneys informed of air pollution regulations and contemplated enforcement actions.

Recommendation No. 7.11 . Direct program planning to meet the basic needs of the agency.

Recommendation No. 7.12 . Develop public and technical informational material that is specific for the Alexandria program and take the necessary step to insure widespread distribution of the material.

c. Specific recommendations relative to engineering.

Recommendation No. 7.13 . Assign priority to completing a comprehensive emission inventory and reducing the data to a useful form. In this respect the State should be consulted, to insure the inventory conforms with others being conducted throughout the State.

Recommendation No. 7.14 . Expand the permit operation to include all pollutant sources in the city and consult with the State agency to insure that this system compliments any statewide permit system.

Recommendation No. 7.15 . Develop a procedure to utilize the information from the permit applications to update the emission inventory and keep it current.

Recommendation No. 7.16 . Seek a stronger voice in land use control while continuing to work closely with the Zoning Department.

Recommendation No. 7.17 . Develop stack testing guidelines in conjunction with the State agency and observe all stack tests to insure uniformity.

d. Specific recommendations relative to enforcement.

Recommendation No. 7.18 . Recertify inspectors at the State smoke school at least annually.

Recommendation No. 7.19 . Develop a "call in" schedule for the Sanitarians to receive complaint registered with the agency. The Sanitarians should then check the complaint cards the next time in the office to verify that no complaints have been missed.

Recommendation No. 7.20 . Reexamine the inadequacies of relying on voluntary compliance only and formalize an enforcement procedure utilizing citations by the Police Department on minor, persistent violations and legal action through Municipal Court on more serious violations.

e. Specific recommendations relative to technical services.

Recommendation No. 7.21 . Utilize the NO₂ analyzer to monitor NO₂ on a continuous basis at an early date.

Recommendation No. 7.22 . Acquire the necessary calibration equipment to dynamically calibrate the continuous monitoring equipment. The instruments should be calibrated at least weekly until the reliability of the instruments will allow for less frequent calibration.

Recommendation No. 7.23 . Keep the laboratory operating at its present level and refer any special analysis to the State.

Recommendation No. 7.24 . Utilize the meteorological services and data available from the National Weather Service at Washington National Airport to meet the meteorological needs of the agency.

5. FAIRFAX COUNTY

a. Specific recommendations relative to legal aspects.

Recommendation No. 8.1 . Expand the definition of air pollution to read "The presence of substances...that may cause or tend to cause...interference with human plan or animal life..."

Recommendation No. 8.2 . Establish a maximum penalty of at least \$1000 per day.

Recommendation No. 8.3 . Seek authority to make emission reports available for public inspection.

Recommendation No. 8.4 . Request authority to require the installation of equipment by an owner or operator of stationary sources to monitor emissions and to conduct stack tests.

Recommendation No. 8.5 . Adopt, by reference, those rules and regulations promulgated by the State. Additional or more stringent provisions should first be approved by the State agency.

b. Specific recommendations relative to administration.

Recommendation No. 8.6 . Work with the County Personnel Board to develop job classifications that reflect the professional needs of the agency in the multidisciplinary field of air pollution control.

Recommendation No. 8.7 . Arrange with the County Personnel Board that future air pollution applicants will be interviewed by the air pollution agency.

Recommendation No. 8.8 . Consider the development of one air pollution control program for the Virginia portion of the Washington D. C. National Capital Interstate Air Quality Control Region.

c. Specific recommendations relative to engineering.

Recommendation No. 8.9 . Expand the permit operation to require approval of construction plans for all pollutant sources in the county and take steps to insure that this system compliments any statewide permit system.

Recommendation No. 8.10 . Set up a procedure to utilize the permit information to insure a current emission inventory.

d. Specific recommendations relative to enforcement.

Recommendation No. 8.11 . Make provisions to have every professional staff member certified to read smoke on at least a yearly basis.

Recommendation No. 8.12 . Work through the county governmental structure to provide means of disposal other than open burning. Open burning must be discouraged and at a minimum strongly regulated.

Recommendation No. 8.13 . Authorize the Director of Environmental Health or the Chief of the Air Pollution Section to act as an agent for the Director of Health in swearing out warrants against violators.

Recommendation No. 8.14 . Finalize an emergency episode plan in cooperation with the State agency.

e. Specific recommendations relative to technical operations.

Recommendation No. 8.15 . Increase the number of hi-vol stations to 10 at a minimum.

Recommendation No. 8.16 . Evaluate the usefulness of the dustfall data and take appropriate action.

Recommendation No. 8.17 . Give serious consideration to developing one central lab for the Virginia portion of the D. C. area.

Recommendation No. 8.18 . Encourage the State agency to set up a statewide auto exhaust testing program.

CHAPTER II

INTRODUCTION

On December 18, 1970, Mr. William R. Meyer, in a letter to Mr. Stephen R. Wassersug, Region III Director, Office of Air Programs (formerly APCO), Environmental Protection Agency, requested an objective evaluation of Virginia's air pollution control programs (both State and local). This report has been prepared in response to that request. It is designed to focus on those program areas in need of strengthening and developing in order to qualify for maintenance support as authorized by the Clean Air Act, as amended. It must be understood that the recommendations are presented as a means of reaching that goal. Certainly there are alternate methods that can be used to reach program goals. There is no intent to stifle program initiative and imagination in such decisions. The important objective is the implementation of a comprehensive, effective air pollution control effort designed to protect the health and welfare of the citizens of Virginia.

The material for this report was obtained from information provided to OAP in conjunction with the grants program and information gathered by a team of OAP investigators during a visit to Virginia, January 25-29, 1971, and February 4-5, 1971. OAP is indeed grateful for the cooperation extended by each of the agencies (State and local) and by the OAP regional office during the fact-finding effort.

CHAPTER III

BACKGROUND INFORMATION

3.1. Program Activities

Virginia, along with the rest of the Atlantic coast region, has experienced extensive growth in the past few decades. As the cities have grown, however, and as fuel consumption, industrial production and combustion processes have multiplied even faster, the air in Virginia has become more and more saturated with the wastes of progress.

The first attempt to control the worsening conditions came in 1947 when the City of Richmond passed a smoke abatement ordinance. Subsequently various other local communities adopted modest control ordinances.

Statewide action on air pollution did not come until 1964 when the General Assembly of Virginia directed the Virginia Advisory Legislative Council to make a study of air pollution in the State. As a result of this study the Air Pollution Control Law of Virginia was enacted by the 1966 General Assembly and became effective on June 27, 1966. Amendments to this basic law were adopted in 1968, 1969, 1970 and 1971. The major provisions of the law are as follows:

- 1) The creation of a State Air Pollution Control Board in the Executive Department of the State. The day to day workings of the program are assigned to the Executive Secretary.
- 2) The responsibility to enforce all rules and regulations adopted by the Board.

- 3) The establishment of air pollution control districts to include a city or county or parts of each. These districts can be established by the Board on its own motion or upon the request of the district's governing bodies. Powers of any local committee shall be those determined by the Board.
- 4) The creation of a State Advisory Committee on Air Pollution.

In accordance with the State Statute, four air pollution control districts have been designated thus far. In addition, the Board has approved approximately 36 local ordinances, which are enforced on the local level. Four of the larger local programs are in Richmond, Alexandria, Roanoke County and Fairfax County. As yet, a coordinated State-local approach to air pollution control has not been developed in Virginia.

The discussion and recommendations presented in this report are intended to guide the State in developing and strengthening its program. Of immediate importance will be the adoption of strong rules and regulations. These rules, together with the recommendations of this report, can result in comprehensive program improvements and lead to a program eligible for maintenance level support. The State agency must, however, take these recommendations and develop a program plan which clearly outlines the objectives, and must set firm time schedules for their achievement. In addition, OAP will provide program assistance through financial and technical support. We would encourage the State to liberally avail itself of this assistance.

3.2. Air Quality and Sources of Air Pollution

Air pollution problems in Virginia are complicated by the concentrations of population and industrial activity around the District of Columbia, Richmond and the Hampton Roads - Norfolk area. In addition, there are numerous less dense population centers crisscrossing the State.

Almost all human activities, either directly or indirectly, result in the creation of air pollution. The basic framework for a successful air pollution control program is based on the agency's knowledge of the sources of air pollution, quantities of various pollutants emitted, and ambient air quality. This information is obtained through program activities commonly referred to as emission surveys and air quality monitoring.

There has been little work done in the area of emission estimates in Virginia. A limited emissions inventory questionnaire was circulated in 1968 and recently a fuel usage study was completed. On the basis of this study the pollutants of primary concern were determined to be carbon monoxide, particulates, hydrocarbons, oxides of nitrogen and oxides of sulfur. (Table 3.1). Criteria documents have been prepared and released by OAP on all of these pollutants. These documents relate pollutant concentrations to levels of adverse effects. The State of Virginia must set standards on these pollutants for its Air Quality Control Regions. The State is then responsible for developing a plan of implementation for achieving these standards. This plan must be submitted to OAP for approval.

TABLE 3.1
SUMMARY OF SOURCE EMISSIONS
STATE OF VIRGINIA

| Thousands of Tons/Year | Carbon Monoxide | Sulfur Dioxide | Hydro- Carbons | Nitrogen Oxides | Particu- lates | Other | Total | % |
|---------------------------|--------------------|-------------------|-------------------|--------------------|-------------------|-------|-------|-------|
| Transportation | 2,770 | 18 | 267 | 179 | 39 | 17 | 3290 | 72.91 |
| Industry | 6 | 102 | 32 | 52 | 436 | 57 | 685 | 15.18 |
| Power Plants | 2 | 157 | <1 | 82 | 66 | <1 | 307 | 6.80 |
| Space Heating | 1 | 29 | 1 | 12 | 16 | <1 | 59 | 1.30 |
| Refuse Disposal | 111 | <1 | 7 | 14 | 21 | 20 | 173 | 3.83 |
| TOTAL | 2,890 | 306 | 307 | 339 | 578 | 94 | 4514 | |
| % | 64.05 | 6.78 | 6.80 | 7.51 | 12.81 | 2.08 | | |

Air samples have been collected in Virginia since 1957. State participation was limited until 1964. Presently the network consists of 144 dustfall buckets and 36 intermediate stations. The system is further augmented by data collected at the local level.

3.3. State Growth and Potential for Air Pollution

An air pollution control agency, in order to be completely effective, must be concerned with the potential air pollution problems that would further degrade air quality. This is particularly true in a state which has high potential for further economic growth and development. The growth factors that have the greatest influence on air quality are population centered.

The State of Virginia has projected an annual growth rate of 1.7 percent annually over the next decade. Leading this growth are the ten largest metropolitan areas, whose annual rate of 2.5 will result in a population density of 442 persons per square mile by 1980.

In line with this growth, there will be new industry, greater use of fuels, more motor vehicles, and more waste products generated. Such growth, occurring without the proper framework of control and prevention of air pollution emissions, is accomplished at the sacrifice and deterioration of air quality.

CHAPTER IV

STATE AIR POLLUTION CONTROL BOARD

4.1. Background:

The Clean Air Act of 1970 recognizes that prevention and control of air pollution can be accomplished only through the cooperative effort of State and local agencies. It also recognizes that Federal financial and technical assistance is essential in carrying out this obligation. The firm tenor of the Act places the State agency in the forefront with responsibility for the protection of health and welfare of the public. As part of this commitment the State must therefore assume the guiding role if local agencies are to meet the Implementation Plan Requirements.

As a result of legislation adopted in 1966, the Virginia State Air Pollution Control Board was designated as the agency responsible for carrying out the mandate for air pollution control. Because of the limited scope of this law and the agency's unwillingness to initiate an aggressive control effort, the past has seen the program achieve little more than advisory status.

Now with the acquisition of new leadership, both at the executive and program levels, there exists a fresh sense of urgency and purpose in the Virginia air pollution control effort. Rules are being amended and plans devised to effect a more aggressive statewide control program. This report is

intended to assist the State agency in that effort. The end product must be an effective air pollution control agency qualified for maintenance level program support.

4.2 Legal Aspects

a. Legislation.

The most important of the basic elements in the foundation of an effective air pollution control program is sound legislation and control regulations. The problems of air pollution are varied and complex and therefore too difficult to handle on a voluntary control basis. The legislation must provide the necessary regulatory and enforcement tools to an administrative agency to prevent and control air pollution. Air pollution control in Virginia is based on the "Air Pollution Control Law of Virginia, as amended in 1970 and 1971."

In 1964 the General Assembly of Virginia directed the Virginia Advisory Legislative Council to make a study of air pollution. The Air Pollution Control Law of Virginia was enacted by the 1966 General Assembly and became effective on June 27, 1966. In brief, the Law established a five member State Air Pollution Control Board in the Executive Department of the State directly responsible to the Governor. Amendments to the basic law were adopted in 1968, 1969, 1970 and 1971.

According to the sections of the Law, the Board is granted necessary and adequate powers and duties to prevent and control air pollution, as follows:

1. To protect and enhance air quality
2. To adopt air quality standards
3. To adopt emission and other control regulations
4. To inspect and test air contaminant sources
5. To seek penalties and court injunctions
6. To issue orders and hold hearings.

While the recent amendments have brought improvement, there are still many provisions which tend to weaken the overall effectiveness of the Law:

1. Section 10-17.19 Air Pollution Control Districts

This section authorizes the establishment of air pollution control districts. Once a district has been designated, "the powers and duties of the local committee shall be those delegated to it by the State Board, provided that such committee may initiate studies and make recommendations to the Board." In an opinion dated January 19, 1968, the Attorney General of Virginia ruled that "once control of local air pollution is placed in a control district pursuant to Section 10-17.19, the exercise of

such control rests in the State Board and may not be delegated by the Board to a local air pollution control committee." As a result, due to the lack of manpower in the State agency, the district concept has worked to blunt initiative on the local level.

Recommendation No. 4.1. Reevaluate Section 10-17.19 and the entire control district concept. If the concept is to be pursued, then the powers and duties of a local committee functioning in the air pollution control district should be clarified and include enforcement authority (See Section on Local Ordinances).

2. Section 10-17.21. Owners to furnish plans, specifications and information.

This section grants the Board authority to obtain upon request such plans, specifications and information as may be required by the Board in the discharge of its duties.

Recommendation No. 4.2. Revise this section to authorize specific authority to require periodic reports of emission data and make these reports available for public inspection, as required by section 110 of the Federal Law.

3. Section 10-17.29. Penalties

This section provides for penalties of not less than fifty dollars nor more than five hundred dollars for each violation. This ceiling is not adequate to deter violators.

Recommendation No. 4.3. Establish a maximum penalty of at least \$1000 per day. Several states now have provisions for fines of up to \$10,000 per day. This section should also make it clear that each day of violation is a separate offense regardless of whether a conviction has been obtained or not.

4. Section 10-17.30. Local Ordinances

The area of State-local coordination represents the single most confusing aspect of the Virginia air pollution control effort. According to existing legislation, "Existing local ordinances adopted prior to June twenty-seven nineteen hundred sixty-six, should continue in force." Local bodies proposing to adopt an ordinance subsequent to the above date, shall first obtain the approval of the State Board. In the event of a conflict between rule, regulation, order or requirement of the Board and a provision or provisions of a local ordinance, the rule, regulation, order, or requirement of the Board shall govern. As a result, there are some nineteen (19) different local ordinances,

which were in effect prior to June 27, 1966. Seventeen (17) ordinances have been approved since June 27, 1966.

There are five (5) pending ordinances awaiting Board approval.

This situation causes a number of problems:

- a. A large amount of the Board's time is spent reviewing local ordinances.
- b. By requiring that the State provision shall govern in all conflicts, the Board can be effectively stifling enforcement of stricter local regulations.

As a result of the new Federal Act, the state must have authority to regulate and coordinate local agencies involved in the implementation plan. This cannot be done under existing legislation.

Recommendation No. 4.4. Require that each local jurisdiction with an existing local agency adopt by reference the State legislation. Thus, each local agency becomes in effect an agent of the state with authority to enforce such rules. Should any locale desire stricter regulation, the proposed rules would then have to be cleared by the State Board.

5. Additional Provisions

The Virginia law is lacking a number of provisions which are essential for effective air pollution control. The following recommendations address these specific provisions, and are in line with the requirements of the new Clean Air Act.

Recommendation No. 4.5. Secure authority to implement emergency action, comparable to section 303 of the Clean Air Act, as amended.

Recommendation No. 4.6. Obtain authority to require periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards.

Recommendation No. 4.7. Adopt land use and transportation controls (to the extent necessary to achieve and maintain National air quality standards).

Recommendation No. 4.8. Secure authority to require installation of equipment by the owner or operator of stationary sources to monitor emissions and to conduct source tests.

Recommendation No. 4.9. Obtain specific authority to prevent construction or modification of new sources including prior review of location and compliance with appropriate rules and regulations. (Basically a permit to construct system).

b. Regulations.

The Board is empowered to adopt rules and regulations abating, controlling, and prohibiting air pollution throughout the State. Thus far eight air pollution control regulations have been promulgated and adopted pursuant to the law. The following is an analysis of existing rules and regulations.

1. Rule 2. Procedures.

The Executive Secretary is directed to seek first conference and persuasion to obtain control of air pollution when violations are detected. If voluntary control fails, the Secretary must then notify the members of the Board prior to issuing a written complaint of alleged violation of a rule or rules. This order is not final but will proceed to a Board hearing if corrective action is not taken. This is a very cumbersome enforcement procedure, which is not required by the Virginia law; and it can seriously impede the agency's effectiveness.

