IBM

Virginia

Implementation Plan

FINAL REPORT

Implementation Plan

For The

Commonwealth Of Virginia

prepared in part by

The IBM Corporation
Federal Systems Division
Gaithersburg, Maryland 20760

for

The Environmental Protection Agency
Air Pollution Control Office
Durham, North Carolina 27701

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IMPLEMENTATION PLAN

OF

VIRGINIA

Contents Of

Virginia Implementation Plan

INTRODUCTION

The Clean Air Act of 1970 (P.L. 90-604) directs the Administrator of the Environmental Protection Agency to enact regulations promulgating national primary and secondary ambient air quality standards. The primary ambient air quality standard is defined as that air quality which, allowing an adequate margin of safety, is requisite to protect the public health, The secondary standard is that air quality which is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of air pollutants in the ambient air. The first such standards were promulgated on April 30, 1971. These included primary and secondary standards for sulfur oxides, particulate matter, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide.

Section 110 of the act directs each state, after reasonable notice and public hearings, to adopt and submit to the administrator a plan which provides for the implementation, maintenance, and enforcement of such national ambient air quality standards within each air quality control region (or portion thereof) within the state. This implementation plan must be submitted within nine (9) months after the promulgation of the standards but no later than January 30, 1972. The implementation plan must provide for attainment of national primary ambient air quality standards within three years after the date of the administrator's approval of the plan. The plan must provide for attainment of national ambient air quality standards within a reasonable time.

The Clean Air Act and regulations enacted pursuant thereto sets out specific items that must be included in the Implementation Plan. This plan has been developed, to meet all such requirements.

CLASSIFICATION
OF
AIR QUALITY CONTROL REGIONS

The State is composed of three natural topographic regions, namely: the Tidewater or coastal plains area, the Piedmont plateau of middle Virginia, and the western mountain region. Natural regions of lesser extent include the "Fall Line" located between Tidewater Virginia and the Piedmont region; the Blue Ridge Mountains that serve as the eastern boundary of the great Shenandoah Valley; the Shenandoah Valley itself; and the Appalachian plateau in southwestern Virginia.

Tidewater Virginia extends from the Atlantic coast and western shore of the Chesapeake Bay westward to the "Fall Line" that extends from Quantico in the north southward through Richmond to Emporia. It is divided into necks or peninsulas by four principal rivers and by numerous estuaries that open into the Chesapeake Bay. There are numerous peninsulas, wide estuaries, and many swamp areas. The principal rivers include the Potomac, Rappahannock, York and the James. Tidewater extends up these rivers to near the Fall Line.

The Piedmont region becomes more rolling as it approaches the mountains to the west. Elevations range from 300 feet or less above sea level in the east to more than 1,000 feet near the mountains. The James, the largest river crossing this region, divides it into two parts.

West of the Piedmont, the Blue Ridge Mountains traverse the State from southwest to northeast. They range from narrow ridges in the north to a high wide plateau south of Roanoke. Elevations range generally from 1,500 to 3,500 feet. Rogers Peak in western Grayson County towers to 5,719 feet, the highest point in the State.

A great valley west of the Blue Ridge extends from Tennessee through Scott County in the south, northeastward to the northern-most point of the State, and it embraces six separate valleys of which the largest is the Shenandoah. Elevations range mostly from 1,000 to 2,000 feet. This great valley is well drained. The north is drained by the north and south forks of the Shenandoah River, thence into the Potomac; the central portion by the Cow Pasture and Jackson Rivers flowing southeastward into the James; and the southwestern half of the valley is drained by the Roanoke River, the New River, and three forks of the Holston River; the latter drain southwestward into the Tennessee River.

The Appalachian Plateau in southwestern Virginia is divided into many sharp ridges and deep valleys.

The criteria used for the statewide delineation of Air Quality Region boundaries were:

1. The boundaries of the AQCR must be coterminous with a Planning District Commission boundary or combinations thereof. Due to the nature of air pollution, 2 or more PDC's were combined to form one AQCR.
2. AQCR delineation based solely on the four major topographic bands would prove unmanageable and administratively unfeasible. For example, the area west of the Blue Ridge Mountain range has similar topographic and climatic characteristics but due to the large land area involved, two AQCR's were established rather than one. (AQCR's 1 & 2)
3. All sources and major recipients of air pollution must be contained within the AQCR's. These include the existing sources of air pollution as well as possible future sources.
4. The AQCR must contain the urbanizing areas where future growth and development are likely to create air pollution problems.

Description of Regions

I Southwestern Virginia - Eastern Tennessee Interstate

The region is composed of Planning Districts 1, 2, and 3 which includes thirteen counties, two cities (Bristol and Galax) and seven towns above 3,500 population (Big Stone Gap, Bluefield, Richlands, Tazewell, Abingdon, Marion, and Wytheville). The total 1970 population was 386,277.

The region is coterminous with Bristol-Johnson City, Tennessee, Interstate AQCR. The prevailing winds and topography indicate that it will be most likely the recipient of Tennessee air pollution which justifies the Interstate AQCR.

The population and economic growth is influenced mainly by the Bristol-Kingsport Metropolitan Area. The potential for industrial growth is in the Abingdon-Bristol, Marion-Wytheville, and Galax-Hillsville areas.

II Valley Intrastate

The region is composed of Planning Districts 4, 5, 6 and 7 which includes eighteen counties, ten cities (Radford, Clifton Forge, Covington, Roanoke, Salem, Buena Vista, Harrisonburg, Lexington, Staunton, Waynesboro, and Winchester), and 6 towns (Blacksburg, Christiansburg, Pulaski, Vinton, Front Royal, and Luray). The total population is 649,109.

The population and economic growth is influenced mainly by the Roanoke-Salem Metropolitan Area and the urbanizing areas around Blacksburg, Radford, Clifton Forge, and Covington, and of three emerging metropolitan areas--City of Harrisonburg and County of Rockingham; City of Staunton and Waynesboro and County of Augusta; City of Winchester and County of Frederick. The potential industrial growth is projected for the present industrial complexes of Roanoke, Covington, and Radford.

III Central Intrastate

The region is composed of Planning Districts 11, 12, 13, and 14 which includes eighteen counties, five cities (Lynchburg, Bedford, Danville, South Boston, and Martinsville, and four towns (Rocky Mount, South Hill, Blackstone, and Farmville). The total population is 579,442.

The population and economic growth is influenced mainly by the metropolitan areas of Richmond, Petersburg, Hopewell and Colonial Heights which is located on the east of this AQCR, the Danville Metropolitan Area, the Lynchburg Metropolitan Area and the emerging Martinsville Metropolitan Area. The existing and potential industrial concentrations are in and around the Lynchburg, Martinsville and Danville areas.

IV Northeastern Intrastate

The region is composed of Planning Districts 9, 10, 16, 17, 18, and 22 which includes twenty five counties, two cities (Fredericksburg and Charlottesville), and two towns (Culpeper and Warrenton). The total population is 400,790.

The population and economic growth is influenced mainly by the Charlottesville Metropolitan Area and the urban corridor from Washington on the north to Richmond on the south. The few major industrial locations are widely dispensed with significant concentration only in the Culpeper area.

V State Capital Intrastate

The region is composed of Planning Districts 15 and 19 which includes twelve counties and five cities (Richmond, Colonial Heights, Emporia, Hopewell, and Petersburg). The total population is 741,252.

The population and economic growth is influenced mainly by the Richmond and Petersburg-Hopewell-Colonial Heights Metropolitan Areas. The existing and potential industrial growth is in the above mentioned metropolitan areas.

VI Hampton Roads Intrastate

The region is composed of Planning Districts 20 and 21 which includes five counties, nine cities (Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk, Virginia Beach, Hampton, Newport News, and Williamsburg), and one town (Poquoson). The total population is 1,106,374.

The population and economic growth is influenced mainly by the Newport News-Hampton and Norfolk-Portsmouth Metropolitan Areas. The existing and potential industrial growth is located in the above mentioned metropolitan areas.

VII National Capital Interstate

The region is composed of Planning District 8 which includes four counties, three cities (Alexandria, Fairfax, and Falls Church), and five towns (Herndon, Leesburg, Manassas, Manassas Park, and Vienna). The total population is 918,026.

The entire region is within the Washington Metropolitan Area which exhibited the highest growth over the past ten years between 1960 and 1970. The Virginia section contains few industrial pollutant sources except for two power generating plants located in the south and southeastern portion. The industrial expansion potential is excellent due to the convenience of air, highway, and railroad transportation facilities.

Classification

Section 420.3 of Federal Regulations published in Federal Register dated August 14, 1971 establishes a system for classifying air quality control regions. Each region was classified separately with respect to each of the following pollutants: particulate matter, sulfur oxide, carbon monoxide, nitrogen oxides, and photochemical oxidants and hydrocarbons.

These classifications and the basis for such classification is shown in the table attached.

The Hampton Roads Intrastate Air Quality Control Region has been designated for the particulate matter example region and the State Capital Intrastate Air Quality Control Region as the sulfur oxide example region.

CLASSIFIC. .N OF REGIONS

Air Quality Control Region (1)		Regional Classification (2)					Basis for Classification (4)				
		Particulate	SO_x	CO	NO_x	Oxidants and HC	Particulate	SO_x	CO	NO_x	Oxidants and HC
I	Southwestern Virginia (Tennessee)	I	I	III	III	III	A	A	C	C	C
II	Valley Intrastate	I	III	III	III	III	A	C	C	C	C
III	Central Intrastate	I	III	III	III	III	A	C	C	C	C
IV	Northeastern Intrastate	Ia	III	III	III	III	D	C	C	C	C
V	State Capital Intrastate	I	I*	I	I	I	A	A	B	B	B
IV	Hampton Roads Intrastate	I*	I	I	I	I	A	A	B	B	B
VII	National Capital (Maryland, District of Columbia)	I	I	I	I	I	A	B	B	B	B

Note 1. Interstate Regions have other state(s) listed in parentheses.
Note 2. Classification is denoted by one of the following codes.

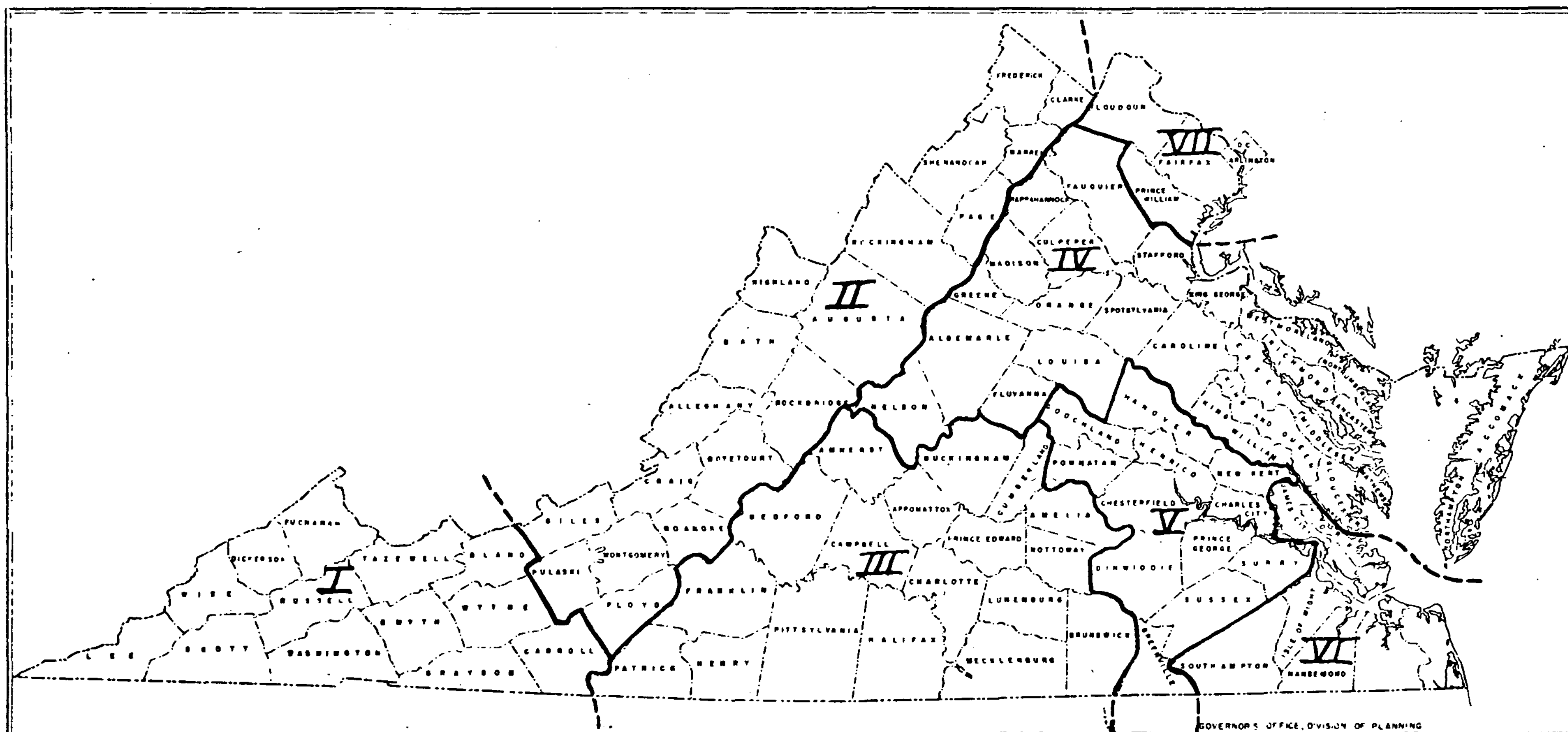
Code	Definition
I	Priority I Region
Ia	Priority Ia Region
II	Priority II Region
III	Priority III Region

Note 3. Asterik (*) in classification section identify example Regions.
Note 4. Classification is denoted by one of the following codes:

Code	Basis
A	Measured Air Quality Data
B	Urban Place Population Exceeds 200,000
C	Urban Place Population is less than 200,000
D	Point Source

Commonwealth Virginia

STATE AIR POLLUTION CONTROL BOARD



Air Quality Control

Regions

LEGAL AUTHORITY

Preface

Chapter 1.2, Title 10, Code of Virginia of 1950, as amended, authorizes the State Air Pollution Control Board to administer a complete program of air conservation, pollution abatement and control.

Section 10-17.9:1, "Public policy" states it is the public policy of the Commonwealth to achieve and maintain such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable prevent injury to plant and animal life and property, will foster the comfort and convenience of its people and their enjoyment of life and property, and will promote the economic and social development of the Commonwealth and facilitate enjoyment of its attractions.

Section 10-17.11, 12, and 13 concern the creation of the State Air Pollution Control Board, qualification of members and how they are appointed by the Governor, length of terms, filling of vacancies, and compensation and expenses of the Board.

Section 10-17.14 details how the Board shall organize and authorizes the employment of an executive secretary, who shall have such administrative powers as are conferred upon him by the Board, and such technical assistants and staff as it deems necessary to carry out its functions.

Section 10-17.18 outlines further powers and duties of the Board such as:

(1) the power to formulate, adopt and promulgate, amend and repeal rules and regulations abating, controlling and prohibiting air pollution throughout the State,

(2) grant variances, if after investigation it finds that local conditions

warrant,

(3) initiate and receive complaints as to air pollution,

(4) conduct such investigations as are reasonably necessary to carry out the provisions of the State law; and

(5) institute legal proceedings, including suits for injunctions for the enforcement of its orders, rules and regulations and the abatement and control of air pollution and for the enforcement of penalties.

Section 10-17.19 delineates creation of local air pollution control districts and their relationships to the Board. It further declares that all local ordinances, rules and regulations relating to air pollution shall be superseded by the rules and regulations of the State Board if in conflict.

Section 10-17.23:1, 2, and 3 provides for judicial review of standards, policies and regulations of the Board, how appeals from decisions of the Board may be made, and procedures for stay of special orders pending appeal from decisions.

Section 10-17.28 provides for the Commonwealth or any party aggrieved by any final decision of the judge the right to apply for an appeal to the Supreme Court of Appeals.

Carrying out the plan

The Attorney General of the Commonwealth of Virginia has examined the Virginia Air Pollution Control Law and has determined that the existing State law provides adequate authority for the State Air Pollution Control Board to carry out the requirements of the Clean Air Act, as amended. Copy of the letter is attached.

The State Air Pollution Control Board has adequate authority for:

(1) adoption of emission standards and limitations and any other measures necessary for attainment and maintenance of national standards under

Section 10-17.18(a) and (b)

(2) enforcement of applicable laws, regulations, and standards, and seek injunctive relief under Sections 10-17.17, 10-17.18(d), 10-17.18:1, 10-17.21, 10-17.22, 10.17.23, and 10.17.29

(3) abatement of pollutant emissions on an emergency basis to prevent substantial endangerment to the health of persons under Section 10-17.18:1(b) and such authority as vested in the Governor of Virginia as Director of Civil Defense pursuant to Sections 44-141 and 44-142(1).

(4) prevention of construction, modification, or operation of any stationary source at any location where emissions from such source will prevent the attainment or maintenance of a national ambient air standard under Sections 10-17.17, 10-17.18, 10-17.18:1 and 10-17.21

(5) obtaining information necessary to determine whether air pollution sources are in compliance with applicable laws, regulations and standards, including authority to require recordkeeping and to make inspections and conduct tests of air pollution sources under Sections 10-17.17, 10-17.18(a) and (b), 10-17.21 and 10-17.22

(6) requiring owners or operators of stationary sources to install, maintain and use emission monitoring devices and to make periodic reports to the State on the nature and amounts of emissions from such stationary sources, and to make such data available to the public as reported and as correlated with any applicable emission standards or limitations under Sections 10-17.17, 10-17.18(a) and (b), 10-17.21 and 10-17.22.

Table I summarizes the legal authority of the State Air Pollution Control Board and local air pollution control agency, as indicated for carrying out the plan in their respective jurisdictions.

Table I

Summary of Legal Authority for Carrying Out the Plan

CFR Part 420	Virginia APC Law Statute Section	Local APC Agency Statute Section
42.11(a)		
(1)	10-17.18(a)(b)	
(2)	10-17.17, 10-17.18(d), 10-17.18:1, 10-17.21, 10-17.22, 10-17.23, 10-17.29	
(3)	10-17.18:1(b), 44-141, 44-142(1)	
(4)	10-17.17, 10-17.18, 10-17.18:1, 10-17.21	
(5)	10-17.17, 10-17.18(a)(b), 10-17.21, 10-17.22	
(6)	10-17.17, 10-17.18(a)(b), 10-17.21, 10-17.22	

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703-770-2071

October 22, 1971

Mr. William R. Meyer, Executive Director
State Air Pollution Control Board
1106 Ninth Street Office Building
Richmond, Virginia 23219

Dear Mr. Meyer:

As you requested, I have examined the Virginia Air Pollution Control Law, § 10-17.9:1, et seq., of the Code of Virginia (1950), as amended, to determine whether or not existing State law provides adequate authority for the State Air Pollution Control Board to carry out the requirements of the Clean Air Act, as amended.

I have reviewed the Virginia Air Pollution Control Law in the light of the criteria published in the <u>Federal Register</u>, Vol. 36, No. 158, page 15489 (August 14, 1971), and my findings are set forth in the numbered paragraphs which follow.

1. The State Air Pollution Control Board has authority to adopt emission standards and limitations and any other measures necessary for attainment and maintenance of national ambient air quality standards. I find the requisite authority in § 10-17.18 (a) and (b) of the Code.

2. I find that the State Air Pollution Control Board has authority to enforce applicable laws, regulations, and standards, and to seek injunctive relief by virtue of the provisions of §§ 10-17.17, 10-17.18(d), 10-17.18:1, 10-17.21, 10-17.22, 10-17.23 and 10-17.29 of the Code.

3. I find authority in the State Air Pollution Control Board to abate pollutant emissions on an emergency basis to prevent substantial endangerment to the health of persons by virtue of § 10-17.18:1(b) of the Code. Such authority is also vested in the Governor of Virginia as Director of Civil Defense pursuant to §§ 44-141 and 44-142(1) of the Code.

4. I find authority in the State Air Pollution Control Board to prevent construction, modification, or operation of any stationary source at any location where emissions from such source will prevent the attainment or maintenance of a national ambient air quality standard by virtue of §§ 10-17.17, 10-17.18, 10-17.18:1 and 10-17.21 of the Code.

5. I find authority in the State Air Pollution Control Board to obtain information necessary to determine whether air pollution sources are in compliance with applicable laws, regulations, and standards, including authority to require recordkeeping and to make inspections and conduct tests of air pollution sources, by virtue of §§ 10-17.17, 10-17.18 (a) and (b), 10-17.21 and 10-17.22 of the Code.

6. I find that the State Air Pollution Control Board has authority to require owners or operators of stationary sources to install, maintain, and use emission monitoring devices and to make periodic reports to the State on the nature and amounts of emissions from such stationary sources, as well as authority to make such data available to the public as reported and as correlated with any applicable emission standards for limitations, by virtue of §§ 10-17.17, 10-17.18(a) and (b), 10-17.21 and 10-17.22 of the Code.

I am attaching copies of those laws to which I have referred.

With kindest regards, I remain

Sincerely yours,

Andrew P. Miller

Andrew P. Miller
Attorney General

18:53

Enclosures

§ **44-141. Governor to be Director of Civil Defense.**—The Governor shall be the Director of Civil Defense for the Commonwealth. It shall be his duty as such to take such action, from time to time, as in his judgment is best calculated for the adequate promotion and coordination of State and local civilian activities relating to the defense of the State and the nation, whenever in time of war, grave national peril, or serious natural disaster, the safety of the Commonwealth in his opinion, so requires. (1942, p. 9; Michie Code 1942, § 2673(126); 1952, c. 121.)

§ **44-142. Powers of Director.**—As Director of Civil Defense, the Governor shall have, in addition to his powers hereinafter or elsewhere prescribed by law, the following powers and duties:

(1) To proclaim and publish such rules and regulations and to issue such executive orders, as may in his judgment be necessary to accomplish in full the purposes of this chapter, which shall have the force and effect of law and the violation thereof shall be punishable as a misdemeanor in every case where the executive order declares that its violation shall have such force and effect;

(2) To appoint a coordinator or executive officer, and to appoint or employ, or authorize the appointment or employment of, such other personnel as in his judgment is required to carry out the provisions of this chapter, and to remove, in his discretion, any and all persons serving hereunder;

(3) To establish a State Council of Defense to serve in an advisory capacity; to provide for the establishment of such regional and local councils of defense as in his judgment are requisite; to prescribe programs and rules therefor; to cooperate with the authorized agencies of the federal government and of the several states engaged in defense activities; and to take such other action, as in his opinion will further the organization, coordination and preparation for adequate defense.

(4) To procure supplies and equipment, to institute training programs and public information programs, and to take all other preparatory steps including the partial or full mobilization of civil defense organizations in advance of actual disaster, to insure the furnishing of adequately trained and equipped forces of civil defense personnel in time of need.

(5) To make such studies and surveys of the industries, resources, and facilities in this State as may be necessary to ascertain the capabilities of the State for civil defense, and to plan for the most efficient emergency use thereof.

(6) On behalf of this State, to enter into mutual aid arrangements with other states and to coordinate mutual aid plans between political subdivisions of this State.

(7) To delegate any administrative authority vested in him under this chapter, and to provide for the subdelegation of any such authority. (1942, p. 9; Michie Code 1942, § 2673(127); 1952, c. 121.)

§ **44-142.1. Mobile reserve battalions.**—(a) The Governor or his duly designated representative is authorized to create and establish such number of mobile reserve battalions as may be necessary to reinforce civil defense organizations in stricken areas and with due consideration of the plans of the federal government and of other states. The local defense authorities shall appoint a commander for each such battalion who shall have primary responsibility for the organization, administration and operation of such battalion. Mobile reserve battalions shall be called to duty upon orders of the Governor and shall perform their functions in any part of the State, or, upon the conditions specified in this section, in other states.

(b) The term "mobile reserve battalion" as used in this chapter shall be construed to mean any organization of teams of fire fighters, medical and first aid workers, construction and repair workers, disaster relief workers, police and other reserve and emergency workers which has been approved by the Director of Civil Defense.

Air Pollution Control Law of Virginia

Title 10.

Conservation Generally.

CHAPTER 1.2.

AIR POLLUTION CONTROL.

§ **10-17.9:1. Public policy.**—It is declared to be the public policy of the Commonwealth, and the purpose of this chapter, to achieve and maintain such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable prevent injury to plant and animal life and property, will foster the comfort and convenience of its people and their enjoyment of life and property, and will promote the economic and social development of the Commonwealth and facilitate enjoyment of its attractions. (1970, c. 469.)

§ **10-17.10. Definitions.**—The following words, for the purposes of this chapter, shall have the following meanings:

(a) *"Board"* means the State Air Pollution Control Board, sometimes hereinafter referred to as "Board" or "State Board."

(b) *"Air pollution"* means the presence in the outdoor atmosphere of one or more substances which are or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interfere with the enjoyment by the people of life or property.

(c) *"Owner"* means the State, a county, sanitary district, municipality, political subdivision, a public or private institution, corporation, association, firm, or company organized or existing under the laws of this or any other state or country, lessee or person otherwise in possession of property, person or individual, or group of persons or individuals, acting individually or as a group.

(d) *"Special order"* means a special order issued under § 10-17.18:1. (1966, c. 497; 1968, c. 311; 1970, c. 469; 1971, Ex. Sess., c. 91.)

The numbers of §§ 10-17.10 to 10-17.30 were assigned by the Virginia Code Commission, the 1966 act having assigned no numbers.

The 1970 amendment rewrote subdivision (b).

The 1971 amendment, effective Feb. 24, 1971, added subdivision (d).

§ **10-17.11. State Air Pollution Control Board created; membership; terms; vacancies.** — There is hereby created in the Executive Department of the State, the State Air Pollution Control Board to be composed of five members to be appointed by the Governor and subject to confirmation by the General Assembly. The first appointments shall be made as follows: Two for a term of four years; two for a term of three years; and one for a term of two years; successors to the first appointees hereunder shall be appointed for terms of four years each. Vacancies other than by expiration of term shall be filled by the Governor by appointment for the unexpired term. (1966, c. 497.)

Law Review. — For survey of Virginia law on administrative law for the year 1969-1970, see 56 Va. L. Rev. 1603 (1970).

§ **10-17.12. Qualifications of members of Board.**—The members of the Board shall have the following qualifications: They shall be citizens of the State, they shall be selected from the State at large for merit without regard to political affiliation; the Governor in his appointments shall select persons for their ability and all appointments shall be of such nature as to aid the work of the Board to inspire the highest degree of cooperation and confidence. No officer, employee or representative of any industry, county, city or town which may become subject to the rules and regulations of the Board shall be appointed to the Board. (1966, c. 497.)

§ **10-17.13. Compensation and expenses of Board.** — All members of the Board shall serve without compensation but shall receive twenty dollars per day for attendance at meetings and their actual expenses incurred in attending meetings of the Board and in the performance of any duties as members or by direction of the Board. (1966, c. 497.)

§ **10-17.14. Chairman, technical assistants and staff of Board; cooperation of State agencies.**—The Board shall elect its own chairman and employ such technical assistants and staff as it deems necessary to carry out its functions, and is authorized to employ an executive secretary who shall serve as executive officer and devote his whole time to the performance of his duties, and he shall have such administrative powers as are conferred upon him by the Board. The Board may call upon any State department or agency for technical assistance. All departments and agencies of the State shall, upon request, assist the Board in the performance of its duties. (1966, c. 497.)

§ **10-17.15. Meetings of Board; quorum.** — The Board shall meet at least once every three months. Special meetings may be held at any time or place to be determined by the Board upon the call of the chairman or upon written request of any two members. All members shall be duly notified of the time and place of any regular or special meeting at least five days in advance of such meeting. Three members of the Board shall constitute a quorum for the transaction of business. (1966, c. 497.)

§ **10-17.16. Records of proceedings of Board; rules and regulations.**—The Board shall keep a complete and accurate record of the proceedings at all its meetings, a copy of which shall be kept on file in the office of the executive secretary and open for public inspection. Any rules, regulations or other requirements adopted by the Board to have general effect in part or all of the State shall be filed with the Secretary of the Commonwealth, at least thirty days before they are to take effect. (1966, c. 497.)

§ **10-17.17. Inspections, investigations, etc.** — The Board shall make, or cause to be made, such inspections, conduct such investigations and do such other things as are reasonably necessary to carry out the provisions of this chapter, within the limits of the appropriations, study grants, funds, or personnel which are, or become, available from any source for the purposes of this chapter. (1966, c. 497.)

§ **10-17.18. Further powers and duties of Board.**—(a) The Board at all times shall have the power to control and regulate its internal affairs; initiate and supervise research programs for the purpose of determining the causes, effects and hazards of air pollution; initiate and supervise state-wide programs of air pollution control education; cooperate with and receive money from the federal government or any county or municipal government, and receive money from any other source, whether public or private; develop a comprehensive program for the study, abatement and control of all sources of air pollution in the State, advise, consult and cooperate with agencies of the United States, and all agencies of the State, political subdivisions, private industries and any other affected groups in furtherance of the purposes of this chapter.

(b) The Board, after having made an intensive and comprehensive study of air pollution in the various areas of the State, its causes, prevention, control and abatement, shall have the power to formulate, adopt and promulgate, amend and repeal rules and regulations abating, controlling and prohibiting air pollution throughout the State or in such areas of the State as shall be affected thereby; provided, however, that no such rule or regulation and no such amendment or repeal shall be adopted, nor shall any order be entered, except after public hearing to be held after thirty days prior notice thereof by public advertisement of the date, time and place of such hearing, at which opportunity to be heard with respect thereto shall be given to the public; and provided, further, that no such rule or regulation and no such amendment or repeal, or no such order, shall be or become effective until sixty days after the adoption or entry thereof as aforesaid. The rules and regulations shall not promote or encourage any substantial degradation of present air quality in any air basin or region which has an air quality superior to that stipulated in the rules and regulations.

(c) After any rule or regulation has been adopted by the Board pursuant to subsection (b) of this section, it may in its discretion grant local variances therefrom, if it finds after a thorough investigation and hearing that local conditions warrant. In the event local variances are permitted, the Board shall issue an order to this effect, after a hearing is held, which order shall be subject to revocation or amendment at any time if the Board after hearing determines such amendment or revocation is warranted.

(d) After the Board shall have adopted the rules or regulations provided for in subsection (b) of this section, it shall have the power to: initiate and receive complaints as to air pollution; hold or cause to be held hearings and enter orders diminishing or abating the causes of air pollution and the enforcement of its rules or regulations; institute legal proceedings, including suits for injunctions for the enforcement of its orders, rules and regulations and the abatement and control of air pollution and for the enforcement of penalties, all in accordance with this chapter.

(e) The Board, in making rules and regulations and issuing orders, and the courts in enforcing the provisions of this chapter, shall take into consideration all of the facts and circumstances bearing upon the reasonableness of the activity involved and the regulations proposed to control it, including:

(1) The character and degree of injury to, or interference with safety, health or the reasonable use of property which is caused or threatened to be caused;

(2) The social and economic value of the activity involved;

(3) The suitability or unsuitability of such activity to the area in which it is located; and

(4) The practicability, both scientific and economic, of reducing or eliminating the discharge resulting from such activity.

(f) In all cases the Board and the courts shall exercise a wide discretion in weighing the equities involved and the advantages and disadvantages to the residents of the area involved and to any lawful business, occupation or activity involved resulting from requiring compliance with the specific requirements of any order, rule or regulation.

(g) Expressly excluded from this chapter are all aspects of employer-employee relationships.

(h) The board may designate one of its members, the executive secretary, or a staff assistant to conduct the hearings provided for in this chapter, provided that a record of the hearing proceedings shall be made and furnished the Board for its use in arriving at its decision resulting from each hearing so conducted. (1966, c. 497; 1968, c. 311; 1969, Ex. Sess., c. 8; 1970, c. 469.)

The 1970 amendment added the second sentence in subsection (b).