Recommendation No. 4.10. Grant the Executive Secretary authority to issue orders directly. This should alleviate the involved procedure which now exists.

2. Rule 3. Smoke or Other Visible Emissions.

In its present form the rule prohibits smoke darker in shade than that designated as No. 2 on the Ringelmann Smoke

Chart or of such an opacity as to cause more than 40% obscuration of vision at the point of discharge. In addition the exemption allowed for equipment breakdown provides for excessive leeway (5 days) and could in effect prolong poor operation and maintenance.

Recommendation No. 4.11. Reduce the visible emission limitation to a No. 1 Ringelmann and the equivalent 20% opacity. Also exemptions should be limited to five minutes in any sixty minute period.

3. Rule 4. Open Burning.

While the present rule allows for numerous exceptions, an amended proposal has been drafted which provides stiffer limitations on open burning.

Recommendation No. 4.12. Seek immediate approval for the proposed amendment to Rule 4.

4. Rule 5. Dust and Fumes.

Rule 5 has been reviewed by the State Agency and amendments proposed. Extensive comments on these proposals have been prepared by Mr. Robert Duprey of the Division of Control Agency Development and forwarded to the State Agency. These comments are provided in Appendix A.

5. Rule 6. Odor

An objectionable odor is allowed as long as unreasonable use of property does not occur. While this regulation provides for general nuisance, specific odor control measures could be written for specific source problems in the State such as rendering plants.

6. Rule 7. Dust Emissions from Indirect Heating Furnaces.

This emission standard for particulate matter from fuel burning equipment is based on the most lenient provision of the American Society of Mechanical Engineers Standard APS-1 and is generally applicable only for new equipment. The standard increases the allowable emission rate for corresponding increases in stack height. It gives no consideration to inversion conditions or more important to available control techniques.

Recommendation No. 4.13. Base the standard on a "sliding scale" whereby the requirements increase with increasing plant size and are independent of stack height. The standard should be consistent with modern control practices. Stack height should only be dependent upon local meteorological and aesthetic considerations so that maximum dispersion of residual particulate matter will be accomplished.

7. Rule 8. Motor Vehicle Emissions.

The regulation prohibits removal of any emission control system or any modification which would hamper or render the system inoperable. In line with the provisions of the new clean air act, the State will be required to set up a system for inspection of such control devices.

Recommendation No. 4.14. Develop procedures for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards.

8. Rule 9. Incinerators.

The tenor of the regulation is such that compliance can be determined only after the installation of the apparatus. Such an approach can only hamper control efforts. Rather the rule should require incinerator design standards to insure compliance before installation.

Recommendation No. 4.15. Expand Rule 9 to include incinerator design standards and prior review of plans and specifications.

9. Rule 10. Gaseous Pollutants.

The Virginia standards for gaseous pollutants will have to be adjusted in light of proposed national standards. A listing of these standards is provided in Table 4.1.

PROPOSED NATIONAL AIR QUALITY STANDARDS

PRIMARY

SECONDARY

Sulfur Oxides

80 $\mu\text{gm}/\text{m}^3$ (a)
 365 $\mu\text{gm}/\text{m}^3$ - 24 hr. max. (b)

60 $\mu\text{gm}/\text{m}^3$ (a)
 260 $\mu\text{gm}/\text{m}^3$ - 24 hr. max. (b)
 1300 $\mu\text{gm}/\text{m}^3$ - 3 hr. max. (b)

Particulate

75 $\mu\text{gm}/\text{m}^3$ (c)
 260 $\mu\text{gm}/\text{m}^3$ - 24 hr. max. (b)

60 $\mu\text{gm}/\text{m}^3$ (c)
 150 $\mu\text{gm}/\text{m}^3$ - 24 hr. max. (b)

Carbon Monoxide

10 mgm/m^3 - 8 hr. max. (b)
 40 mgm/m^3 - 1 hr. max. (b)

10 mgm/m^3 - 8 hr. max. (b)
 40 mgm/m^3 - 1 hr. max. (b)

Photochemical Oxidants

160 $\mu\text{gm}/\text{m}^3$ - 1 hr. max. (b)

160 $\mu\text{gm}/\text{m}^3$ - 1 hr. max. (b)

Nitrogen Oxides

100 $\mu\text{gm}/\text{m}^3$ (a)

100 $\mu\text{gm}/\text{m}^3$ (a)

Hydrocarbons

160 $\mu\text{gm}/\text{m}^3$ - 3 hr. max. (b)

160 $\mu\text{gm}/\text{m}^3$ - 5 hr. max. (b)

- (a) Annual arithmetic mean
 (b) Not exceeded more than once/year
 (c) Annual geometric mean

4.3 Administration

a. Organization and Staffing

1. Management: The management of an air pollution control program must consider the collective needs and desires of their State and communities and make every effort to translate these needs into an effective plan of action. An effective air pollution control program must develop and contain such elements as:

1. A firm policy on the preservation and conservation of air quality.
2. Authority to organize and employ an adequate and capable staff to carve out the functional activities of administration and management, enforcement and field services, engineering, and technical services.
3. Effective program planning commensurate with air quality needs with realistic and meaningful objectives to meet these needs.
4. Program activities in accordance with the authority granted and in a manner that effectively responds to air quality needs and objectives.

In the past, the direct regulatory responsibility for air pollution control in the United States was delegated to local governmental agencies with the State having concurrent authority. The new Federal

Clean Air Act places State agencies in the forefront in this area of responsibility. The State agency must, therefore, in the interest of effective government and the economy of operation, rely on the local control agency where and when effective control operations are carried out. The State must, however, be the instrument of leadership, coordination, special services, and consultations. The State must also be geared to provide a comprehensive control operation when and where adequate coverage and protection is not provided.

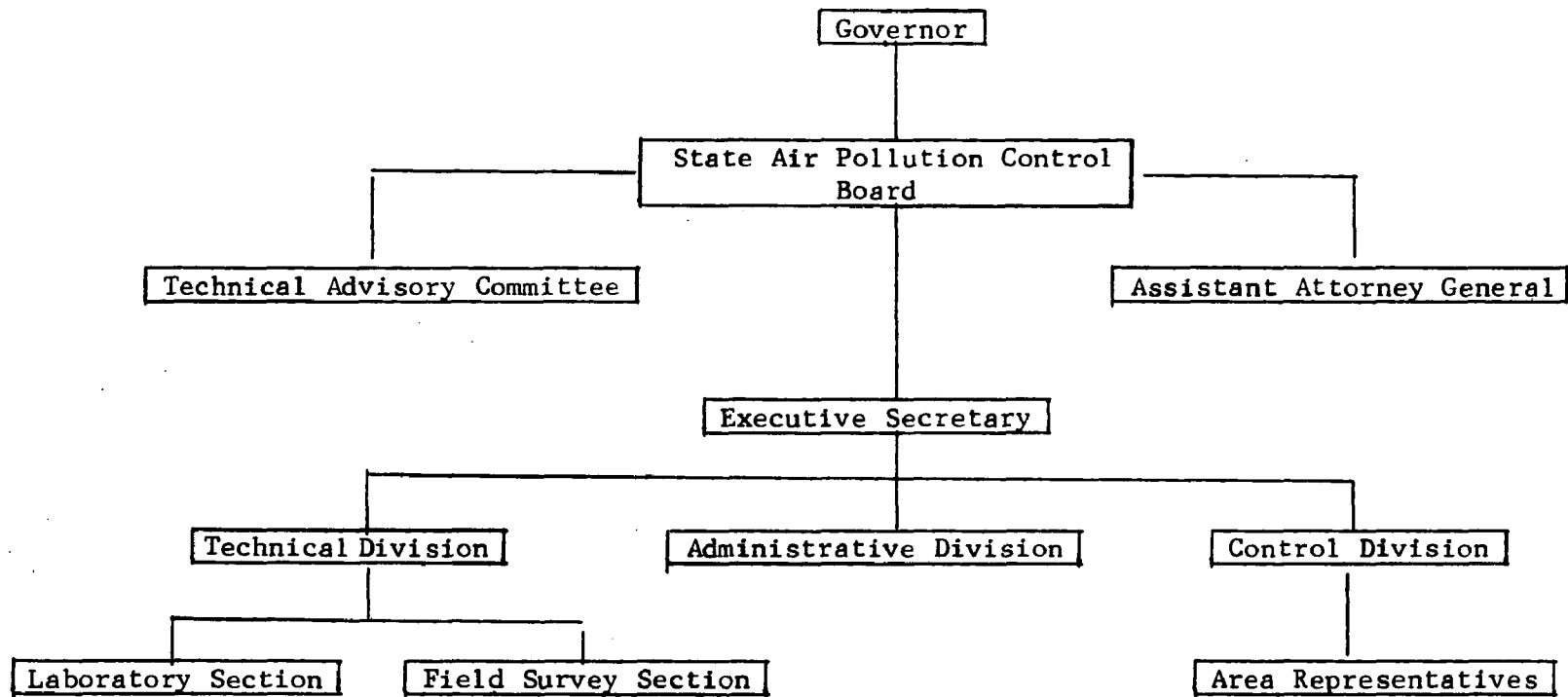
The Air Pollution Control Law of Virginia provides for a five member State Air Pollution Control Board to be established in the Executive Department of the State, directly responsible to the Governor. This Board is charged with the responsibility of developing and maintaining a comprehensive air pollution control and abatement program for the entire State.

As shown in Figure 4.1, the Board has assigned direct responsibility for operation of the program to the Executive Secretary. Support roles have been delegated to the Assistant Attorney General and the Technical Advisory Committee.

This arrangement appears to work well. The Board is a qualified body and has exhibited a true interest in statewide air pollution control. The Technical Advisory Committee is composed of thirty-two technically qualified citizens, named by the Board, whose duties include making suggestions and advising the Board concerning policies, regulations, plans, and goals. As it is now constituted the Committee is largely industry oriented and as such provides a sounding board for industrial concerns. While there does not appear to be any immediate problem with

FIGURE 4.1.

ORGANIZATIONAL CHART
VIRGINIA STATE AIR POLLUTION CONTROL PROGRAM



this arrangement, the Board should develop qualifications and guidelines for the Committee which would reflect a balanced representation of the public at large.

Recommendation No. 4.16 . Set guidelines for both the membership and responsibilities of the Technical Advisory Committee.

As mentioned above the responsibility for the day to day operation of the program falls to the Executive Secretary. This title can be misleading. Rather the director of the program should be referred to as just that: "Director, State Air Pollution Control Program." While this may seem a small point it would have the effect of clarifying the position.

Recommendation No. 4.17 . Drop the title "Executive Secretary" in favor of "Director, State Air Pollution Control Program."

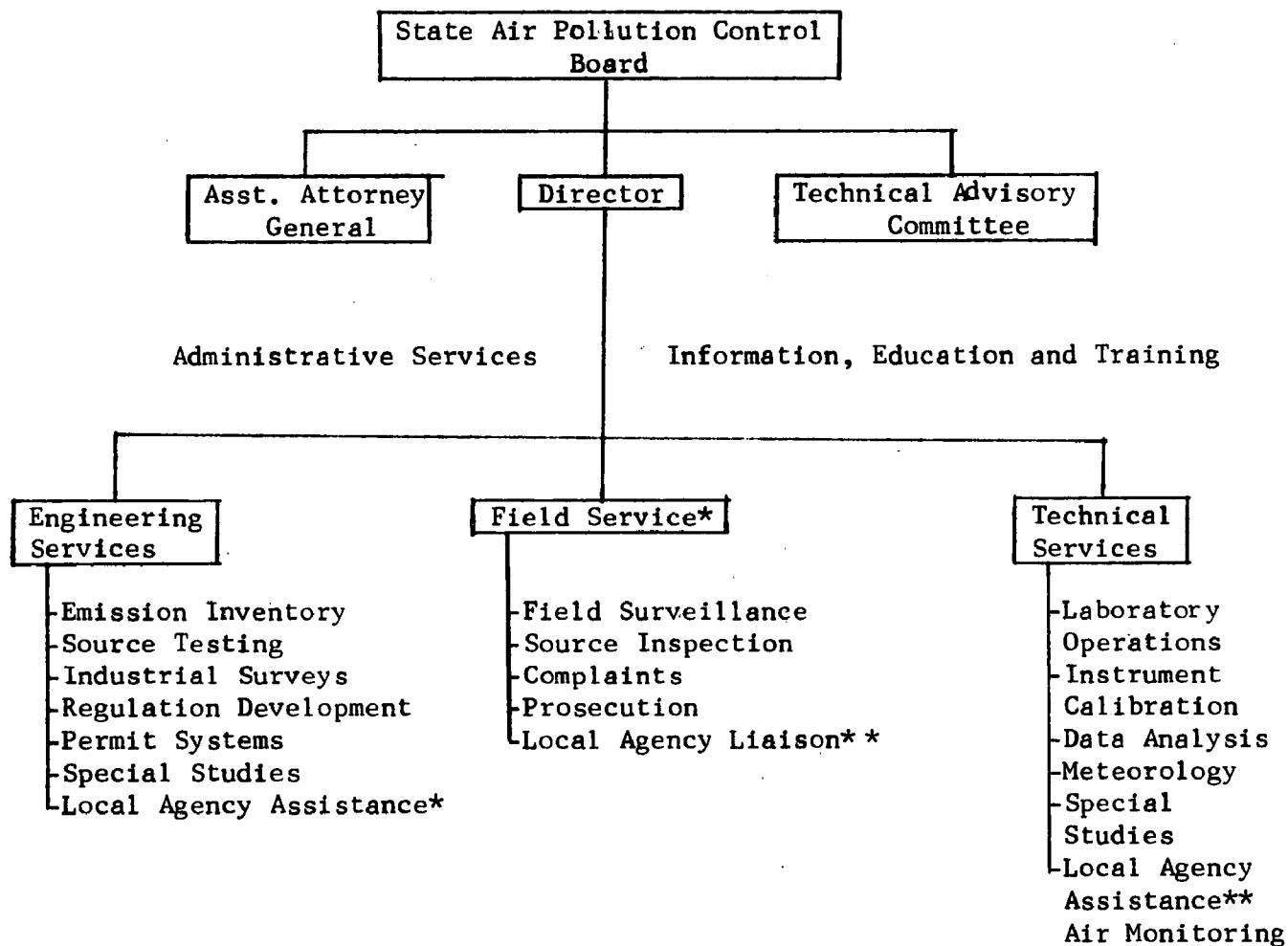
The Executive Secretary is granted extensive authority to control and prevent air pollution throughout the State. A notable exception is in the area of issuing orders. Orders can be issued only by the Board and only after a hearing. This procedure is unduly cumbersome and can handicap the enforcement effort. See Recommendation 4.10 , Legal Section.

2. Operation: The program is broken into three operating divisions: The Technical Division, Administrative Division and the Control Division. As it is presently structured the Control Division assumes responsibility for both the engineering and enforcement operations. While such organization would lend itself to a small operation it is not felt that such a set-up would adequately serve the expanded role of the state program. In this role it will be the state's responsibility to provide extensive engineering expertise, while also furnishing the enforcement personnel in those areas not handled by local agencies. These functions are sufficiently autonomous to warrant separate operating divisions. Figure 4.2 represents an organizational alignment which would avoid confusion, and duplications, and assign definite responsibility. It was also apparent that staff members were confused as to their specific job responsibility and purpose. In order to develop a capable staff, it will be necessary to assign specific job functions. This would include developing standard operating procedures within each division.

Recommendation No. 4.18. Take immediate steps to organize and structure the air pollution control activity so lines of responsibility and authority are clearly delegated. It is suggested that the format of organization Figure 4.2 be considered.

Figure 4.2.

PROPOSED ORGANIZATION



* Including regional or district office staff

**Local agency liaison and coordination is sufficiently significant to be considered a fourth program unit or substructure

3. Staffing: Presently, the State program employs a staff of 19.5 people. Approximately 8 of these positions have been filled in the last two years, and while this increase does represent progress over previous years, the agency is still far short of the projected need of 190.1 man years listed in Table 4.2. While staff must be increased in all areas, the acquisition of qualified engineering support should take priority.

b. Program Planning:

A most important and fundamental role of management involves program planning. It is an integral part of any activity and a "key" to the success of an operation. It is, however, poorly understood and often poorly executed.

There is little planning evident in the Virginia program at present. Objectives listed in the grant application were general and no date was given for their completion.

Effective planning must include definitive long-range objectives (5 or more years) supported or achieved by intermediate objectives with specific dates for accomplishment. This provides a foundation for effective and timely development of program activities in accordance with the problems and responsibilities of the agency. An evaluation procedure can be employed to better consider the alternative courses of action that maximize utilization of limited resources.

In this regard, the agency should consider a formalized

TABLE 4.2.
PROJECTED MANPOWER NEEDS
STATE OF VIRGINIA

| | Man Years |
|---|-----------|
| <u>Management Operations</u> | |
| Policy, public relations, strategy recruitment, etc. | 17.5 |
| Staff training | 9.5 |
| Administrative and clerical | 46.9 |
| Sub-total (Management) | 73.9 |
| <u>Enforcement Operations</u> | |
| Scheduled Inspections - fuel and refuse | 3.9 |
| Scheduled Inspections - industry | 3.9 |
| Complaints and field patrol | 24.0 |
| Source identification and registration | 3.9 |
| Sub-total (Enforcement) | 35.7 |
| <u>Engineering Operations</u> | |
| Permit System | 30.4 |
| Source Testing | 4.3 |
| Emission Estimates | 3.9 |
| Engineering reports, new regulations | 4.7 |
| Sub-total (Engineering) | 43.3 |
| <u>Technical Operations</u> | |
| Air Quality Monitoring | 13.2 |
| Special Studies | 4.8 |
| Data Processing | 7.2 |
| Instrument Calibration | 4.5 |
| Laboratory Operations | 7.5 |
| Sub-total (Technical) | 37.2 |
| Total Manpower | 190.1 |

evaluation procedure, sometimes referred to as Program Planning Budgeting System (PPBS). In this context, Planning is the process whereby alternatives are considered and a scheme is prepared for action directed at achieving goals by optimal means. Programming is the determination and ultimately the allocation of resources (personnel, materials, and facilities) to the accepted plans. Budgeting is the process whereby funding needs and intended uses are developed, executed, and recorded.