§ **10-17.18:1. Issuance of special orders.**—The Board shall have the power:

(a) To issue special orders: (1) to owners who are permitting or causing air pollution as defined by subsection (b) of § 10-17.10, to cease and desist from such pollution; (2) to owners who have failed to construct facilities in accordance with finally approved plans and specifications requested by the Board, to construct such facilities in accordance with finally approved plans and specifications; (3) to owners who have violated or failed to comply with the terms and provisions of any order or directive issued by the Board, to comply with such terms and provisions; (4) to owners who have contravened duly adopted and promulgated air quality standards and policies, to cease and desist from such contravention and to comply with such air quality standards and policies; and (5) to require any owner to comply with the provisions of this chapter and any decision of the Board.

(b) Such special orders are to be issued only after a hearing with at least thirty days' notice to the affected owners of the time, place and purpose thereof, and they shall become effective not less than fifteen days after service as provided in subsection (c) below; provided, that if the Board finds that any such owner is grossly affecting the public health, safety or welfare, or the health of animal or plant life, or to property, whether used for recreational, commercial, industrial, agricultural or other reasonable uses, after a reasonable attempt to give notice, it shall declare a state of emergency and it may issue without hearing an emergency special order directing the owner to cease such pollution immediately, and shall within ten days hold a hearing, after reasonable notice as to the time and place thereof to the owner, to affirm, modify, amend or cancel such emergency special order. If the Board finds that an owner who has been issued a special order or an emergency special order is not complying with the terms thereof, it may proceed in accordance with § 10-17.23.

(c) Any special order issued under the provisions of this section need not be filed with the Secretary of the Commonwealth, but the owner to whom such special order is directed shall be notified by certified mail, return receipt requested, sent to the last known address of such owner, or by personal delivery by an agent of the Board, and the time limits specified shall be counted from the date of receipt.

(d) Nothing in this section shall limit the Board's authority to proceed against such owner directly under § 10-17.23 or 10-17.29 for violations of the provisions of this chapter or any decision of the Board without the prior issuance of a special order or an emergency order. (1971, Ex. Sess., c. 91.)

Effective date.—This section is effective Feb. 24, 1971.

§ **10-17.18:2. Decision of Board pursuant to hearing.**—Any decision by the Board rendered pursuant to hearings under § 10-17.18:1 or subsection (d) of § 10-17.18 shall be reduced to writing, and shall contain the explicit findings of fact and conclusions of law upon which the decision of the Board is based. Certified copies of such written decision shall be mailed by certified mail to the parties affected by it. Failure to comply with the provisions of this section shall render such decision invalid. (1971, Ex. Sess., c. 91.)

Effective date.—This section is effective Feb. 24, 1971.

§ **10-17.19. Air pollution control districts.**—(a) The Board may create, within any area of the State, local air pollution control districts comprising a city or county or a part or parts of each, or two or more cities or counties, or any combination or parts thereof. Such local districts may be established by the Board on its own motion or upon request of the governing body or bodies of the area involved.

(b) In each district there shall be a local air pollution control committee, the members of which shall be appointed by the State Board from lists of recommended nominees submitted by the respective governing bodies of each locality, all or a portion of which are included in the district. The number of members on each such committee shall be in the discretion of the State Board. When a district includes two or more localities or portions thereof, the State Board shall apportion the membership of the committee among the localities, provided that each locality shall have at least one representative on such committee. The members shall not be compensated out of State funds, but may be reimbursed for expenses out of State funds. Such localities may provide for the payment of compensation and reimbursement of expenses to the members, the portion of such payment to be borne by each locality to be prescribed by agreement, and may appropriate funds therefor.

(c) When the rules and regulations adopted for any such district become effective, all local ordinances, rules and regulations relating to air pollution, insofar as they affect the area included within such district, shall be superseded by the rules and regulations of the State Board; provided, however, the State Board may permit the governing body of any locality to adopt ordinances, not in conflict with district or State rules and regulations of the Board, for the control of specific categories of air pollution. 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.

(d) The governing body of any locality, wholly or partially included within any such district, may appropriate funds for use by the local committee in air pollution control and studies. (1966, c. 497; 1969, Ex. Sess., c. 8.)

§ **10-17.20. State Advisory Committee on Air Pollution.**—The Board is authorized to name technically qualified citizens to a State Advisory Committee on Air Pollution. (1966, c. 497.)

§ **10-17.21. Owners to furnish plans, specifications and information.**—Every owner which the Board has reason to believe is causing, or may be about to cause, an air pollution problem shall on request of the Board furnish such plans, specifications and information as may be required by the Board in the discharge of its duties under this chapter. Any information as to secret processes, formulae or methods of manufacture or production shall not be disclosed in public hearing and shall be kept confidential. If samples are taken for analysis, a duplicate of the analytical report shall be furnished promptly to the person from whom such sample is requested. (1966, c. 497; 1968, c. 311.)

§ **10-17.22. Right of entry.**—Whenever it is necessary for the purposes of this chapter, the Board or any member, agent or employee when duly authorized by the Board may at reasonable times enter any establishment or upon any property, public or private, for the purpose of obtaining information or conducting surveys or investigations. (1966, c. 497.)

§ **10-17.23. Compelling compliance with rules, regulations or orders of Board.**—Any owner violating, failing, neglecting or refusing to obey any rule, regulation or order of the Board may be compelled to obey the same and comply therewith by injunction, mandamus or other appropriate remedy. (1966, c. 497.)

§ **10-17.23:1. Judicial review of standards, policies and regulations of Board.**—The validity of any standard, policy or regulation may be determined upon petition for a declaratory judgment thereon addressed to the Circuit Court of the city of Richmond by any owner who might be adversely affected by its enforcement and who alleges that it is invalid. The Board shall be made a party to the proceeding. The declaratory judgment may be rendered whether or not the petitioner has first requested the Board to pass upon the validity of the rule in question. The court shall declare the standard, policy or regulation invalid if it finds that it is unconstitutional, exceeds the statutory authority of the Board, or was adopted without compliance with the procedures prescribed in this chapter, or is unreasonable, arbitrary, capricious, and not in the public interest. An appeal may be had from the decision of the court to the Supreme Court as provided by law. (1971, Ex. Sess., c. 91.)

Effective date.—This section is effective Feb. 24, 1971.

§ **10-17.23:2. Appeal from decision of Board.** — (a) Any owner aggrieved by a final decision of the Board under § 10-17.18:1 or subsection (d) of § 10-17.18 is entitled to judicial review thereof under this chapter in the Circuit Court of the city of Richmond, in term or in vacation. Proceedings for review shall be instituted by filing a notice of appeal with the Circuit Court of the city of Richmond within thirty days after the date of the order and delivering a copy of said notice of appeal to the Board and to all other parties to the proceeding.

With his notice of appeal, or within thirty days thereafter, the appellant shall deliver to the Board a transcript of the testimony if it was taken down in writing, or, if it was not taken down in writing, a statement of it in narrative form. Within thirty days thereafter, the Board shall transmit to the clerk of the court to which the appeal is taken:

(1) A copy of the request, if any, for, or notice of, the formal hearing;
(2) A copy of the order appealed from;
(3) A copy of the notice of appeal;
(4) The transcript or statement of the testimony filed by appellant, together with a certificate that it is correct except in specified particulars;
(5) The exhibits.

The failure of the Board to transmit the record within the time allowed shall not prejudice the rights of the appellant. The court, on motion of the appellant, may issue a writ of certiorari requiring the Board to transmit the record on or before a certain date.

(b) The court, sitting without a jury, shall hear the appeal on the record transmitted by the Board and such additional evidence as may be necessary to resolve any controversy as to the correctness of the record. And the court, in its discretion, may receive such other evidence as the ends of justice require. The court may affirm the decision of the Board or remand the case for further proceedings; or it may reverse or modify the decision if the substantial rights of the appellant have been prejudiced because the findings, conclusions or decisions are (1) in violation of constitutional provisions; or (2) in excess of statutory authority or jurisdiction of the Board; or (3) made upon unlawful procedure; or (4) affected by other error of law; or (5) unsupported by the evidence on the record considered as a whole; or (6) arbitrary, capricious, or an abuse of discretion. (1971, Ex. Sess., c. 91.)

Effective date.—This section is effective Feb. 24, 1971.

§ **10-17.23:3. Stay of special order pending appeal from decision.**—The filing of a notice of appeal from a final decision of the Board under § 10-17.18:1 or subsection (d) of § 10-17.18 shall not operate to stay the enforcement of the Board order. The appellant, at any time after the filing of his notice of appeal, may apply to the court for a stay. The application shall be on motion after notice to the Board, and a stay pending the appeal shall be granted unless it appears to the court that immediate enforcement of the order is essential to the public health or safety. In the order granting a stay, the court may make any provision required to serve the ends of justice including the granting or continuing in effect of any order or directive of the Board. (1971, Ex. Sess., c. 91.)

Effective date.—This section is effective Feb. 24, 1971.

§§ **10-17.24 to 10-17.27:** Repealed by Acts 1971, Ex. Sess., c. 91.

Effective date. — The repealing act is effective Feb. 24, 1971.

§ **10-17.28. Appeals to Supreme Court.** — The Commonwealth or any party aggrieved by any such final decision of the judge shall have, regardless of the amount involved, the right to apply for an appeal to the Supreme Court of Appeals. The procedure shall be the same as that provided by law concerning appeals and supersedeas.

It shall be the duty of the Attorney General to represent the Board or designate some member of his staff to represent it. (1966, c. 497.)

§ **10-17.29. Penalties.**—Any owner violating any provision of this chapter or failing, neglecting, or refusing to comply with any order of the Board, or a court, lawfully issued as herein provided, shall, upon conviction be liable to a fine of not less than fifty dollars nor more than five hundred dollars for each violation within the discretion of the court, and each day of continued violation after conviction shall constitute a separate offense and may subject the system, business, or establishment causing pollution in violation of this chapter to abatement as a nuisance. (1966, c. 497.)

§ **10-17.30. Local ordinances.**—Until such time as the authority of any governing body of a locality to adopt ordinances relating to air pollution has been superseded as provided in § 10-17.19 hereof:

(a) Existing local ordinances adopted prior to June twenty-seven, nineteen hundred sixty-six, shall continue in force; provided that in the event of a conflict between a rule, regulation, order or requirement of the Board and a provision or provisions of a local ordinance, the rule, regulation, order, or requirement or requirements of the Board shall govern; and

(b) The governing body of any locality proposing to adopt an ordinance, or an amendment to an existing ordinance, relating to air pollution after June twenty-seven, nineteen hundred sixty-six, shall first obtain the approval of the State Board as to the provisions of such ordinance or amendment. (1966, c. 497.)

AIR POLLUTION CONTROL STRATEGIES - GENERAL

The Virginia Implementation Plan for the control of air pollution by 1975 and beyond deals primarily with those regions and pollutants where frequent daily amounts and some average annual means are already exceeding National Air Quality Standards. This is the case for traffic related pollutants in the Tidewater, Richmond, and Northern Virginia areas in the summer. The Standards are being exceeded for SO_2 in the Richmond and Hampton areas during the winter, and for particulates at any time of year. Therefore, the control strategies described in detail in subsequent sections will be considered as those required by EPA for example regions.

The regions and pollutants are:

- Region 6, Norfolk, for particulates. Verified by Region 5 use.
- Region 5, Richmond, for SO_2. Verified by Region 6 use.
- Regions 5, 6, and 7 (Northern Va.) for traffic related pollutants.

Method of Analysis

The principal method of control strategy for all the pollutants is that of analyzing and comparing air quality data with emission inventory data, and then applying a proportional reduction model. In those cases where air quality data was sparse, some modifications to this approach were used:

- For SO_2, which usually originates from large point sources, the point source formula from Appendix A (Fed. Reg. 36-158) was used in Region 5.

- For SO_2, and CO, a statistical techniques was used to predict the probable short period maxima from the variability of small data samples.
- For NOx, the rather small number of observations in Regions 5 and 6 were used to compute an average annual mean, and then the proportional model used to compute required reduction. Traffic NOx emissions for 1975, per Federal Regs, were added to power plant growth factors with an assumed 50% control technology for power plant emissions.
- HC reduction was computed from Appendix J of the Federal Register, using good statistical samples of total oxidants in the three regions.
- Particulate observations were considered adequate, and the Annual Geometric Mean maxima in each region were used.
- VEPCO 1975 planning estimates were included.

The emission inventories were verified for reasonableness through frequent contacts with the APCB, and against the Emission Factors Manual from EPA. Area contributions of SO_2 and particulates added to the concentrations from point sources around Richmond and Norfolk were selected from the inclusive and nearby county jurisdictions, rather than the entire (non-contributing) region.

The use of meteorological data was kept to a minimum, because of the limitations of modeling techniques. The proportional model, based on annual emissions and averaged observations, averages out weather factors because of their short period characteristics. Local meteorological biases are specified in the detailed analyses, where they appeared to have a strong bearing on air quality observations.

Compliance Section

Section 2.04 of Section II of the Regulations for Control and Abatement of Air Pollution requires all new point sources to be in compliance as of going into operation. All existing point sources and new point sources under construction not in compliance at the effective date of the regulations shall be in compliance by June 30, 1972. If compliance is not possible by June 30, 1972, the owner or person responsible for the operation of the installation shall have submitted to the Board by June 30, 1972 in a form and manner satisfactory to the Board a control plan and schedule to contain a date on or before which full compliance will be attained. If approved by the Board, such date will be the date on which the person shall comply. The Board may require persons submitting such a plan to submit periodic reports in progress in achieving compliance.

Section 2.05 of Section II outlines how action must be taken on control plans mentioned above. These steps include (1) approval/disapproval by the Board within 90 days, (2) owner must be furnished copies of objections and may submit answers and comments on such objections, (3) approval, conditional approval and/or disapproval by the Board with notification of owner in writing of its reasons for action taken, and (4) procedure for appeal from Board action.

Section 2.06 of Section II provides for granting of local variance to any rule or regulation adopted by the Board if it finds after a thorough investigation and hearing that local conditions warrant such a variance.

A typical control program is attached.

Control Plan
of
ABC Table Company
697 Table Lane
Table, Va.

Pollution Problem

Emissions from three boilers using wood chips and coal as alternate fuels are in violation of Section 4.02.00 (Rule 2) Smoke or Other Visible Emissions - Stationary Sources.

Background

The subject company has three 100 H.P. boilers to generate steam from waste wood chips. Bituminous coal is used as a supplementary fuel in winter months. The boilers are thirty years old, use natural draft, have no combustion controls, and are in poor mechanical condition.

Proposed Program

Replace existing three boilers with a single 300 H.P. boiler equipped with

(1) a mechanical rate-controlled wood chip feeder

(2) use of fuel oil as an auxiliary fuel

(3) combustion fire-box incorporating an underfire fan, two overfire fans, and an induced draft fan

(4) a high-efficiency cyclone dust separator

(5) a smoke opacity detector in stack with alarm

(6) modern firing controls

Time Table

Approval of capital funds	January 1, 1970
Engineering, design and specifications	May 1, 1970
Selection of vendor and purchase	June 1, 1970

Equipment delivery	January 1, 1971
Installation complete	March 1, 1971
Initial operation	April 1, 1971

Approval by Board:

(1) Cyclone efficiency must be 85% or better

(2) Quarterly progress reports must be submitted starting February 1, 1970.

(3) Approved December 15, 1969

Notice of Approval

A letter to ABC Table Company from Executive Secretary outlining approval conditions.

PREVENTION OF AIR POLLUTION EMERGENCY EPISODES

It is the purpose of this section to specify the programs and actions required by the State Air Pollution Control Board (SAPCB) and the operators of air pollution sources within the Commonwealth to prevent ambient pollutants from reaching levels which would constitute imminent and substantial endangerment to the health of the general public. These regulations apply to all areas of the Commonwealth with the exception of Region VII which has a separate episode control plan.

An air pollution episode is caused by a set of meteorological conditions which produce a stagnation of the atmosphere for a significant period of time, thereby preventing the normal dilution of pollutant emissions over a populated region. Highly localized incidents can develop into emergencies resulting from unusually large volumes or topographic concentrations of emitted pollutants from a single source.

Episode Criteria: Conditions justifying the proclamation of an air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the SAPCB determines that the accumulation of air pollutants in any place is approaching or has reached levels which could, if such levels are sustained or exceeded, lead to a substantial threat to the health of persons. In making this determination, the SAPCB defines the following stages of episode criteria:

AIR POLLUTION FORECAST: A continuous internal watch by the SAPCB will be actuated upon the receipt of a National Weather

Service Bulletin advising that an Atmospheric Stagnation Advisory is in effect or upon the receipt of an equivalent local forecast of a stagnant atmospheric condition. Ambient air monitoring will be intensified to provide air quality data on a current basis while episode conditions prevail.

AIR POLLUTION ALERT: The "Alert" level is that concentration of pollutants at which first stage control actions are to begin. An Alert will be declared when any one of the following levels is reached at any monitoring site, and meteorological conditions are such that the pollutant concentration can be expected to remain at this level for twelve (12) or more hours, or increase, unless control actions are taken:

Pollutant	Average	$\mu gm/m^3$	ppm
SO_2	24-Hour	800	.3
Particulates	24-Hour	375	(3.0 COH)
SO_2 X Particulates (product)	24-Hour	65×10^3	(.2 COH-ppm product)
CO	8-Hour	17×10^3	15
Oxidants	1-Hour	200	.1
NO_2	1-Hour	1,130	.6
	24-Hour	282	.15

AIR POLLUTION WARNING: The "Warning" level indicates that air quality is continuing to degrade and that additional control actions are necessary. A Warning will be declared when any one of the following levels is reached at any monitoring site, and meteorological conditions are such that the pollutant concentration can be expected to remain at this level for twelve (12) or more hours, or increase, unless control actions are taken:

Pollutant	Average	$\mu gm/m^3$	ppm
SO_2	24-Hour	1,600	.6
Particulates	24-Hour	625	(5.0 COH)
SO_2 X Particulates (product)	24-Hour	261×10^3	(.8 COH-ppm product)
CO	8-Hour	34×10^3	30
Oxidants	1-Hour	800	.4
NO_2	1-Hour	2,260	1.2
	24-Hour	565	.30

AIR POLLUTION EMERGENCY: The "Emergency" level indicates that air quality is continuing to degrade to a level which should never be reached and that the most stringent control actions are necessary. An Emergency will be declared when any one of the following levels is reached at any monitoring site, and meteorological conditions are such that this condition can be expected to continue for twelve (12) or more hours:

Pollutant	Average	$\mu gm/m^3$	ppm
SO_2	24-Hour	2,100	.8
Particulates	24-Hour	825	(7.0 COH)
SO_2 X Particulates (product)	24-Hour	393×10^3	(1.2 COH-ppm product)
CO	8-Hour	46×10^3	40
Oxidants	1-Hour	1,200	.6
NO_2	1-Hour	3,000	1.6
	24-Hour	750	.4

TERMINATION: An episode level which has been established and declared will remain in effect until the criteria for that level are no longer met. At such time, the termination of the existing episode stage will be declared, and the next lower stage will be assumed.

The geographical area involved in an episode stage declaration will be announced in the declaration, and its location and extent will be determined by the locale and dispersion of the pollutants in the air. Control actions will be directed to reduce the emissions of pollutants causing the episode.

Emission Reduction Plans:

(a) Air Pollution Alert -- When the SAPCB declares an Air Pollution Alert, any person responsible for the operation of a source of air pollutants as set forth in Table I shall take all Air Pollution Alert actions as required for such source of air pollutants and shall put into effect the preplanned abatement strategy (described in the following section) for an Air Pollution Alert.

(b) Air Pollution Warning -- When the SAPCB declares an Air Pollution Warning, any person responsible for the operation of a source of air pollutants as set forth in Table II shall take all Air Pollution Warning actions as required for such source of air pollutants and shall put into effect the preplanned abatement strategy for an Air Pollution Warning.

(c) Air Pollution Emergency -- Upon the declaration of an Air Pollution Emergency, any person responsible for the operation of a source of air pollutants as described in Table III shall take all Air Pollution Emergency actions as required for such source of air pollutants and shall put into effect the pre-planned abatement strategy for an Air Pollution Emergency. This stage requires a general shutdown of non-vital community activity, with exceptions shown in Table III.

(d) When the SAPCB determines that a specified criteria level is being approached and may be reached at one or more monitoring sites solely because of emissions from a limited number of sources, it may act to prevent the attainment of the episode level by notifying such source(s) that the preplanned abatement strategies of Table I, II, or III or the standby plans are required, insofar as it applies to such source(s), and shall be put into effect until a satisfactory reduction in the ambient pollution concentration has been achieved.

Preplanned Abatement Strategies:

(a) Any person responsible for the operation of a source of air pollutants greater than 100 tons per year as set forth in Tables I - III shall prepare standby plans for reducing the emission of air pollutants during periods of an Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency. Standby plans shall be designed to reduce or eliminate emissions of air pollutants in accordance with the objectives set forth in Tables I - III which are made a part of this section. Any such standby plan when approved by the SAPCB is legally enforceable.

(b) Any person responsible for the operation of a source of air pollutants not set forth under the previous paragraph shall, when requested by the SAPCB in writing, prepare standby plans for reducing the emission of air pollutants during periods of an Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency. Standby plans shall be designed to reduce or eliminate emissions of air pollutants in accordance with the objectives set forth in Tables I - III.

(c) Standby plans as required under paragraphs (a) and (b) above shall be in writing and identify the sources of air pollutants, the approximate amount of reduction of pollutants and a brief description of the manner in which the reduction will be achieved during an Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency. Standby plans will include inspection of sources by authorized personnel of the State Air Pollution Control Board to determine status of compliance.

(d) During a condition of Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency, standby plans as required by this section shall be made available on the premises to any person authorized to enforce the provisions of applicable rules and regulations.

(e) Standby plans as required by this section shall be submitted to the SAPCB upon request within thirty (30) days of the receipt of such request; such standby plans shall be subject to review and approval by the SAPCB. If, in the opinion of the SAPCB, a standby plan does not effectively carry out the objectives as set forth in Tables I - III, the SAPCB may disapprove it, state its reason for disapproval, and order the preparation of an amended standby plan within the time period specified in the order.

(f) If a standby plan is denied or conditionally approved, an owner may, by filing a request within 30 days from the date he receives notice of denial or conditional approval, request a rehearing which shall be conducted as a formal hearing pursuant to Section 2.08 of the Regulations for Control and Abatement of Air Pollution of the Commonwealth of Virginia, from which judicial review pursuant to Virginia Code Sec. 10-17.23:2 shall be available.

Episode Control Activation:

The episode control procedures for each Air Quality Control Region in Virginia, with the exception of Region VII, will be specified in the Operation Manual, Episode Control Center, Regions I-VI. The procedures will be coordinated from an Episode Control Center at the SAPCB office in Richmond and be activated through the regional and local air pollution control officers.

TABLE I

ABATEMENT STRATEGIES EMISSION REDUCTION PLANS

ALERT LEVEL

Part A. GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between 12:00 noon and 4:00 p.m.
3. Persons operating fuel-burning equipment which required boiler lancing or soot blowing shall perform such operations only between the hours of 12:00 noon and 4:00 p.m.
4. Persons operating motor vehicles should eliminate all unnecessary operations.

Part B. SOURCE CURTAILMENT

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

Source of Air Pollution	Control Action
1. Coal or oil-fired electric power generating facilities.	a. Substantial reduction by utilization of fuels having low ash and sulfur content.
	b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing and soot blowing.
	c. Substantial reduction by diverting electric power generation to facilities outside of Alert Area.
2. Coal and oil-fired process steam generating facilities.	a. Substantial reduction by utilization of fuels having low ash and sulfur content.

TABLE I (continued)

	b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing and soot blowing.
	c. Substantial reduction of steam load demands consistent with continuing plant operations.
3. Manufacturing industries of the following classifications: Primary Metals Industry. Petroleum Refining Operations. Chemical Industries. Mineral Processing Industries. Paper and Allied Products. Grain Industry.	a. Substantial reduction of air pollutants from manufacturing operations by curtailing, postponing, or deferring production and all operations. b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gas vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

TABLE II

EMISSION REDUCTION PLANS

WARNING LEVEL

Part A. GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.

2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.

3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12:00 noon and 4:00 p.m.

4. Persons operating motor vehicles must reduce operations by the use of car pools and increased use of public transportation and elimination of unnecessary operation.

Part B. SOURCE CURTAILMENT

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

Source of Air Pollution	Control Action
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.
	b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing and soot blowing.
	c. Maximum reduction by diverting electric power generation to facilities outside of Warning Area.
2. Oil and oil-fired process steam generating facilities.	a. Maximum reduction by utilization of fuels having the lowest available ash and sulfur content.

TABLE II (continued)

	b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing and soot blowing.
	c. Making ready for use a plan of action to be taken if an emergency develops.
3. Manufacturing industries which require considerable lead time for shut-down including the following classifications: Petroleum Refining. Chemical Industries. Primary Metals Industries. Glass Industries. Paper and Allied Products.	a. Maximum reduction of air contaminants from manufacturing operations by, if necessary, assuming reasonable economic hardships by postponing production and allied operation. b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gases, vapors, or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing or soot blowing.
4. Manufacturing industries which require relatively short lead times for shut-down including the following classifications: Primary Metals Industries. Chemical Industries. Mineral Processing Industries. Grain Industry.	a. Elimination of air pollutants from manufacturing operations by ceasing, curtailing, postponing, or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment. b. Elimination of air pollutants from trade waste disposal processes which emit solid particles, gases, vapors, or malodorous substances. c. Maximum reduction of heat load demands for processing.

TABLE II (continued)

d. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

TABLE III

EMISSION REDUCTION PLANS
EMERGENCY LEVEL

Part A. GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.

2. The use of incinerators for the disposal of any form of solid or liquid waste shall be prohibited.

3. All places of employment described below shall immediately cease operations.

   a. Mining and quarrying of nonmetallic minerals.

   b. All construction work except that which must proceed to avoid emergent physical harm.

   c. All manufacturing establishments except those required to have in force an air pollution emergency plan.

   d. All wholesale trade establishments; i.e., places of business primarily engaged in selling merchandise to retailers, or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.

   e. All offices or local, county, and State government including authorities, joint meetings, and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county, or State government, authorities, joint meetings and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.

   f. All retail trade establishments except pharmacies, surgical supply distributors, and stores primarily engaged in the sale of food.

   g. Banks, credit agencies other than banks, securities and commodities brokers, dealers, exchanges and services; offices of insurance carriers, agents and brokers, real estate offices.

h. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments; photographic studios; beauty shops, barber shops, shoe repair shops.

i. Advertising offices; consumer credit reporting, adjustment and collection agencies; duplicating, addressing, blueprinting; photocopying, mailing, mailing list and stenographic services; equipment rental services, commercial testing laboratories.

j. Automobile repair, automobile services, garages.

k. Establishments rendering amusement and recreational services including motion picture theaters.

l. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.

4. All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air pollutants from their operation by ceasing, curtailing, or postponing operations which emit air pollutants to the extent possible without causing injury to persons or damage to equipment.

5. The use of motor vehicles is prohibited except in emergencies with the approval of local or State police.

Part B. SOURCE CURTAILMENT

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

Source of Air Pollution	Control Action
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.
	b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing or soot blowing.
	c. Maximum reduction by diverting electric power generation to facilities outside of Emergency Area.

2. Coal and oil-fired process steam generating facilities.

a. Maximum reduction by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage.

b. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lacing and soot blowing.

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

3. Manufacturing industries of the following classifications.

Primary Metals Industries
Petroleum Refining
Chemical Industries
Mineral Processing Industries
Grain Industry
Paper and Allied Products

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

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

c. Maximum reduction of heat load demands for processing.

d. Maximum utilization of mid-day (12:00 noon to 4:00 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

AIR QUALITY SURVEILLANCE

The Commonwealth of Virginia now has seven regions for monitoring and control of air pollution. These regions have been assigned priority ratings for the monitoring and control of certain pollutants.

The location of samplers and instruments is based on:

1. Emissions orientation
2. Population orientation
3. Background orientation

Priority I regions will sample five types of air pollutants; suspended particulates, sulfur dioxide, carbon monoxide, nitrogen dioxide and photochemical oxidants.

Priority III regions will sample two types of air pollutants; suspended particulates and sulfur dioxide.

Sampling intervals and methods of analysis are planned as follows:

Pollutants	Method	Interval
Suspended particulate	Hi Vol Gravimetric	1 - 3 days
Sulfur dioxide	Bubbler Train West - Gaeke	1 - 6 days
Nitrogen dioxide	Bubbler Train	1 - 6 days
Sulfur dioxide	Instrument Coulimetric	Continuous

Pollutants	Method	Interval
Carbon monoxide	Instrument N. D. Infra Red	Continuous
Ozone	Instrument Chemiluminescence	Continuous
Suspended Particulate	Instrument tape Light transmission	Continuous

The planning for Virginia requires 154 sampling devices and instruments. The existing sampling network can provide 70 of these required samplers. A minimum of 84 samplers is required for addition to the system in a two-year period.

Installation dates for the new sample devices is based on regional priority and consideration for emergency episode planning. The schedule for sampler installation is also based upon the availability of resources, budget and qualified personnel.

The availability of samplers in Virginia localities, adjacent states and the Washington, D. C. area have been included in the planning. Duplication of sampling and instrumentation has been avoided whenever possible.

Data handling and analysis procedures are shown on the individual sampler location data sheets. In several of the regions, sampler locations are provided and maintained by the localities, that is, city or county.

Data is taken manually and by recorders as indicated. The data from the localities is transmitted to the regional office of the Virginia State Air Pollution Control Board. The regional and locality data are transmitted to the state data bank. The Virginia state data is transmitted to the Storage and Retrieval of Aerometric Data (SAROAD) at Research Triangle Park, North Carolina.

The timetable for installation of additional equipment is shown on the individual sampler location sheets. This information is included in the summary sheets for each region. The proposed installation dates are based on region priority and envionmental factors.

Installation dates for sampler locations range from January, 1972 to December, 1973. This range of time is required for the resources and personnel necessary for the installations. The selection of instruments and samplers requires judgement and knowledge which is progressive with time.

Emergency episode planning is coordinated with the Regional Director and regional personnel. Such planning will include the localities, cities, counties, national capitol at Washington, D. C. and the adjacent states.

The level of episode planning has been defined by atmospheric conditions and by the quantity of individual or combinations of air pollutants present in a locality or populated area. These levels have been defined as an

"FORECAST" progressing in level to "ALERT," "WARNING" and to the "EMERGENCY" level. Normal sampling intervals have been designated in intervals of days or as continuous monitoring with instruments. Sampling becomes progressively more frequent when the FORECAST, ALERT, the WARNING and the EMERGENCY levels are reached.

The proposed schedule of sampling intervals for various pollutants is as follows:

Sampler Intervals-Emergency Episodes

SAMPLER	ALERT	WARNING	EMERGENCY
Hi Vol	24 hours	24 hours	24 hours
SO_2B.	24 hours	24 hours	24 hours
SO_2C.	Continuous	Continuous	Continuous
CO	Continuous	Continuous	Continuous
Tape	Continuous	Continuous	Continuous
O_3C.	Continuous	Continuous	Continuous
O_3B.	24 hours	1 hour	1 hour
NO_2B.	24 hours	1 hour	1 hour

As the level of pollutant or combination of pollutants decreases from EMERGENCY through WARNING and ALERT the sampling frequency will decrease. The frequency shown will prevail during these stages of the emergency episode. During the FORECAST stage the sampling rate and reporting schedule will be the same as during the ALERT stage.

SUMMARY OF VIRGINIA AIR QUALITY MONITORING NETWORK

Region	I		II		III		IV		V		VI		VII		State	
1970 Census	336654		638868		542679		468945		708601		1098310		926237		4720294	
	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R
PM																
Priority	I		I		I		IA		I		I		I			
HiVol	8	6	21	8	18	7	8	7	20	8	15	10	17	9	107	55
Tape	2	1	6	3	2	2	2	2	3	3	4	4	4	4	23	19
SO_2																
Priority	I		III		III		III		I		I		I			
Bubbler	4	4	6	1	2	1	3	1	8	7	11	8	11	7	45	29
Coulometric	2	2	0	0	0	0	0	0	2	2	3	3	2	2	9	9
Oxidants																
Priority	III		III		III		III		I		I		I			
Chemilumen.	0	0	0	0	0	0	0	0	2	2	3	3	2	2	7	7
Bubbler	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
CO																
Priority	III		III		III		III		I		I		I			
Nd IR	0	0	0	0	0	0	0	0	2	2	3	3	2	2	7	7
NO_2																
Priority	III		III		III		III		I		I		I			
Bubbler	1	0	3	0	2	0	0	0	8	8	13	11	11	9	38	28
NO_x	0	0	3	0	0	0	0	0	0	0	0	0	2	0	5	0

P = Planned or existing sensors

R = Sensors required

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule		Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
PM	17	391,000	4,050,700	X			1-3	Days	HV	1	MSS	EPA	Existing	D	D	D
	17	393,600	4,089,550	X			1-3	Days	HV	1	SS	EPA	Jun. 1972	D	D	D
	17	354,600	4,091,370	X			1-3	Days	HV	1	SS	EPA	Jun. 1973	D	D	D
	17	507,200	4,056,700	X			1-3	Days	HV	1	SS	EPA	Existing	D	D	D
	17	455,300	4,077,950	X			1-3	Days	HV	1	MSS	EPA	Jul. 1973	D	D	D
	17	429,500	4,079,500	X			1-3	Days	HV	1	SS	EPA	Jul. 1973	D	D	D
	17	492,000	4,088,900		X		1-3	Days	HV	1	MSS	EPA	Aug. 1973	D	D	D
	17	479,400	4,124,500	X			1-3	Days	HV	1	MSS	EPA	Aug. 1973	D	D	D
	17	391,000	4,050,700	X			2	Hours	T	6	MSS	EPA	Mar. 1972	D	H	H
	17	479,400	4,124,500	X			2	Hours	T	6	MSS	EPA	Aug. 1973	D	H	H
SO_2	17	391,000	4,050,700	X			Continuous		I	3	MSS	EPA	Mar. 1972	D	H	H
	17	393,600	4,089,550	X			Continuous		I	3	SS	EPA	Jun. 1972	D	H	H
	17	354,600	4,091,370	X			1-6	Days	B	2	SS	EPA	Jun. 1973	D	D	D
	17	507,200	4,056,700	X			1-6	Days	B	2	SS	EPA	Jun. 1973	D	D	D
	17	455,300	4,077,950	X			1-6	Days	B	2	MSS	EPA	Jul. 1973	D	D	D
	17	492,000	4,088,900		X		1-6	Days	B	2	MSS	EPA	Aug. 1973	D	D	D
	17	479,400	4,124,500	X			1-6	Days	B	2	MSS	EPA	Aug. 1973	D	D	D
	17	455,300	4,077,950	X			1-6	Days	B	2	MSS	EPA	Jul. 1973	D	H	H
NO_2	17	391,000	4,050,700	X			1-6	Days	B	7	MSS	EPA	Mar. 1972	D	D	D

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #II

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
PM	17	529,200	4,136,300	X			1-6 Days	HV	1	MSS	EPA	Feb. 1972	D	D	D
	17	595,770	4,128,050	X			1-3 Days	HV	1	MSS	EPA	Apr. 1972	D	D	D
	17	593,700	4,124,900	X			1-3 Days	HV	1	MSS	EPA	Apr. 1972	D	D	D
	17	741,895	4,314,390	X			1-3 Days	HV	1	SS	EPA	May 1972	D	D	D
	17	589,180	4,185,100	X			1-3 Days	HV	1	MSS	EPA	Jul. 1972	D	D	D
	17	644,750	4,177,530		X		1-3 Days	HV	1	MSS	EPA	Oct. 1972	D	D	D
	17	670,260	4,254,230	X			1-3 Days	HV	1	MSS	EPA	Feb. 1973	D	D	D
	17	603,450	4,186,003		X		1-3 Days	HV	1	MSS	EPA	Jun. 1973	D	D	D
	17	688,855	4,257,872	X			1-6 Days	HV	1	MSS	EPA	Sep. 1973	D	D	D
	17	598,100	4,126,000		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	583,900	4,127,400		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	585,950	4,127,250		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	588,400	4,125,350	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	591,650	4,117,500	X	X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	588,350	4,125,350	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	578,000	4,112,200			X	1-3 Days	HV	1	SS	EPA	Existing	D	D	D
	17	592,500	4,133,600		X		1-3 Days	HV	1	SS	EPA	Existing	D	D	D
	17	588,800	4,117,400	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	579,000	4,137,600			X	1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	577,400	4,125,200	X	X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	593,700	4,118,300	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	17	589,180	4,185,100	X			1-2 Hours	T	6	MSS	EPA	Jul. 1972	D	H	H
	17	589,100	4,126,000		X		1-2 Hours	T	6	LS	EPA	Existing	D	H	H
	17	585,950	4,127,250		X		1-2 Hours	T	6	LS	EPA	Existing	D	H	H
	17	588,400	4,125,350	X			1-2 Hours	T	6	LS	EPA	Existing	D	H	H
	17	594,400	4,125,350		X		1-2 Hours	T	6	MLS	EPA	Existing	D	H	H
	17	590,750	4,126,900		X		1-2 Hours	T	6	MLS	EPA	Existing	D	H	H
SO_2	17	589,180	4,185,100	X			1-6 Days	B	2	MSS	EPA	Jul. 1972	D	D	D
	17	598,100	4,126,000		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	17	583,900	4,127,400		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	17	585,950	4,127,250		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	17	594,400	4,125,350		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D
	17	590,750	4,126,900		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
NO_2	17	583,900	4,127,400		X		1-14 Days	B	7	LS	EPA	Existing	D	H	H
	17	594,400	4,125,350		X		1-14 Days	B	7	MLS	EPA	Existing	D	H	H
	17	590,750	4,126,900		X		1-14 Days	B	7	MLS	EPA	Existing	D	H	H
NO_X	17	589,180	4,185,100	X			1-14 Days	B	7	MSS	EPA	Jul. 1972	D	H	H
	17	598,100	4,126,000		X		1-14 Days	B	7	LS	EPA	Existing	D	H	H
	17	585,950	4,127,250		X		1-14 Days	B	7	LE	EPA	Existing	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #III

Pollutant	Location (UTM)			Design Basis			Normal Sampling Schedule	Methods				Schedule Operation	Episode Support		
	Zone	Easting	Northing	E	P	B		SM	A	DH	AP		A	W	E
PM	17	589,100	4,069,200	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	686,400	4,063,500		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	644,800	4,155,300	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	642,450	4,047,600		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	643,350	4,055,800	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	646,500	4,052,706	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	631,400	4,133,000	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	671,500	4,163,200	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	766,000	4,107,000		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	18	236,100	4,136,500	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	663,800	4,140,600	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	682,900	4,102,500	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	655,000	4,132,400		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	623,400	4,145,200		X		1-6 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	565,750	4,054,250	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	600,500	4,061,000		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	664,800	4,142,200		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	599,800	4,096,200		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	17	644,150	4,051,000		X		1-2 Hours	T	6	MSS	EPA	Existing	D	H	H
	17	664,800	4,142,200		X		1-2 Hours	T	6	MSS	EPA	Nov. 1972	D	H	H
SO_2	17	664,800	4,142,200		X		1-6 Days	B	2	MSS	EPA	Existing	D	D	D
	17	600,500	4,061,000		X		1-6 Days	B	2	MSS	EPA	Existing	D	D	D
NO_2	17	600,500	4,061,000		X		1-6 Days	B	7	MSS	EPA	Existing	D	H	H
	17	664,800	4,142,200		X		1-14 Days	B	7	MSS	EPA	Existing	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #IV

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule		Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
PM	17	739,000	4,180,100	X			1-3	Days	HV	1	SS	EPA	May 1972	D	D	D
	18	340,900	4,156,700	X			1-3	Days	HV	1	SS	EPA	Sep. 1973	D	D	D
	18	284,500	4,242,200		X		1-3	Days	HV	1	SS	EPA	Oct. 1973	D	D	D
	17	721,420	4,212,135		X		1-3	Days	HV	1	SS	EPA	Oct. 1973	D	D	D
	18	256,780	4,289,140		X		1-3	Days	HV	1	SS	EPA	Nov. 1973	D	D	D
	18	239,500	2,647,000		X		1-3	Days	HV	1	SS	EPA	Nov. 1973	D	D	D
	18	345,595	4,202,430	X			1-3	Days	HV	1	SS	EPA	Dec. 1973	D	D	D
	18	432,625	4,163,555	X			1-3	Days	HV	1	SS	EPA	Dec. 1973	D	D	D
	17	721,420	4,212,135		X		2	Hours	T	6	SS	EPA	Oct. 1973	D	H	H
	18	284,500	4,242,200		X		2	Hours	T	6	SS	EPA	Oct. 1973	D	H	H
SO_2	18	340,900	4,156,700	X			1-6	Days	B	2	SS	EPA	Sep. 1973	D	D	D
	18	284,500	4,242,200		X		1-6	Days	B	2	SS	EPA	Oct. 1973	D	D	D
	17	721,420	4,212,135		X		1-6	Days	B	2	SS	EPA	Oct. 1973	D	D	D

AIR QUALITY SURVE ⌣ ⌣ANCE SYSTEM: AQCR #V

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
PM	18	274,900	4,163,600		X		1-3 Days	HV	1	MSS	EPA	Nov. 1971	D	D	D
	18	303,000	4,130,700	X			1-3 Days	HV	1	MSS	EPA	Nov. 1971	D	D	D
	18	284,000	4,146,000	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	18	273,300	4,063,200		X		1-3 Days	HV	1	MSS	EPA	Jul. 1972	D	D	D
	18	286,200	4,125,600		X		1-3 Days	HV	1	MSS	EPA	Mar. 1973	D	D	D
	18	285,100	4,157,600		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	295,800	4,153,600	X			1-3 Days	HV	1	MSS	EPA	Mar. 1973	D	D	D
	18	297,100	4,130,750		X		1-3 Days	HV	1	MSS	EPA	May 1973	D	D	D
	18	282,300	4,150,700		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	282,300	4,160,700		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	286,200	4,156,500		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	284,500	4,155,000		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	284,000	4,158,100		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	287,500	4,154,500		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	282,400	4,158,400		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	288,000	4,157,300		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	283,900	4,163,400		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	277,500	4,161,300		X		1-6 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	291,800	4,146,600	X			1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	18	286,600	4,022,700		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	18	282,000	4,152,500		X		1-2 Hours	T	6	MSS	EPA	Jan. 1972	D	H	H
	18	287,800	4,123,500		X		1-2 Hours	T	6	MSS	EPA	Nov. 1972	D	H	H
	18	285,100	4,157,600		X		1-2 Hours	T	6	MLS	EPA	Existing	D	H	H
SO_2	18	274,900	4,163,600		X		1-6 Days	B	2	MSS	EPA	Nov. 1971	D	D	D
	18	303,000	4,130,700	X			1-6 Days	B	2	MSS	EPA	Nov. 1971	D	D	D
	18	284,000	4,146,000	X			1-6 Days	B	2	MSS	EPA	Dec. 1971	D	D	D
	18	287,800	4,123,500		X		1-6 Days	B	2	MSS	EPA	Nov. 1972	D	D	D
	18	285,100	4,157,600		X		1-50 Min.	B	2	MLS	EPA	Existing	D	D	D
	18	295,800	4,153,600	X			1-6 Days	B	2	MSS	EPA	Mar. 1973	D	D	D
	18	287,500	4,154,500		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D
	18	291,800	4,146,600	X			1-6 Days	B	2	MSS	EPA	Existing	D	D	D
	18	297,100	4,130,750		X		Continuous	I	3	MSS	EPA	May 1973	D	H	H
	18	281,615	4,160,030	X			Continuous	I	3	SS	EPA	Jan. 1973	D	H	H
CO	18	281,615	4,160,030	X			Continuous	I	4	SS	EPA	Jan. 1973	D	H	H
	18	283,500	4,158,200	X			Continuous	I	4	MSS	EPA	Existing	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #V

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
O_3	18	286,550	4,162,500	X			Continuous	I	5	MSS	EPA	Existing	D	H	H
	18	282,000	4,152,500		X		Continuous	I	5	MSS	EPA	Jan. 1972	D	H	H
NO_X	18	303,000	4,103,700	X			1-14 Days	B	7	MSS	EPA	Nov. 1971	D	H	H
	18	274,900	4,163,600		X		1-14 Days	B	7	MSS	EPA	Nov. 1971	D	H	H
	18	284,000	4,146,000	X			1-14 Days	B	7	MSS	EPA	Dec. 1971	D	H	H
	18	287,800	4,123,500		X		1-14 Days	B	7	MSS	EPA	Nov. 1972	D	H	H
	18	285,100	4,157,600		X		1-14 Days	B	7	MLS	EPA	Jan. 1973	D	H	H
	18	295,800	4,153,600	X			1-14 Days	B	7	MSS	EPA	Mar. 1973	D	H	H
	18	287,500	4,154,500		X		1-14 Days	B	7	MLS	EPA	Existing	D	H	H
	18	291,800	4,146,600	X			1-14 Days	B	7	MSS	EPA	Existing	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #VI

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
PM	18	386,100	4,078,600	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	359,300	4,065,200	X			24 Hours	HV	1	SS	EPA	Jan. 1972	D	D	D
	18	386,000	4,075,000	X			24 Hours	HV	1	SS	EPA	Feb. 1972	D	D	D
	18	384,500	4,071,400	X			24 Hours	HV	1	SS	EPA	Mar. 1972	D	D	D
	18	380,000	4,080,500	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	399,200	4,078,200		X		24 Hours	HV	1	SS	EPA	Aug. 1972	D	D	D
	18	371,900	4,084,200	X	X		24 Hours	HV	1	SS	EPA	Dec. 1972	D	D	D
	18	328,000	4,060,800	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	349,200	4,125,800		X		24 Hours	HV	1	SS	EPA	May 1973	D	D	D
	18	368,800	4,120,800	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	383,300	4,080,400	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	372,800	4,093,300		X		24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	383,500	4,083,000		X		24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	384,500	4,069,700	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	385,600	4,075,100	X			24 Hours	HV	1	SS	EPA	Existing	D	D	D
	18	386,100	4,078,600	X			2 Hours	T	6	SS	EPA	Existing	D	H	H
	18	381,000	4,097,800		X		2 Hours	T	6	SS	EPA	Jun. 1972	D	H	H
	18	386,600	4,075,600	X			2 Hours	T	6	SS	EPA	Oct. 1972	D	H	H
	18	383,500	4,083,000		X		2 Hours	T	6	SS	EPA	Existing	D	H	H
SO_2	18	386,100	4,078,600	X			24 Hours	B	2	SS	EPA	Existing	D	D	D
	18	359,300	4,065,200	X			24 Hours	B	2	SS	EPA	Jan. 1972	D	D	D
	18	380,000	4,080,500	X			24 Hours	B	2	SS	EPA	Apr. 1972	D	D	D
	18	389,000	4,074,300	X			24 Hours	B	2	SS	EPA	Aug. 1972	D	D	D
	18	399,200	4,078,200		X		24 Hours	B	2	SS	EPA	Aug. 1972	D	D	D
	18	386,600	4,075,600	X			24 Hours	B	2	SS	EPA	Existing	D	D	D
	18	371,900	4,084,200	X	X		24 Hours	B	2	SS	EPA	Dec. 1972	D	D	D
	18	328,000	4,060,800	X			24 Hours	B	2	SS	EPA	Mar. 1973	D	D	D
	18	368,800	4,120,800	X			24 Hours	B	2	SS	EPA	Existing	D	D	D
	18	383,500	4,083,000		X		24 Hours	B	2	SS	EPA	Existing	D	D	D
	18	384,500	4,069,700	X			24 Hours	B	2	SS	EPA	Existing	D	D	D
	18	386,100	4,078,600	X			Continuous	I	3	SS	EPA	Jan. 1972	D	H	H
	18	384,500	4,071,400	X			Continuous	I	3	SS	EPA	Mar. 1972	D	H	H
	18	381,000	4,097,800		X		Continuous	I	3	SS	EPA	Jun. 1972	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #VI

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
O_3	18	381,000	4,097,800		X		Continuous	I	5	SS	EPA	Jun. 1972	D	H	H
	18	371,900	4,084,200	X	X		Continuous	I	5	SS	EPA	Dec. 1972	D	H	H
	18	392,600	4,083,300	X			Continuous	I	5	SS	EPA	Existing	D	H	H
NO_X	18	386,100	4,078,600	X			24 Hours	B	7	SS	EPA	Existing	D	H	H
	18	384,500	4,071,400	X			24 Hours	B	7	SS	EPA	Mar. 1972	D	H	H
	18	359,300	4,065,200	X			24 Hours	B	7	SS	EPA	Jan. 1972	D	H	H
	18	380,000	4,080,500	X			24 Hours	B	7	SS	EPA	Apr. 1972	D	H	H
	18	381,000	4,097,800		X		24 Hours	B	7	SS	EPA	Jun. 1972	D	H	H
	18	389,000	4,074,300	X			24 Hours	B	7	SS	EPA	Aug. 1972	D	H	H
	18	399,200	4,078,200		X		24 Hours	B	7	SS	EPA	Aug. 1972	D	H	H
	18	386,600	4,075,600	X			24 Hours	B	7	SS	EPA	Existing	D	H	H
	18	371,900	4,084,200	X	X		24 Hours	B	7	SS	EPA	Dec. 1972	D	H	H
	18	328,000	4,060,800	X			24 Hours	B	7	SS	EPA	Mar. 1973	D	H	H
	18	368,800	4,120,800	X			24 Hours	B	7	SS	EPA	Existing	D	H	H
	18	383,500	4,083,000		X		24 Hours	B	7	SS	EPA	Existing	D	H	H
	18	384,500	4,069,700	X			24 Hours	B	7	SS	EPA	Existing	D	H	H
CO	18	386,100	4,078,600	X			Continuous	I	4	SS	EPA	Existing	D	H	H
	18	381,000	4,097,800		X		Continuous	I	4	SS	EPA	Jun. 1972	D	H	H
	18	389,000	4,074,300	X			Continuous	I	4	SS	EPA	Aug. 1972	D	H	H

Pollutant	Location (UTM) Zone	Location (UTM) Easting	Location (UTM) Northing	Design Basis E	Design Basis P	Design Basis B	Normal Sampling Schedule	Methods SM	Methods A	Methods DH	Methods AP	Schedule Operation	Episode Support A	Episode Support W	Episode Support E
PM	18	315,500	4,306,700		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	284,600	4,292,000		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	300,400	4,302,500		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	295,400	4,267,000		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	321,500	4,300,400		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	322,400	4,298,000		X		1-3 Days	HV	1	MSS	EPA	Existing	D	D	D
	18	319,400	4,301,400	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	321,700	4,301,100		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	300,400	4,275,000		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	307,400	4,309,150		X		1-3 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	315,350	4,302,000		X		1-3 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	289,100	4,309,000			X	1-3 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	319,000	4,295,000		X		1-3 Days	HV	1	MLS	EPA	Existing	D	D	D
	18	314,700	4,305,900		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	321,500	4,229,100	X	X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	319,700	4,299,500		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	318,900	4,297,500	X			1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	317,000	4,299,500		X		1-3 Days	HV	1	LS	EPA	Existing	D	D	D
	18	315,500	4,306,700		X		1-2 Days	T	6	LS	EPA	Sep. 1972	D	H	H
	18	284,600	4,292,000		X		1-2 Hours	T	6	LS	EPA	Nov. 1972	D	H	H
	18	311,000	4,304,500		X		2 Hours	T	6	MLS	EPA	Existing	D	H	H
	18	322,400	4,298,000		X		2 Hours	T	6	MSS	EPA	Existing	D	H	H
SO_2	18	315,500	4,306,700		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	18	284,600	4,292,000		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	18	300,400	4,302,500		X		1-6 Days	B	2	LS	EPA	Oct. 1971	D	D	D
	18	295,400	4,267,000		X		1-6 Days	B	2	LS	EPA	Apr. 1973	D	D	D
	18	321,500	4,300,400		X		1-6 Days	B	2	LS	EPA	Dec. 1973	D	D	D
	18	319,400	4,301,400	X			1-6 Days	B	2	LS	EPA	Existing	D	D	D
	18	321,700	4,301,100		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	18	278,400	4,332,500		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D
	18	300,400	4,275,000		X		1-6 Days	B	2	LS	EPA	Existing	D	D	D
	18	307,400	4,309,150		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D
	18	315,350	4,302,000		X		1-6 Days	B	2	MLS	EPA	Existing	D	D	D
	18	311,000	4,304,500		X		Continuous	I	3	MLS	EPA	Existing	D	H	H
	18	322,400	4,298,000		X		Continuous	I	3	MSS	EPA	Existing	D	H	H

AIR QUALITY SURVEILLANCE SYSTEM: AQCR #VII

Pollutant	Location (UTM) Zone	Easting	Northing	Design Basis E	P	B	Normal Sampling Schedule	Methods SM	A	DH	AP	Schedule Operation	Episode Support A	W	E
NO_2	18	315,500	4,306,700		X		1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	284,600	4,292,000		X		1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	300,400	4,302,500		X		1-6 Days	B	7	LS	EPA	Dec. 1972	D	H	H
	18	321,500	4,300,400		X		1-6 Days	B	7	LS	EPA	Dec. 1973	D	H	H
	18	295,400	4,267,000		X		1-6 Days	B	7	LS	EPA	Apr. 1973	D	H	H
	18	319,400	4,301,400	X			1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	321,700	4,301,100		X		1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	278,400	4,332,500		X		1-6 Days	B	7	MLS	EPA	Existing	D	H	H
	18	300,400	4,275,000		X		1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	307,400	4,309,150		X		1-6 Days	B	7	MLS	EPA	Existing	D	H	H
	18	315,350	4,302,000		X		1-6 Days	B	7	MLS	EPA	Existing	D	H	H
	18	311,000	4,304,500		X		Continuous	I	3	MLS	EPA	Existing	D	H	H
	18	322,400	4,298,000		X		Continuous	I	3	MSS	EPA	Existing	D	H	H
03	18	284,600	4,292,000		X		1-6 Days	B	7	LS	EPA	Existing	D	H	H
	18	311,000	4,304,500		X		Continuous	I	5	MLS	EPA	Existing	D	H	H
	18	322,400	4,298,000		X		Continuous	I	5	MSS	EPA	Existing	D	H	H
	18	278,400	4,332,500		X		1-6 Days	B	7	MLS	EPA	Existing	D	H	H

Explanation Of Codes

Design Basis

- E - Source Orientation
- P - Population Orientation
- B - Background Surveillance

Methods

- SM - Method of Sampling
  - HV - High Volume Sample
  - B - Bubbler Train
  - I - Instrumental
  - T - Tape
- A - Method of Analysis
  - 1 - Gravimetric
  - 2 - West-Gaeke
  - 3 - Coulometric
  - 4 - Non-Dispersive Infrared
  - 5 - Gas Phase Chemiluminescence
  - 6 - Light Transmission
  - 7 - Jacobs-Hochheiser
- DH - Data Handling
  - M - Manual
  - LS - (Local-State)
  - SS - (State-State)
- AP - Analysis Procedures
  - SDB - State Data Bank
  - EPA - SAROAD

Explanation of Codes
(Continued)

Episode Support

A - Alert Stage

W - Warning Stage

E - Emergency Stage

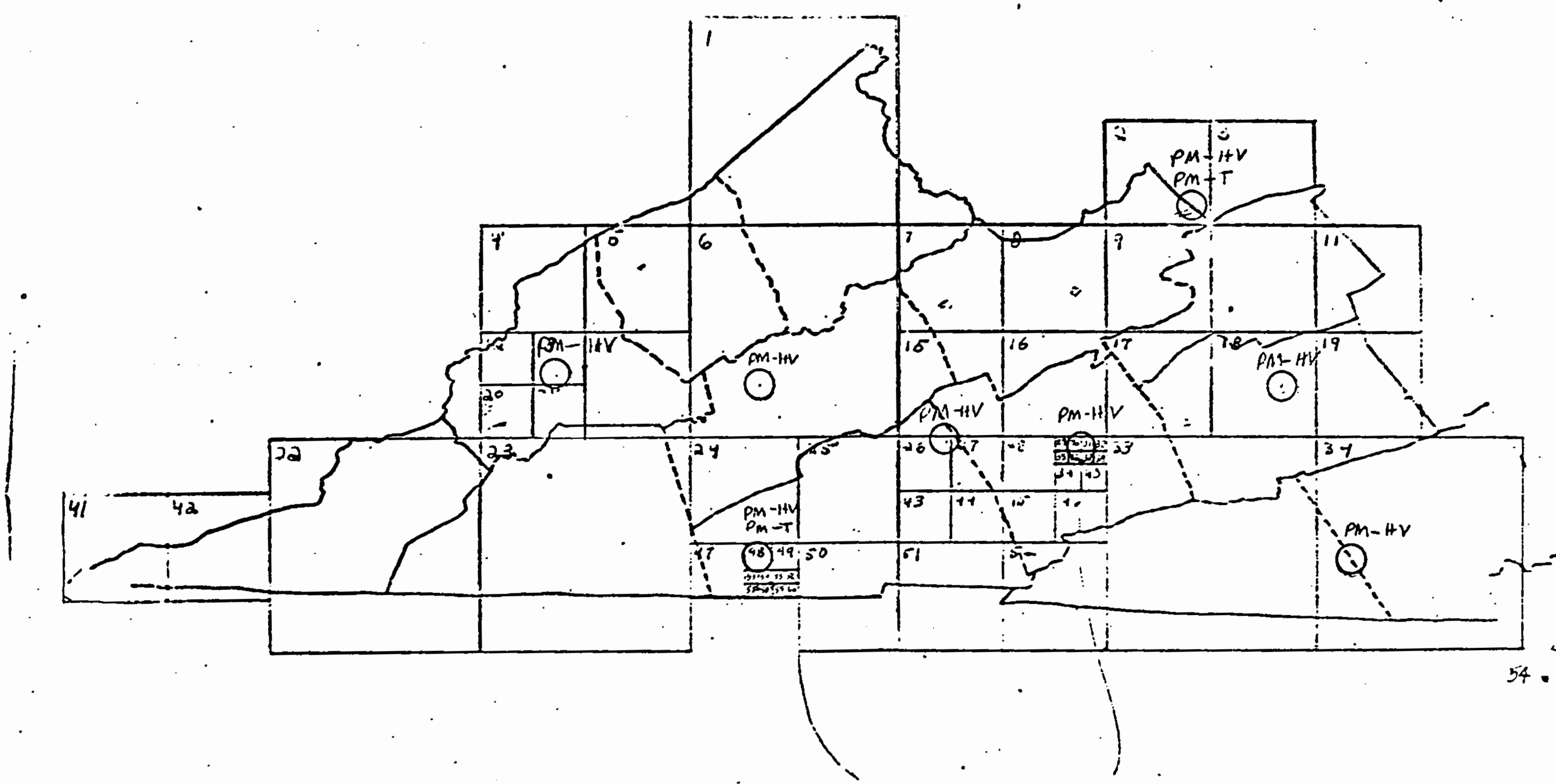
C - Continuous Samples

H - 1 Hour Samples

D - 24 Hour Samples

○ Sensor Location		Required
Particulate Matter	PM-HV High Volume Sampler (8)	6
	PM-T Tape Sampler (2)	1