Recommendation No. 4.19. Proceed immediately to formulate program plans that delineate organizational responsibilities, outline specific meaningful program objectives and set forth procedures for monitoring effectiveness. Such program plans should include activities to meet the requirements of the Federal Clean Air Act in grant support and implementation plans for the Air Quality Control Regions.

Recommendation No. 4.20. Investigate the potential and feasibility of formalizing the Program Planning and Budgeting system (PPBS) as an operating program procedure. The PPBS concept of operation has continuing program evaluation as an integral part of the procedure. This readily facilitates program adaptations and

modifications in accordance with the dynamic nature of an environmental program.

c. Intergovernmental and Interagency Relations

Local air pollution control agencies have in the past and will continue to have a direct responsibility in air pollution control. It is important that the local agencies develop and refine their capabilities as agents in this important area. This requires the State agency to accelerate and expand its leadership, coordination and support efforts accordingly. Up until now, the State has exerted little influence over local programs. Although the State has been subdivided into four areas, and representatives assigned to each, due to the size of the area and lack of manpower, the Area Representatives have been able to accomplish little more than public relations.

The State must reevaluate its program of assistance to local agencies. In areas where there are existing local agencies, direct state assignment of personnel may not be necessary. Rather the state should monitor local effectiveness through periodic progress reports, standardization of enforcement procedures, etc. In those regions where no local program exists, rather than giving token coverage to all areas of the state, the agency should first concentrate on those areas presenting the greatest problem, (i.e. Hampton Roads, Norfolk). In such industrial areas, with no operating local agency,

a district office would be reasonable. In this context the district agency, while being staffed by the State, would operate under the same constraints as a local program, performing only those functions specified by the State, and receiving support and technical help from the Richmond headquarters.

The area of local agency support and assistance must be a major activity of the State program. It is of sufficient importance to consider a separate section level activity directed to State assistance to local agencies.

Recommendation No. 4.21. Accelerate the development of a comprehensive program of coordination and technical support to local areas. This is sufficiently important to consider the development of a fourth program subunit concerned with local agency affairs.

Recommendation No. 4.22. Conduct periodic meeting with local control officials to discuss problems and develop solutions.

There are many intergovernmental agencies engaged in activities peripheral to air pollution control operations. Areas of this nature include planning and zoning agencies, building and housing departments, safety and boiler inspection programs, fire marshals, refuse disposal, etc. It is important that these interrelated programs have sufficient interface to assure commonality to objectives. Decisions must not be made that do not at least consider the interests of other programs. Coordination of activities that may be of significant assistance

include: Chamber of Commerce (industrial development), planning and zoning (land-use planning), Department of Agriculture, urban renewal, educational systems (universities, etc.), Department of Public Works, Building Departments, etc.

Recommendation No. 4.23. Devote a concerted effort in a program to coordinate and interface air pollution activities with other governmental agencies and programs having peripheral responsibilities, (i.e. Health Department, Governor's Environmental Council).

d. Public Information and Education

Any program that affects large numbers of people must have the support of an informed public if it is to be successful. This is especially true if matters of health and welfare are involved and the program regulates activities and requires legislation. An informed public is also of particular importance because of the controversial nature of the subject and the differences of opinion that often exists as to causes, effects, and solutions to air pollution problems.

It is the responsibility of the control agency to keep the public informed as to (1) the nature of the air pollution problem, (2) program objectives, and (3) progress toward achieving these objectives. A public information program should include as a

minimum:

1. periodic newsletter or progress report
2. yearly status report
3. resource library (air pollution books, journals, reports, visual displays and visual aids)
4. air pollution publications for distribution to the public
5. meetings with local groups.

Air pollution has become a topic of such intense public interest that demands for information about it continue to come to the agency in a volume out of all proportion to the size of the organization.

Until recently the majority of the public relations was handled by the Executive Secretary. A public information officer was employed in mid-March. To date the need to respond to requests requiring immediate attention has taken more than his full time, so that development of a firm long-range information and education program remains to be done.

The effort so far has been limited to preparation of essential news releases, preparation of talks for other staff members, and supplying of information in reply to a steady flow of requests, most made by letter but quite a few in person. They come from students ranging from early elementary to postgraduate level, school teachers and libraries, adult individuals and environmental groups, industries

and industry groups, legislators and others--in addition to newspaper, radio and television people.

Preparation of the board's quarterly publication, of visual aids and a mailing list is still handled by another staff member who also has some technical duties.

Recommendation No. 4.24. Develop a program of information and education that effectively serves the interests and objectives of the air pollution control program. This program should be a budgeted activity to include such aspects as the planning and development of news copy, publication of information material, periodic publication of a news letter, development of visual aids and display material, liaison with citizen groups, speeches, lectures, etc.

e. Training and Indoctrination:

An effective control program requires the effort of a capable and conscientious staff. It is important that this staff be provided the opportunity to attend periodic training and educational programs to refresh and refine operational skills. Present training exposures in the Virginia program are limited to in-house training, periodic OAP training courses and occasional courses at local universities.

In recognition of the need for additional training, general guidelines have been developed on the amount and type of training desirable. These guidelines are as follows:

Training requirements for middle-level technical personnel (2 to 5 years in air pollution control) should range from 3 to 10 man days per year of employment. Smoke readers especially should receive scheduled refresher courses in plume evaluation on at least an annual basis.

Upper-level technical personnel working in the field over 6 years should receive at least one week per year of formal training to maintain competence.

Management, administrative, and supervisory personnel should receive from 3 to 10 man days per year in areas of management, supervision, program planning, and specialized technical areas.

In addition, the State must be in a position to encourage and provide beneficial training activities to personnel in the local control agencies.

Recommendation No. 4.25. Develop a training program for orientation of new employees and training of professional and non-professional employees. This program should be delegated as a responsibility of a specific individual.

Recommendation No. 4.26. Initiate a training program that encourages local agency personnel participation. The State should review local agency competency and skills in the design of such a program. In providing observer training, the State should record and retain individual proficiency records.

f. Personnel and Recruitment

The expanding role of the State air pollution control effort will necessitate an active recruitment effort to obtain qualified staff. The rigidity and limitations of government salary schedules frequently present difficulties in the recruitment and retention of qualified air pollution control staff. A comparison between existing salary levels in the State of Virginia and comparable levels within the Federal government and private industry indicate that Virginia is generally 10-15% lower. Also the present limited pay step increases can work to frustrate initiative.

Recommendation No. 4.27 . Increase salaries for professional personnel and have studies made to eliminate problems of limited pay step increase.

g. Reporting

Presently, there is no formal reporting procedure within the

program. Reports from both the headquarters operations (technical and control) and the area representatives are received on a random basis.

Recommendation No. 4.28. Require monthly reports from each program element (technical, control, local assistance) and make these reports available for the Board's review.

4.4 Engineering

The engineering aspects of the program are listed as part of the Control Division description. This arrangement results in fragmentary effort and confused program delineation. As mentioned in the organization section of this report, the engineering function is sufficiently autonomous to warrant a separate working division (see Figure 4.2). This division would then include such basic elements as:

1. Development and maintenance of emission and source inventories.
2. Development and implementation of permit systems and associated plan reviews.
3. Conduct source testing.
4. Technical development of emission regulations.
5. Preparation of technical reports, guides, and criteria on technical procedures and control technology.
6. Design and review of emergency episode procedures.
7. Conduct special engineering studies.

It will be the State's responsibility to provide much of the engineering expertise to local programs. Therefore staffing and increased activity in this area must be considered a priority.

a. Emission Inventory

The emission inventory is a basic air pollution control activity. In conjunction with air quality data, it indicates the degree of emission

control needed to achieve air quality goals and helps to establish the priority schedule for abatement action. It should, therefore, be a thoroughly planned, routine, systematic activity.

The only attempt at an estimate of pollutant emissions in the State of Virginia was made in 1968. A questionnaire was prepared and sent to 300 of the major industries in the State. Although the response was fairly good, the limited scope of the project did little more than provide a registry of those industries contacted.

Inasmuch as a good emission inventory is basic to so many aspects of the program, the State agency must develop an up-to-date statewide inventory as soon as possible. To insure that the operation be as informative and credible as possible, the State in conjunction with the local agencies should develop and formalize procedures for follow-up, including plant surveys and stack tests, while also creating a system to constantly update emission estimates. It will be important to involve local agencies in this activity, but guidelines must be set to insure statewide uniformity of operation.

Recommendation No. 4.29. Initiate a comprehensive statewide emission inventory. Accordingly, the agency must develop procedures to follow up questionnaires and set up a mechanism to keep estimates up to date. The procedure used in the State of Maryland could serve as a guide.

Data from the emission inventory will be cumbersome. It is important that this information be available for use on a convenient basis.

Recommendation No. 4.30. Develop a data storage and retrieval system that will properly assist the staff in emission inventory analysis and reporting.

b. Permit Operation

A permit system provides a key mechanism for managing the control operation because the agency must approve construction and operation of new or modified sources of pollution. In this manner, the agency may prevent potential sources or require more stringent controls before a plant is built rather than the more difficult and expensive task of trying to control a source after it is operating. In addition, such a system provides a convenient tool for updating emission estimates.

While the State Board has made a start in this direction with the proposed changes to rules, as yet nothing has been formalized. It is important, especially in urban areas and for major source installations, to require a review of plans and specifications involving emission control or reduction procedures prior to the construction or installation. Such a permit system must then be complimented by a permit to operate which would be issued after a source has demonstrated the ability to operate in conformance with emission regulations. Such a permit should then be renewed on a periodic basis, preferably annually.

The State agency is again expected to carry the major responsibility as this specialized talent is not expected to be available in the small local agencies. Therefore the responsibilities of the local agencies, in terms of engineering control operations, need to be outlined for mutual understanding. Such delegation would be based on the level of existing local agency capability.

Recommendation No. 4.31. Develop and implement a permit system that provides adequate prevention capability. Such a system must be complimented by a permit to operate renewable on a periodic basis and would involve local agencies to a degree determined by the State.

c. Industrial Improvement

While emission estimates and the operation of the permit system will form the major engineering workload, a third area of involvement will be support to the Control Division. This assistance will take several forms including development of emission regulations and compliance procedures, source testing, special studies, and case preparation.

1. Development of Plans and Regulations - It is a function of the engineering section to assess engineering feasibility and guide the control agency in the development of compliance plans and emission regulations. It is important that such activities be current and consistent with control technology and in accordance with air quality needs.
2. Source Testing - Source testing and industrial inspections will be necessary not only to reinforce enforcement activities but also to compliment the emission inventory and permit operations. One stack testing team should be sufficient to service the needs of the entire State.
3. Special Studies - The State agency has the prime responsibility for generating information, education, instruction, criteria and standard type publications. Such publications can range from those for the benefit of

the general public to procedures documents to be used by local agencies. In the present stage of program development, this function is particularly important in assuming the leadership, assistance and guidance role. Such publications could include emission inventory summaries, standard procedures for conducting site inspections, episode reduction procedure, etc.

Recommendation No. 4.32. Develop a program that is enforcement oriented and provides adequate assistance to the Control Division in engineering matters. This would include the development of control programs and source testing capability.

4.5 Enforcement:

The fundamental goal of any air pollution control agency is the abatement of air pollution. Although the entire agency is involved in this activity, the Virginia State Air Pollution Control Board has given the prime responsibility to the Control Division. The enforcement program has not been aggressively pursued by the agency for a number of reasons.

1. Insufficient personnel (presently limited to 8 man-years of effort).
2. Lack of adequate regulations and involved enforcement procedures.
(See Section on State Regulations). Page 30
3. Lack of coordination between the State and local enforcement efforts and the State headquarters and area representatives.
4. Confused delegation of responsibility within the Control Division.

Ideally the Control Division should deal exclusively with the enforcement aspects and include such activities as:

1. Area surveillance and field patrol.
2. Negotiating and securing abatement of source violations.
3. Source inspections and compliance investigations.
4. Source identification and registration.
5. Complaint handling.
6. Preparation of legal actions and prosecutions.

7. Enforcement of emergency episode procedures.
8. Reports and records.

The Statewide enforcement effort will involve local agencies to a degree greater than any other program activity. It is, therefore, most important that the State strive for uniformity, consistency, and aggressive action on the part of all involved.

a. Compliance Procedures:

Since its inception, the enforcement effort in Virginia has labored under inadequate regulations and confusing legal mechanisms such as the district concept. The first step toward a viable, aggressive enforcement program must then be to reevaluate the effectiveness of existing, rules, regulations and procedures. Recommendations addressing this particular area have been made in the legal section of this report.

The most effective compliance mechanism used by the State has been to require submittal and review of all control programs. As violations are noted the source is notified of his responsibility "to appear at a hearing before the Board unless, within a reasonable time, necessary corrective action is taken or a control program is submitted." Thus far approximately 100 polluters have submitted control programs. Beyond this the agency's legal position is quite weak. Only the Board can issue a cease and desist order, but it is questionable whether such an order would be legally binding. No case has ever been taken to court.

Recommendation No. 4.33. Develop specific enforcement alternatives to the present control program review. This would include strengthening the Board's authority to issue a cease and desist order and also to bring injunctive action.

Recommendation No. 4.34. Establish reporting procedures for local agencies to monitor compliance programs within their respective jurisdictions.

As mentioned in the Organization Section the agency has been assigned the services of an Assistant Attorney General. Legal support in this area has therefore been quite good. The agency should continue to call upon his services regarding any legal matter.

b. Field Surveillance:

The responsibility for Statewide enforcement, necessitates the deployment of people and services to regional or district offices. The Virginia Board has recognized this and divided the State into four administrative areas. Due to the lack of staff in these areas and the large distances to be covered, the concept has met with little success.

The State has proposed a system of seven air quality control regions, which would cover the entire state (Refer Fig. 4.3). The areas encompassed by these seven regions would serve the district concept much better than the existing four areas. Staffing levels in these regions would then reflect the degree of existing local involvement and the amount of pollution generated. In order to best utilize these staff members in the regions, specific procedures, regarding responsibility, reporting, and compliance mechanisms must be developed and implemented.

Figure 4.3
Virginia's Air Quality Control
Regions

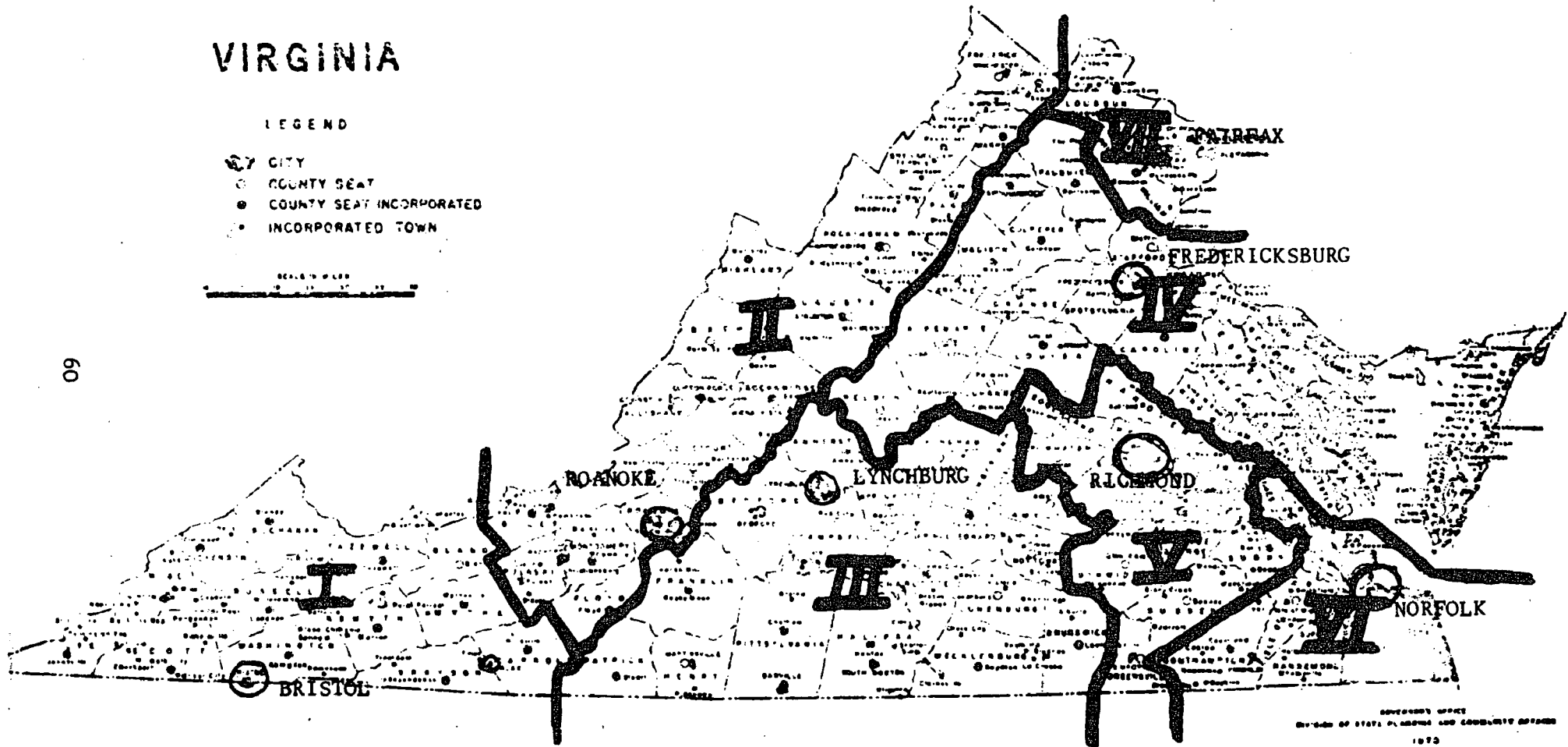
VIRGINIA

LEGEND

- CITY
- COUNTY SEAT
- COUNTY SEAT INCORPORATED
- INCORPORATED TOWN

SCALE IN MILES
0 10 20 30

09



GOVERNMENT OFFICE
DIVISION OF STATE PLANNING AND COMPREHENSIVE OFFICES
1973

AIR QUALITY CONTROL REGIONS

STATE AIR POLLUTION CONTROL BOARD
ROOM 1105, NORTH STREET OFFICE BUILDING
RICHMOND, VIRGINIA 23219

4/17/79

Recommendation No. 4.35. Increase the number of administrative areas to correspond to the proposed seven air quality control regions. Headquarters within each region are designated in Figure 4.3.