AQCR #1



404

54

Particulate Emissions

Tons/day / Km²

≥ 0.04

≥ 0.2

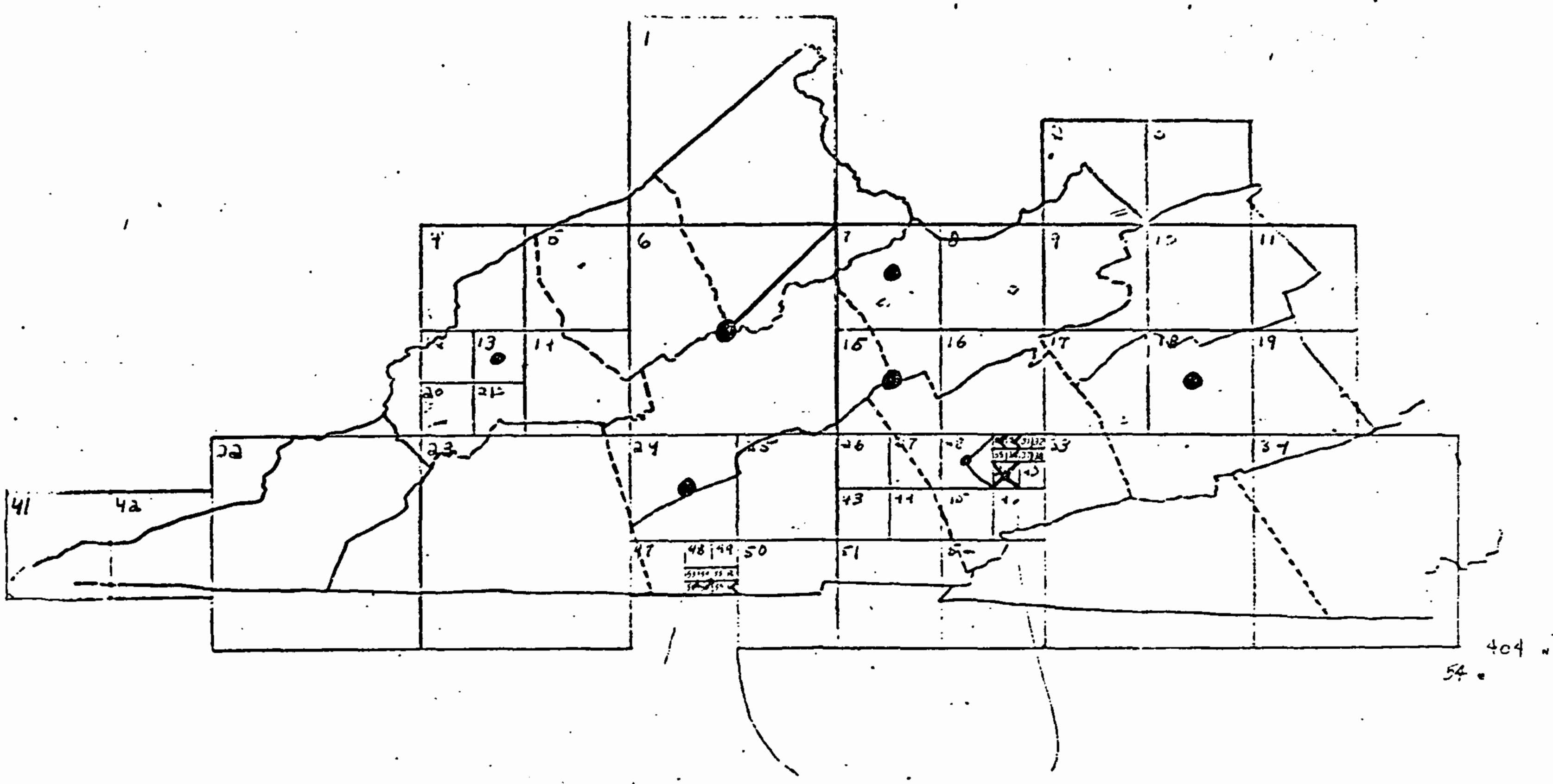
≥ 1

≥ 5

≥ 25

Particulate Emissions

AQCR #1

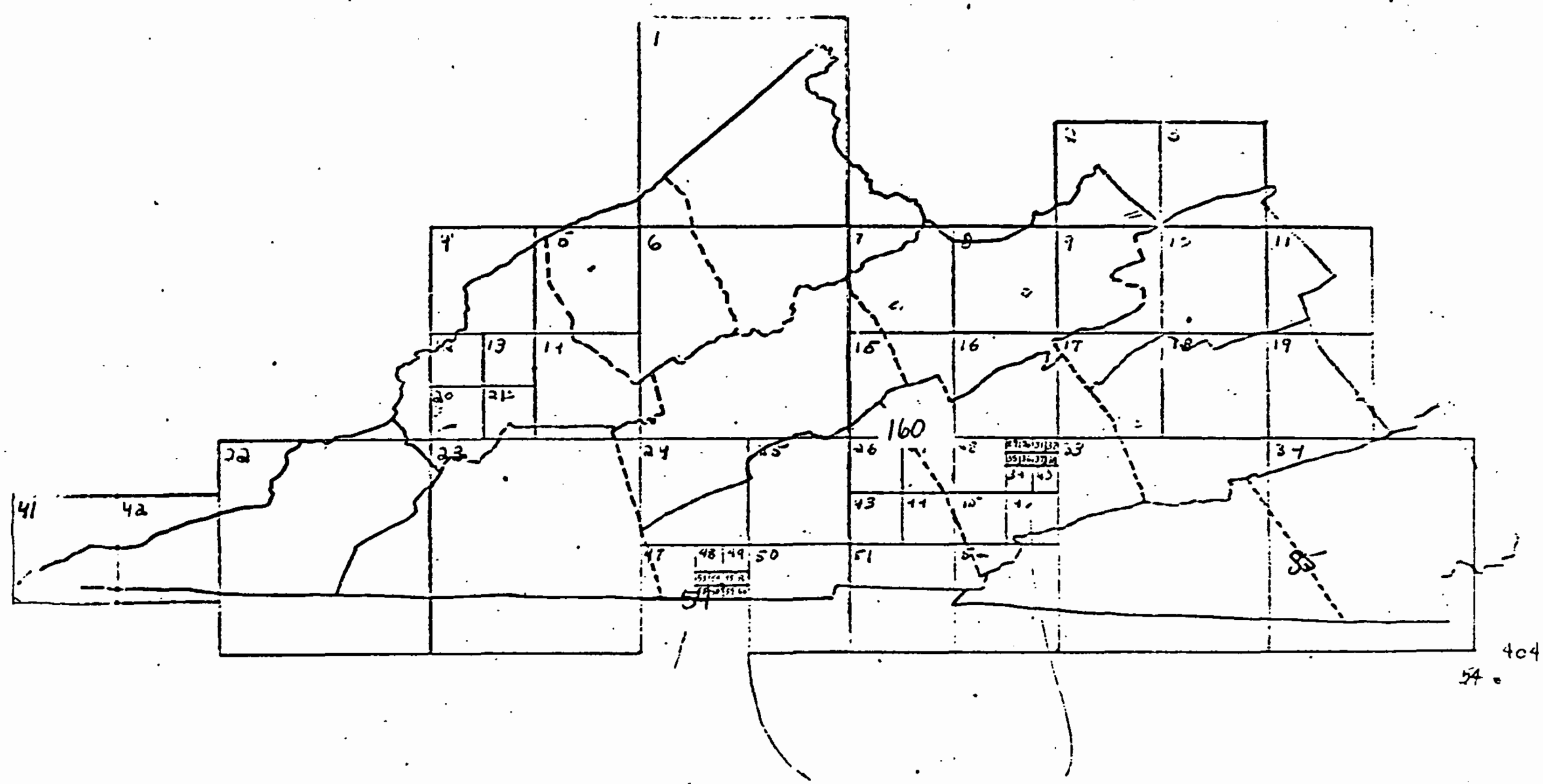


Particulates

Annual Geo Mean

ug/m3

AQCR #1



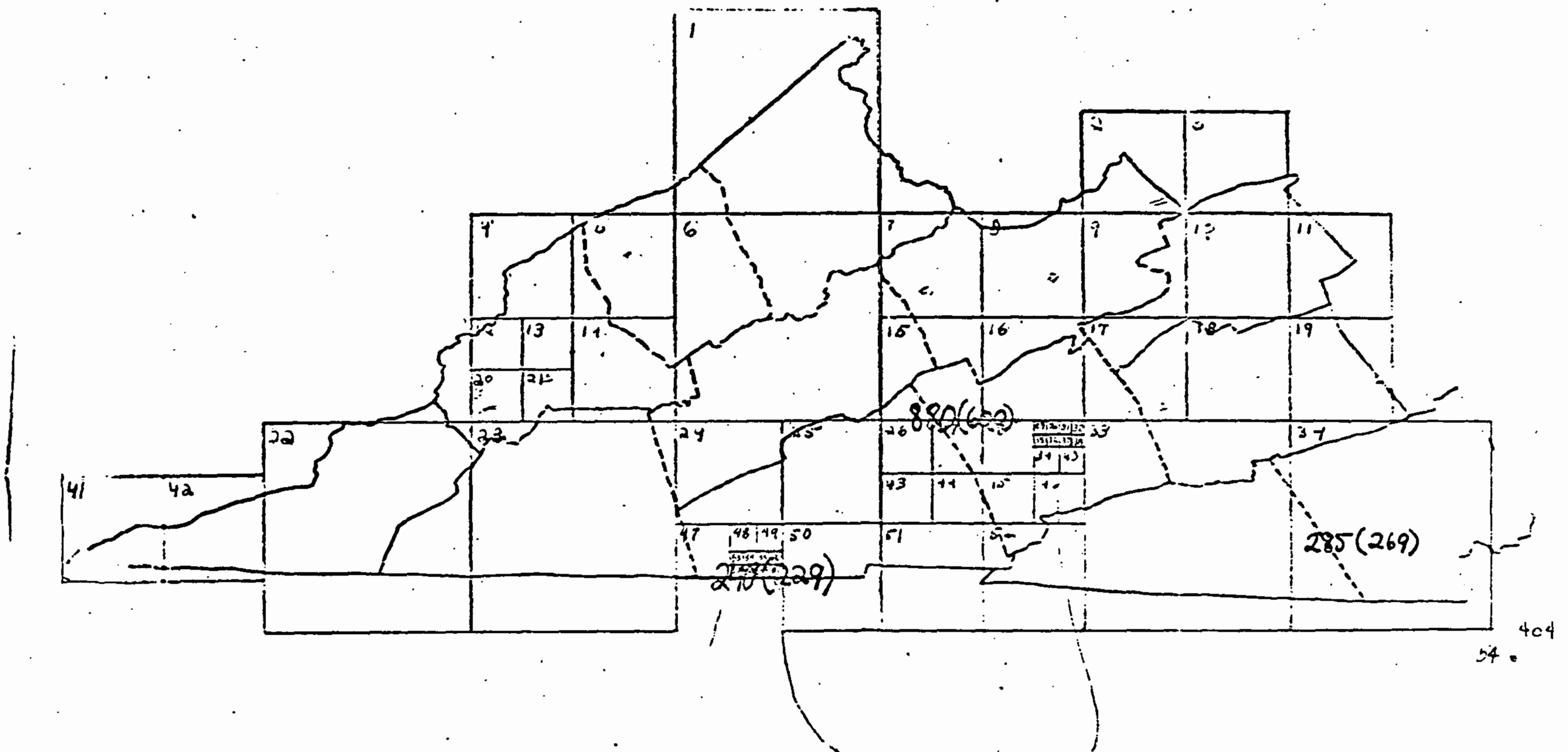
Particulates

24 HR Max

Expected
XXX (yyy)
OBSERVED

ug/m3

AQCR #1



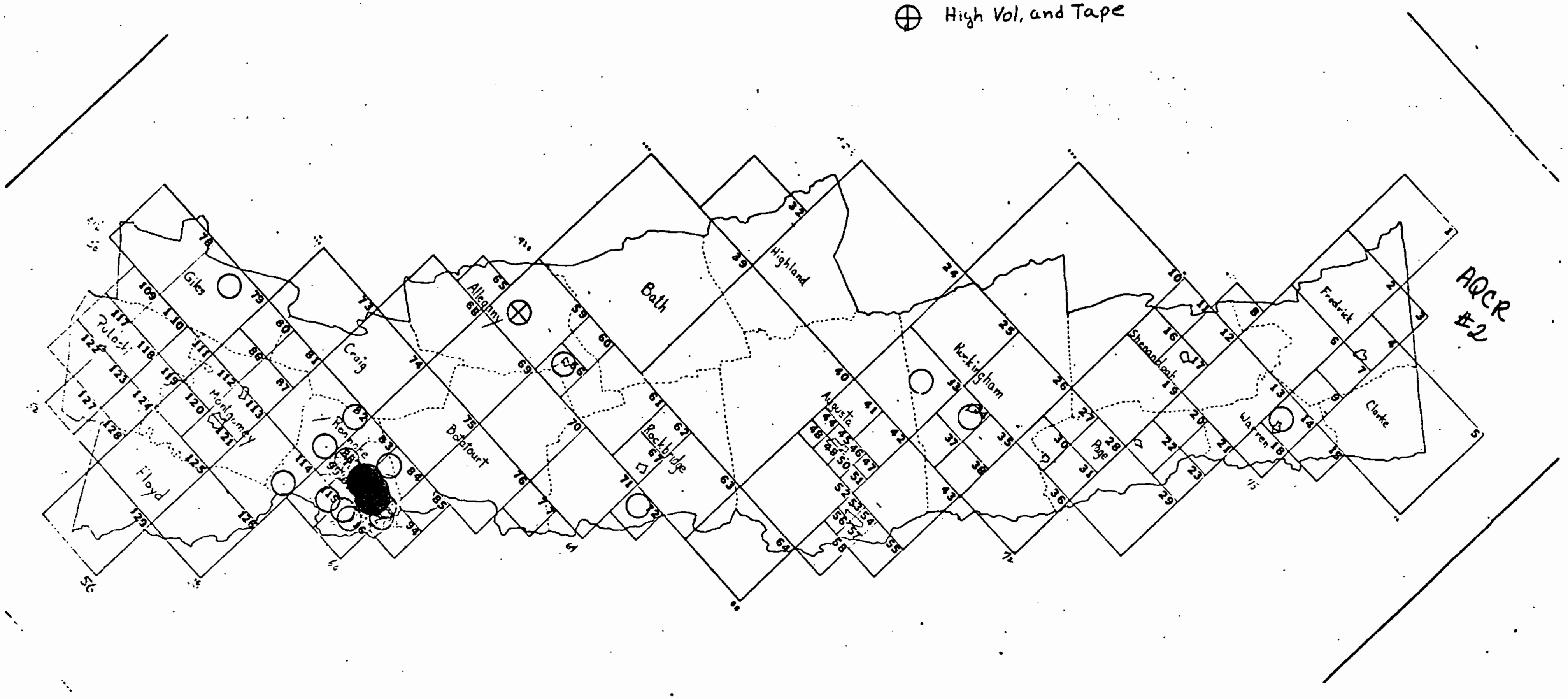
	Planned	Required
High Vol Samplers	21	8
Tape Samplers	6	3

Particulate Matter Sensors

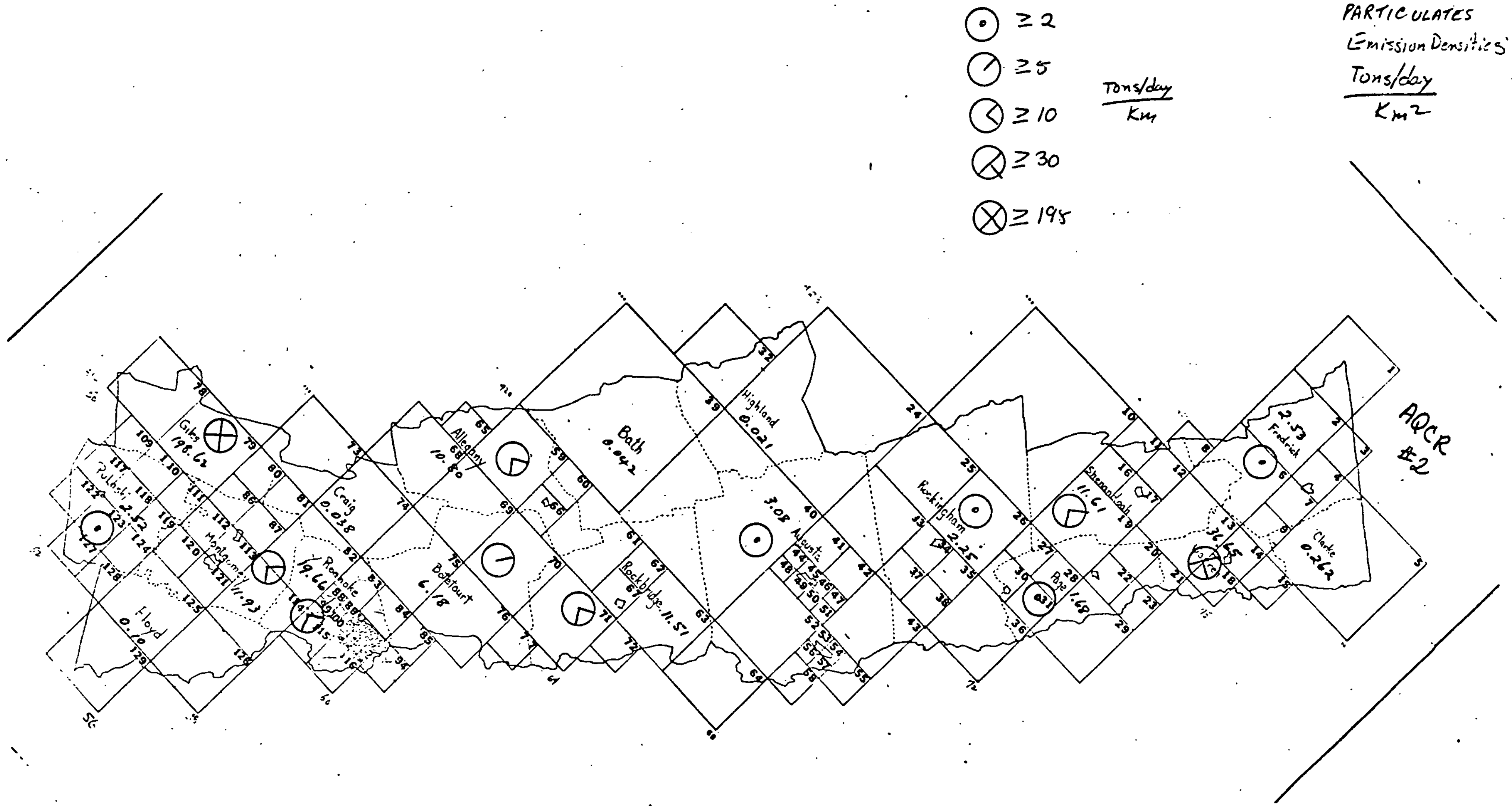
○ High Volume Sampler

● Tape Sampler

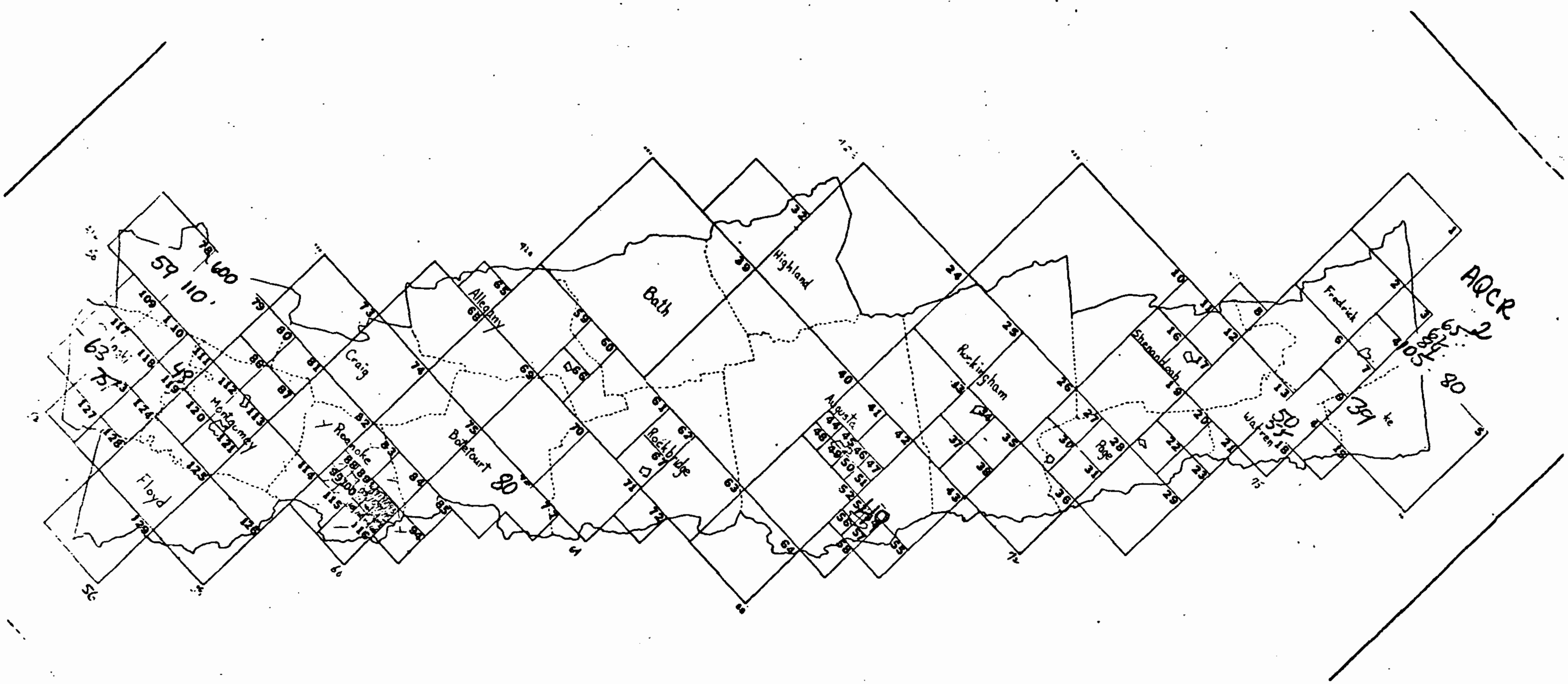
⊕ High Vol. and Tape



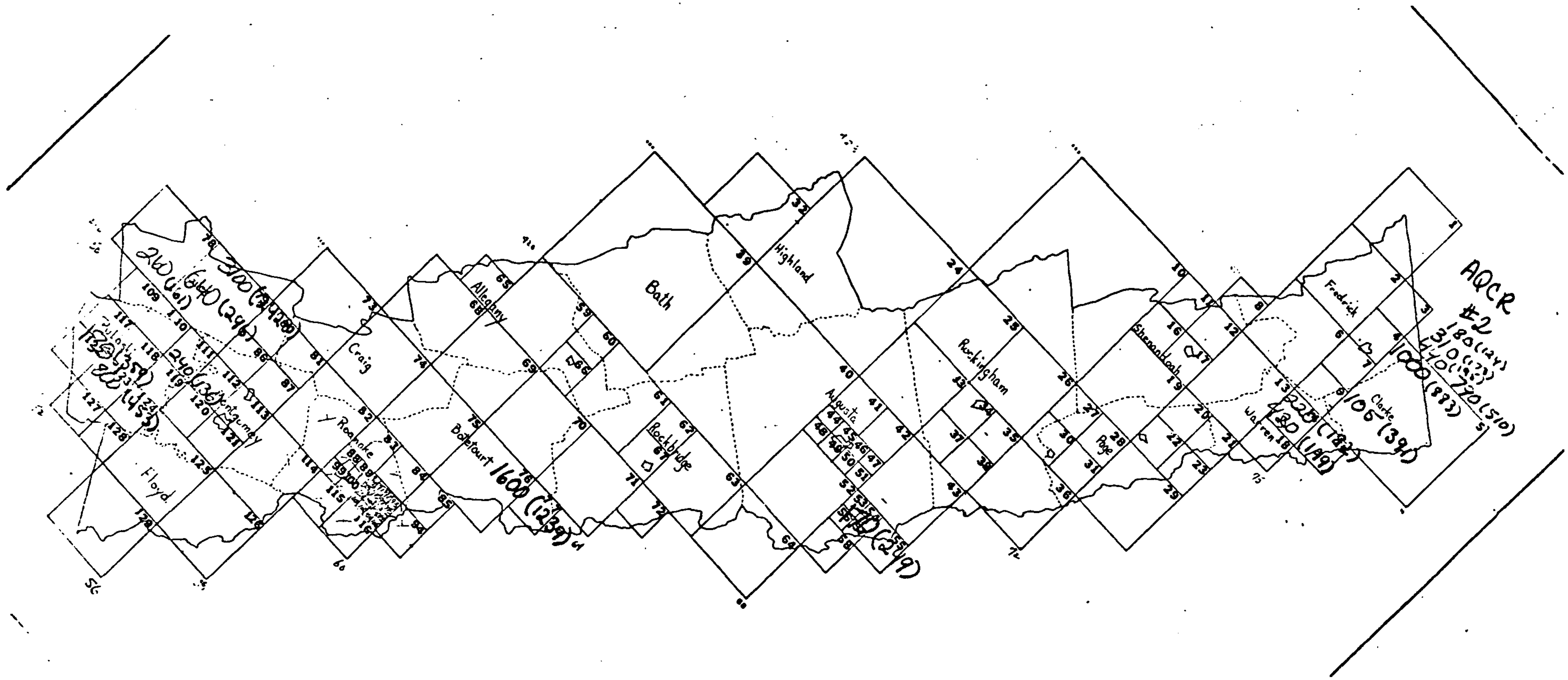
PARTICULATES
Emission Densities
$\frac{\text{Tons/day}}{\text{Km}^2}$



Particulates
Annual Geo. Mean



Particulates
24 HR MAX
ug/m3
Expected XXX (YYY) Observed

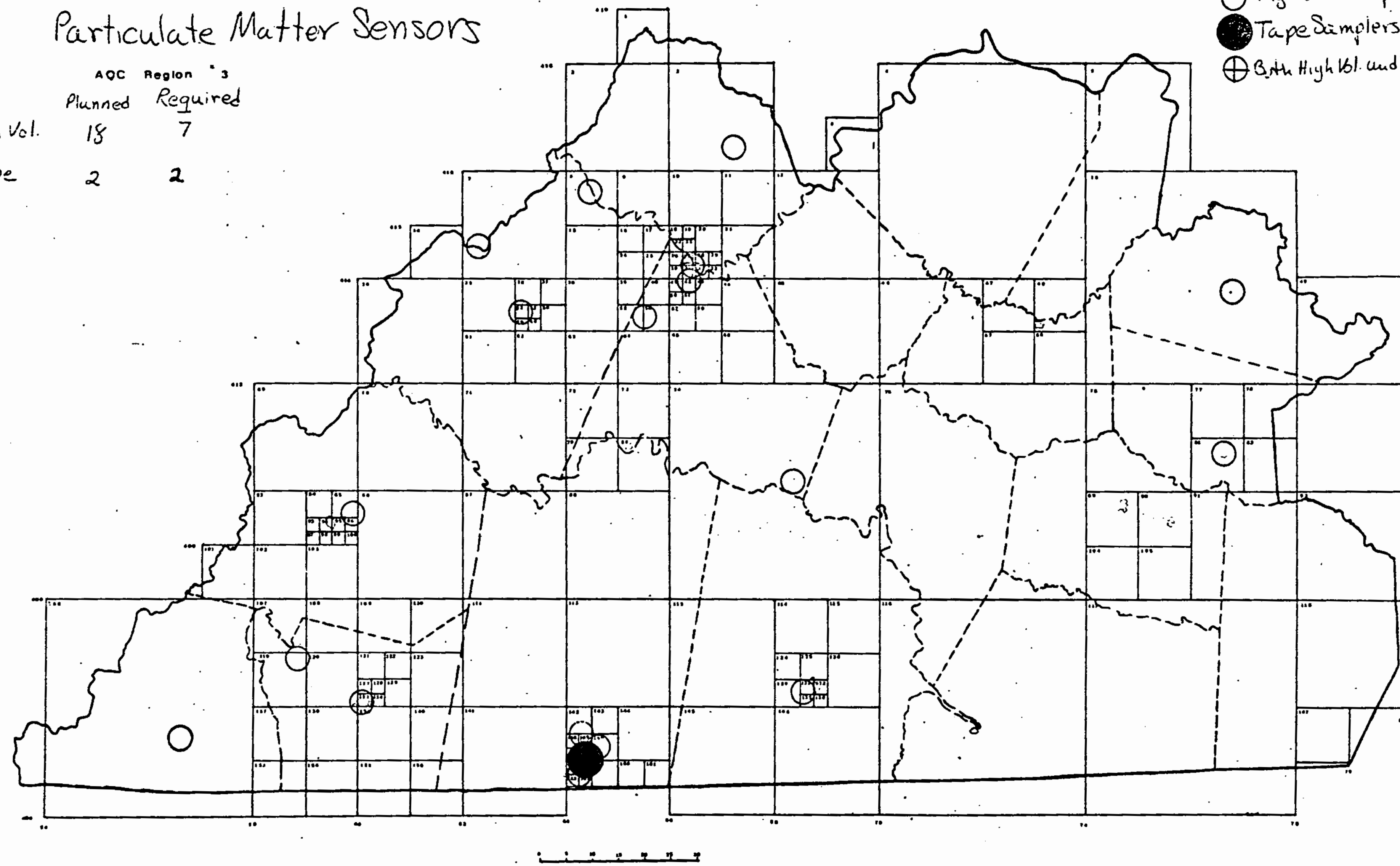


Particulate Matter Sensors

AQC Region #3

	Planned	Required
High Vol.	18	7
Tape	2	2

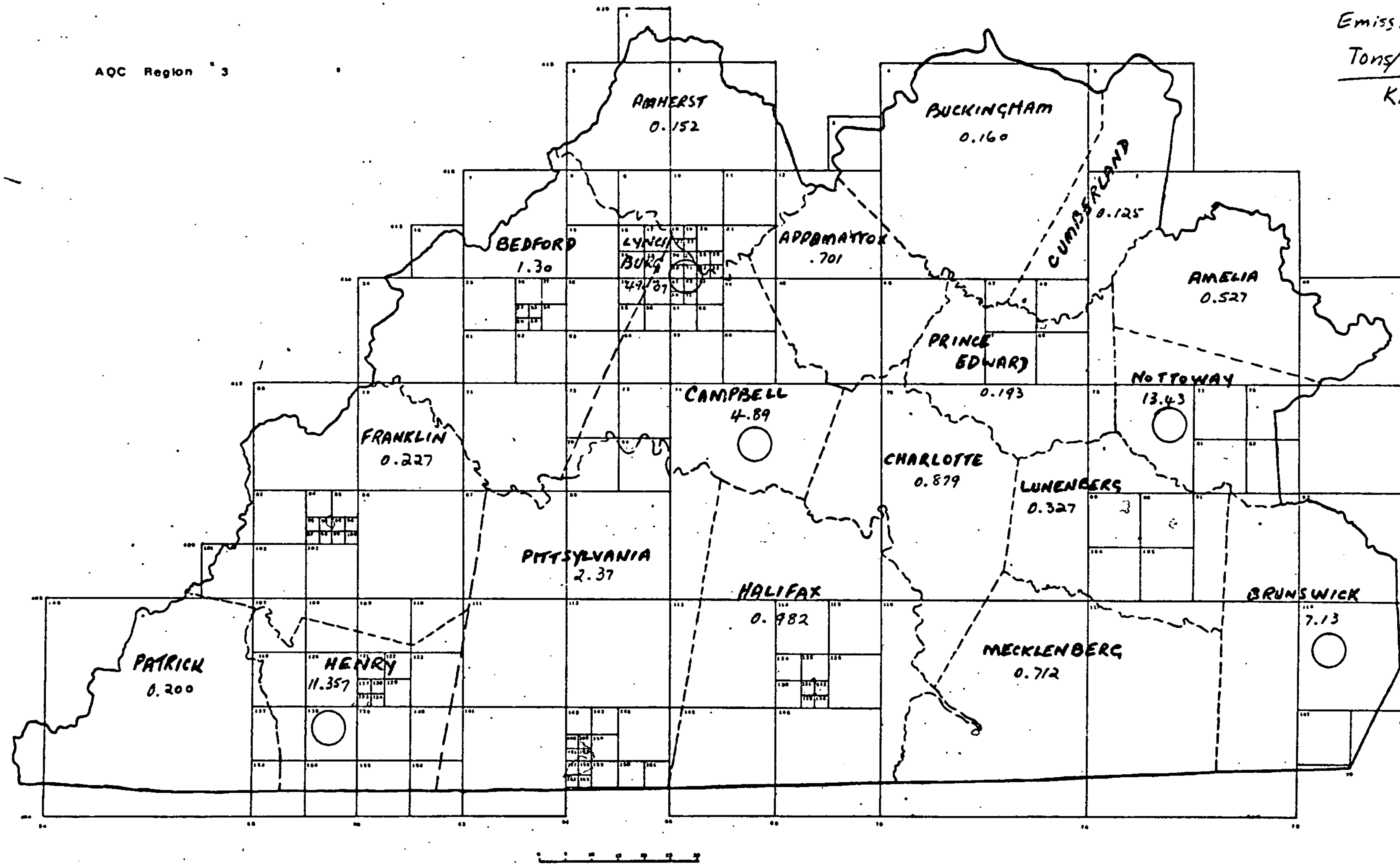
High Volume Samplers
Tape Samplers
Both High Vol. and Tape



AQC Region 3

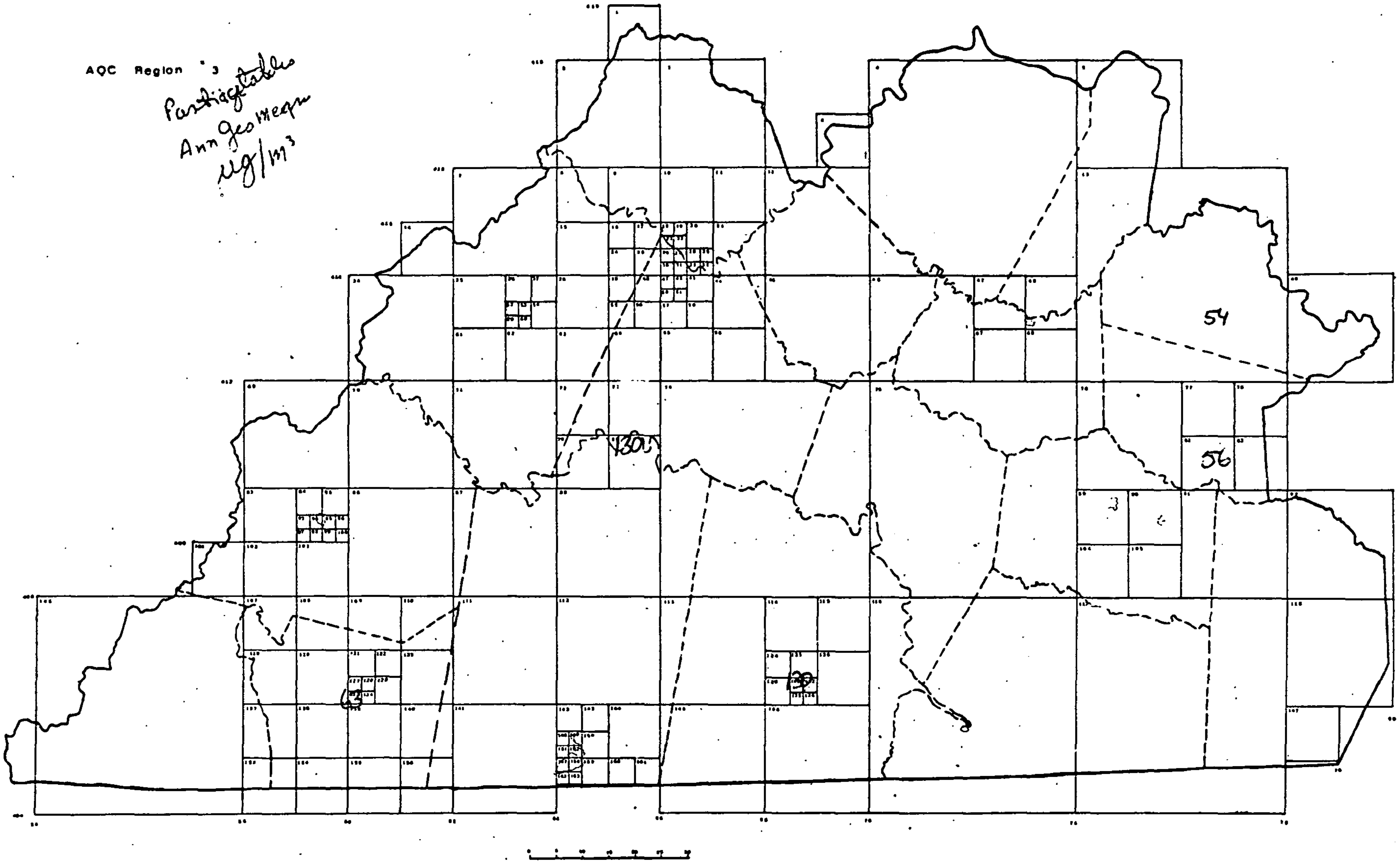
PARTICULATES

Emission Densities $\frac{\text{Tons/day}}{\text{Km}^2}$



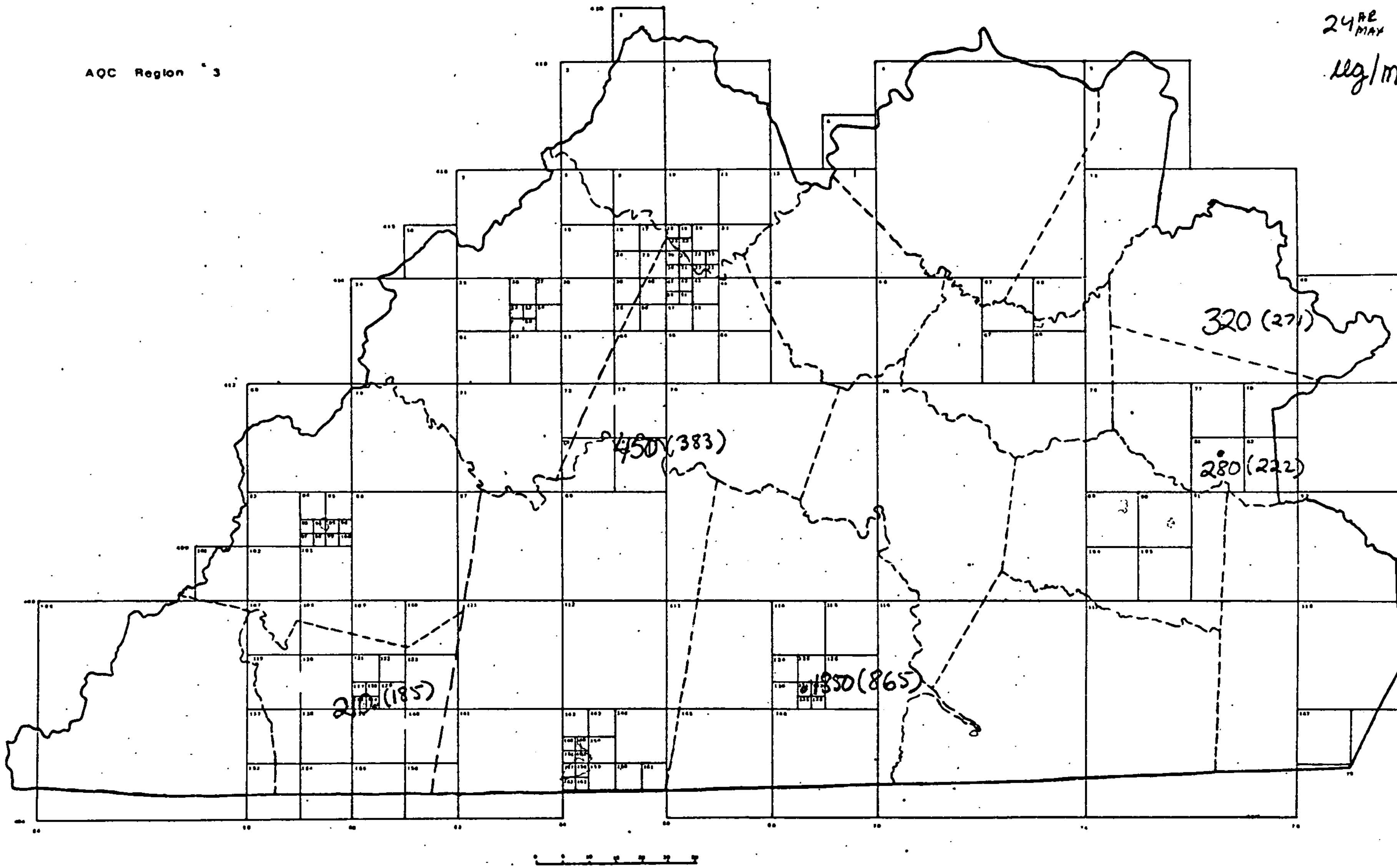
AQC Region # 3

Particulates
Ann Geo Mean
ug/m³



Particulates
24 hr MAX Expected xxx (yyy) observed
µg/m³

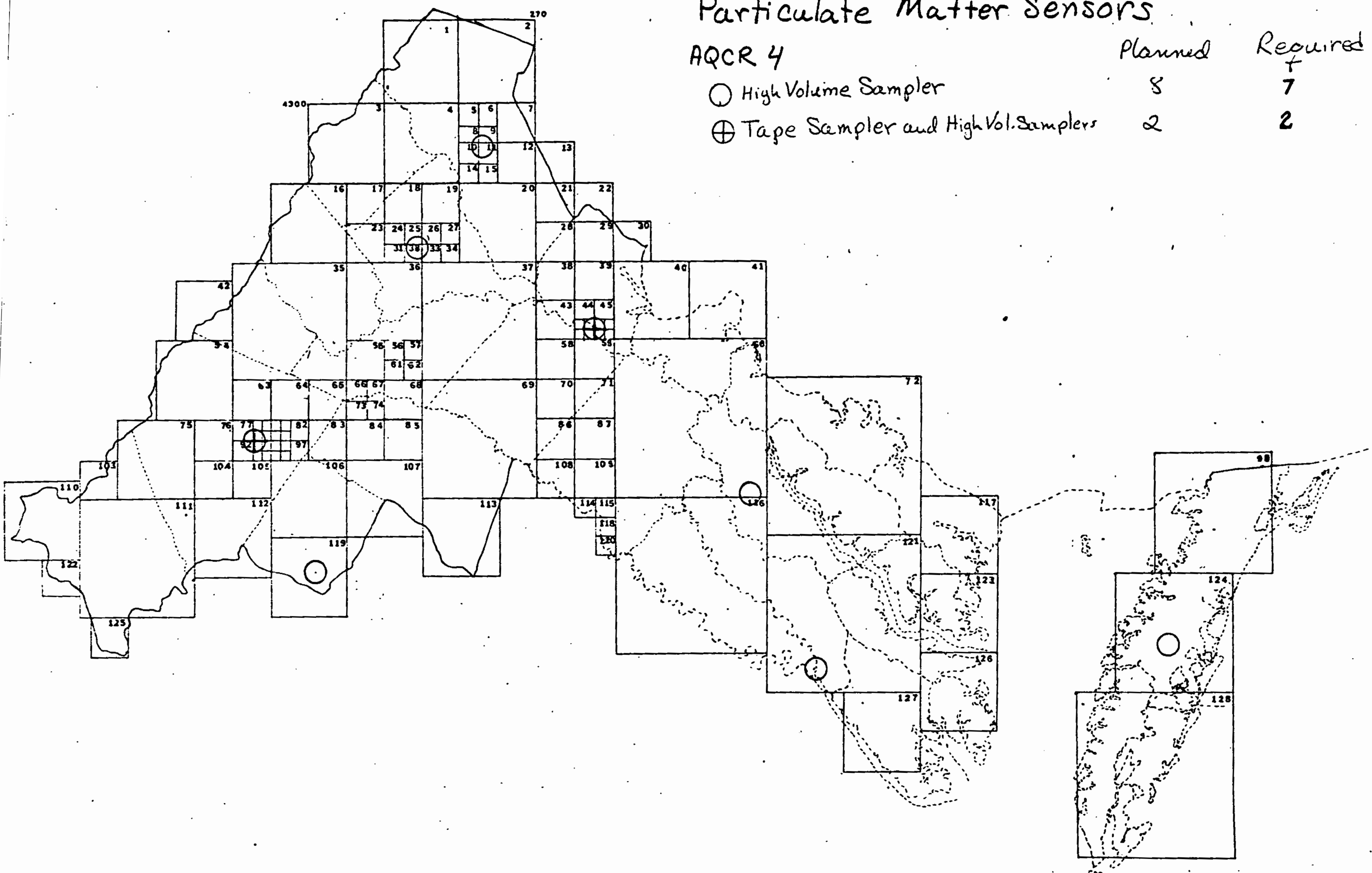
AQC Region 3



Particulate Matter Sensors

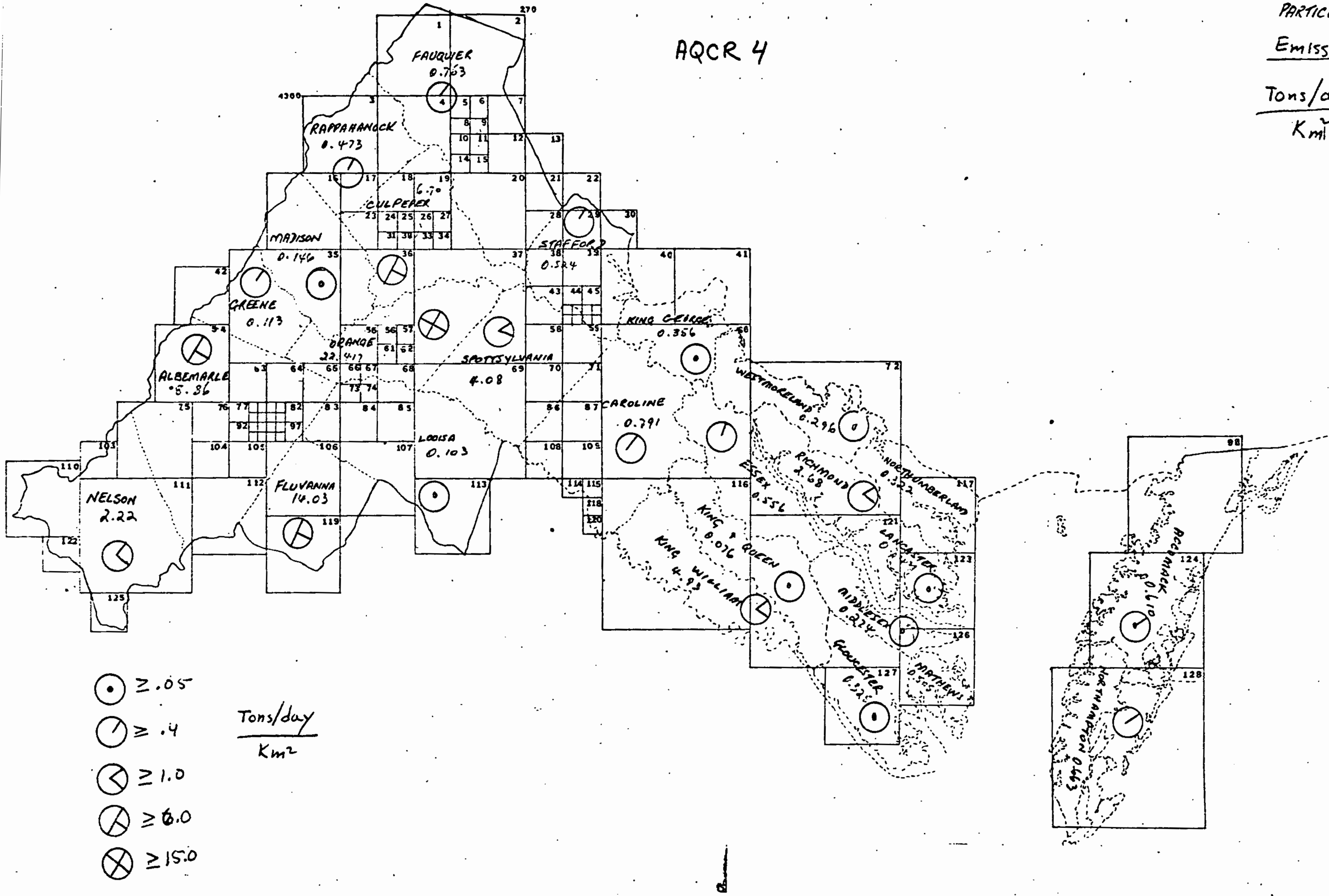
AQCR 4

	Planned	Required
○ High Volume Sampler	8	7
⊕ Tape Sampler and High Vol. Samplers	2	2



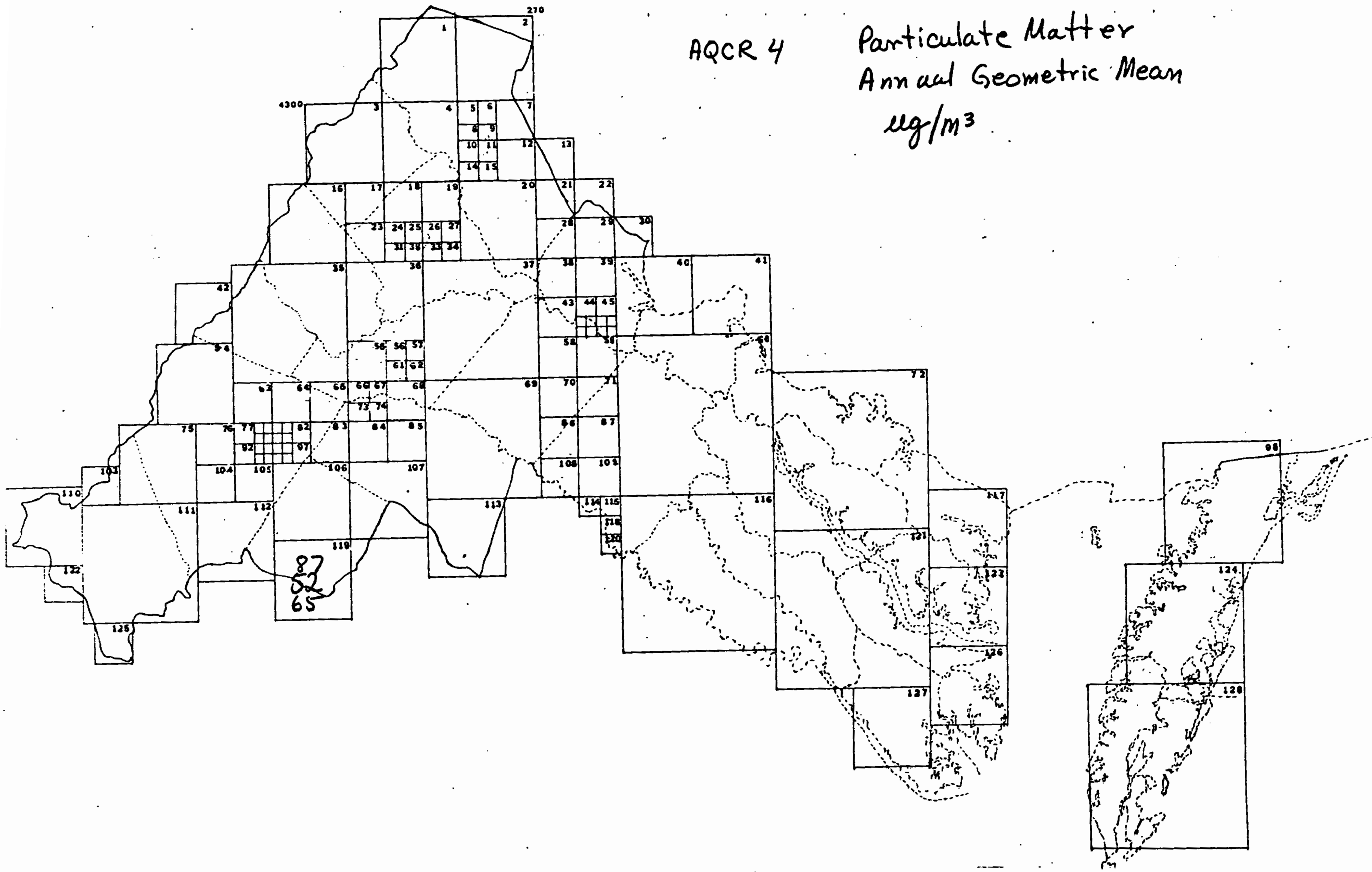
AQCR 4

PARTICULATES
Emission Density
Tons/day / Km²



AQCR 4

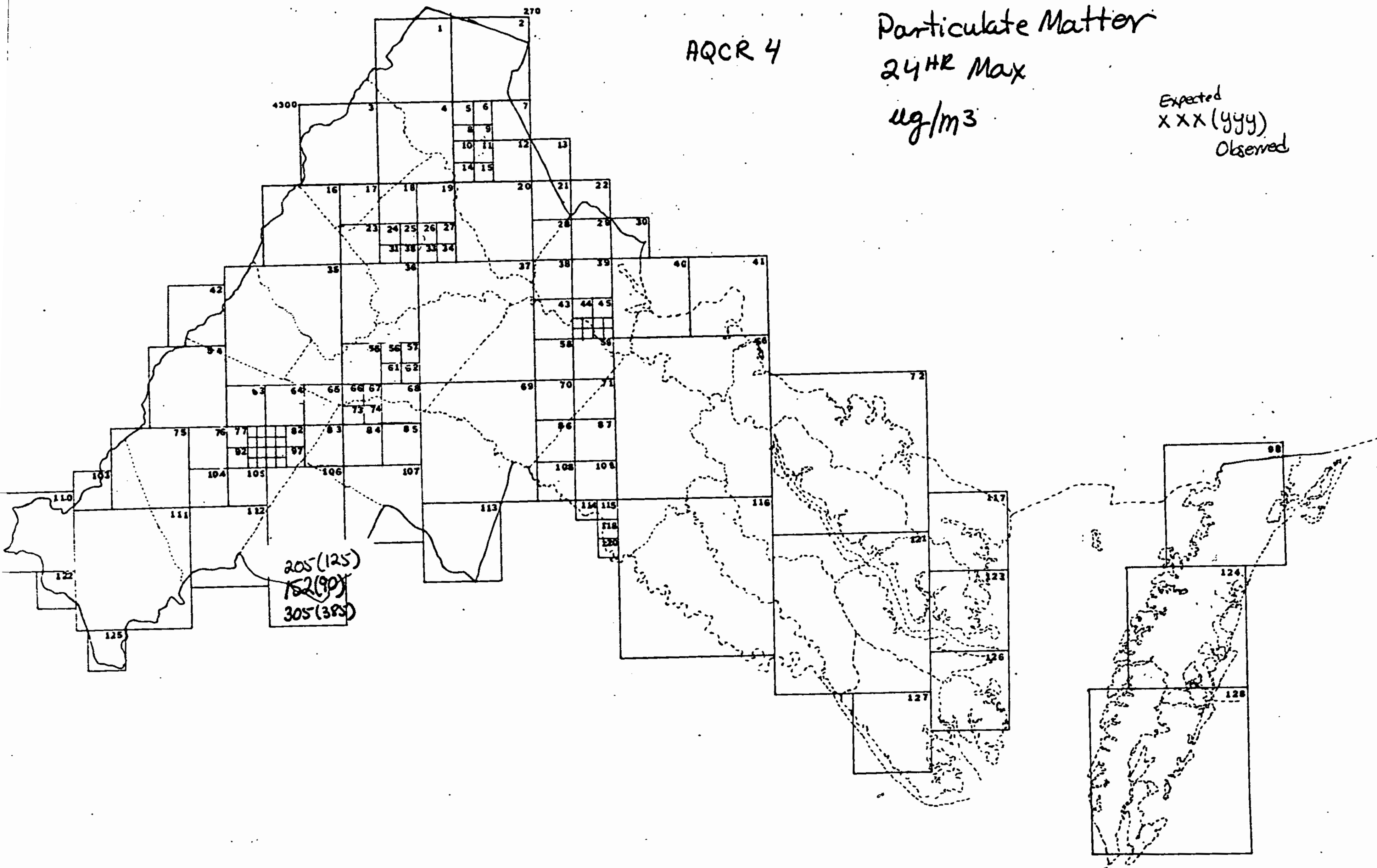
Particulate Matter
Annual Geometric Mean
ug/m³



AQCR 4

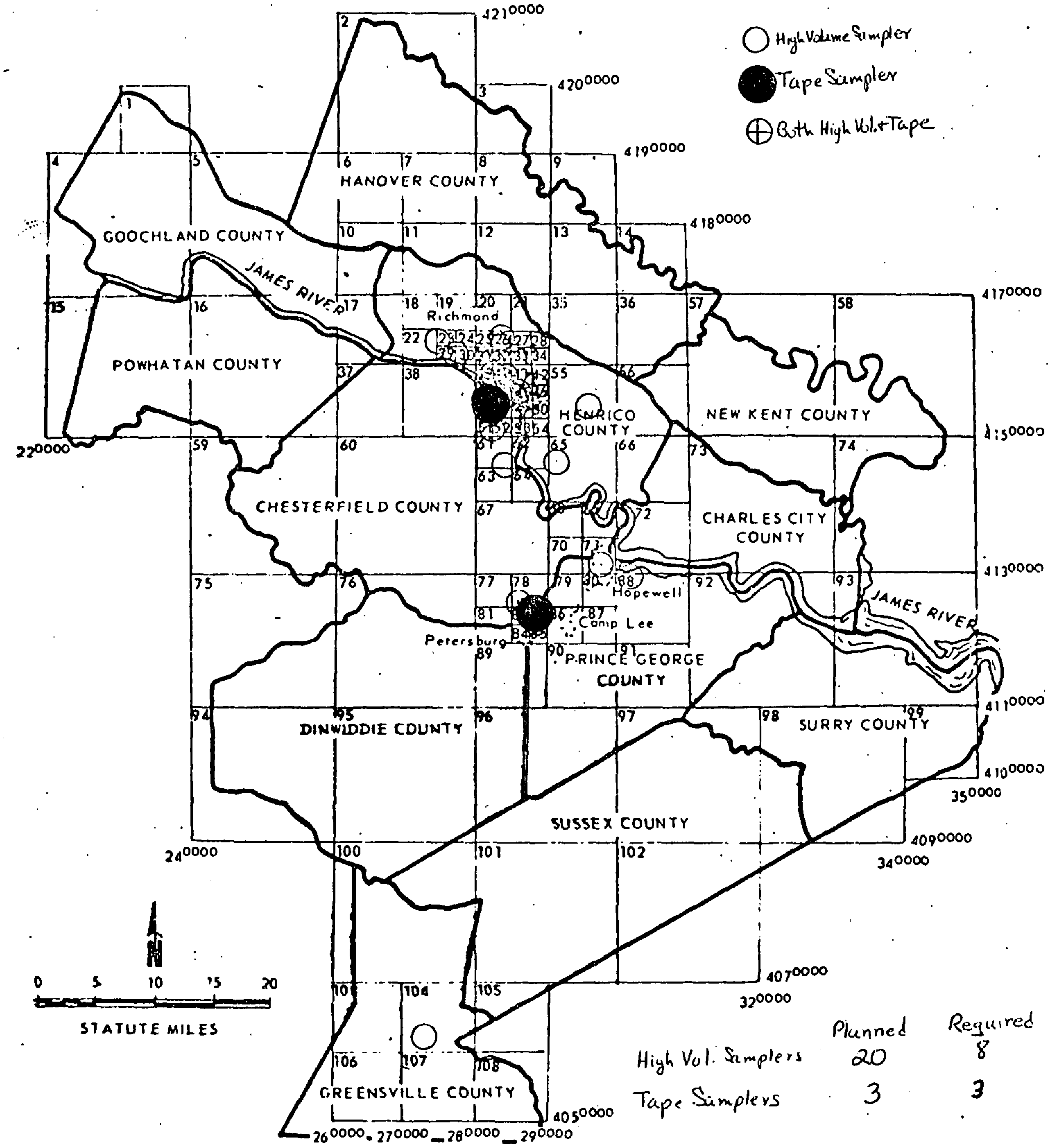
Particulate Matter
24HR Max
ug/m3

Expected
xxx(yyy)
Observed



Particulate Matter Sensors

AQCR 5



	Planned	Required
High Vol. Samplers	20	8
Tape Samplers	3	3

$\boxed{\cdot} \geq 0.04$

≥ 0.20 Tons/day / Sq mile

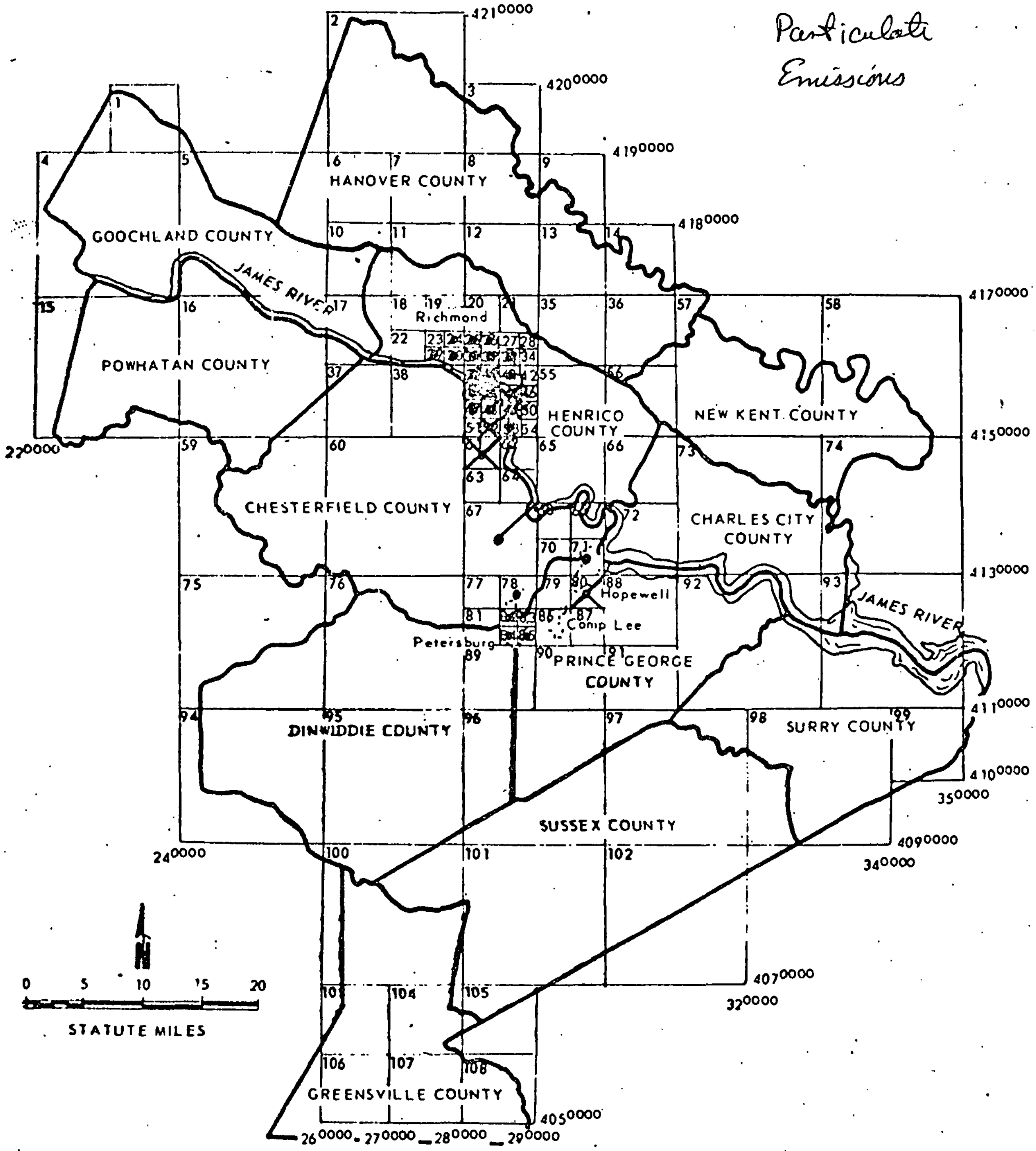
≥ 0.40

≥ 1.00

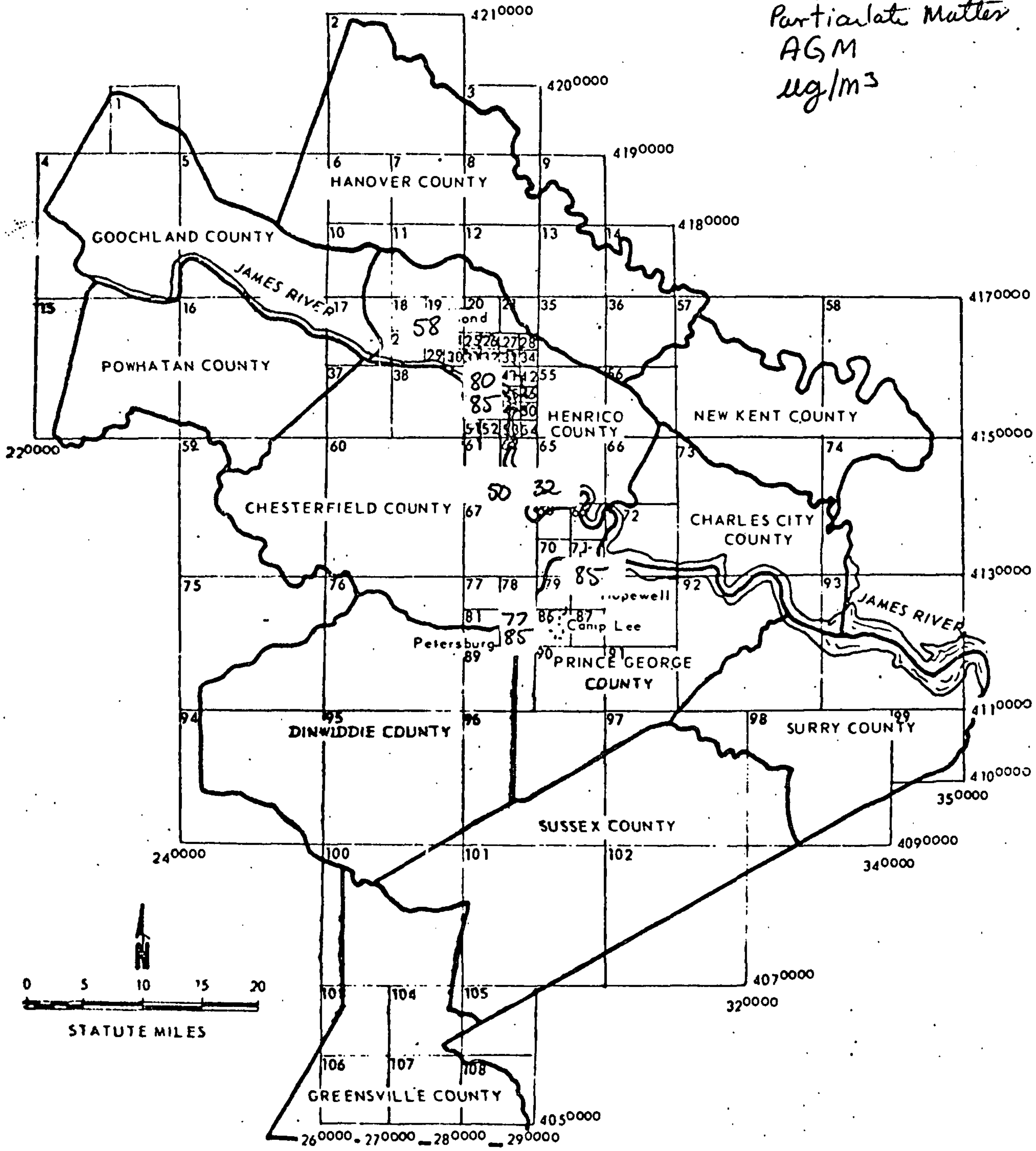
$\boxtimes \geq 4.00$

AQCR 5

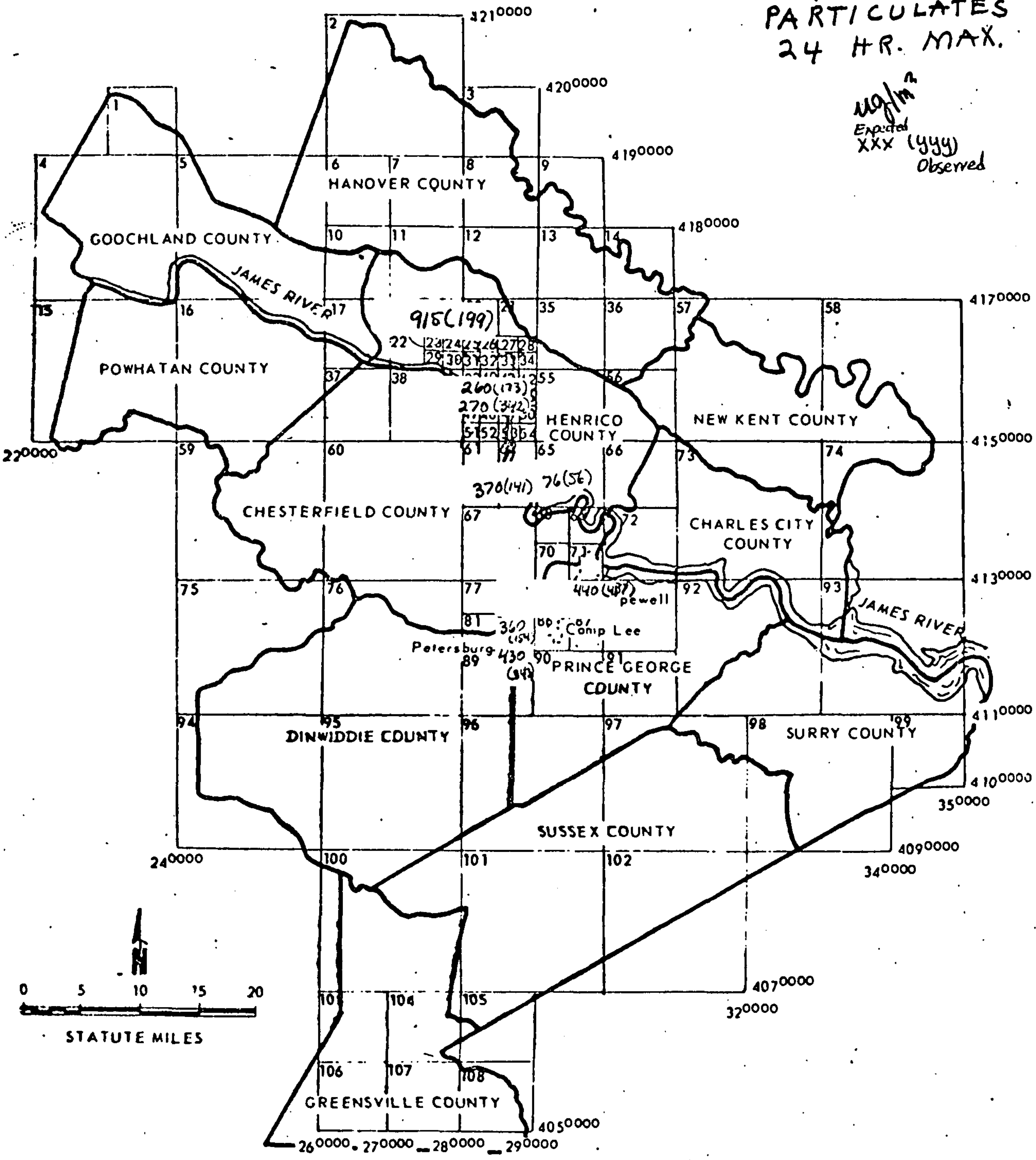
Particulate Emissions



AQCR 5
Particulate Matter
AGM
ug/m3



AQCR 5
PARTICULATES
24 HR. MAX.