Recommendation No. 4.36. Develop specific guidelines for enforcement responsibility with regards to headquarter, district offices, and local programs. This would include the stipulation of criteria for priorities, respective role of the State and local agencies, enforcement procedures, forms, reporting procedures, etc.

In order that the enforcement program be as effective as possible, field inspectors should follow a prescribed routine. This schedule would include checking complaints, monitoring any control programs in the area, source inspections and area surveillance. In this regard it would be most beneficial to subdivide each area into air pollution sectors, based on either natural or arbitrary boundaries. A routine could then be developed to systematically check each section either by assigning one field man to each sector, or in the absence of adequate staff, to have one man check all the sectors on a periodic basis (i.e. one day in each). This method would insure total areawide coverage on a scheduled rather than random basis.

Recommendation No. 4.37. Break each region into sectors and assign specific responsibilities within each sector.

Complaints are now received both by the area representatives and the headquarters staff. There is no procedure for reporting complaints and violation notices by either the area representatives or the local agencies.

Recommendation No. 4.38. Develop statewide standard enforcement procedures including a standard complaint form, violation notice, time span for compliance, follow-up, reporting, etc. In this regard the State should assemble a manual covering these areas.

Presently only two of the Area Representatives have been certified to read smoke and there is no provision for periodic training or recertification of these inspectors. Such a recertification is essential not only to keep the observer "calibrated" so to speak, but also is necessary to maintain expert qualifications in instances of legal action.

Recommendation No. 4.39. Require that inspectors receive periodic training in reading visible emissions on at least an annual basis. In this regard the State should operate a smoke school, maintain records, and provide the service to local agencies and regional staff.

c. Emergency Action:

The agency has the responsibility to develop an emergency plan of action in accordance with the Emergency Episode Plan requirements that carry out the necessary reduction of emission schedules during periods of atmospheric stress.

Recommendation No. 4.40. Develop as soon as possible an emergency plan of action in accordance with the Emergency Episode Plan requirements.

4.6. Technical Operations:

The Technical Division presently lists two operating sections: the Laboratory Section and Field Survey Section. Although the functions of both of these sections have been described on paper, in actuality there appeared to be little coordination or supervision. Staff within the division were confused as to their specific job functions and responsibilities.

Recommendation No. 4.41. Clarify job responsibilities within the Technical Division to eliminate duplication and wasted effort.

In order that the division be most effective, specific staff responsibilities and job functions must be delineated. Basic functions of an effective technical service operation would include:

1. Laboratory operations.
2. Air monitoring network development and operations.
3. Instrument maintenance and calibration.
4. Data reduction, processing and reporting.
5. Meteorological operations.
6. Special field studies such as atmospheric interactions, source identification, odor evaluation, method development, etc.
7. Preparation of technical reports, guides, and standard documents.

a. Air Monitoring:

The existing air monitoring network in Virginia is primarily of a static nature, i.e., samples yield long-term integrated averages giving primarily annual information. This static network is comprised of 144 stations with dustfall buckets and 50 with sulfation discs. These stations are located throughout the entire state.

This system is then supplemented by an intermediate station network consisting of 36 high-volume samplers, and 6 gaseous bubblers sampling for SO₂, O_x, and NO_x. This network cannot provide information commensurate with the amount of time and effort required to get it. The agency should therefore reduce or eliminate the number of dustfall sampling locations. In its place, a network should be established which provides adequate statewide coverage, but concentrates on those areas of high pollutant and population concentrations. Such a network is presented in Table 4.3.

Recommendation No. 4.42. Establish a network which recognizes the statewide air quality monitoring needs.

(See proposed network in Table 4.3.)

Hi-vol samples are presently being collected by volunteers on a "random day" basis and there is no set schedule for recalibration of the samplers.

Recommendation No. 4.43. Make sample collection the specific responsibility of the area representatives and their sub-

TABLE 4.3

PROPOSED AIR SAMPLING NETWORK

| SMSA's | Population In 1,000 | Category | Hi- Vol | Bubblers | | Paper Tape | Continuous | | | | |
|-----------------|------------------------|----------|------------|-----------------|-----------------|---------------|-----------------|-----------------|----|----|----|
| | | | | SO ₂ | NO _x | | SO ₂ | NO _x | CO | HC | OX |
| Washington | 900 | A | 10 | 9 | 9 | 3 | 3 | 3 | 3 | 3 | 3 |
| Richmond | 515 | A | 10 | 5 | 5 | 2 | 2 | 2 | 2 | 2 | 2 |
| Norfolk | 633 | A | 10 | 6 | 6 | 2 | 2 | 2 | 2 | 2 | 2 |
| Newport News | 350 | A | 7 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 |
| Lynchburg | 120 | B | 3 | 3 | 1 | | | | | | |
| Roanoke | 180 | B | 3 | 3 | 1 | | | | | | |
| Petersburg | 120 | B | 3 | 3 | 1 | | | | | | |
| Charlottesville | 80 | C | 1 | 1 | | | | | | | |
| Danville | 100 | B | 1 | 1 | | | | | | | |
| Bristol | 50 | C | 1 | 1 | | | | | | | |
| TOTAL STATE | | | 49 | 35 | 25 | 8 | 8 | 8 | 8 | 8 | 8 |

ordinates. A program could be developed where local program assists in the collection, but not volunteers. Also high volume samples should be collected every third day, with no deviations due to weekends.

In line with the proposed changes in the air sampling network, staff members should increase their knowledge of continuous air monitoring systems and upkeep. OAF^{CO} provides such an instructional service in Durham, North Carolina.

Recommendation No. 4.44. Provide special training for individuals who will be responsible for any State CAMP Stations.

Data from the existing network is presently being published on a quarterly basis. Air data from all of the local programs is also listed. While this is a good practice there has been little, if any, reduction of the raw data. The State agency must take the leading role by assimilating and reducing the data that is submitted. This function will become more essential as the network becomes more sophisticated. Therefore, the State must assemble the mechanisms now to deal with this growing area of responsibility. The State of Virginia has an RCA Spectra 45 Computer for the use of the various State agencies. This area should be explored to see if it would suit the data needs of the program.

Recommendation No. 4.45. Develop a total program of data reduction which would include air quality data (both State and local), permits and emission inventory information. The State's computer could be utilized in this regard.

b. Laboratory:

The laboratory is located in the same building which houses the other program elements. It consists of two rooms with adequate space, and essential equipment and utilities. The laboratory staff consists of one chemist and a laboratory technician. The analysis required for the present sampling network does not completely occupy the time of the staff members. Much of the time is spent boiling dustfall buckets.

Recommendation No. 4.46. Reevaluate the need for 3 full-time personnel in the laboratory operation. Some of this effort could be channeled into data reduction or technical assistance to local agencies.

Meteorology:

At the present time, the State of Virginia does not have meteorological capability in the program. This area is of sufficient importance, especially in light of the State's responsibility to local programs, to warrant at least the part-time services of a meteorologist. This area becomes especially critical in predicting periods of stagnation or high pollutant potential.

Recommendation No. 4.47 . Develop a statewide service program in meteorology. The State agency is in a position to satisfy all meteorological and pollutant transport functions for the State.

CHAPTER V

CITY OF RICHMOND DIVISION OF AIR POLLUTION CONTROL

5.1. Background:

The City of Richmond, including the newly annexed area, encompasses a total land area of 64 square miles. The present population stands at 278,602.

Air pollution problems in Richmond include above average levels of suspended particulates and carbon monoxide associated with the large volume of automobile traffic. Point sources include such diverse operations as: lead smelting, brass and iron foundries, paint and varnish, coffee roasting, meat processing, offal rendering, sulfuric acid and fertilizer production, metals salvage, tobacco, wood milling, printing and publishing, asphalt batching, paint spray, industrial power plants, residential heating and incineration.

The problem in the city is complicated by the topography of the area. The greater part of the industry is located along the valleys formed by the James River and its tributaries, and therefore, is locked in by the surrounding hills. As a result, heavy pollutant concentrations build up in these areas.

As mentioned above, the city of Richmond annexed 24 square miles of neighboring Chesterfield County in 1970. This area is primarily industrial in nature. A proposal has now been forwarded to annex further sections of the surrounding counties. To deal with these developments, the agency must see that they have a voice in any decision which may affect the air quality of its jurisdiction.

5.2. Legal Aspects:

a. Legislation

The Charter given the City of Richmond by the Virginia Legislature charges the City with the responsibility of preserving safety, health, peace, etc. As a result, Richmond has developed, as part of the 1968 Code of Ordinances, Chapter 4, entitled "Regulation of Air Pollution." This chapter designates a Bureau of Air Pollution within the Department of Public Safety with the responsibility to administer and enforce the air pollution control program.

In order that the air pollution effort be as effective as possible, the program must have adequate regulations and the basic authority to enforce these regulations. According to the sections of the Law, the Richmond agency is granted necessary and adequate powers and duties to prevent and control air pollution as follows:

1. To protect and enhance air quality.
2. To adopt emission and other control regulations.
3. To require reporting of emission information.
4. To prevent construction or modification of new sources.
5. To inspect and test air contaminant sources.
6. To hold hearings.
7. To seek penalties and court injunctions.

Still, the present Richmond law contains a number of basic inadequacies which hamper its overall effectiveness. These inadequacies must be rectified and State-city responsibilities must be spelled out in order that

the control effort be managed most effectively. The following remarks will address themselves to specific problem areas:

1. Section 4-3. Rules and Regulations - Controls

This section grants the director authority to require information relevant to air pollution control including plans and specifications in conjunction with the permit operation. This does not include authority to require periodic reports of emission information.

Recommendation No. 5.1. Expand the director's authority to include requiring periodic emission data reports. These reports should then be available for public inspection as required by section 110 of the Federal Law.

2. Section 4-14. Technical Advisory Board - Powers and Duties

The Technical Advisory Board is presently empowered "to approve or disapprove any rule or regulation or any alteration, amendment or modification thereof submitted to it for that purpose by the director pursuant to the provisions of section 4-5." This responsibility is clearly beyond the scope of an advisory group. The Technical Advisory Board acts as a sounding board for industrial interests and cannot serve the general public. While the TAB should have input in all decisions, it should not be so extensive as to represent a veto power.

Recommendation No. 5.2 . Drop the requirement that the Technical Advisory Board approve all regulations before passage.

3. Additional Provisions

The Richmond Ordinance lacks a number of provisions which are essential for effective air pollution control. The following recommendations address these specific provisions and are in line with the requirements of the new Clean Air Act.

Recommendation No. 5.3 . Develop, in conjunction with the State, specific authority for episode or emergency action.

Recommendation No. 5.4 . Secure authority to require installation of equipment by the owner or operator of stationary sources to monitor emissions and to conduct source tests.

Recommendation No. 5.5 . Obtain adequate authority (to the extent necessary to achieve and maintain National air quality standards) to adopt land use and transportation control.

b. Regulations:

Presently there is little uniformity apparent between the regulations promulgated by the State and those adopted on the local level. For this

reason, this report will not address deficiencies of individual regulations on the local program level. Rather, in light of recommendations addressed to the State's rules and in the interest of uniformity, local agencies should adopt, by reference, the State's regulations. Should any locale desire a stricter regulation or a regulation which deals with a problem particular to their jurisdiction, the proposed rule should first be cleared with the State Board before adoption. This procedure will insure the type of consistency necessary in an effective statewide air pollution control effort and yet will not stifle local initiative to enforce additional or stricter regulations.

Recommendation No. 5.6. Adopt, by reference, those rules and regulations promulgated by the State. Should stricter or additional provisions be desired, these should first be approved by the State Board before adoption.

5.3. Administration:

Chapter 4 of the Richmond City Code established a Bureau of Air Pollution within the Department of Public Safety. Since February, 1966, this agency has had the primary responsibility for the administration and enforcement of the air pollution control effort in Richmond.

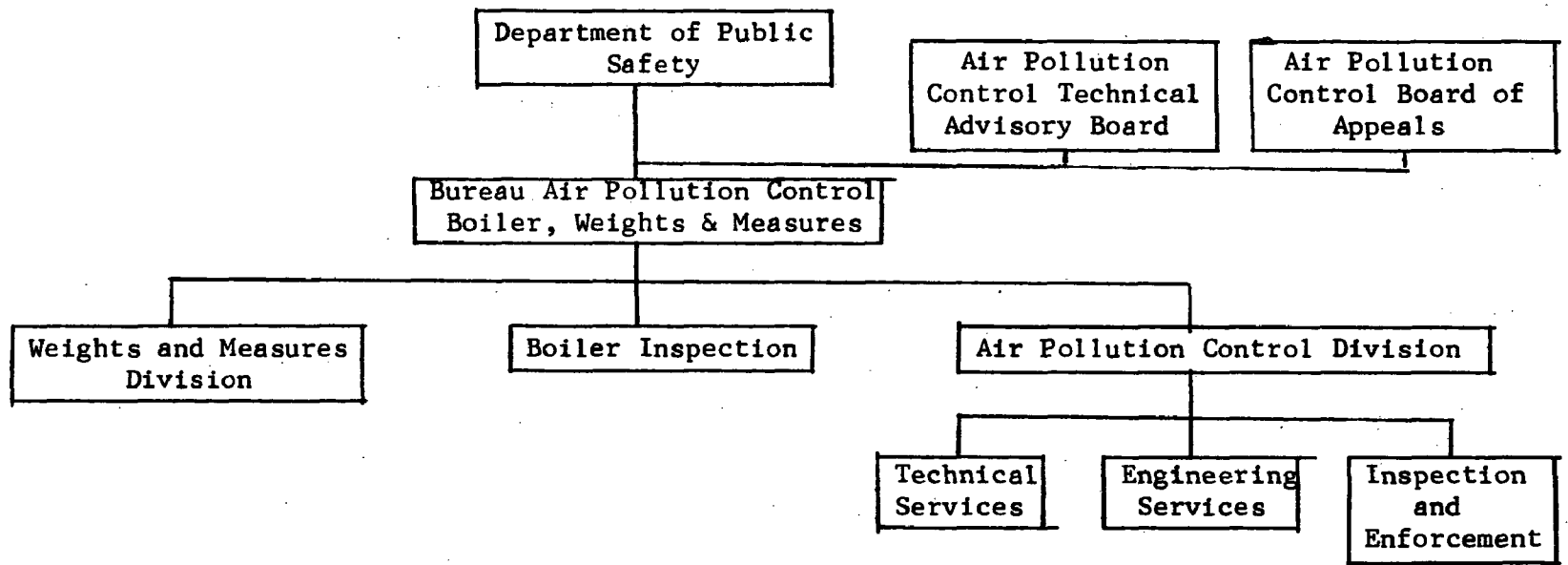
a. Organization and Staffing

1. Internal - The air pollution control program is established as a division level operation within the Bureau of Air Pollution Control, Boiler, Weights and Measures. Out of a total Bureau staff of 17.2, there are 8.6 man-years devoted exclusively to the air pollution effort or 50% of the entire Bureau. The division is further subdivided into engineering, research and technical, and enforcement and inspection sections. (Refer Organizational Chart. Fig. 5.1). Specific function and responsibility of each of these sections was not clear. In many areas there appeared to be overlap and duplication. While a small agency necessarily must be flexible, basic activities associated with each section should be described.

Recommendation No. 5.7. Take steps to organize and structure the air pollution control activity so that the various unit responsibilities are clearly understood.

FIGURE 5.1

RICHMOND ORGANIZATIONAL STRUCTURE



As mentioned the air pollution effort now represents 8.6 man-years effort. The majority (4 people) are involved in the enforcement aspect of the program. The manpower model predicts a modest increase in total staff from 8.6 to approximately 11. (Table 5.1). The breakdown shows the largest single effort again to be in enforcement, since much of the technical and engineering expertise should be provided by the State.

2. External - The Richmond Code calls for an Air Pollution Board of Appeals and a Technical Advisory Board to fill support roles. To date there have been no appeals and as a result the Appeals Board has never formally met. Despite this lack of appeals the Board should be kept informed of agency actions and developments. This can be accomplished either through a newsletter or periodic informal meetings. The increased enforcement effort will surely necessitate some legal action and in this regard the Board should be as knowledgeable as possible. Such a procedure would apply as well to the Technical Advisory Board.

Recommendation No. 5.8. Keep the Boards notified, on a scheduled basis, of developments within the program.

The Technical Advisory Board is granted extensive authority by the Code which goes beyond the basic advisory nature of the group. These powers should be limited. The Board should and does provide a

TABLE 5.1
PROJECTED MANPOWER NEEDS
CITY OF RICHMOND

| | Man Years |
|---|------------|
| <u>Management Operations</u> | |
| Policy, public relations, strategy recruitment, etc. | 1.0 |
| Staff training | .5 |
| Administrative and clerical | <u>2.2</u> |
| Sub-total (Management) | 3.7 |
| <u>Enforcement Operations</u> | |
| Scheduled Inspections - fuel and refuse | .4 |
| Scheduled Inspections - industry | .4 |
| Complaints and field patrol | 3.7 |
| Source identification and registration | <u>.4</u> |
| Sub-total (Enforcement) | 4.9 |
| <u>Engineering Operations</u> | |
| Permit System | .5 |
| Source Testing | 0. |
| Emission Estimates | .3 |
| Engineering reports, new regulations | <u>.3</u> |
| Sub-total (Engineering) | 1.1 |
| <u>Technical Operations</u> | |
| Air Quality Monitoring | .2 |
| Special Studies | .1 |
| Data Processing | .2 |
| Instrument Calibration | .1 |
| Laboratory Operations | <u>.5</u> |
| Sub-total (Technical) | 1.1 |
| Total Manpower | 10.8 |

sounding board for industrial concerns, and therefore, should not be in a rule making position. Remarks have been addressed to this situation in the legal section of this report.

While the agency has experienced a good deal of cooperation within the Department of Public Safety, it appeared to exert little influence outside the Department in such areas as planning, zoning, urban renewal, building department, etc. It is important that the agency develop formal lines of communication and interchange with these peripheral activities.

Recommendation No. 5.9. Establish lines of communication within the city government in order to marshall support for air pollution control.

b. Program Planning

A most important and fundamental role of program management involves definitive long-range objectives, supported by intermediate objectives with specific dates for their accomplishment. This provides the foundation for effective and timely development of program activities in accordance with the responsibility of the agency, and alternative courses of action to deal with the problem with limited resources.

In Richmond, preparation of the grant application has been the basic planning tool. Many of the objectives listed in the grant are non-essential and do not reflect balanced program development. An example is the study to correlate pollutant levels with pulmonary and

thoracic hospital in-patient intensive care services. Such a study does not warrant extensive staff attention at the expense of more basic program elements.

Recommendation No. 5.10. Develop realistic program objectives which reflect sound program development and are within the scope of the agency's resources.

c. Education, Information and Training

The goal of a public information program should be to provide a basis for dialogue between the Richmond agency and the broadest possible spectrum of the public. Functions of the program should include a transmission of facts, definition of issues, and delineation of actions that the agency will take. Public involvement in key issues such as legislation, regulations, program budgets, and variance hearings is essential. Only a well-informed public will make such involvement beneficial to the program.

Public information in Richmond is handled primarily by the director. Cooperation with the media has been good. An air pollution agency the size of Richmond limits any large scale effort in this area. Therefore, the agency should attempt to cooperate with the State in this regard.

d. Reporting

Narrative reports are provided on a monthly basis to the City Budget Department. Also air quality data is sent to the State quarterly. In the interest of cooperation and coordination with the State, the agency should consider reporting such information as complaints handled, violations cited, court cases, permits, etc. to the State agency on a monthly basis.

Recommendation No. 5.11. Develop in conjunction with the State a system of reporting program activities and progress on a monthly basis.

e. Personnel

While the agency has been able to recruit qualified staff, they have experienced a great deal of difficulty working through the City Personnel Department. The Personnel Board must approve all job specifications and then assign a salary range to the position. This procedure can be quite cumbersome and in the case of the environmental engineer's position caused the agency to hire a man on contract for a year before the position was formally approved.

Recommendation No. 5.12. Develop better working relations and communications with the City Personnel Department in order to facilitate staff procurement.

Also existing salary levels in Richmond are low when compared to similar positions in private industry and Federal government and should therefore be adjusted.

5.4. Engineering

The engineering operation is established as a section-level activity as are research and technical, and enforcement and inspection. While specific responsibilities within each section were not spelled out, engineering activities of the agency include emission estimates, permit and plan review, development and monitoring of compliance schedules and regulation development. It is not expected that each local agency develop their resources to the degree necessary to handle each of these activities. Rather, the necessary sophisticated support and expertise should be provided by the State. Therefore, in this regard, specific guidelines for state-local responsibilities should be developed to insure statewide uniformity and consistency in the engineering activities (i.e. emission inventory and permit system).

a. Emission Inventory

To date the emission inventory activity in Richmond has been little more than a fuel usage study. The agency has identified the relative percentage of the total fuel market that each fuel supplies. It is planned to expand the activity to include emission data from specific sources. This effort must be considered a priority. The emission inventory is basic to any good control program. In conjunction with air quality data, it indicates the degree of emission control needed to achieve air quality goals and helps to establish the priority schedule for abatement action. The State plans to conduct a rapid survey of pollutant emissions

in the Richmond region. This will be run in conjunction with the Air Pollution Control Office of the Environmental Protection Agency. It is important that the Richmond agency also be involved in this effort and that a system for updating the data be developed.

Recommendation No. 5.13. Assign one man, full time, to work on the emission inventory until it has been completed.

Recommendation No. 5.14. Develop specific procedures to follow-up questionnaires and data requests not returned to the agency. This would include personal contact, plant surveys, and some stack testing. These procedures should be developed in conjunction with the State agency.

b. Permit and Plan Review

Under the present ordinance the agency can require a permit for any "equipment which in its use of operation pollutes the atmosphere within or without buildings. . ." Despite this broad authority, presently the agency permits only fuel burning equipment. The review of this equipment is cursory and basically safety oriented. It has been recommended that the State establish a statewide permit system, both for construction and operation of pollutant sources. Such a procedure will necessitate limited local involvement. Therefore, the Richmond agency should expand

its own program to reflect the state plan and should develop in conjunction with the State, specific guidelines which define the various State-local responsibilities to the permit operation.

Recommendation No. 5.15. Expand the permit operation to include all pollutant sources in the city and take steps to insure that this system compliments any statewide permit proposal.

In order to insure adequate city-wide coverage the Richmond agency could require that all building permits be forwarded to its office for a review of pollution potential.

c. Compliance Schedules

Should the agency find that any particular problem has become acute or chronic, it will request consultation with that source to develop a definite program of improvement with timetables for their completion. As yet there have been no formal meetings. This method of waiting until a problem gets out of hand, before developing a compliance schedule, is self defeating. Rather the agency should see to it that each source within the city is on a specific schedule to comply. Such schedules would be approved by the engineering section and then referred to the enforcement staff for periodic progress checks. Should any particular plant require specific expertise, the State should be responsible to handle this situation.

Recommendation No. 5.16. Develop specific guidelines for requiring submission of control programs and schedules for their implementation.

d. Special Studies

In light of the manpower limitations on the local level, any such undertakings including source testing should be conducted in conjunction with State agency personnel.

5.5. Enforcement

The fundamental goal of any air pollution control agency is the abatement of air pollution. In line with this activity is the responsibility for inspections, investigating complaints, area surveillance, and instituting necessary legal or administrative actions. In Richmond, where the State could undertake some of the more sophisticated program activities, the major local effort should be in the area of enforcement.

Presently, the program lists 4 people involved in the enforcement effort. A moderate increase (approximately one man-year) would be required to deal with the additional area gained by annexation.

a. Surveillance

The Richmond agency has established an effective system for city-wide surveillance. Four "tours" are conducted each day, during which inspectors traverse a specific route throughout the city. Along the routes, vantage points have been established from which the inspector can view a large section of the city. As part of his kit each inspector carries 9 x 12" photographs taken from the specific vantage point. Sources in the photograph are located and labeled. Thus an inspector noting a violation can identify the source, and using the car telephone, immediately contact the violator. This system allows the agency to effectively cover a large area on a systematic basis. A problem does arise in the follow-up to violations and is covered in the section on enforcement procedures below.

Of the three inspectors, two have been certified to read smoke. There is no schedule for any periodic recertification. Such a recertification would not only keep each inspector calibrated, so to speak, but would also eliminate a possible vulnerable area in the event of legal action.

Recommendation No. 5.17. Recertify inspectors at a valid smoke school on nothing less than an annual basis. Such a school would logically be sponsored by the State agency.

b. Complaint Handling and Communications

Complaints are received by letter and phone in the main office. Complaints are recorded in triplicate. The original is kept by the secretary to make sure it is acted on. One copy goes to a legislative research file to check on the regulations being violated and the third is filed in the specific violator's file. Telephones have been installed in four of the seven automobiles. These telephones enable the inspectors to be contacted easily, and then to reach the violator by phone.

Requests for open burning permits are received at the main office, principally by phone. The request is then cleared with the fire department and then the permit issued. Presently the majority of requests are granted. There are no guidelines, but rather it is up to the discretion of the inspector.

Recommendation No. 5.18. Take steps to eliminate all open burning within the city.

c. Enforcement Procedures

Once the violator has been contacted by mobile telephone, he is then instructed to call the main office and explain the problems. Finally a letter is sent to the management of the source explaining the particulars of the violation and asking that the situation be rectified. Unfortunately, this is normally as far as the enforcement process usually gets. The director of the program does not have specific authority to order a cease and desist. Also it is the agency's policy that management be called in for consultation only after records show numerous violations. There were 651 violations of city air pollution regulations recorded last year, yet there were no fines levied and only one case brought to court in the past six years. The court case was disallowed. The overall result of such an approach is that Richmond's enforcement effort is little more than a paper tiger. If the program is to meet with success, it can only do so by developing viable and effective enforcement procedures and alternatives. These should include specific guidelines for the use of fines, cease and desist orders, and injunctive actions.

Recommendation No. 5.19. Develop standard enforcement procedures which stipulate the compliance method to be followed in particular situations.

d. Reporting and Files

Each inspector is required to file a daily activities report. These

include the number of violations cited, complaints handled, etc. These reports could prove valuable as a means of evaluating previous effectiveness. Therefore, the agency should periodically evaluate these figures and develop program plans in light of these findings. This procedure could then be expanded to include reporting of all program activities.

Recommendation No. 5.20. Tailor reporting procedures so that they provide effective agents of program planning.

The files are arranged by address and firm name. There is a color code system which is used to flag those sources needing immediate action, control plan submittal, etc. This system works quite well. There did appear to be a large quantity of extraneous material in the files. Therefore, periodically, the files should be purged of unnecessary paper.

Recommendation No. 5.21. Arrange for a periodic review of the files to check for chronic violators and to purge any unnecessary material.

e. Emergency Plan

At the present time, the agency does not have a planned program to be implemented for emergencies and long-term air pollution episodes. Richmond, in conjunction with the State, should develop a plan to protect health and welfare in emergency situations such as chronic releases from ruptured tanks, accidental emissions and prolonged buildup of pollutants during periods of adverse meteorological conditions

Recommendation No. 5.22. Develop an emergency plan which is in accordance with Emergency Episode Plan Requirements and which parallels any State Plan.

5.6. Technical Operations

The technical services area of the Richmond program includes maintenance of the sampling network laboratory operations and some special studies. These activities are presently handled principally by one staff member. Part-time assistance is provided by the air pollution technician.

a. Air Monitoring

The existing network in Richmond consists of thirteen (13) sampling stations. Hi-volume samples are taken at nine (9) of these locations, while dustfall and total sulfation are registered at all thirteen. In addition, five (5) tape samplers are scattered throughout the jurisdiction. The agency indicated its desire to switch from total sulfation to SO₂ bubblers and to supplement the network with additional Hi-vols. This plan will provide the agency with a more accurate gauge of the pollutant concentrations in the area, and therefore should be implemented as soon as possible.

Although there has been little data collected in the newly annexed portion of the city, it is planned to relocate station 8 in the industrial section of the area. This adjustment should give more meaningful data and afford better city-wide coverage.

Presently no data is collected on a real time basis. Based on emergency action procedures, consistent with the Clean Air Act, this is unacceptable for a city the size of Richmond. Based on OAP guidelines, a minimal network would include 2 continuous stations. (Refer Table 4.3).

These stations could be serviced by either the State or Richmond agency, but all data should be channeled to the State for reduction and analysis.

Recommendation No. 5.23. Develop in conjunction with the State, a plan for development and maintenance of two continuous air monitoring stations. The State should have direct responsibility for these stations. Also, data from these stations would be processed by the State and correlated with data from other sites.

In this regard, OAP has recently initiated the operation of an Automated Air Analysis Section located in Durham, North Carolina. This section has been established to provide useful information concerning the operation, maintenance, calibration and repair of all continuous monitoring instruments.

b. Laboratory

The laboratory facilities, equipment, and staff effort appear to be adequate. The lab can handle all the basic analysis and standard methods and procedures are followed. At its present level of operation, the laboratory activity does not command an inordinate amount of staff time and effort. This situation may change as increased emphasis is placed on additional pollutants and related analysis techniques become more complex. In this case, rather than equipping each local agency to handle these operations, the State agency could provide an effective central resource to handle the more sophisticated analysis work. The proximity

of the Richmond agency to the State lab makes such a situation even more practical. By having the State perform some of the more time consuming sample analysis, the agency can free more manpower for the enforcement effort.

Recommendation No. 5.24. Keep the laboratory operating at its present level. As long as Richmond has the facility it can continue to operate on a limited scale and budget. This should require only part-time effort of one staff member and any special analyses should be referred to the State.

In addition to the laboratory facilities located at headquarters, the Richmond agency has purchased a Mobile Lab. Presently, equipment in the truck includes, a gas bubbler, tape sampler and hi-vol. It has been used, basically, to augment the stationary sampling network but only on a random basis. In order that this equipment be as effective as possible, a definitive schedule should be developed for its use. In light of the limited manpower available in the Richmond agency, as an alternative, the mobile lab could be leased to the State and used on a statewide basis.

Recommendation No. 5.25. Outline a specific schedule for use of the mobile lab. This would include the possibility of leasing the facility to the State on a regular basis for studies in other areas of the State.

c. Special Studies

The agency presently publishes a daily pollution index. The procedure is quite simple and incorporates particulate, SO₂ and synergistic readings. The system has been quite effective and should be continued as an effective part of the public relations program.

d. Data Reduction

There has been little data reduction carried on in the past. What reduction is done is basically for the quarterly reports to the State. In order to make the air quality data more available and usable, reduction and analysis of this data should be performed on a monthly basis, and should be consistent with State requirements.

Recommendation No. 5.26. Develop a data storage and retrieval system and familiarize the entire staff in its use and operation.

CHAPTER VI
ROANOKE COUNTY AIR POLLUTION
CONTROL PROGRAM

6.1. Background

Roanoke County is located in the west central section of Virginia. The area is generally mountainous, with the major growth centered in the valley around the municipalities of Roanoke, Salem and Vinton.

The air pollution problem is primarily one of particulate emissions. This is basically the result of rock crushing in quarries and related industries such as lime production and asphalt road mix. In addition, the county has one electric steel mill, one municipal incinerator, three municipal dumps, one brick manufacturing plant, one tannery, and several furniture and wood processing plants. Heating in the region is primarily coal fired.

The situation is further complicated due to the diurnal wind flow patterns caused by the mountains. Pollutant build-up can vary from day to day and season to season depending upon meteorological conditions and local emissions. Conditions in the winter season are most conducive to heavy build-up.

In the past ten years the county has experienced a 16.6% growth rate. This kind of growth necessitates continuing input and surveillance by the control agency. Any decisions made in regard to plans, equipment, etc. should be checked by the agency to insure that pollution levels will not be exceeded.

6.2. Legal Aspects

a. Legislation

Pursuant to the Laws of Virginia, the Board of Supervisors of Roanoke County first adopted an air pollution control ordinance in December of 1964. This ordinance was then revised, and adopted in May of 1969. Subsequently the State Air Pollution Control Board approved the revised ordinance the following June.

This law, entitled the Roanoke County Air Pollution Control Ordinance, calls for the establishment of an air pollution control division within the County Health Department. This agency has authority over Roanoke County, the City of Salem and the Town of Vinton. (Salem has adopted its own city ordinance for the control of air pollution, which is almost an exact copy of the county's law). According to the tenets of the law the Roanoke agency is granted necessary and adequate powers and duties to prevent and control air pollution as follows:

1. To protect and enhance air quality.
2. To adopt emission and other control regulations.
3. To require reporting of emission information.
4. To require permits.
5. To inspect and test air contaminant sources.
6. To issue orders and hold hearings.
7. To seek penalties and court injunctions.
8. To implement emergency action during episodes.

Although the Roanoke agency has adequate legal authority to function within its jurisdiction, its overall effectiveness is hampered by the exclusion of Roanoke City from this jurisdiction. Presently the City of Roanoke operates its own small scale program in the City Health Department. The effort is limited primarily to sampling. The cooperation between the two programs has been virtually non-existent, despite the fact that sources within one jurisdiction affect the air quality of the other. Some sort of regional agreement must be made if the control effort is to be effective. The most desirable situation would be a regional program with the responsibility for both the city and county. This has been suggested before and failed. Therefore, the State must assume an active role in order to bring about an air pollution control program which better suits the needs of the entire region.