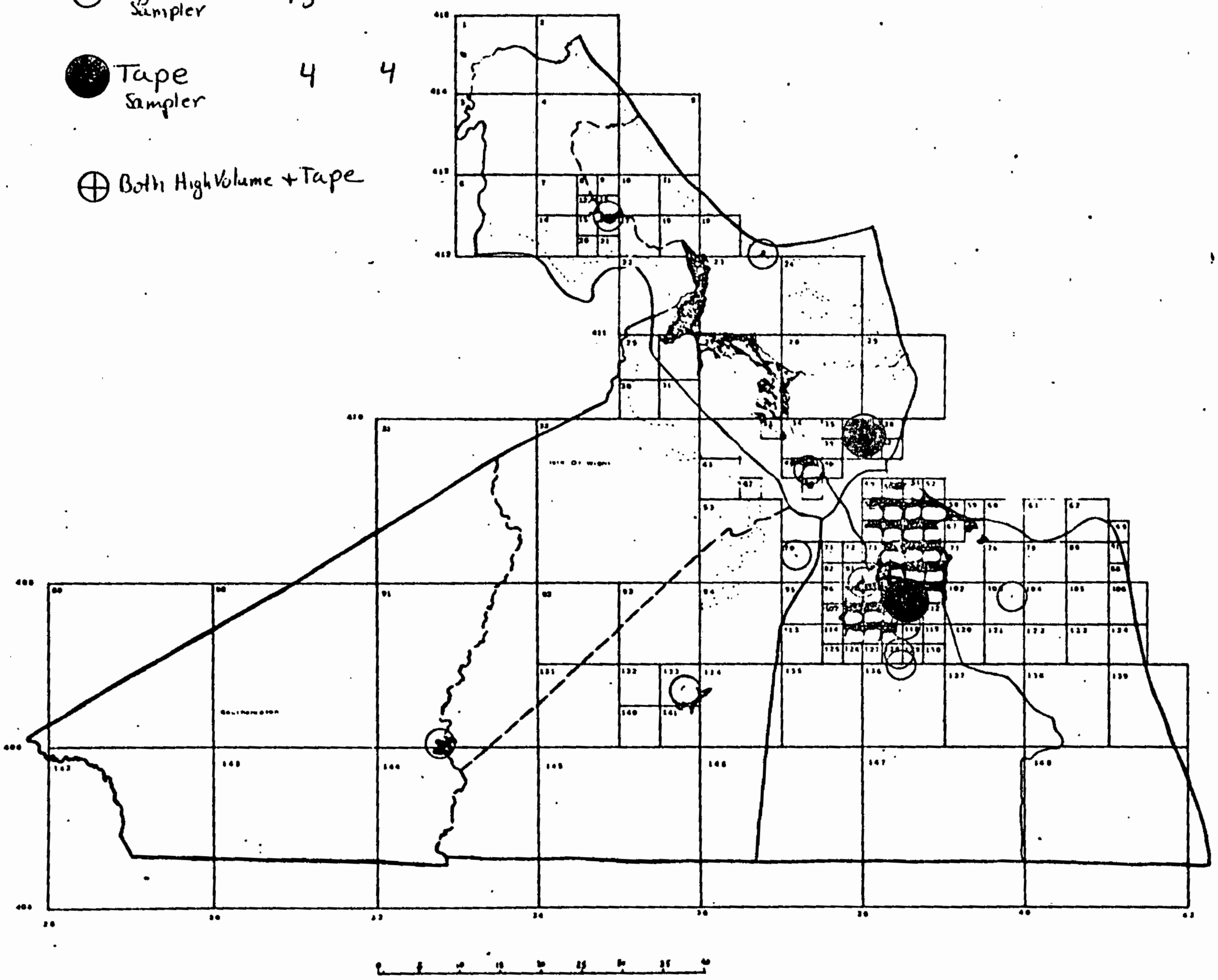


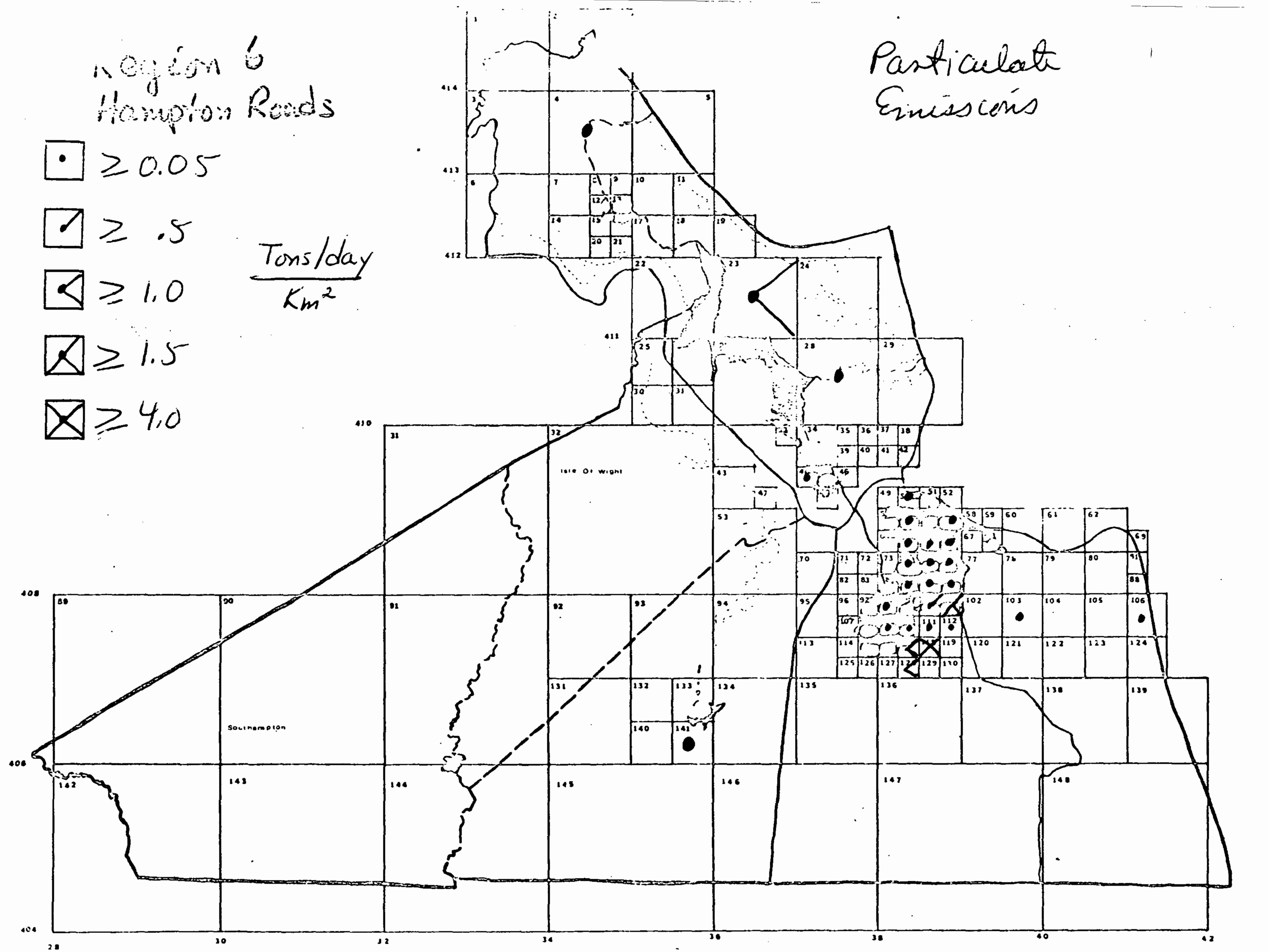
Particulate Matter Sensors

AQCR Region 6 Hampton-Roads

	Planned	Required
○ HighVolume Sampler	15	10
● Tape Sampler	4	4

⊕ Both HighVolume + Tape

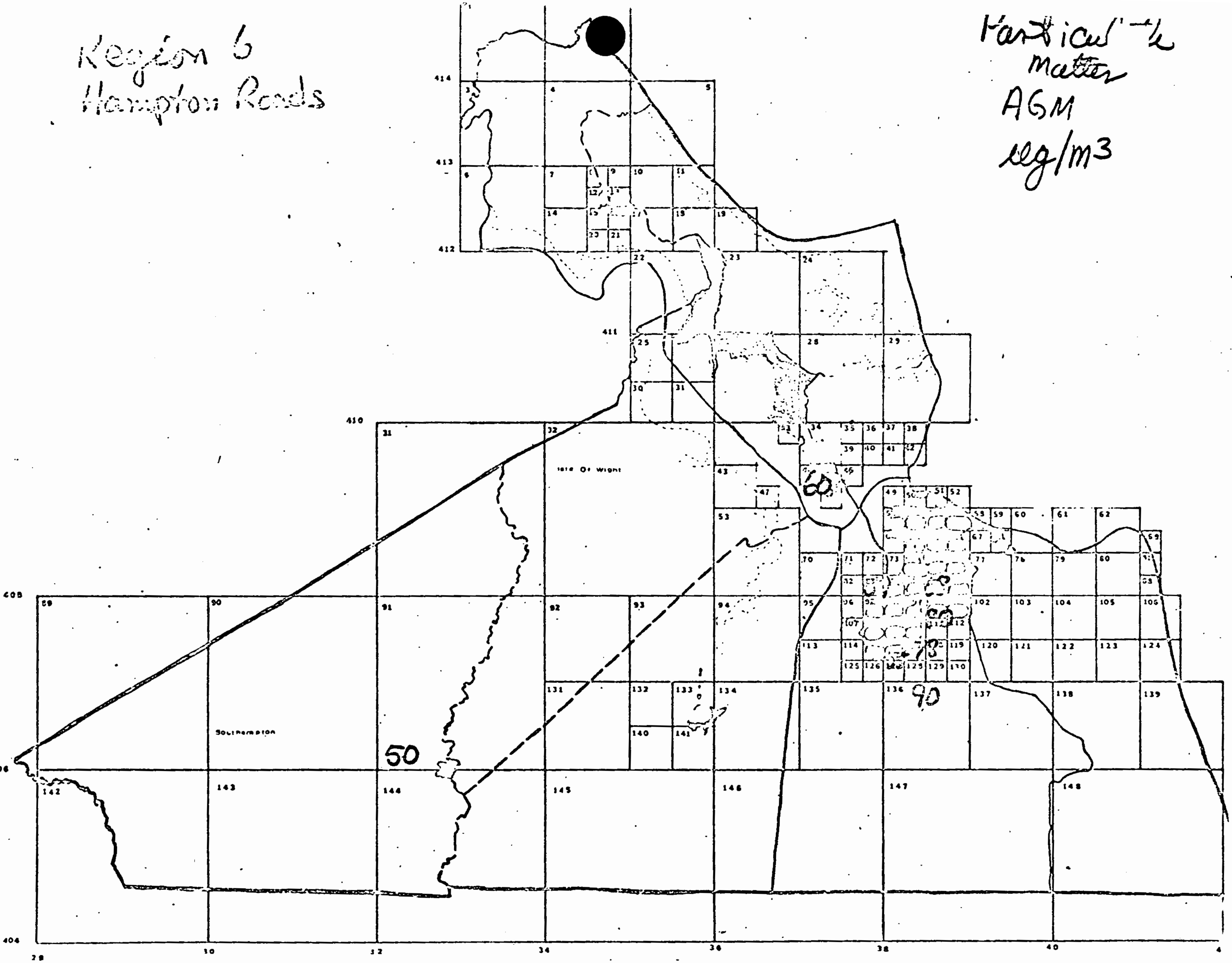




Region 6
Hampton Roads
Particulate Emissions
≥ 0.05
≥ .5
≥ 1.0
≥ 1.5
≥ 4.0
Tons/day / Km²
Isle Of Wight
Southampton

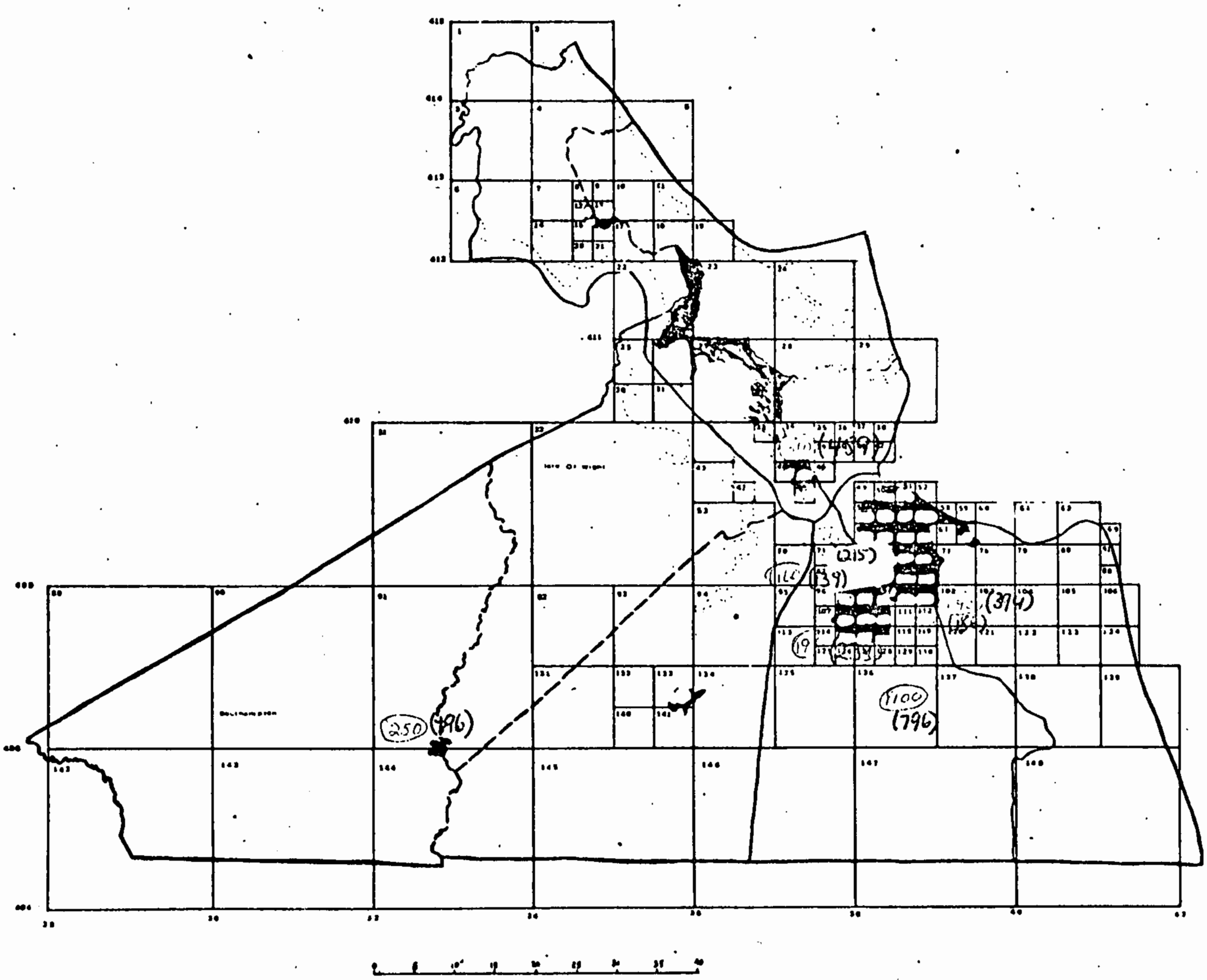
Region 6
Hampton Roads

Particulate Matter
AGM
ug/m3

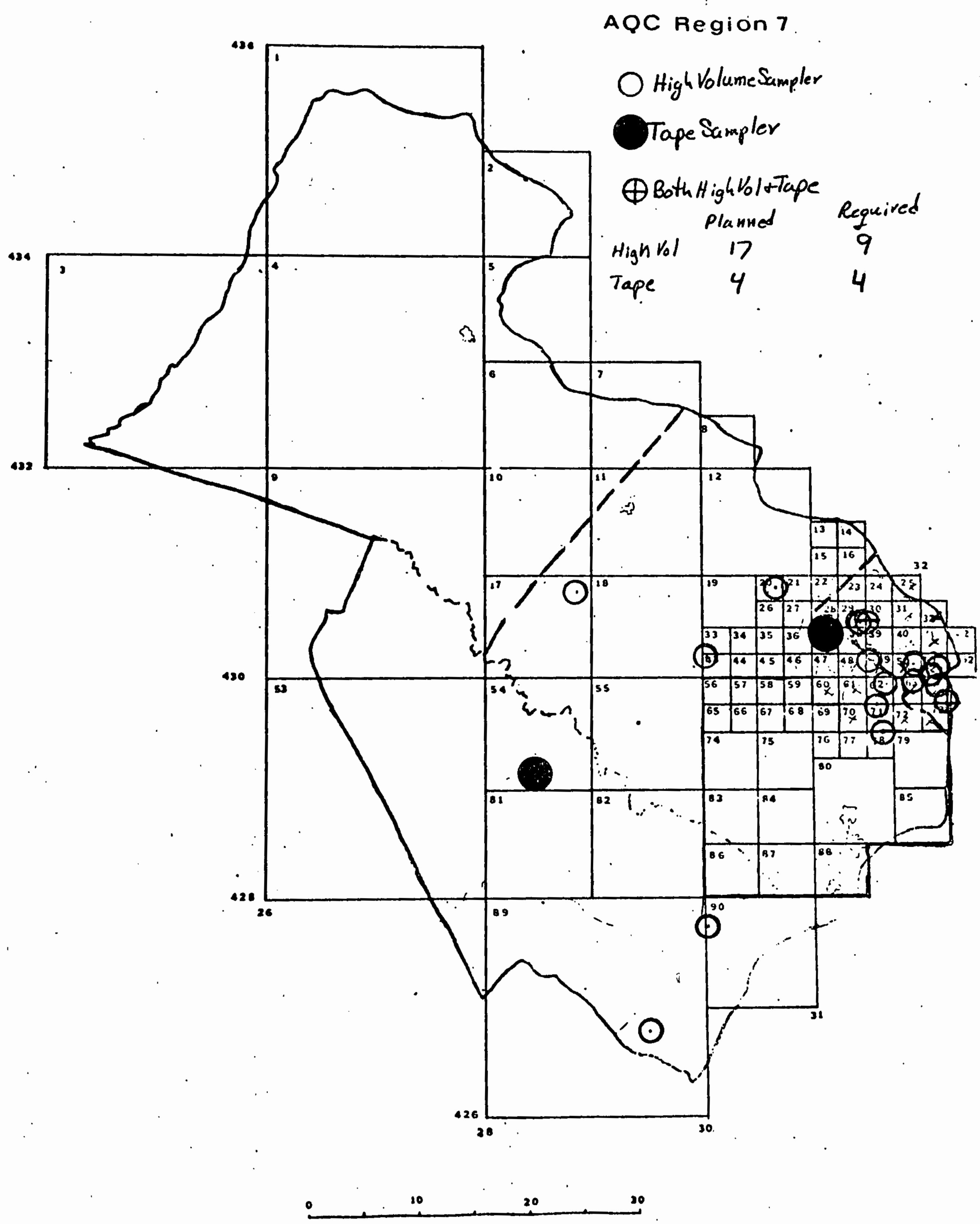


PARTICULATES
MAX. 24-HR.
ug/m3
Expected
XXX(yyy)
Observed

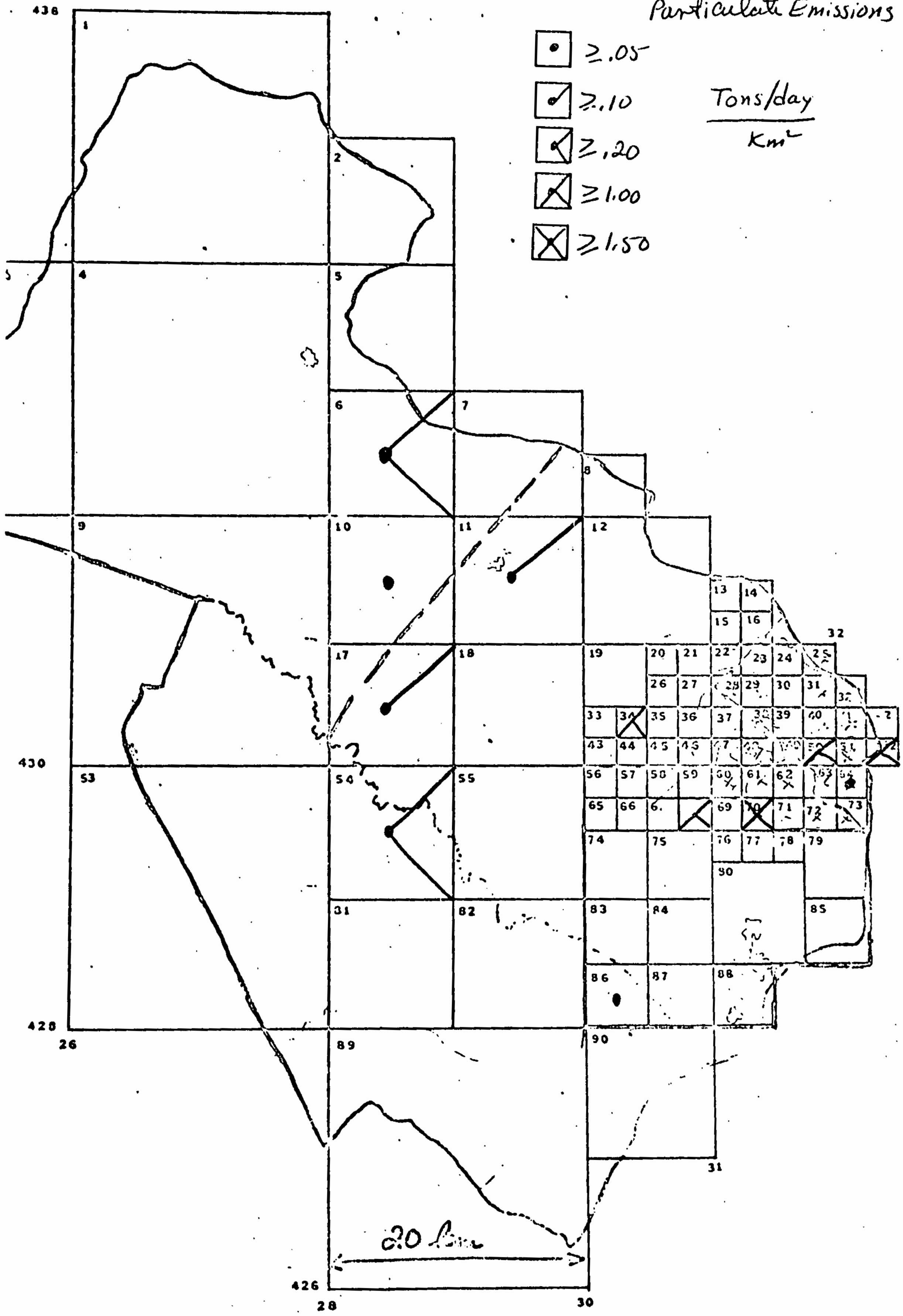
AQCR Region 6 Hampton-Roads

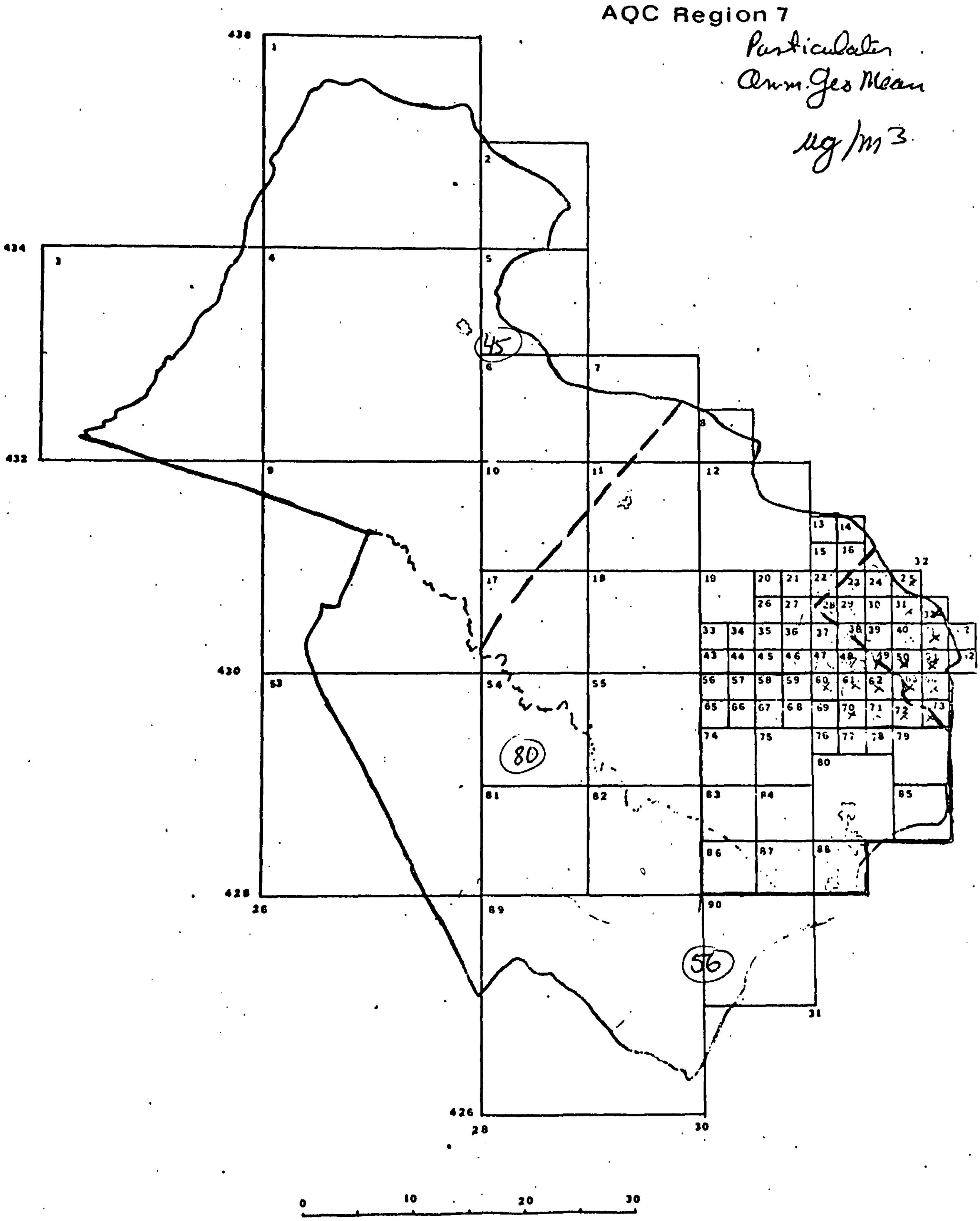


Particulate Matter Sensors

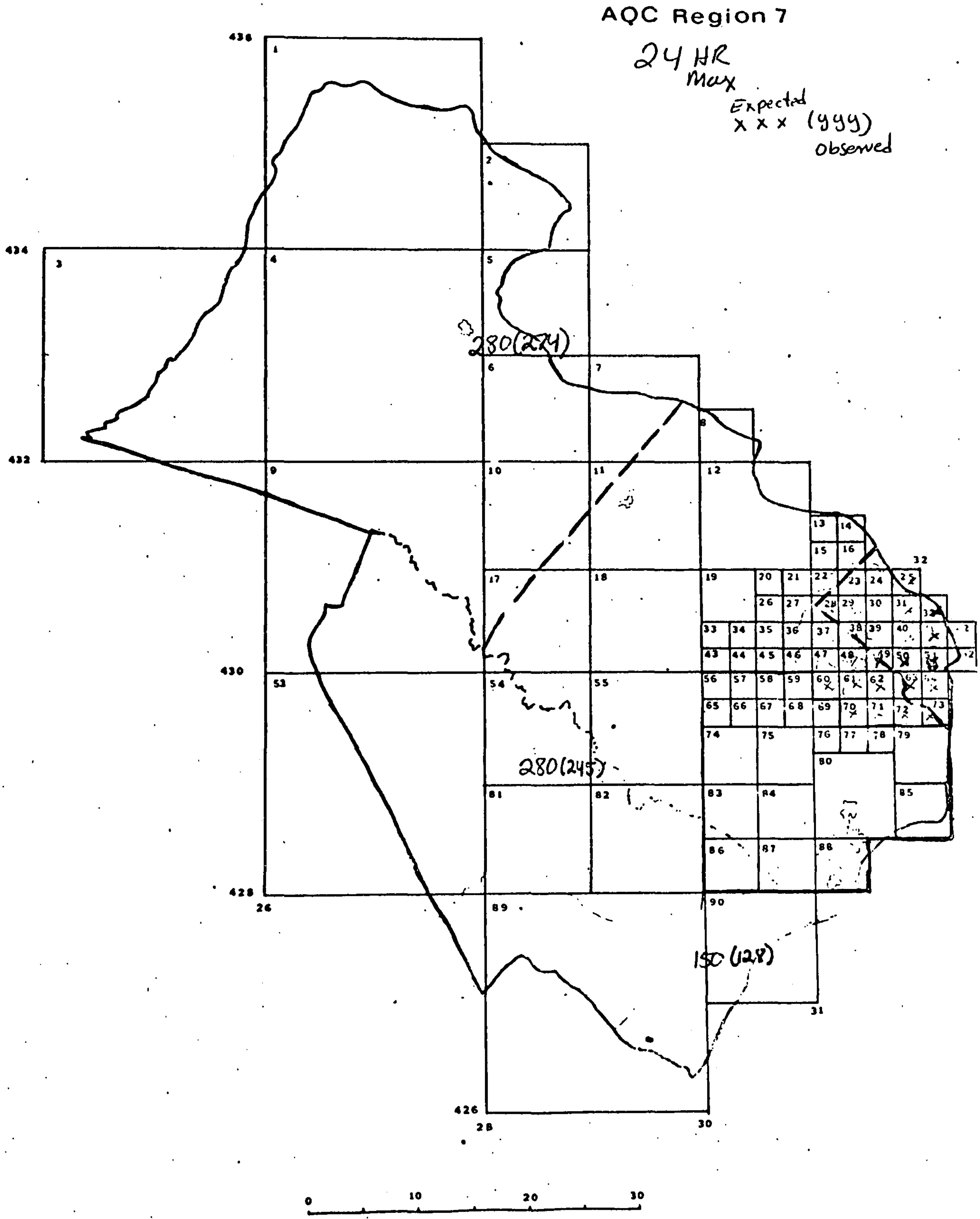


AQC Region 7
Particulate Emissions




AQC Region 7
Particulates
Ann. Geo Mean
ug/m3
45
80
56
434
432
430
428
426
26
28
30
31
32
0
10
20
30

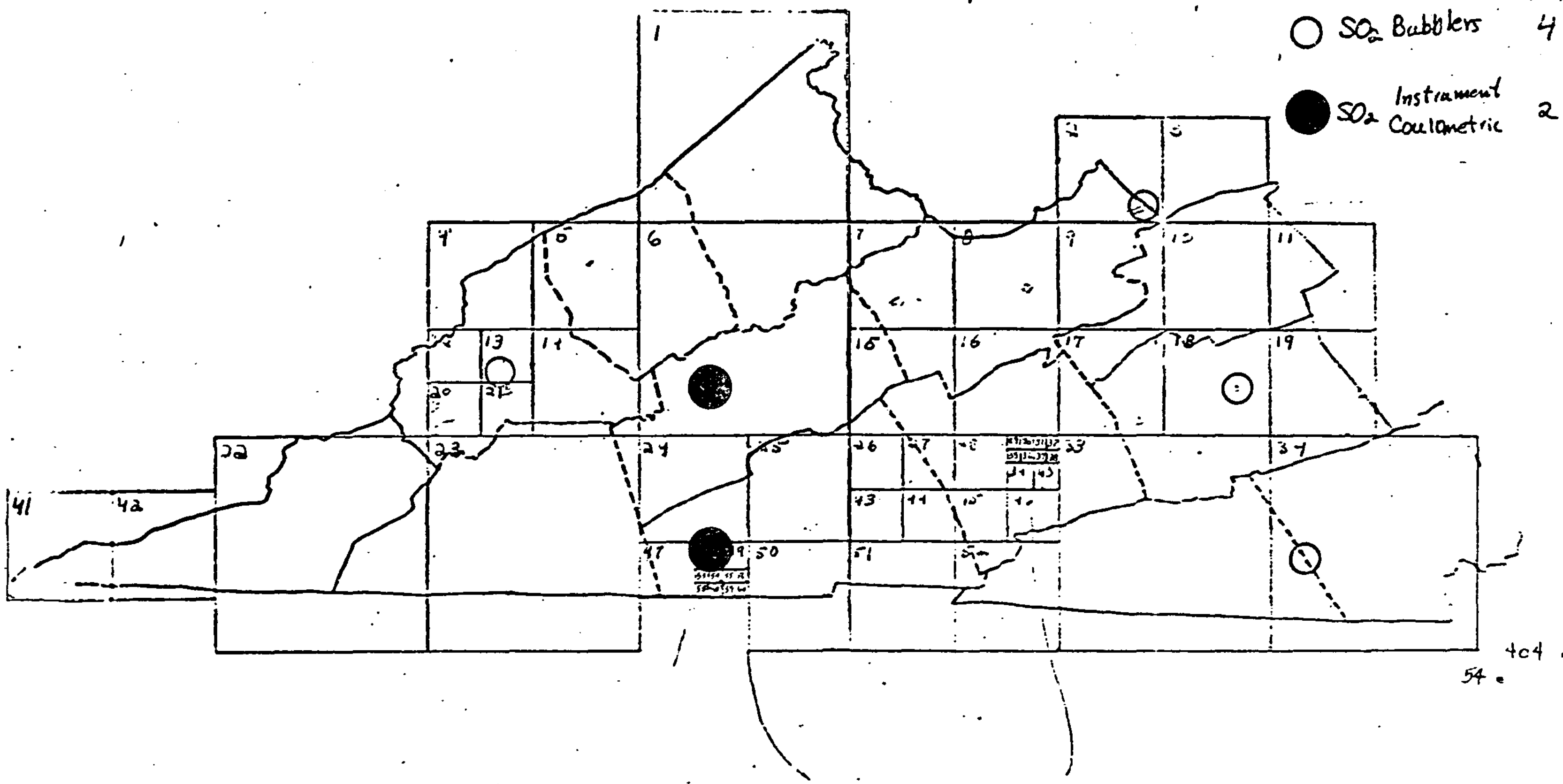
Particulates
ug/m3



Sulfer Dioxide
Sensors

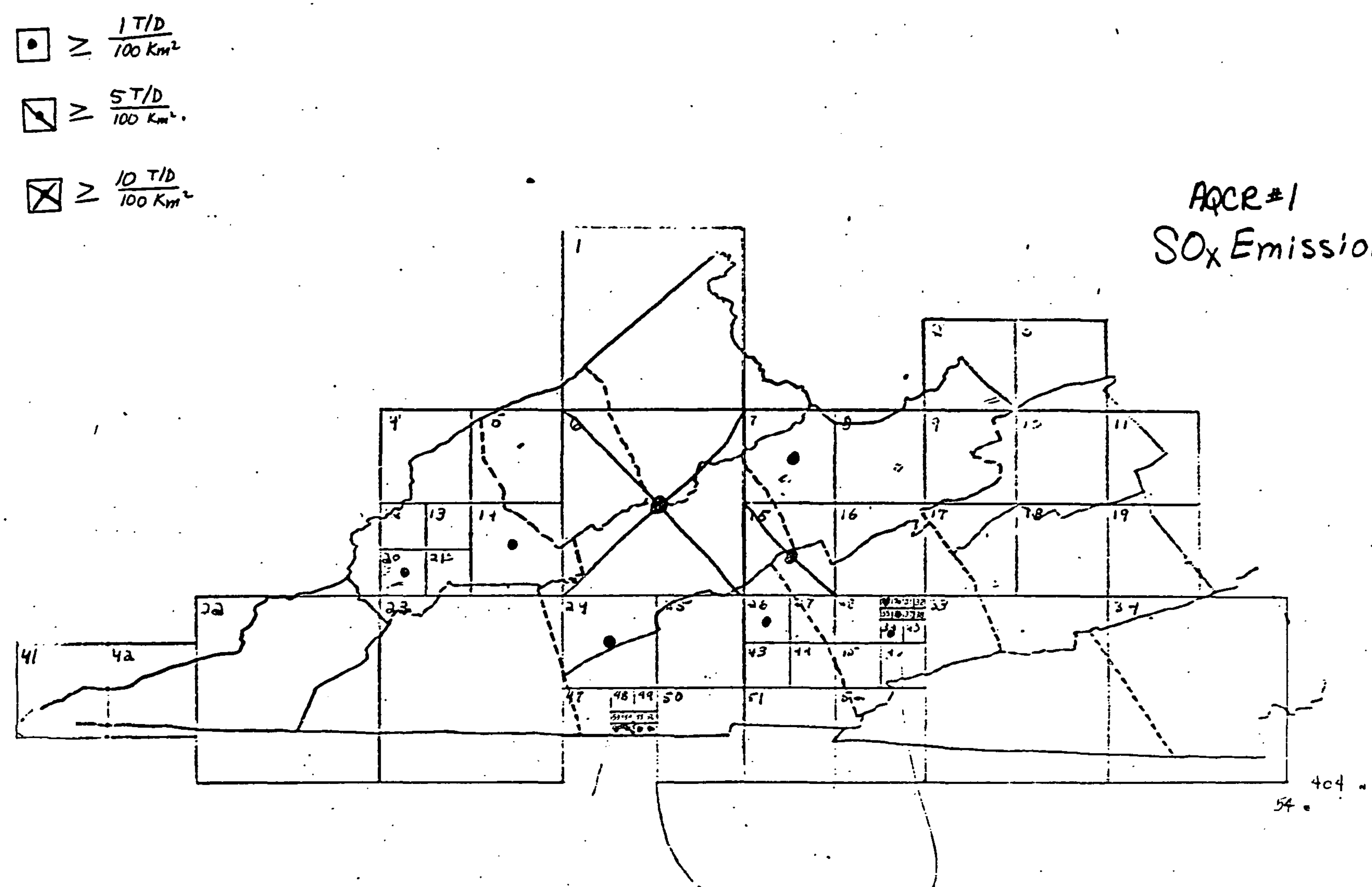
AQCR #1

	Planned	Required
○ SO_2 Bubblers	4	4
● SO_2 Instrument Coulometric	2	2



AQCR #1

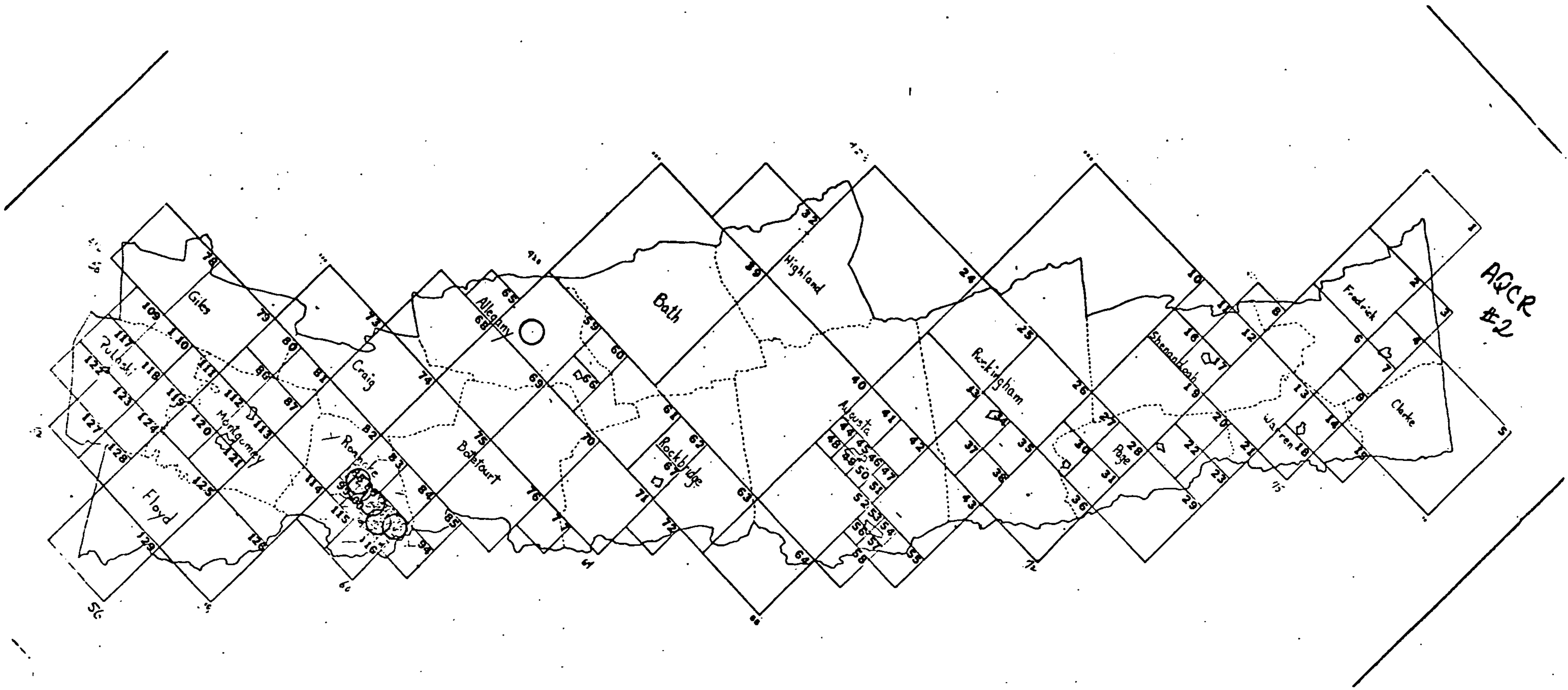
SO_x Emissions

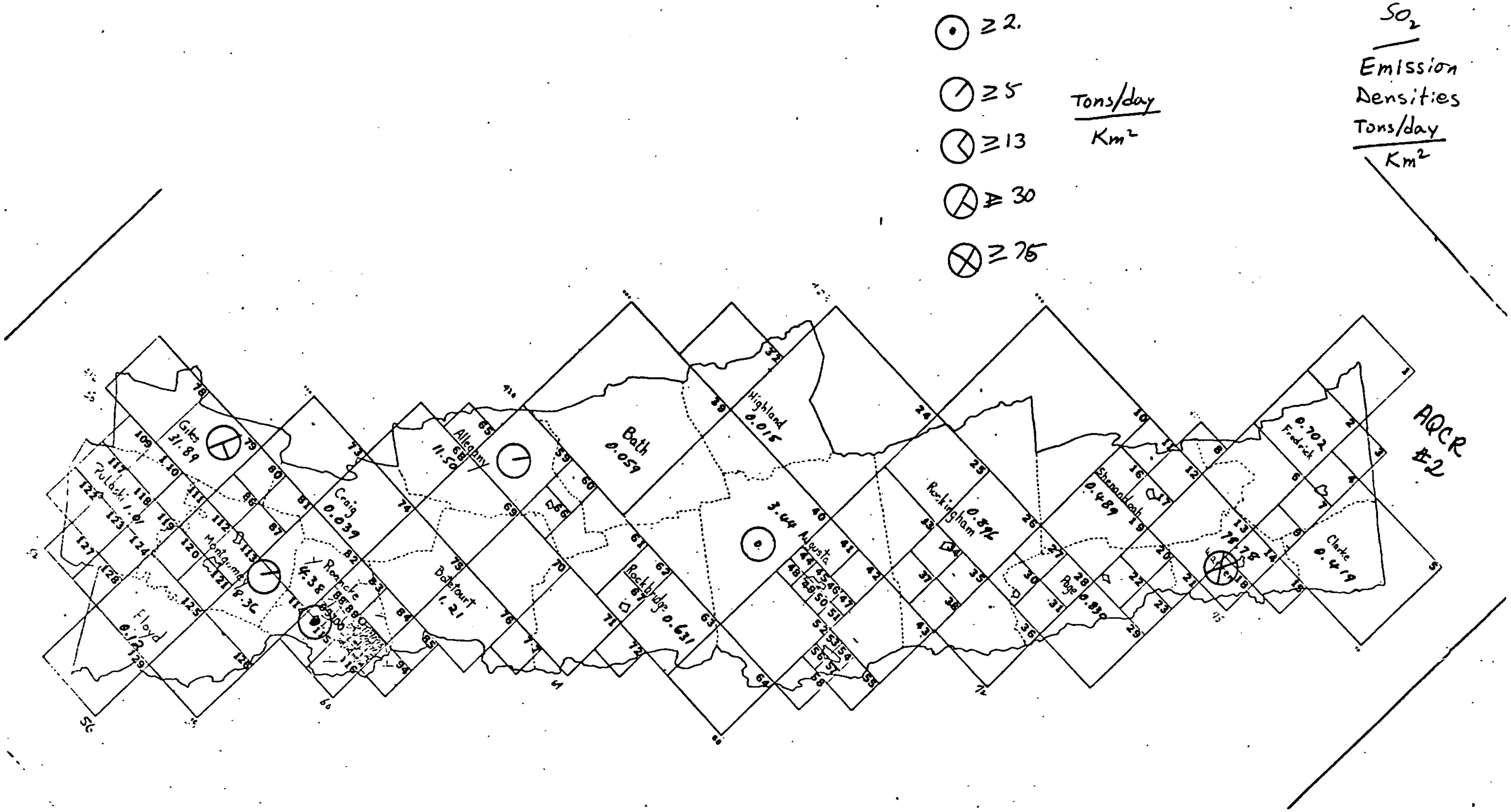


○ Sulfer Dioxide Sensors
(Bubblers)

6 planned

1 Required



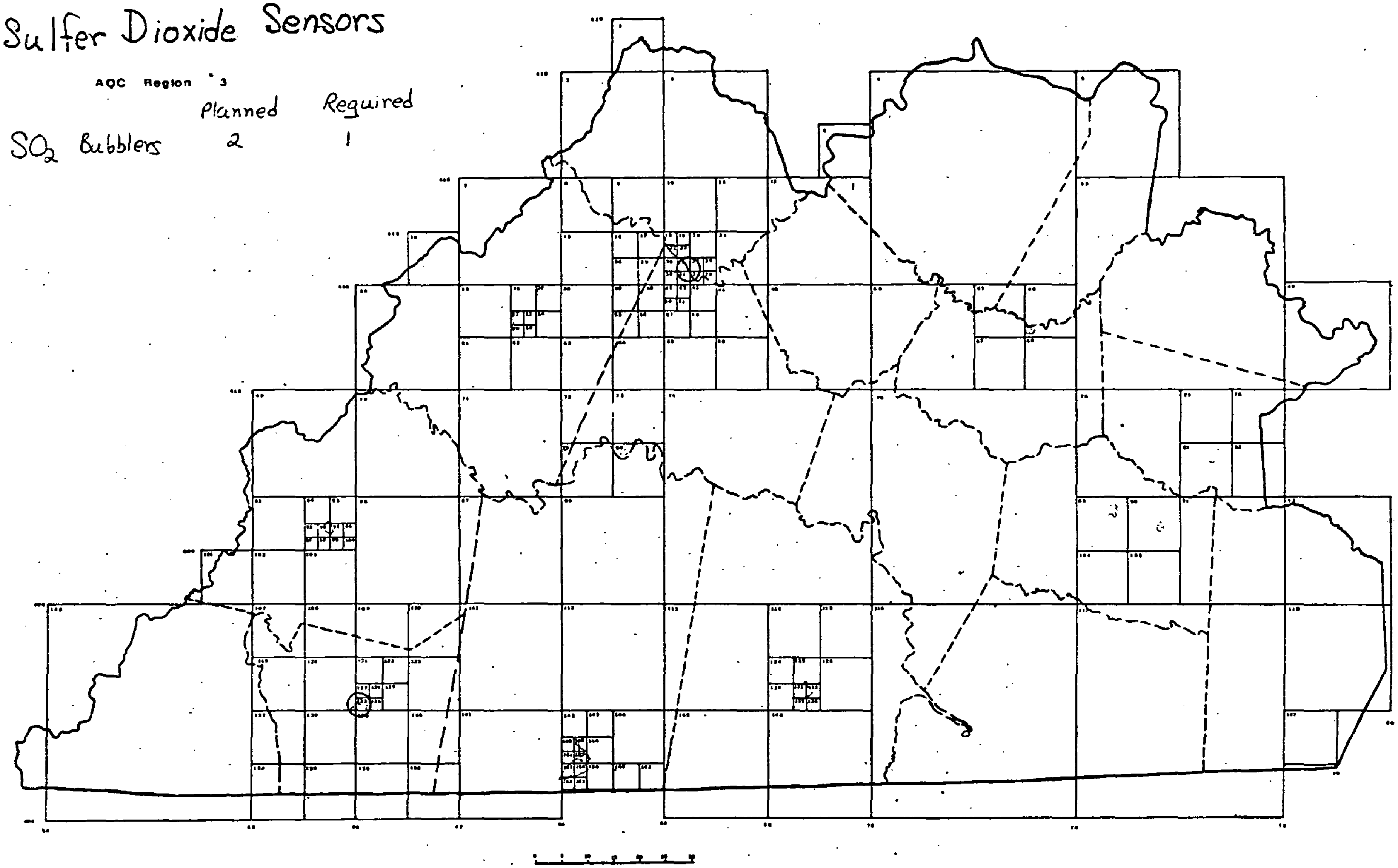


SO_2
Emission Densities
Tons/day / Km^2
≥ 2.
≥ 5
≥ 13
≥ 30
≥ 75
Tons/day / Km^2
AQCR #2
Giles 31.89
Pulaski 1.01
Montgomery 9.36
Floyd 0.12
Craig 0.039
Roanoke 4.38
Botetourt 1.21
Alleghany 11.50
Bath 0.059
Highland 0.015
Rockbridge 0.631
Augusta 3.44
Rockingham 0.896
Page 0.830
Shenandoah 0.489
Fredrick 0.702
Clarke 0.419