Recommendation No. 6.1. Develop a formal agreement with the City of Roanoke, which recognizes the regional implications of air pollution. The State Board should encourage and assist in this regard.

b. Regulations

The laws of both Roanoke and Salem state that their regulations are intended to be a more restrictive application of State rules. State regulations which are more restrictive than those covered by the local ordinance are enforceable under the provisions of the ordinance. For this reason, this report will not address individual deficiencies or

discrepancies contained in the Roanoke and Salem laws. Rather, in light of recommendations made regarding the State's rules and in the interest of uniformity, local agencies should adopt, by reference, the State's regulations. Should any locale desire a stricter regulation or a regulation which deals with a problem particular to their jurisdiction, the proposed rule should first be cleared with the State Board before adoption. This procedure will insure the type of consistency necessary in an effective statewide air pollution control effort and yet will not stifle local initiative to enforce additional or stricter regulations.

Recommendation No. 6.2. Adopt, by reference, those rules and regulations promulgated by the State Board. Should stricter or additional provisions be desired, these should first be approved by the State Board before adoption.

6.3. Administration

a. Organization and Staffing

1. Internal - Since the inception of the law in 1964, the Roanoke County Health Department has been the body responsible for the management and administration of the air pollution control effort in the County, (Figure 6.1). The activity presently lists a staff of approximately 2.5 people. This includes one air pollution control sanitarian (B), one air pollution control technician, one air pollution chemist (25%), and one clerk-lab technician (approx. 25%). This involvement closely parallels the level of 2.2 man-years predicted by the Manpower Model (Table 6.1).

While the limited staff prohibits strict assignment within the program, it is clear that the major effort will be in the area of enforcement. Although past efforts in this area appear to have been effective, the increased control emphasis will necessitate drafting definitive guidelines on State-local responsibilities.

Recommendation No. 6.3. Develop, in conjunction with the State, operating procedures which describe specific areas of responsibility and outline enforcement alternatives.

2. External - The agency enjoys a fairly prestigious position in the county governmental structure. The support for the program has been good. As mentioned in the legal section of this report, lack of

FIGURE 6.1

ORGANIZATIONAL STRUCTURE

ROANOKE COUNTY

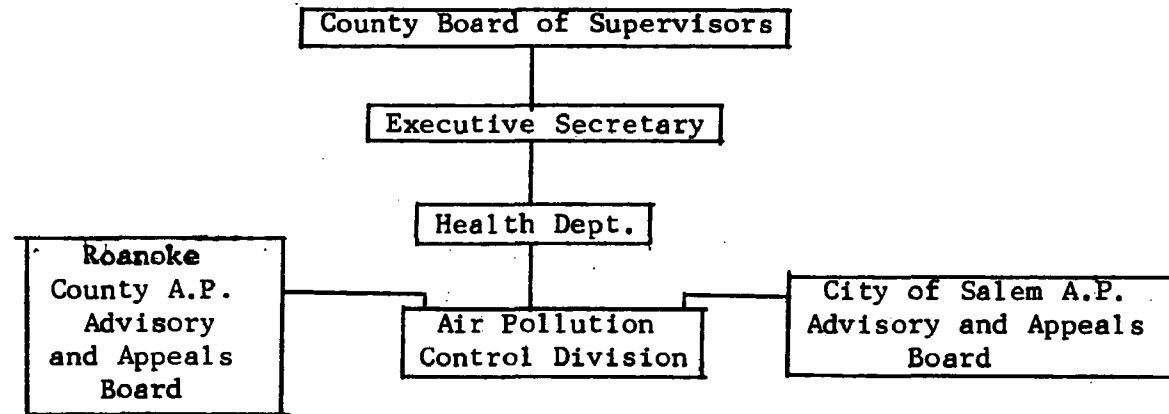


TABLE 6.1.
PROJECTED MANPOWER NEEDS
ROANOKE COUNTY

| | Man-Years |
|--|-----------|
| <u>Management Operations</u> | |
| Policy, public relations, strategy, recruitment, etc. | .2 |
| Staff training | 0 |
| Administrative and clerical | .5 |
| Sub-total (Management) | .7 |
| <u>Enforcement Operations</u> | |
| Scheduled Inspections - Fuel and Refuse | |
| Scheduled Inspections - Industry | .1 |
| Complaints and Field Patrol | .8 |
| Source identification and registration | .1 |
| Sub-total (Enforcement) | 1.0 |
| <u>Engineering Operations</u> | |
| Permit System | .1 |
| Source Testing | 0 |
| Emission Estimates | |
| Engineering reports, new regulations | .1 |
| Sub-total (Engineering) | .2 |
| <u>Technical Operations</u> | |
| Air Quality Monitoring | .1 |
| Special Studies | 0 |
| Data Processing | .1 |
| Instrument Calibration | |
| Laboratory Operations | .1 |
| Sub-total (Technical) | .3 |
| Total Manpower | 2.2 |

cooperation between the city and county regarding air pollution activities is the biggest single impediment to area-wide control. This relationship must be improved for the program to be effective.

Both ordinances (Roanoke and Salem) call for the appointment of Air Pollution Advisory and Appeal Boards. The role of these Boards has been limited in the past, due to the lack of appeals. The director indicated that a number of violators were reaching the stage where he felt legal action was inevitable. Therefore, steps should be taken to keep the Boards informed of any case developments. Beyond particular cases, information should include general agency actions and developments.

Recommendation No. 6.4. Notify the Boards, on a scheduled basis, of development within the program.

In this regard, particular attention should be given to any impending enforcement action.

b. Program Planning

A successful air pollution control agency must understand the problem, have a plan to solve it, and a method to evaluate the effectiveness of the solution.

In Roanoke the only gauge of program effectiveness has been the grant application. It is apparent that program planning needs to be improved within the program.

Recommendation No. 6.5. Establish formal evaluation techniques for planning purposes to determine results under existing control activities and evaluate alternatives.

c. Education, Information and Training

Public information has been an important aspect of the Roanoke program. The agency works closely with the news media and receives cooperation from county officials. The major portion of this effort is handled by the program director. This element of the program appears to have been effective in the past and should continue to be pursued as an integral part of the overall control effort. In light of the limited manpower available to the program, the State could provide a valuable resource in this regard.

d. Reporting

Presently daily activity sheets are submitted by each staff member. This information can provide meaningful input for setting program plans and objectives and should therefore be reviewed periodically for this purpose. Also air quality data is sent to the State quarterly. In the interest of cooperation and coordination with the State, the agency should consider reporting such information as complaints handled, violations cited, court cases, permits, etc. to the State Board on a monthly basis.

Recommendation No. 6.6. Develop a system of reporting program activities and progress to the State Board on a monthly basis.

6.4. Engineering

The size of the Roanoke agency limits any formalized engineering section. Therefore, the engineering activity includes only the very basic elements (emission inventory, plan review, etc.) which are handled primarily by the director. Any sophisticated engineering talent should be provided by the State agency.

a. Emission Inventory

Although the agency has conducted a number of fuel use studies, a comprehensive inventory of emissions has not been developed for the county.

The emission inventory must be considered a basic air pollution control activity and as such, a priority item for completion. The Roanoke agency has completed the first step, by developing the basic inventory questionnaire. Mailing should be initiated soon. In order that this operation be as informative and credible as possible, the agency should develop and formalize procedures for follow-up, including plant surveys and stack tests, while also creating a system to constantly update the basic emission estimates. These procedures can be both time consuming and intricate. Therefore, the Roanoke agency should consult with the State on every stage of the project and rely on the State agency for the needed technical sophistication. This will insure not only that the inventory conforms with others being run throughout the State, but also that essential activities are not neglected on the local level.

Recommendation No. 6.7. Develop guidelines for the conduct of the emission inventory, which describe specific responsibilities of both the State and Roanoke agencies.

b. Permit and Plan Review

The agency presently has the authority to permit any equipment which in its operation may result in air pollution. Due, primarily to the lack of technical staff, the agency has not stressed this requirement. It has been recommended that the State establish a statewide permit system, both for construction and operation of pollutant sources. Such a procedure will necessitate limited local involvement. In Roanoke this would probably be limited to initiating the first contact, cursory review of small sources, and referral of more involved plans to the State. At any rate before such a system can work effectively, its workings must be specifically defined.

c. Compliance Schedules

Initially, all sources consult the agency and a compliance schedule is developed. By the program's admission, the necessary expertise is not available to make the program completely effective. Therefore, this effort should also be coordinated with the State, in order that it be uniform and efficient.

d. Special Studies

In light of the manpower limitations on the local level, any such undertakings including source testing should be conducted in conjunction with State agency personnel.

6.5 Enforcement:

The enforcement process includes such basic program elements as inspections, investigating complaints, area surveillance and instituting necessary legal or administrative actions. These activities have commanded the greatest portion of staff involvement.

a. Surveillance

Although the agency conducts periodic surveillance of the county, there is no schedule. This is due primarily to the lack of available manpower. While daily surveillance may be unrealistic and unwarranted, some schedule, possibly weekly, should be developed. This would include quick sightings of large areas, and spot inspections of specific problem sources. The former could be accomplished easily from the higher elevations in the county with the aid of binoculars.

Recommendation No. 6.8 Develop a procedure of regular area-wide surveillance of the county.

As part of the surveillance activity, both inspectors in Roanoke have attended smoke schools and are certified. Presently there is no system for periodic recertification on a regular basis. Such a procedure should be instituted in conjunction with the State, and inspectors recertified on nothing less than an annual basis.

b. Complaint Handling

Complaints are received directly at the division office and as soon as possible personal contact is made. Though a violation might be found, the violator is not always informed of the violation. This is true primarily in the case of a source which is under a compliance schedule. This procedure should be changed. A compliance schedule does not represent a license to pollute. Therefore, all violations should be noted and followed up with a letter to the source involved. This will not only remind him of his responsibility, but should legal action eventually result, such a procedure will provide the agency with needed information.

Another problem area has been communications. When both inspectors are in the field, there is no way to contact them should an emergency arise.

Recommendation No. 6.9. Develop a "check in" schedule.

In the absence of a formal communications system, a periodic phone call would be sufficient to keep the inspector informed of any development on complaints.

Another possibility is the purchase of a "Page Boy" system.

Requests for open burning permits are routinely received and granted by telephone. Basic information such as name, address and what is to be burned are recorded. Permits are rarely refused, mainly because there are few alternative methods of disposal. In order to curb the problems of open burning, the agency should work within

the governmental structure to provide these alternative methods. Only then can the open burning ban be effective.

Recommendation No. 6.10. Work through the governmental structure to provide means of disposal other than open burning. These would include sanitary landfills, recycling and adequately designed operational incinerators.

c. Enforcement Procedures

The director of the program has been granted extensive authority to control air pollution in the country. This includes authority to swear out warrants, and summon violators to court. Thus far the most effective tool has been an administrative conference. Through this mechanism, complaintants and source offenders confront each other to air their grievances. These meetings have been quite successful and should be pursued. While the conference mechanism has been successful the agency has not formalized alternative enforcement tools.

Recommendation No. 11. Develop enforcement procedures which incorporate source registration and inspection.

d. Emergency Plan

Although the agency has the authority to take emergency action, at the present time, the agency does not have a planned program to be implemented for emergencies and long-term air pollution episodes. Roanoke County, in conjunction with the State, should develop a plan to protect health and welfare in emergency situations such as chlorine releases from ruptured tanks, accidental emissions and prolonged buildup of pollutants during periods of adverse meteorological conditions.

6.6 Technical Operations

The major program functions of technical services include: laboratory analysis and air monitoring. The lab work is handled by the chemist while sample collection is accomplished by the inspectors.

a. Air Monitoring

Presently the agency operates a network consisting of 14 Hi-Volume samplers, 3 gas bubblers (SO_2 , NO_x , HCHO) and 3 AISI tape samplers. These devices form the basis of the network and are augmented by 18 dust-fall buckets. The system affords good county-wide coverage and is set up such that the major sources receive particular attention. A major problem thus far has been the City of Roanoke's unwillingness to cooperate on air monitoring. Inasmuch as the general air quality of the area is affected by both jurisdictions, any viable sampling effort should reflect this situation.

Sample collection is handled by the inspectors. Hi-Vols are collected 3 times weekly. This is no real problem with this arrangement and it does not interfere with the daily inspection routine.

b. Laboratory

The laboratory is equipped to do all the basic analysis required by the network. The time spent by the Chemist on air pollution work (25%) is adequate to fill the needs of the agency. It is not necessary that the agency increase their lab capability beyond its present level. If

at any time they require additional or more sophisticated analysis, the State should provide this service.

Much of the chemist's time is spent boiling dustfall buckets. In view of the limited amount of information that can be gained through this process, dustfall measurements should be reduced and confined to those areas where there is a particular problem.

c. Data Reduction

Data gathered from the network is catalogued, and basic reduction performed. Thus far graphs have been prepared and trends listed. This information can be most valuable as a means of program planning and evaluation and therefore should be periodically reviewed for this purpose.

Chapter VII

ALEXANDRIA AIR POLLUTION CONTROL PROGRAM

7.1 Background

Alexandria is a city with light industry and air pollution problems common to the Washington, D. C. metropolitan area. The population of Alexandria is 109,841, with over 100 manufacturing plants in the city.

The air pollution program is integrated into various departments in the city government, with no formal air pollution agency structure. The City Health Department has been delegated the primary responsibility for administering the program by the City Council.

The levels of emission reached in Alexandria by oxidants, sulfur oxides, and particulates either singly or in combination have been sufficiently high to cause concern for human welfare, for damage to vegetation, and for deterioration of materials.

The automobile is the major source of pollution in the city. Point sources include power plants, auto salvage plants, iron foundry, asphalt batch plants, and incinerators.

Stagnation periods of 4 days or more in length occur 1 to 2 times per year in the metropolitan D. C. area. Inversion conditions within 500 feet of the surface occur about 1/2 of the nights.

7.2. Legal Aspects

a. Legislation

The Alexandria program operates under Ordinance 1545, the Air Pollution Control Code, as passed by the City Council on January 28, 1969. A similar ordinance, 1546, The Smoke Control Code, to be administered by the Division of Smoke Control in the Department of Building and Mechanical Inspections, was adopted at the same time. Except for the permit section in Ordinance 1546 both ordinances are almost identical. There is no Division of Smoke Control at the present time, so Ordinance 1546 is not being enforced. If it were, the City would in effect have two air pollution control programs. This ordinance should be repealed and all air pollution control activities in Alexandria be conducted under one comprehensive ordinance.

Recommendation No. 7.1. Work through the city council to actively seek the repeal of Ordinance 1546.

The Health Department under Ordinance 1545 is granted the basic authority to prevent and control air pollution as follows:

1. To protect and enhance air quality.
2. To adopt emission and other control regulations.
3. To require reporting of emission information.
4. To inspect and test emission sources.
5. To issue orders.
6. To seek penalties and injunctive relief.
7. To implement emergency action.

The Health Department presently reviews and approves plans or new construction of pollution sources. This authority was gained through an agreement with the Building and Mechanical Inspections Department. The right of the air pollution program to prevent construction or modification of new sources should be formalized and sanctioned by law.

Recommendation No. 7.2. Amend Ordinance 1545 to give the Director authority to prevent construction or modification of new sources through a permit system of operation.

Several provisions that are essential for effective air pollution control are missing from the ordinance. The recommendations below address these specific provisions and are in line with the requirements of the Clean Air Act as amended 1970.

Recommendation No. 7.3. Secure authority to make emission information available for public inspection.

Recommendation No. 7.4. Seek authority to require installation of equipment by owners and operators of stationary sources to monitor emissions and conduct source test.

Recommendation No. 7.5. Obtain authority (to the extent necessary to achieve and maintain national air quality standards) to adopt land use and transportation control.

b. Regulations

Presently there is little uniformity apparent between the regulations promulgated by the State and those adopted by the local agencies. For this reason, the report will not address itself to deficiencies of rules and regulations on the local program level. OAP supports the idea of one basic set of regulations applicable statewide. To this end the local agencies should adopt by reference the State's regulations. Should any locale desire a stricter regulation or a regulation dealing with a localized problem, the proposed rule should first be cleared with the State agency before adoption. This procedure will insure the type of consistency necessary in an effective statewide air pollution control effort and yet will not stifle local initiative to enforce additional or stricter regulations.

Recommendation No. 7.6. Adopt, by reference, rules and regulations promulgated by the State. Additional or more stringent provisions should first be approved by the State agency.

7.3 Administration

The Director of Health is responsible for administering and enforcing the city air pollution ordinance. Other city departments are assigned concurrent responsibilities in specified areas of air pollution control work. This provides an advantage to the agency in that more people are involved in air pollution activity than would be possible if the agency had to rely solely on its own personnel. An administrative regulation signed by the City Manager outlines these concurrent responsibilities for the Fire Department, Building Department, Police Department, Planning Department, Department of Traffic, and Department of Public Works in implementing Ordinance 1545. Each department is required to furnish the Health Director a semiannual report on air pollution activities.

Recommendation No. 7.7. A formalized reporting system should be developed by the Health Department so as to be informed at all times what air pollution control activities the other city departments are engaged in. This is essential to insure uniform enforcement of ordinance 1545.

Strong leadership must be provided by the Health Department to insure that fragmentation of responsibility will be an asset and not a liability to the air pollution control program. Without this leadership and coordination the various departments could become lax in carrying out their responsibilities.

a. Organization and Staffing

1. Internal - The air pollution control activities are centered in the Environmental Health Division of the City Health Department. An Air Pollution Coordinator, assigned to air pollution, is responsible for administering the program.

There are 9 sanitarians assigned to cover the 29 census tracts in the city. Their activities include handling complaints and general surveillance. Each sanitarian's daily work sheet indicates the amount of time spent on air pollution work. Last year this averaged 7%. Three full time professional positions are assigned to air pollution.

According to the latest grant application, 53 city employees spend a percentage of their time on air pollution activities.

The Air Pollution Coordinator handles the engineering needs of the program. Technical services are provided by the Division of Laboratories.

The air pollution effort now represents approximately 8.8 manyears (4.6 in Health Department, 4.2 in other department). The hiring of a technician will increase this to 9.8 man-years. The OAP manpower model predicts a total staff need of 4.2 manyears (Table 7.1). The breakdown shows the largest single effort to be in enforcement.

If the technician is hired, the program will be devoting 2.3 man-years to technical services which is double the needs of Alexandria as projected by the OAP manpower model.

Recommendation No. 7.8. Realign the personal utilization to adequately cover the program areas as indicated in Table 7.1.

Table 7.1

PROJECTED MANPOWER NEEDS
CITY OF ALEXANDRIA

| | | |
|---|-----|-----|
| <u>Management Operations</u> | | |
| Policy, public relations, strategy, recruitment, etc. | .2 | |
| Staff training | .1 | |
| Administrative and clerical | .4 | |
| Sub-total (Management) | .7 | |
| <u>Enforcement Operations</u> | | |
| Scheduled inspections - fuel and refuse | } | 2.0 |
| Scheduled inspections - industry | | |
| Complaints and field patrol | | |
| Source identification and registration | | |
| Sub-total (Enforcement) | | 2.0 |
| <u>Engineering Operations</u> | | |
| Permit system | .2 | |
| Source testing | 0 | |
| Emission estimates | .1 | |
| Engineering reports, new regulations | 0 | |
| Sub-total (Engineering) | .3 | |
| <u>Technical Operations</u> | | |
| Air quality monitoring | .7 | |
| Special studies | .2 | |
| Data processing | | |
| Instrument calibration | .1 | |
| Laboratory operations | .2 | |
| Sub-total (Technical) | 1.2 | |
| Total Manpower | 4.2 | |

2. External - Administrative Regulation 8-15 from the City Manager formalizes interdepartmental responsibilities in implementing air pollution control ordinance 1545. The Health Department is charged with administering and enforcing the provisions of the ordinance. Other departments assigned specific responsibilities are Fire, Building and Mechanical Inspections, Police, Public Works, Planning and Regional Affairs, Traffic, and General Services.

Assigning responsibilities across departments for implementing an air pollution ordinance has met with little success in the past. However, the arrangement seems to be working satisfactorily in Alexandria. The Director of Public Health has shown considerable interest in and is directly involved in the air pollution control program. Such support is essential to the success of a program structured like Alexandria's.

The ordinance calls for a three member Appeal Board. To date, there have been no appeals. The Board, however, should be kept informed of program actions and development. Increased enforcement effort will surely result in some legal action and appeals. In this regard, the Board should be as knowledgeable as possible.

Recommendation No. 7.9. Keep the Board notified periodically of developments within the program, particularly enforcement activities.

A full time lawyer for the Health Department is assigned to the Environmental Health Division. The City Attorney would have to prosecute any violators, however. If a State law is involved in the violation, a Commonwealth Attorney would have to be used.

Recommendation No. 7.10. Keep the respective attorneys informed of air pollution regulations and contemplated enforcement actions.

b. Program Planning

Program planning provides the foundation for effective and timely development of program activities in accordance with the responsibilities of the agency, and alternative courses of action to deal with the problem with limited resources. The planning in Alexandria seems directed toward more sophisticated activities than can be justified at the present time. Such activities as meterology, effects packages, mobile field laboratory, extensive air monitoring network, etc., should not be engaged in by an agency the size of Alexandria. Planning should be concerned with the more basic program elements such as, emission inventory, scheduled inspections, enforcement, and compliance schedules.

Recommendation No. 7.11. Direct program planning to meet the basic needs of the agency.

c. Training

The Alexandria program has a formalized training procedure that lasts about three months. This includes field visits, OAP courses, and VPI or Maryland smoke school.

d. Public Relations

A Public Information Officer in the City Manager's Office is available to the air pollution program and has been utilized when needed. There is

a need for more packet distribution material which the program hopes to develop.

The importance of a informed public cannot be overemphasized. Public support can mean the difference between success and failure of an air pollution control program. Development of good news copy, publication of information material, liaison with citizens groups through speeches and lectures will help keep the public informed and marshall support for the air pollution program.

Recommendation No. 7.12. Develop public and technical informational material that is specific for the Alexandria program and take the necessary step to insure widespread distribution of the material.

7.4. Engineering

Engineering activities for the Alexandria program include permit and plan review, emission estimates, and monitoring compliance schedules. The engineering needs of the program have been handled by the Coordinator who is also responsible for the day to day administration of the program. It is not expected that Alexandria develop a sophisticated engineering section, but should call on the State agency when help is needed in engineering functions. There should be statewide uniformity in conducting emission inventories and reviewing permits and plans.

a. Emission Inventory

Approximately 600 industrial and commercial establishments have been contacted by letter requesting information on incineration and heating plants. A more detailed questionnaire was sent to 22 industrial sources. The response has been 65-70%. Sanitarians do the follow-up contact on companies that do not respond. The information is now being analyzed for SO₂ and particulate emissions.

The completion of a comprehensive emission inventory must be considered a priority activity. Program planning to control air pollution cannot be undertaken until the agency knows what the emission levels in the city are. At this point control strategies can then be developed.

Recommendation No. 7.13. Assign priority to completing a comprehensive emission inventory and reducing the data to a useful form. In this respect the State should be consulted, to insure the inventory conforms with others being conducted throughout the State.

b. Permit and Plan Review

Permits for new installations involving pollution sources are sent to the agency for approval from the Building and Mechanical Inspections Department. This is through an informal agreement with the Department. The agency should have the weight of law to prevent construction of sources that will not meet its emission standards (see Section 7.2 Legal).

It has been recommended the State establish a statewide permit system, both for construction and operation of stationary sources. Such a procedure will necessitate local involvement. Therefore, the Alexandria agency should develop a permit system to complement the State program. Specific guidelines that define the State-local responsibilities must be developed in a cooperative effort with the State.

Recommendation No. 7.14. Expand the permit operation to include all pollutant sources in the city and consult with the State agency to insure that this system compliments any statewide permit system.

Recommendation No. 7.15. Develop a procedure to utilize the information from the permit applications to update the emission inventory and keep it current.

The agency sends a representative to the zoning and planning hearings involving a potential air pollutant source. In this way the program gets involved from the start with future pollution sources. This activity should definitely be continued and expanded. The Clean Air Act, as amended 1970, requires the State to have authority to adopt land use controls necessary to achieve and maintain national air quality standards. In this respect the Alexandria air pollution control program should have veto power over site location of potential sources.

Recommendation No. 7.16. Seek a stronger voice in land use control while continuing to work closely with the Zoning Department.

c. Stack Testing

The agency does not have stack testing capability and it is not recommended Alexandria set up a stack testing program. The Fairfax County agency has been called on in the past to do some stack testing. The State agency could also be utilized in doing stack testing at such time as the State develops stack testing capability.

The agency places the burden of stack sampling on the individual

facility rather than the city. This is as it should be, however, the agency must have the expertise necessary to observe these tests and insure they are conducted in accordance with acceptable procedures and methodology.

Recommendation No. 7.17. Develop stack testing guidelines in conjunction with the State agency and observe all stack tests to insure uniformity.

7.5. Enforcement

The basic responsibility of any air pollution agency is the enforcement of its rules and regulations. In this respect the Alexandria agency needs to strengthen its efforts.

The agency features voluntary rather than punitive compliance in its enforcement activities. In a city with no heavy industry this enforcement policy seems to have worked thus far. The agency must be on guard against polluters who would use this philosophy as a stalling mechanism to indefinitely postpone installing control equipment. One effective way to prevent this is for the agency to formalize its compliance procedures.

a. Surveillance

Surveillance of Alexandria is primarily handled by nine Sanitararians who spend approximately 7 percent of their time on air pollution activities. Three Sanitarian Supervisors are utilized when needed on air pollution activities.

Four sanitarians are certified smoke readers. There is no formal recertification schedule. If the proposed regulation of Ringelmann No. 1 or equivalent opacity is adopted, more certified smoke readers will be needed. All sanitarians and supervisors should be certified at an early date and recertification should be a part of each man's yearly training.

Recommendation No. 7.18. Recertify inspectors at the State smoke school at least annually.

b. Complaint Handling and Communications

Most complaints are received by telephone at the Health Department. The secretary fills out a card and turns it over to the Supervisory Sanitarian who then distributes it to the area Sanitarian. If the complaint involves an emergency, it is handled by the office.

The Sanitarians come in the office in the mornings and afternoons. Complaints investigated are therefore one day old as there is no field communication system. The air pollution program could hardly justify financing of radio communication equipment with Sanitarians only spending 7 percent of their time on air pollution. However, periodic phone calls to the office to receive complaint information should reduce the time between the complaint and investigation.

Recommendation No. 7.19. Develop a "call in" schedule for the Sanitarians to receive complaint registered with the agency. The Sanitarians should then check the complaint cards the next time in the office to verify that no complaints have been missed.

c. Enforcement Procedures

If a violation is spotted by a sanitarian he tries to resolve it on the spot. A notation is made on his worksheet. If the violation is serious enough an entry will be made in the person's file. After the third violation the sanitarian confers with his supervisor. The Coordinator then decides if a formal case should be established. Formal prosecution is started with a registered letter mailed to the violator over the signature of the Director of Health. To date, the agency has not handled a court case. Allowing three violations before considering prosecution is not in line with good enforcement practices necessary to preserve, protect and improve the air resources within the city.

The Police Department is authorized to issue citations upon request of other departments for violations of the Air Pollution Ordinance. This rather simple enforcement procedure has not been utilized by the agency.

Recommendation No. 7.20. Reexamine the inadequacies of relying on voluntary compliance only and formalize an enforcement procedure utilizing citations by the Police Department on minor, persistent violations and legal action through Municipal Court on more serious violations.

d. Reporting and Files

Each Sanitarian completes a daily report sheet which lists all activities during the day and amount of time spent on air pollution

problems. Complaint cards are completed on all complaints and are filed by street address. A copy of all violation notices are filed under the violators name.

A monthly report of air pollution activities is submitted through the Health Director to the City Manager.

All city departments assigned air pollution responsibility file a six-month report with the air pollution agency who compiles them into one report for submission to the City Council.

e. Emergency Plans

A new emergency episode plan has been written and is presently awaiting State approval. It is essential that any emergency episode plan for Alexandria be compatible and mesh with other emergency plans for the D.C. metropolitan area.

7.6. Technical Operations

The technical service operations consist of the following activities; air monitoring, laboratory services, special studies, meteorology, instrument maintenance, and data reduction.

a. Air Monitoring

The program is in the process of setting up an air sampling network. This will consist of five permanent static stations and a continuous monitoring station at the Health Department. The static stations consist of a high-vol, sulfation plate, and dustfall bucket. The following instruments make up the continuous monitoring station: combination SO₂ - total oxidant, NO_x - NO₂, portable CO and AISI tape sampler.

These instruments should be put on line at the earliest possible date. To insure useable data, the instruments should be statically checked daily and dynamically calibrated weekly until such time as the reliability of the instruments dictates less frequent calibration.

Currently the lab is measuring only NO_x with the NO_x - NO₂ analyzer. The Environmental Protection Agency is proposing national standards for NO₂, therefore the lab should start monitoring NO₂ as soon as possible.

Recommendation No. 7.21. Utilize the NO₂ analyzer to monitor NO₂ on a continuous basis at an early date.

Five static stations will provide more than adequate monitoring for an area the size of Alexandria. The usefulness of the dustfall buckets at these stations is questionable. Dustfall bucket data has very limited value in areas covered by high-vols. The dustfall buckets should be discontinued at the first sign of manpower problems in the laboratory.

The agency should send a quarterly composite (3 months) high-vol filter sample to the State lab for analysis of inorganics and organic (benzo(a)pyrene) pollutants. At the present time, however, the State lab is not equipped to do this analysis.

The continuous monitoring equipment has been electronically checked. The instruments should be dynamically calibrated before any data reduction is attempted because data collected prior to calibration is unreliable and possibly misleading. Permeation tubes are now available at a reasonable cost to calibrate the NO_x and SO₂ monitors. Standard gases of known concentrations are available for calibrating the other monitors.

Recommendation No. 7.22. Acquire the necessary calibration equipment to dynamically calibrate the continuous monitoring equipment. The instruments should be calibrated at least weekly until the reliability of the instruments will allow for less frequent calibration.

b. Laboratory Operations

The Health Department's Division of Laboratories provides laboratory support to the air pollution control program. The laboratory staff, facilities, and equipment appear adequate for the needs of the program. One chemist is full-time on air monitoring and laboratory work. The Director of Laboratories spends 33% of his time on air pollution.

If sophisticated analysis is required, the program should call on the State lab rather than expand its own lab operations.

Serious consideration must be given to establishing one lab for the Virginia portion of the D.C. area. This could possibly be a State operated lab.

Recommendation No. 7.23. Keep the laboratory operating at its present level and refer any special analysis to the State.

The program desires to utilize its panel truck as a mobile field laboratory. It is doubtful a program of Alexandria's size can justify the need for a mobile lab. This project should not be pursued any further.

c. Meteorology

The agency expressed a desire to get involved in documentation of weather phenomena. This activity is of little value unless the program has the expertise to relate this data to air pollution control strategies. Even if it could be shown that the data could be utilized in the air pollution control program, an agency of Alexandria's size would have difficulty justifying the man-hours necessary to reduce and evaluate this data, particularly since most of the records would duplicate those provided by the nearby National Weather Service at Washington National Airport.

An Environmental Meteorological Support Unit located at Washington National Air port is also available for the agency's use. These units were set up specifically to provide air pollution meteorological forecasting to small air pollution control programs.

Recommendation No. 7.24. Utilize the meteorological services and data available from the National Weather Service at Washington National Airport to meet the meteorological needs of the agency.

CHAPTER VIII
FAIRFAX COUNTY
DIVISION OF AIR POLLUTION CONTROL

8.1. Background

Fairfax County forms the centroid of the Virginia portion of the National Capitol Interstate Air Quality Control Region. It is primarily a bedroom community with no heavy industry, yet it is one of the fastest growing areas in the county. This fact will present increased air pollution problems from such population oriented services as the automobile, space heating, and refuse burning. Dulles International Airport is located in the county and is presently undergoing an expansion program. This includes the development of an industrial park in the immediate area of the airport, which will be limited to light industry and research oriented plants. Heavy industry is not now nor should it become a problem in the county.

The present air pollutants of concern are particulates and hydrocarbons. The major sources are space heating with heavy fuel oil and some coal, refuse burning from land clearing and construction debris, incinerators, rock quarries, asphalt batching plant, automobiles, and gasoline storage from two tank farms.

The jurisdiction of the agency covers the entire county including the cities of Fairfax and Falls Church, with a total population of 482,314.

8.2 Legal Aspects

a. Legislation

The County of Fairfax Air Pollution Control Ordinance was adopted by the Fairfax County Board of Supervisors on December 13, 1967, and subsequently became effective on January 1, 1968. This Ordinance created a Division of Air Pollution Control in the Fairfax County Health Department with the responsibility for administration and enforcement of the ordinance throughout the county. This responsibility includes authority to administer and enforce the ordinances of both the City of Fairfax and Falls Church. This arrangement has not posed a problem inasmuch as the three ordinances are quite similar.

According to the tenets of the law the Fairfax County Agency is granted necessary and adequate authority to prevent and control air pollution as follows:

1. To adopt emission and other control regulations.
2. To require reporting of emission information.
3. To inspect and test air contaminant sources.
4. To issue orders and hold hearings.
5. To implement emergency actions during episodes.
6. To prevent construction or modification of new sources.

While it is felt that legislation in the above areas is adequate, the law contains several weaknesses.

1. Section 1 A-3. Definition of Air Pollution

Presently the definition is restricted to the presence of substances...
"in concentration sufficient to cause...! unreasonable interference with
human, plant or animal life..."

Recommendation No. 8.1. Expand the definition of air
pollution to read "The presence of substances... that
may cause or tend to cause...interference with
human plant or animal life..."

2. Section 1 A-16. Penalty for Violations

This section provides for penalties of not less than fifty dollars
nor more than five hundred dollars for each violation. This ceiling is
not adequate to deter violations.

Recommendation No. 8.2. Establish a maximum penalty
of at least \$1000 per day.

b. Additional Provisions

There are omissions in the basic enabling legislation that need
attention as follows:

Recommendation No. 8.3. Seek authority to make
emission reports available for public inspection.

Recommendation No. 8.4. Request authority to require
the installation of equipment by an owner or operator

of stationary sources to monitor emissions and to conduct stack tests.

c. Regulations

Presently there is little uniformity apparent between the regulations promulgated by the State and those adopted by the local agencies. For this reason, the report will not address itself to deficiencies of rules and regulations on the local program level. OAP supports the idea of one basic set of regulations applicable statewide. To this end the local agencies should adopt by reference the State's regulations. If the agency wants a regulation to cover a localized problem or desires a more stringent regulation the proposed rule should first be cleared with the State agency before adoption. This procedure will insure the type of consistency necessary in an effective statewide air pollution control effort and yet will not stifle local initiative to enforce additional or stricter regulations.

Recommendation No. 8.5. Adopt, by reference, those rules and regulations promulgated by the State.

Additional or more stringent provisions should first be approved by the State agency.

8.3. Administration

Since 1967 when the Fairfax County Air Pollution Control Ordinance went into effect, the County Health Department has been the organization charged with the administration and enforcement of the air pollution control program.

a. Organization and Staffing

1. Internal The air pollution control program is established as a section level operation within the Health Department's Division of Environmental Health. (See Organizational Chart, Fig. 8.1).

The air pollution section, due to its limited size, has no formalized subdivisions. Presently there are ten staff members, including the chief who oversees the entire program operation. This level closely parallels the staffing needs predicted by the manpower model (Table 8.1). As the model indicates, the major thrust of the agency's effort should be in the area of enforcement, and therefore the agency should tailor its program accordingly.

All professional personnel, with the exception of the chemist, are classified as sanitarians, with the minimum requirement of a degree in one of the physical sciences. Unfortunately, the sanitarian's job description is general and does not adequately reflect the job functions and requirements of the air pollution control personnel.

Figure 8.1.

FAIRFAX COUNTY ORGANIZATIONAL
STRUCTURE

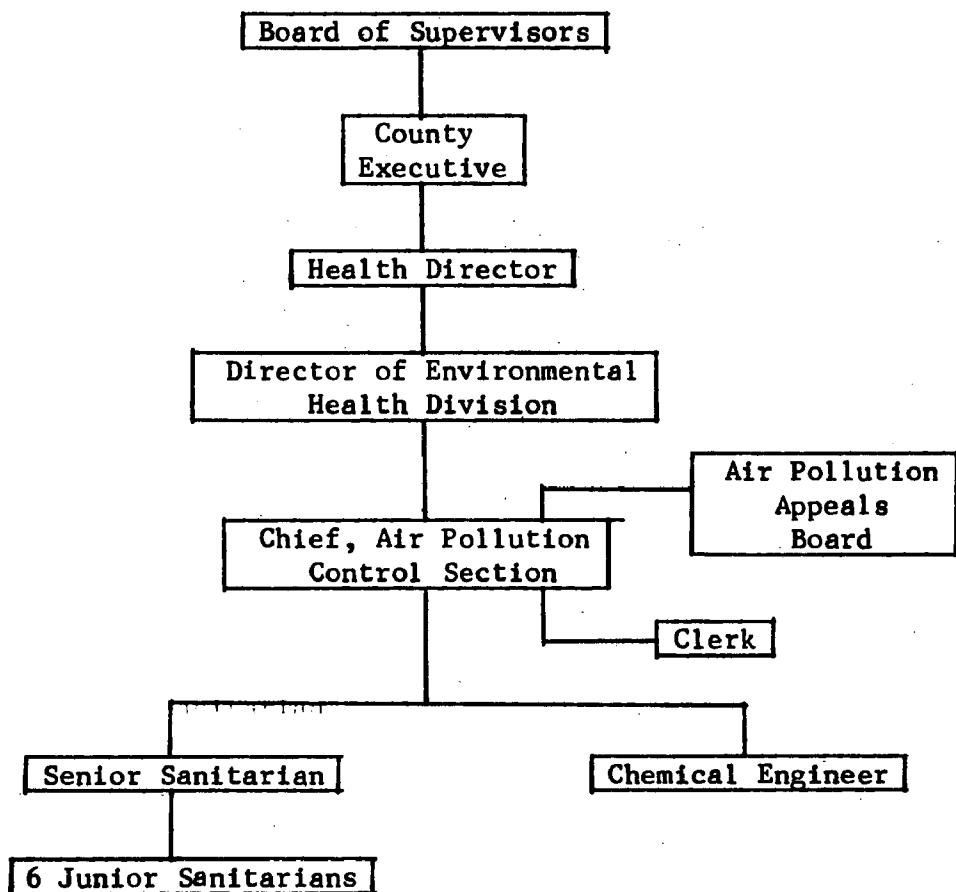


Table 8.1

PROJECTED MANPOWER NEEDS

Management Operations

| | |
|--|------------|
| Policy, public relations, strategy, recruitment, etc. | 1.0 |
| Staff training | .6 |
| Administrative and clerical | <u>2.0</u> |
| Sub-total (Management) | 3.6 |

Enforcement Operations

| | |
|--|-----|
| Scheduled Inspections-Fuel and Refuse | |
| Scheduled Inspections-Industry | |
| Complaints and Field Patrol | 3.7 |
| Source identification and registration | — |
| Sub-total (Enforcement) | 3.7 |

Engineering Operations

| | |
|--------------------------------------|-----------|
| Permit System | .2 |
| Source Testing | .3 |
| Emission Estimates | .2 |
| Engineering reports, new regulations | <u>.1</u> |
| Sub-total (Engineering) | .8 |

Technical Operations

| | |
|------------------------|-----------|
| Air Quality Monitoring | 1.0 |
| Special Studies | .3 |
| Data Processing | .4 |
| Instrument Calibration | .2 |
| Laboratory Operations | <u>.5</u> |
| Sub-total (Technical) | 2.4 |

| | |
|----------------|------|
| Total Manpower | 10.5 |
|----------------|------|

Recommendation No. 8.6 . Work with the County Personnel Board to develop job classifications that reflect the professional needs of the agency in the multidisciplinary field of air pollution control.

In addition to the above situation, according to the hiring practices of the Personnel Board, it is possible for a sanitarian to be hired without the agency having the opportunity to screen applicants.

Recommendation No. 8.7 . Arrange with the County Personnel Board that future air pollution applicants will be interviewed by the air pollution agency.

2. External

The County Board of Supervisors consisting of nine elected members, is the legislative body entrusted with the responsibility for adopting rules and regulations. The County Executive, appointed by the Board, is the administrative head of the county. All department heads, including the Health Director, report directly to him. Support for the air pollution control program has been good. The Board of Supervisors has appointed a five member Air Pollution Appeal Board, with the responsibility to hear appeals from any aggrieved parties. Although there have been only a few appeals, the support of the Board has been quite good.

b. Intergovernmental and Interagency Relations

The agency works closely with the County Building Inspector on inspecting mechanical installations and approving building plans involving air pollution sources. The cooperation of the police department has been good in turning over the name and address of smoking automobile owners to the agency. The cities of Falls Church and Fairfax police departments enforce the leaf burning ban in their respective cities. The air pollution open burning permits are screened by the fire department.

The agency is a member of the D. C. Council of Governments.

Recommendation No. 8.8. Consider the development of one air pollution control program for the Virginia portion of the Washington D. C. National Capital Interstate Air Quality Control Region.

c. Training

The training activities appear adequate in the Fairfax County program. New employees undergo a one month training program. OAP training courses are utilized when possible. For new professional personnel, training requirements should average about 3 to 5 weeks during the first two years, depending upon an individual's background in college or technical school and assigned program role. Middle level technical personnel (2 to 5 years) in air pollution should range from 3 to 10 man-days/year of formal training. Upper level technical personnel (over 6 years) in air pollution should receive at least one week of formal training annually to maintain professional competence and refine management skills.

8.4 Engineering

The agency, due to its size, does not have an engineering section. One engineer handles all engineering activities for the agency. All incinerator permits must be reviewed. An informal agreement with the building inspector assures that a building request involving any air pollution source is sent to the air pollution office for review.

a. Emission Inventory

An emission inventory has been completed by the agency. At present the permit review information is not utilized to update the emission inventory. The emission inventory could be kept current by utilizing information from the permits and contacting plants when additional information is required.

b. Permit System

It has been recommended that the State establish a statewide permit system, both for construction and operation of pollutant sources. Such a procedure will necessitate limited local involvement. The Fairfax County agency should develop its permit system to supplement the State program and should develop specific guidelines with the State which define the State-local responsibility in administering a permit system.

Recommendation No. 8.9 . Expand the permit operation to require approval of construction plans for all pollutant sources in the county and take steps to insure that this system compliments any statewide permit system.

Recommendation No. 8.10 . Set up a procedure to utilize the permit information to insure a current emission inventory.

c. Source Testing

The agency has a competent stack testing team and conducts approximately 40 tests a year. It has been recommended that the State agency set up several source sampling teams. In all probability, the Fairfax agency can handle its stack sampling needs but should call on the State agency if help is needed rather than expand its own source testing capability. Stack testing procedures should be uniform throughout the State and in this respect, the Fairfax agency could help the State in setting up its stack testing program and in writing procedures for stack testing.

c. Compliance Schedules

Sources in violation are called in for a meeting with the agency, at which time a compliance agreement is worked out with timetables for its completion. Periodic inspections are then made to assure the sources adherence to the schedule.

8.5 Enforcement

The enforcement activities in the Fairfax County Agency are handled by the entire professional staff. Due to the agency size there is no organizational breakdown into enforcement operations.

a. Surveillance

Inspectors are assigned geographic areas to cover and normally do not leave the area unless directed to. Complaints are radioed to the inspectors as they come in. Any point in the county can be reached from the office in 45 minutes. The agency has 5 automobiles and 1 panel truck all equipped with 2-way radios.

Four staff members are certified smoke readers and they are recertified every two years.

Recommendation No. 8.11. Make provisions to have every professional staff member certified to read smoke on at least a yearly basis.

The Police Department cooperates with the agency by reporting names and addresses of owners of smoking automobiles. The city police in Fairfax and Falls Church help enforce the leaf burning ban in their respective cities. City and county fire marshalls help in the inspection of fire permits.

The cities of Falls Church and Fairfax each have an air pollution officer working part-time on air pollution. The county agency has good liaison with these people.

Open burning is allowed in sections of the county that do not have trash pick-up. However, a permit is required for open burning. The agency issued one day permits and semi-permanent type permits.

Recommendation No. 8.1. Work through the county governmental structure to provide means of disposal other than open burning. Open burning must be discouraged and at a minimum strongly regulated.

b. Procedures

The Director of Health makes all decisions on issuing warrants for violations. Someone closer to the air pollution activity should have more input into the decision to prosecute. The Director of Health could authorize the Director of Environmental Health or the Chief, Air Pollution Section to act as his agent in swearing out warrants against violators.

Recommendation No. 8.13. Authorize the Director of Environmental Health or the Chief of the Air Pollution Section to act as an agent for the Director of Health in swearing out warrants against violators.

c. Site Inspections

All potential air pollution source installations are given a final

inspection by the agency. The Chief of the Air Pollution Program or the Senior Sanitarian accompany the area sanitarian on the site inspections. This procedure has been quite effective in the past and should be continued.

d. Emergency Plan

The agency has a draft form of an emergency episode plan. The Fairfax County agency in conjunction with the State should finalize the emergency episode plan as soon as possible.

Recommendation No. 8.14. Finalize an emergency episode plan in cooperation with the State agency.

8.6. Technical Operations

The major program functions of technical services include: air monitoring and laboratory analysis. The lab work is handled by the chemist, while one sanitarian works full-time on the monitoring network.

a. Air Monitoring

The air monitoring network consists of 6 hi-vols, 19 dustfall buckets and sulfation plates and one continuous monitoring station (CO, SO₂, total oxidants, NO₂, AISI tape sampler). Hi-vols are collected three times weekly by the sanitarian assigned to air monitoring.

Recommendation No. 8.15. Increase the number of hi-vol stations to 10 at a minimum.

The usefulness of dustfall data is very limited. Unless the agency is utilizing the data collected in an advantageous way, the number of dustfall buckets should be drastically reduced.

Recommendation No. 8.16. Evaluate the usefulness of the dustfall data and take appropriate action.

b. Laboratory

The laboratory is well equipped to do all the basic analysis required by the network. It is not necessary that the agency increase

its lab capability beyond its present level. If more sophisticated analysis is needed, the State should provide this service.

The three Virginia agencies in the D.C. area, Fairfax, Alexandria, and Arlington are in such close proximity there could be duplication of effort in lab facilities. Serious consideration should be given to developing one central lab for the Virginia portion of the D.C. region. This could possibly be a state-operated lab.

Recommendation No. 8.17. Give serious consideration to developing one central lab for the Virginia portion of the D.C. area.

c. Data Reduction

Hourly, daily, and monthly highs are recorded. The county has computer facilities, but the agency prefers to handle the data reduction through SAROD.

d. Special Studies

The agency expressed a desire to set up an automobile exhaust inspection system and in the current grant application have requested two combination HC and CO analyzers for this purpose. This activity should be a function of the state agency to be carried out on a statewide basis.

Recommendation No. 8.18. Encourage the State agency to set up a statewide auto exhaust testing program.

APPENDIX A

c o p y

Mr. John Daniels
Virginia Air Pollution Control Board
Ninth Street, Office Building
Richmond, Virginia 23219

Dear Mr. Daniels:

I regret the delay in this letter to follow-up my presentation before the Virginia Air Pollution Control Board on January 11, 1971. I hope the information I sent regarding comments on similar proposed regulations is useful. I would like the following material to be included in the record.

Our agency expects that each state must include in their State implementation plan for national air quality standards, restrictive emission standards for each and every source based on the latest available control techniques. In those cases where technology is not adequate to achieve the standards, consideration must be given to land use and transportation controls.

The proposed changes to State Rule 5 will greatly strengthen the enforcement of this rule and result in significant reduction in allowable emissions of particulate matter. Although it is premature to indicate acceptability of this regulation in terms of achieving national air quality standards, the requirements of the regulation are generally restrictive and will require use of the more effective control techniques for most process industries.

My understanding is that the major process industries that are source of particulate emissions in Virginia are as follows:

1. Cement, lime and associated mineral industries
2. Pulp and paper
3. Fertilizer and phosphate
4. Coal handling and processing
5. Petroleum and petrochemical
6. Foundry operations
7. Asphalt-batching plants

Specific regulations have been proposed for items 2, 3 and 7. Other industries are covered by a general process weight rule. We support this approach as a means to design regulations that more nearly reflect the latest control techniques. We suggest though, that you proceed with caution to avoid using this approach as a means of granting unnecessary exceptions to certain process industries. We believe that the specific regulations should provide at least comparable stringency as that required by the general process weight regulation.

Pulp and Paper

The proposed rule is less restrictive than the regulations developed in Oregon and Washington for Kraft pulp mills. In our view the standard of these States can also be improved to be consistent with feasible control techniques.

Our office has been investigating the status of kraft mill emission control technology for the purpose of publishing guidelines on limitation of kraft mill emissions to assist States in development of implementation plans. Our findings indicate that recovery furnace particulate emissions can be reduced to 1.3 pounds per ton of air dried pulp by use of combination electrostatic precipitator-scrubbing systems and this emission level can be applied to both new and existing installations. Commercially available high-energy scrubbers can reduce lime kiln particulate emissions to under 0.2 pounds per ton of air dried pulp. Smelt dissolving tank and slaker emissions can be reduced to 1.0 pounds per ton of air dried pulp by application of commercially available scrubbing equipment. We suggest that consideration be given to adopting stricter standards for pulp and paper mills and that the same regulations apply to both new and existing installations.

Cement Operations

We have recently completed a study of the cement industry and suggest the following regulations be applied to both new and existing cement plants.

1. The particulate emissions from the cement kiln shall not exceed 0.09 pounds per barrel of finished cement (lb/Bbl), the clinker cooler 0.04 lb/Bbl, the drier 0.03 lb/Bbl, the raw feed mill 0.02 lb/Bbl, the finish mill 0.02 lb/Bbl, and the coal mill 0.02 lb/Bbl.
2. There shall be no visible emissions from any stack within the cement plant.

These suggested emission limits are based on commercially demonstrated technology. Similar specific restrictions or the general process weight rule should be applied to other mineral-based industries. Our suggested emission limits for kraft pulp mills contains a standard for lime kilns.

Coal Handling and Processing

We do not necessarily endorse a separate rule for these sources. However, we do have some information about the latest available control devices

and measured emission rates. High energy venturi scrubbers (20-30 inch water pressure drop) have been applied to coal driers. Measured emission rates varied between 0.023 to 0.07 grains per SCF. In all cases the emissions concentration is below 0.05 gr/SCF when pressure drop exceeds 25 inches of water. For drying operations of this type or for any process in which raw material is processed or treated, it is recommended that particulate emissions be based on process weight rate or production rate. We suggest, therefore, that if a specific rule is contemplated, that you determine input process weight for coal driers associated with the recommended emission concentration.

Petroleum and Petrochemical

The major particulate emission source in the petroleum industry is the fluid catalytic cracker regenerator. This source is capable of meeting your general process weight table using commercially demonstrated control devices. If a specific rule is adopted, it should be compatible with this fact. The enclosed table and chart contains considerable information that can be used to establish emission rates for catalytic cracking unit regenerators.

Proposed regulations concerned with asphalt plants, materials handling, wood products and fugitive dust sources are well-designed and receive our support for adoption by the Board.

I wish to thank the Board for the opportunity to present these comments on behalf of the Air Pollution Control Office of the Environmental Protection Agency. Please be assured that our agency supports you in your efforts to improve your regulations and that we will cooperate fully in our joint efforts to eliminate sources of air pollution.

Sincerely yours,

Robert L. Duprey
Chief, Legislative and Regulations
Section
Technical Support Branch
Division of Control Agency Development