Sulfer Dioxide Sensors

AQC Region 3

		Planned	Required
○	SO_2 Bubblers	2	1

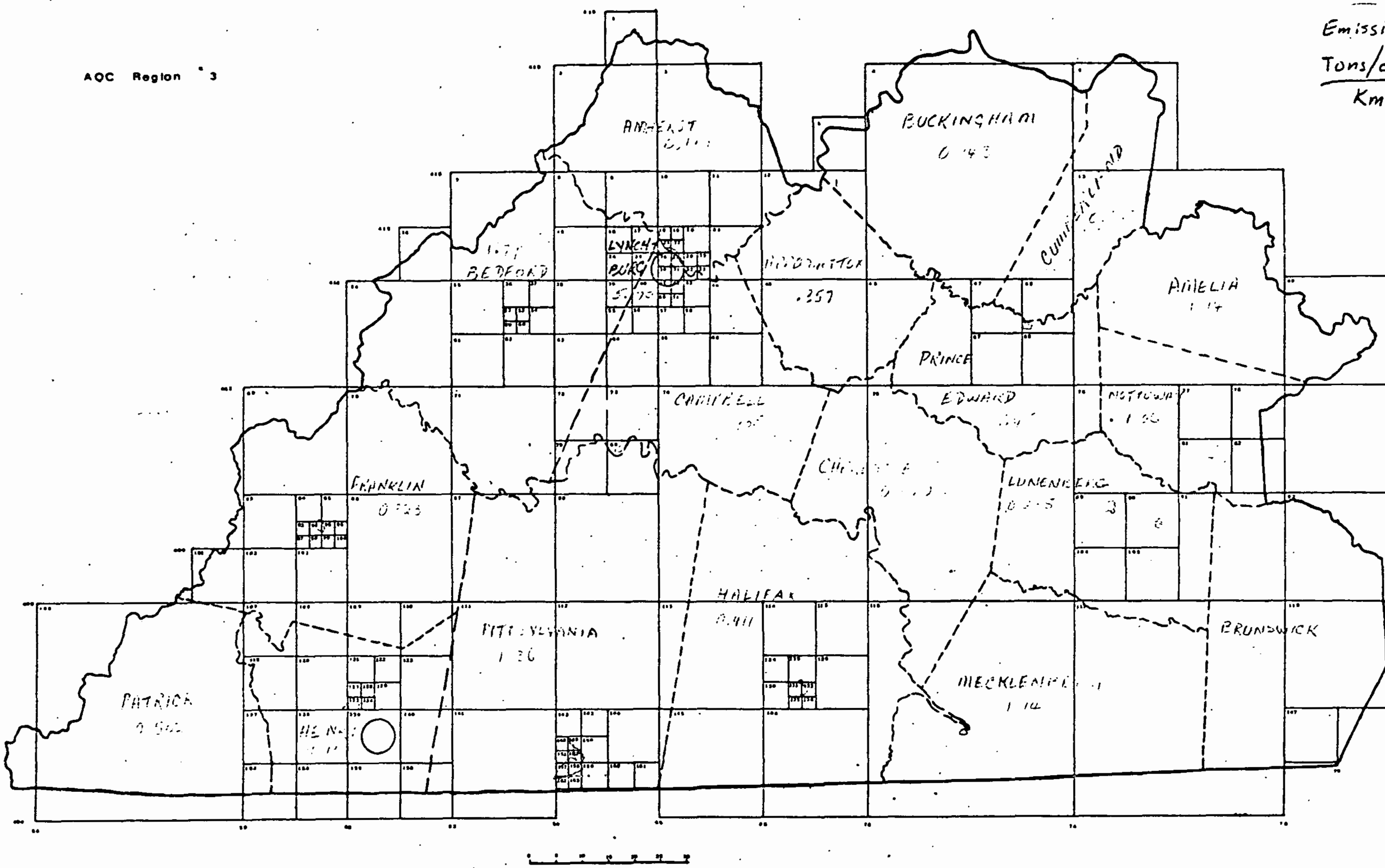


AOC Region 3

SO_x

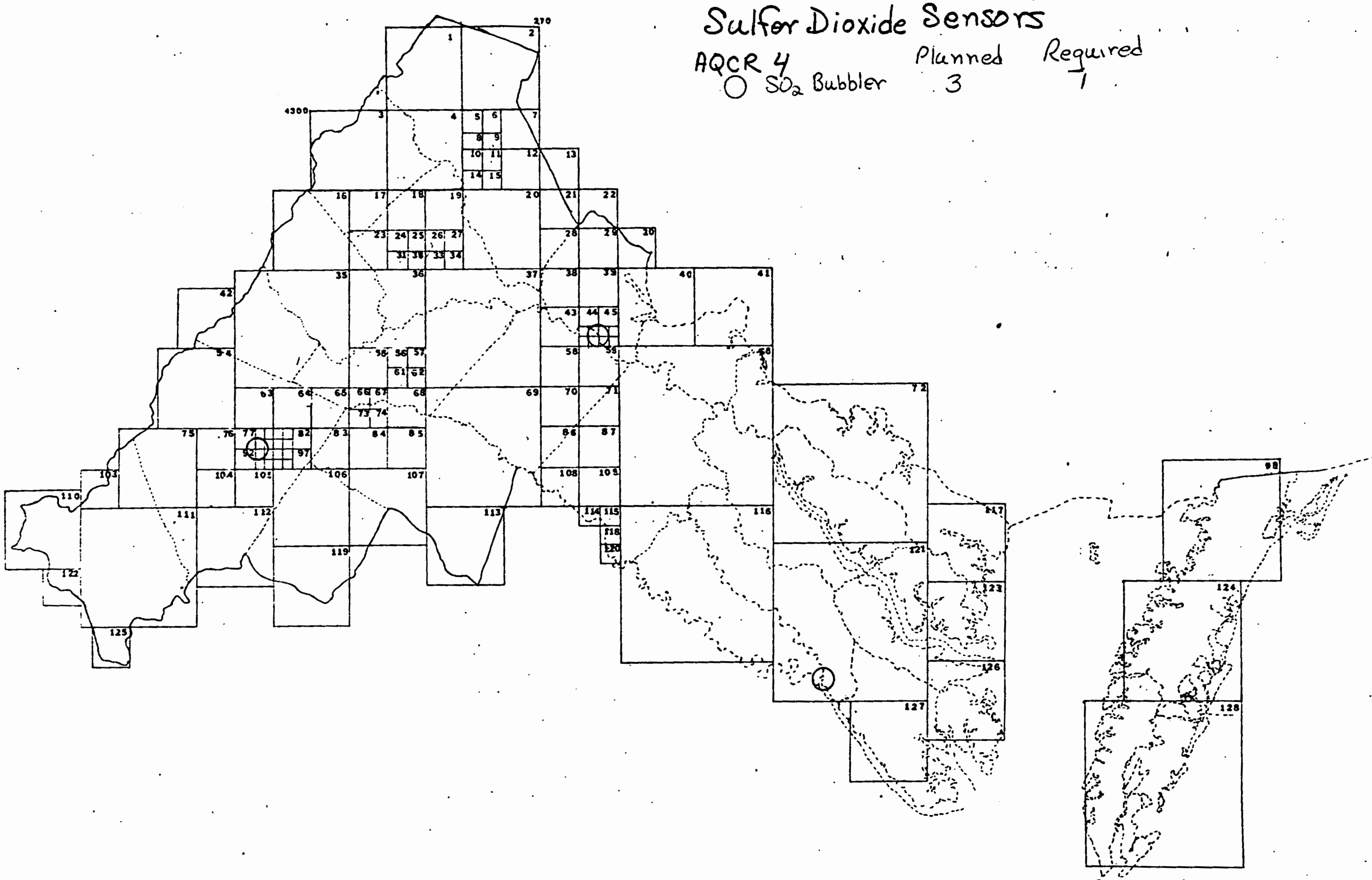
Emission Densities

Tons/day / Km^2



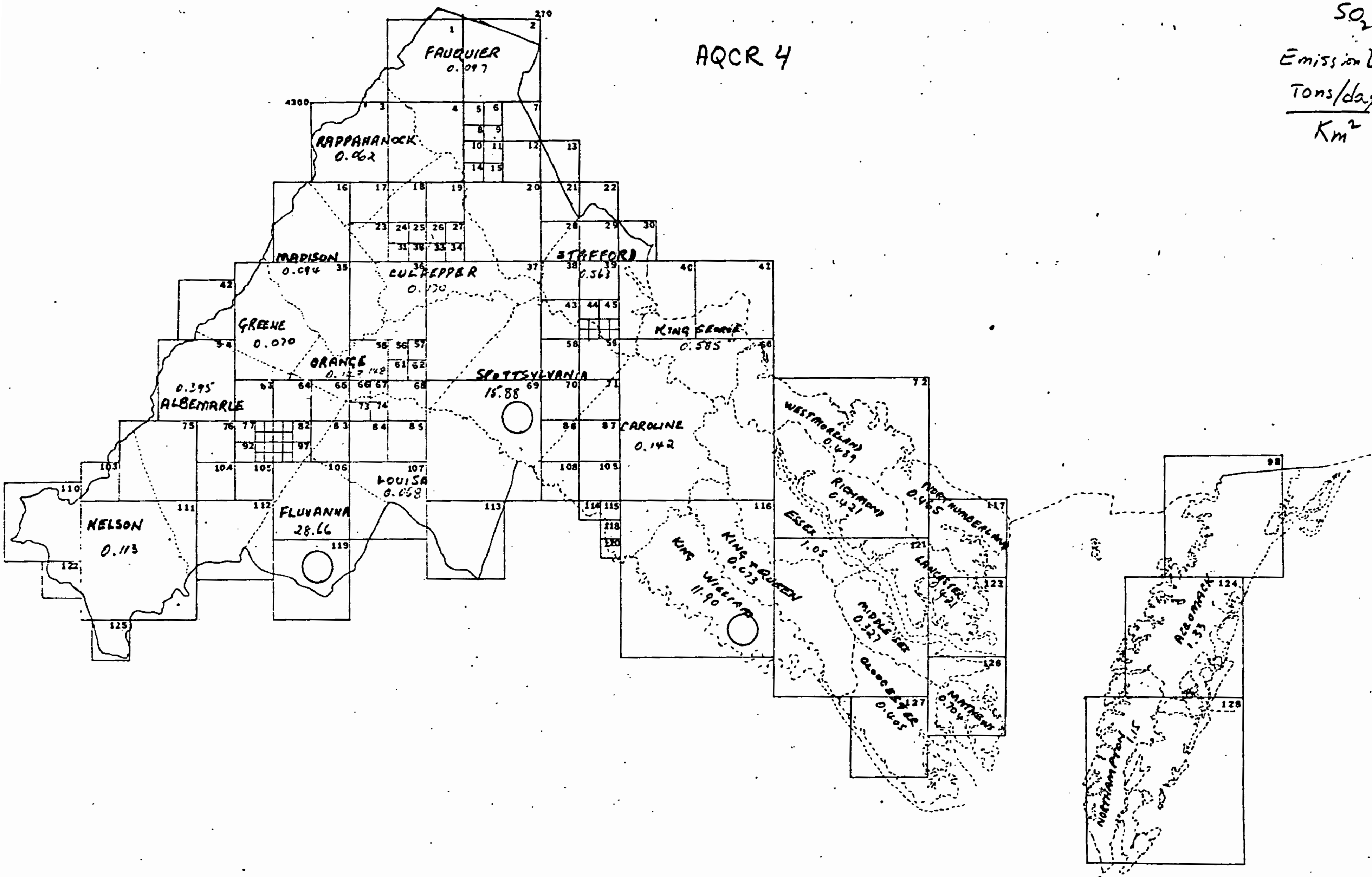
Sulfer Dioxide Sensors

AQCR 4	Planned	Required
○ SO_2 Bubbler	3	1



AQCR 4

SO_2
Emission Densities
$\frac{\text{Tons/day}}{\text{Km}^2}$

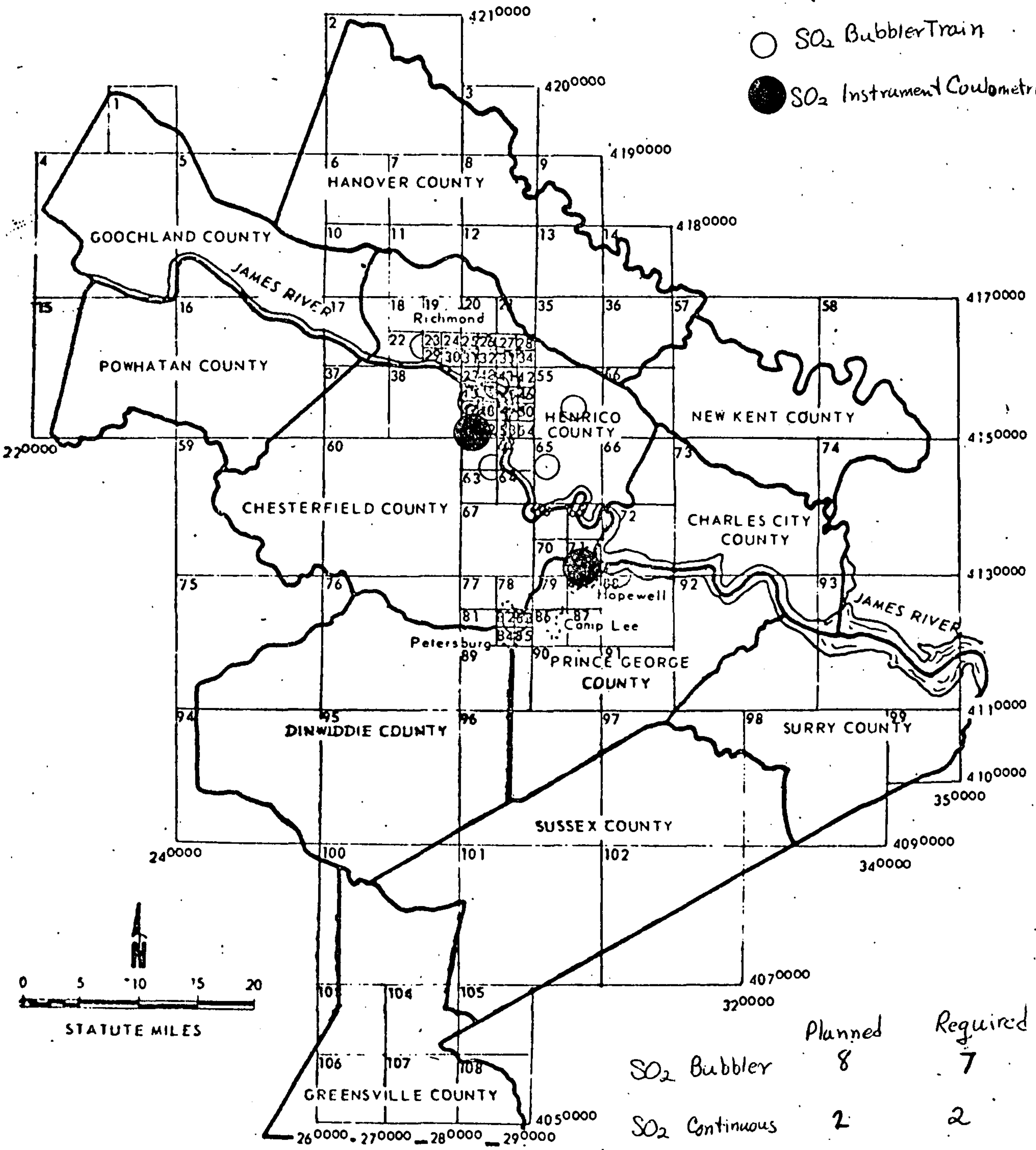


Sulfer Dioxide Sensors

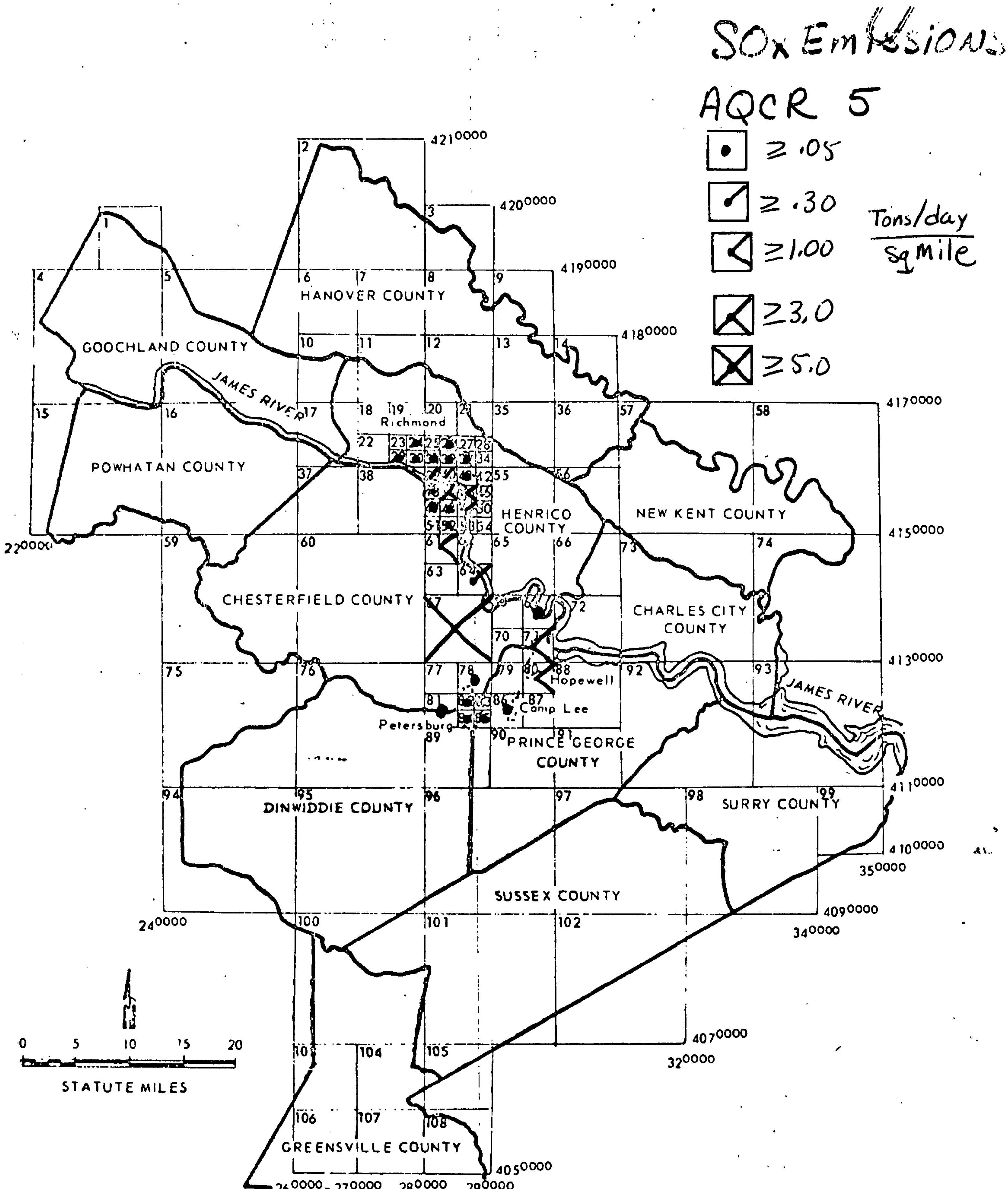
AQCR 5

○ SO_2 Bubbler Train

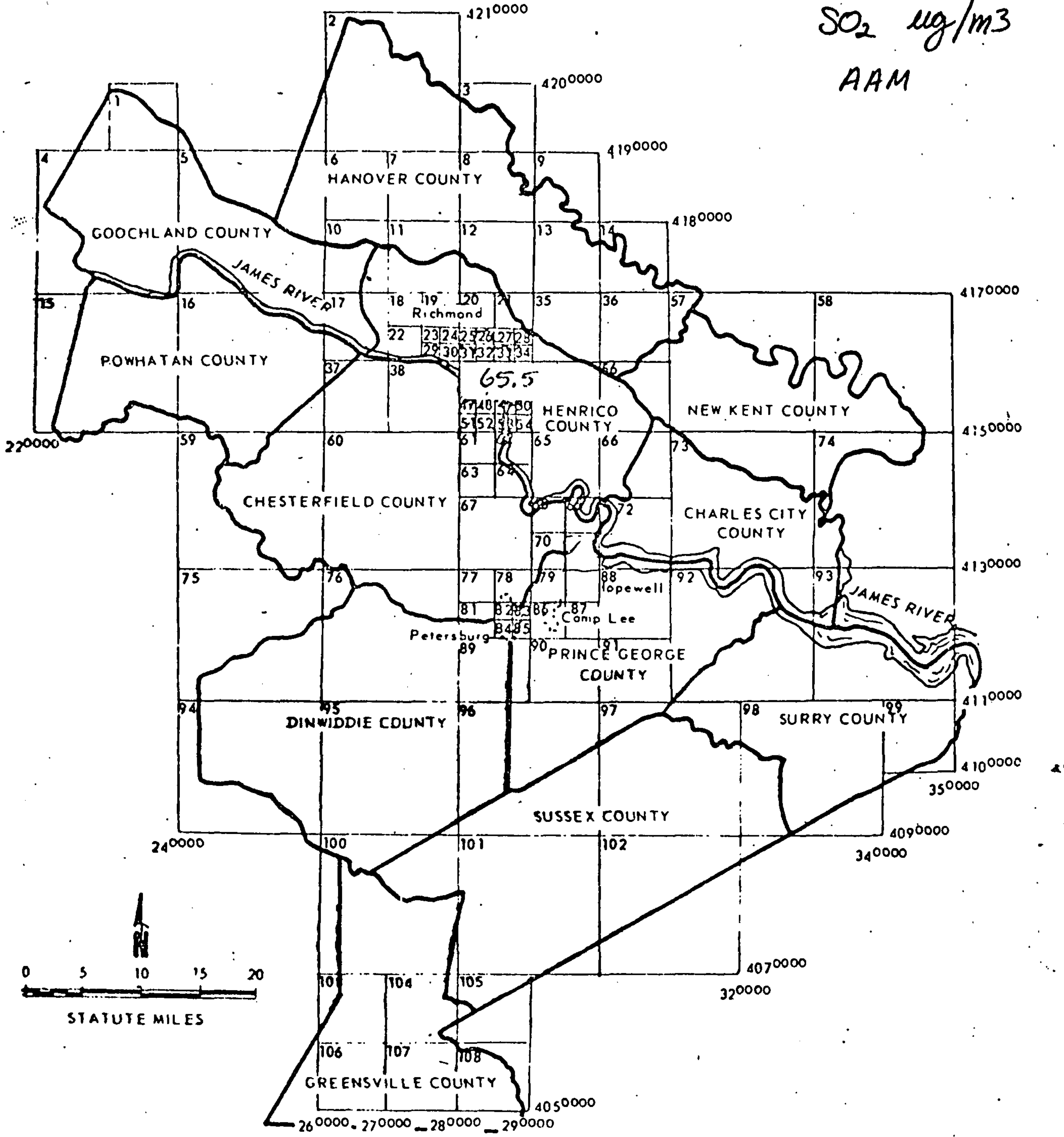
● SO_2 Instrument Coulometric



	Planned	Required
SO_2 Bubbler	8	7
SO_2 Continuous	2	2


SOx Emissions
AQCR 5
≥ .05
≥ .30
≥ 1.00
≥ 3.0
≥ 5.0
Tons/day
sq mile
HANOVER COUNTY
GOOCHLAND COUNTY
JAMES RIVER
POWHATAN COUNTY
Richmond
HENRICO COUNTY
NEW KENT COUNTY
CHESTERFIELD COUNTY
CHARLES CITY COUNTY
Hopewell
Camp Lee
Petersburg
PRINCE GEORGE COUNTY
DINWIDDIE COUNTY
SURRY COUNTY
SUSSEX COUNTY
GREENSVILLE COUNTY
0 5 10 15 20
STATUTE MILES
4210000
4200000
4190000
4180000
4170000
4150000
4130000
4110000
4100000
4090000
4070000
4050000
220000
240000
260000 270000 280000 290000
320000
340000
350000

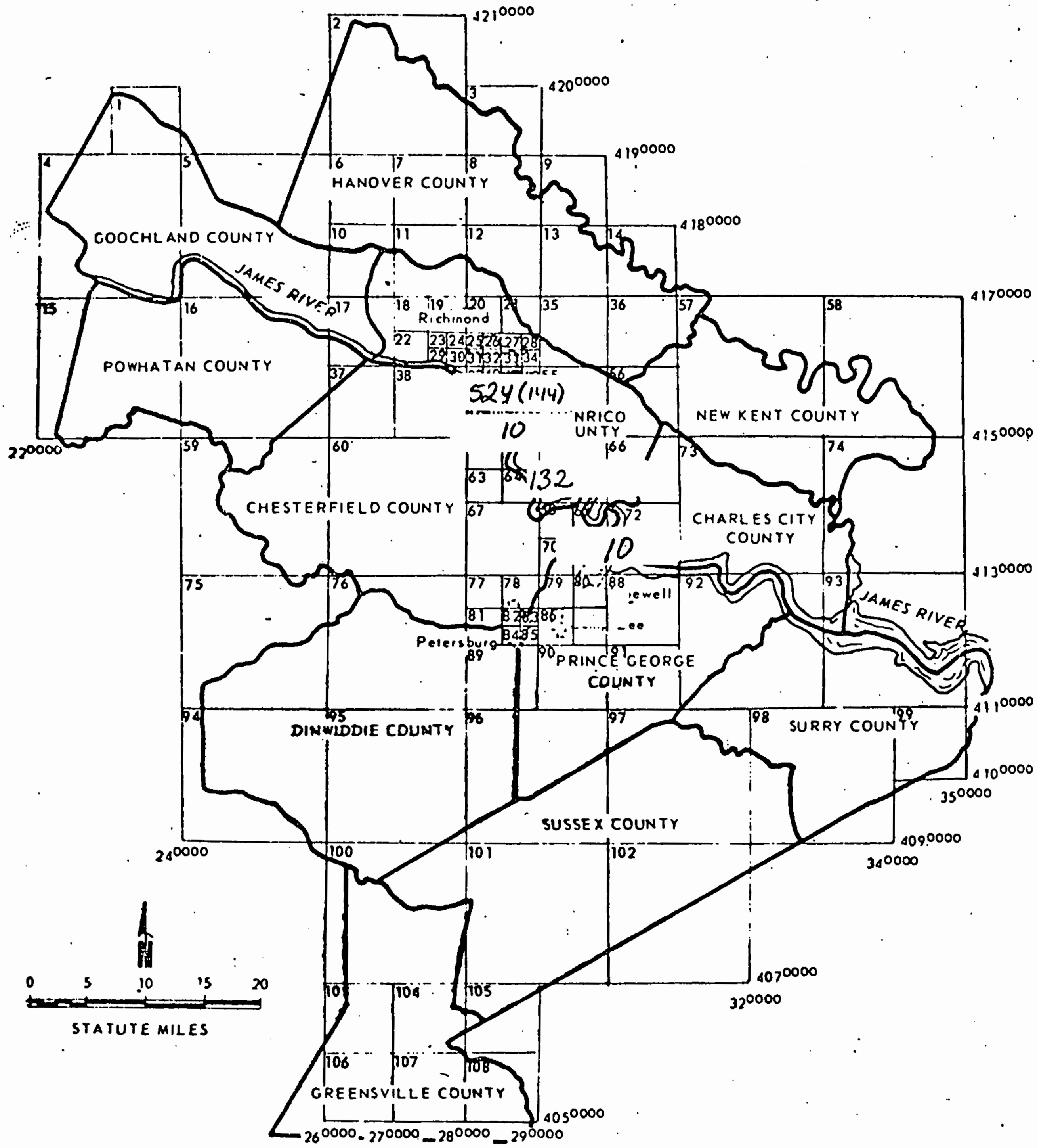
AQCR 5
SO_2 ug/m3
AAM



SO_2 Instrumental (West-Gaeke)

SO_2 ug/m3
24 HR Max

AQCR 5



SO_2 West Joeke expected xxx (yyy) OBSERVED

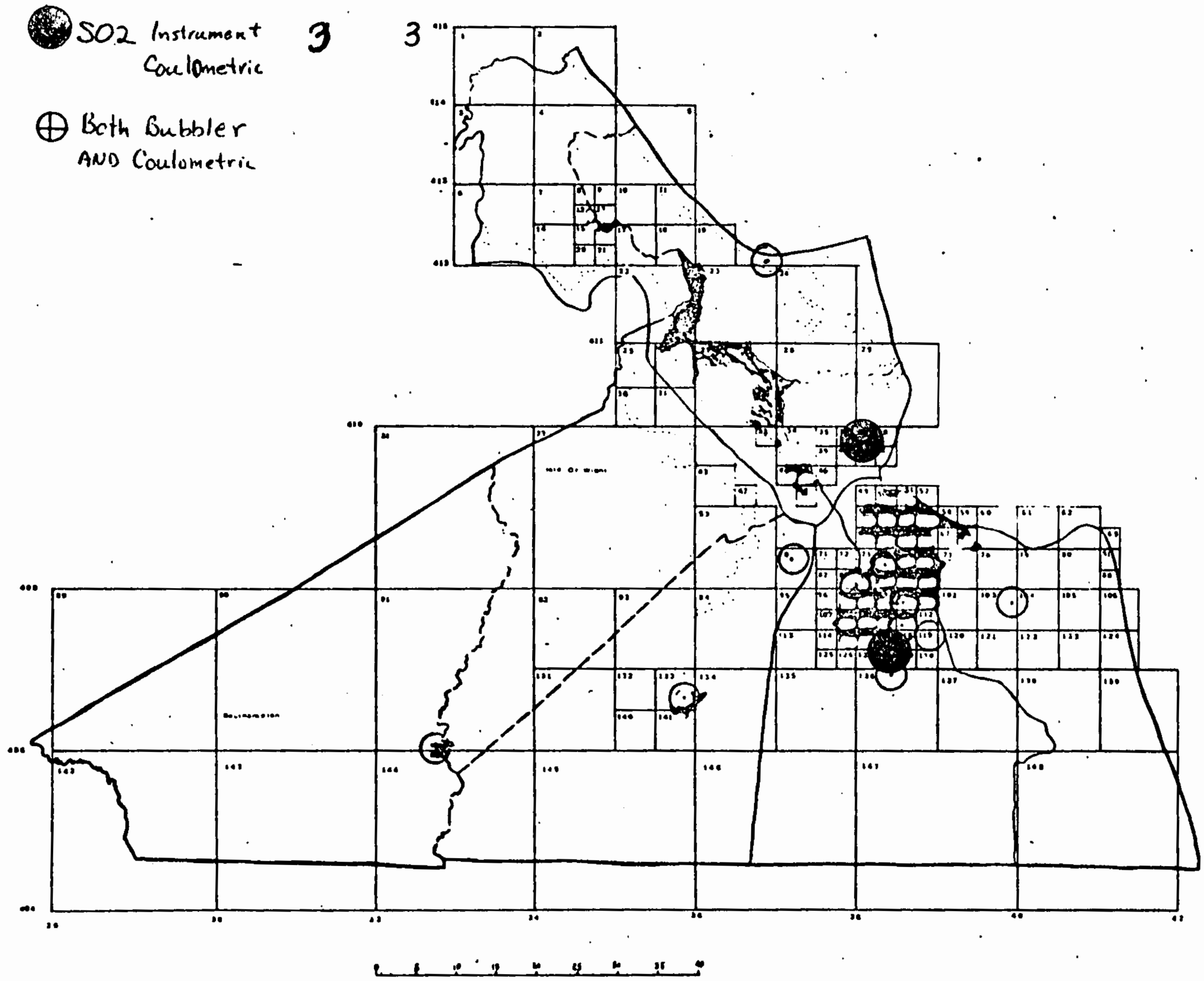
Point Model (appendix A)

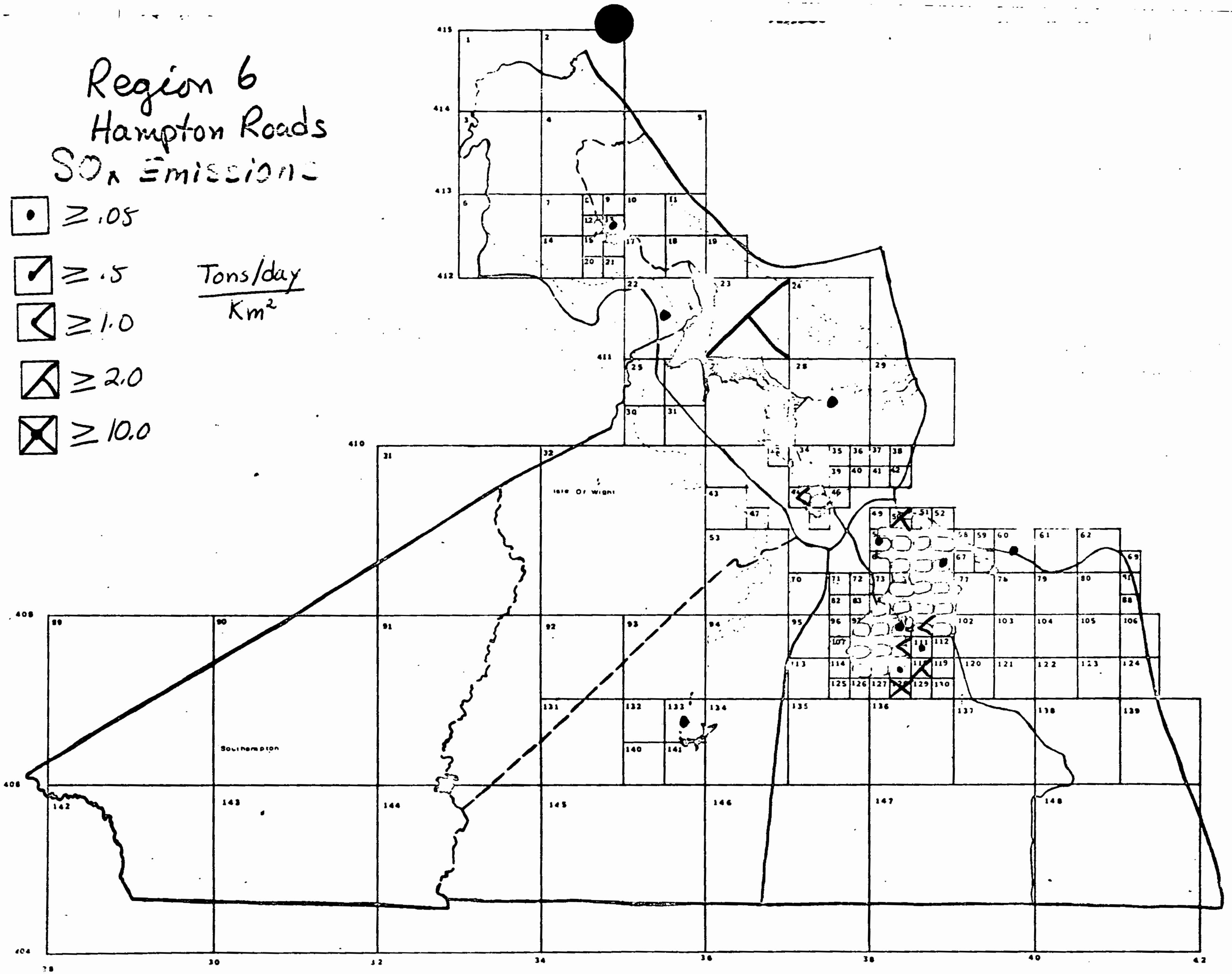
Sulfer Dioxide Sensors

AQCR Region 6 Hampton-Roads

	Planned	Required
○ SO_2 Bubbler	11	8
● SO_2 Instrument Coulometric	3	3

⊕ Both Bubbler AND Coulometric

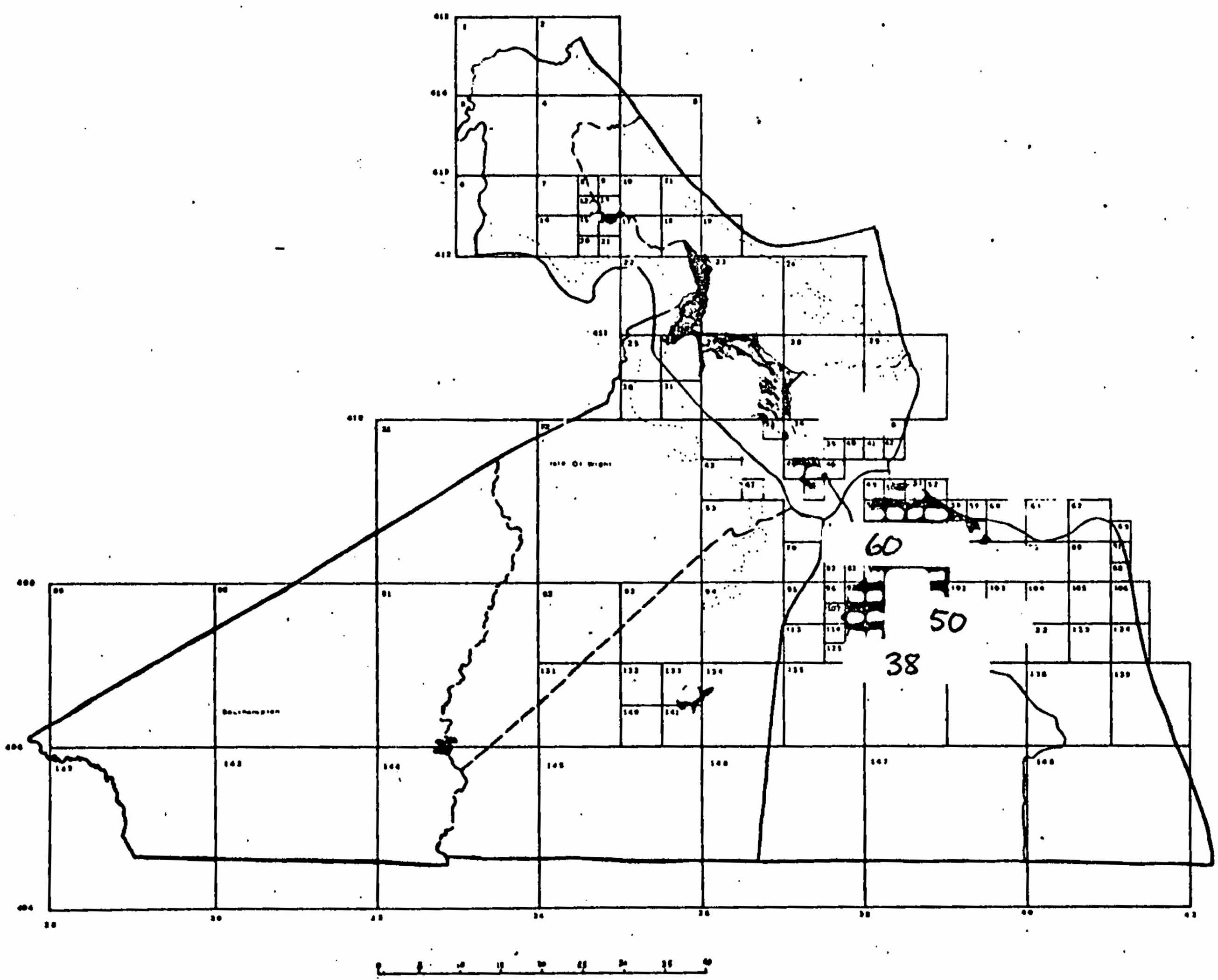




Region 6
Hampton Roads
SOx Emissions
≥ .05
≥ .5
≥ 1.0
≥ 2.0
≥ 10.0
Tons/day
Km²
Isle Of Wight
Southampton

SO_2 $\mu g/m^3$
AAM

AQCR Region 6 Hampton-Roads

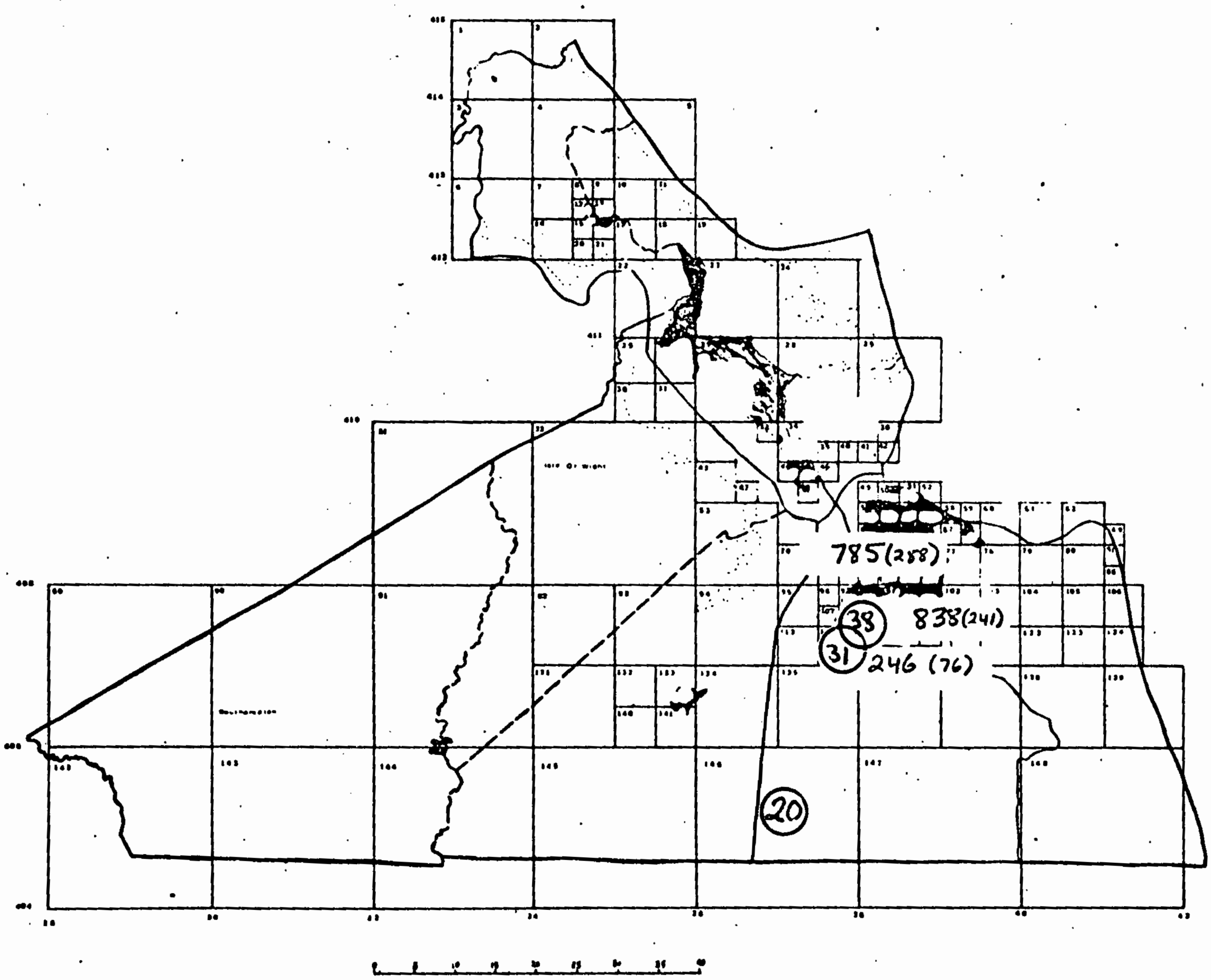


$\check{SO_2}$ (West Gaeke)

SO_2 µg/m³

24 HR Max

AQCR Region 6 Hampton-Roads



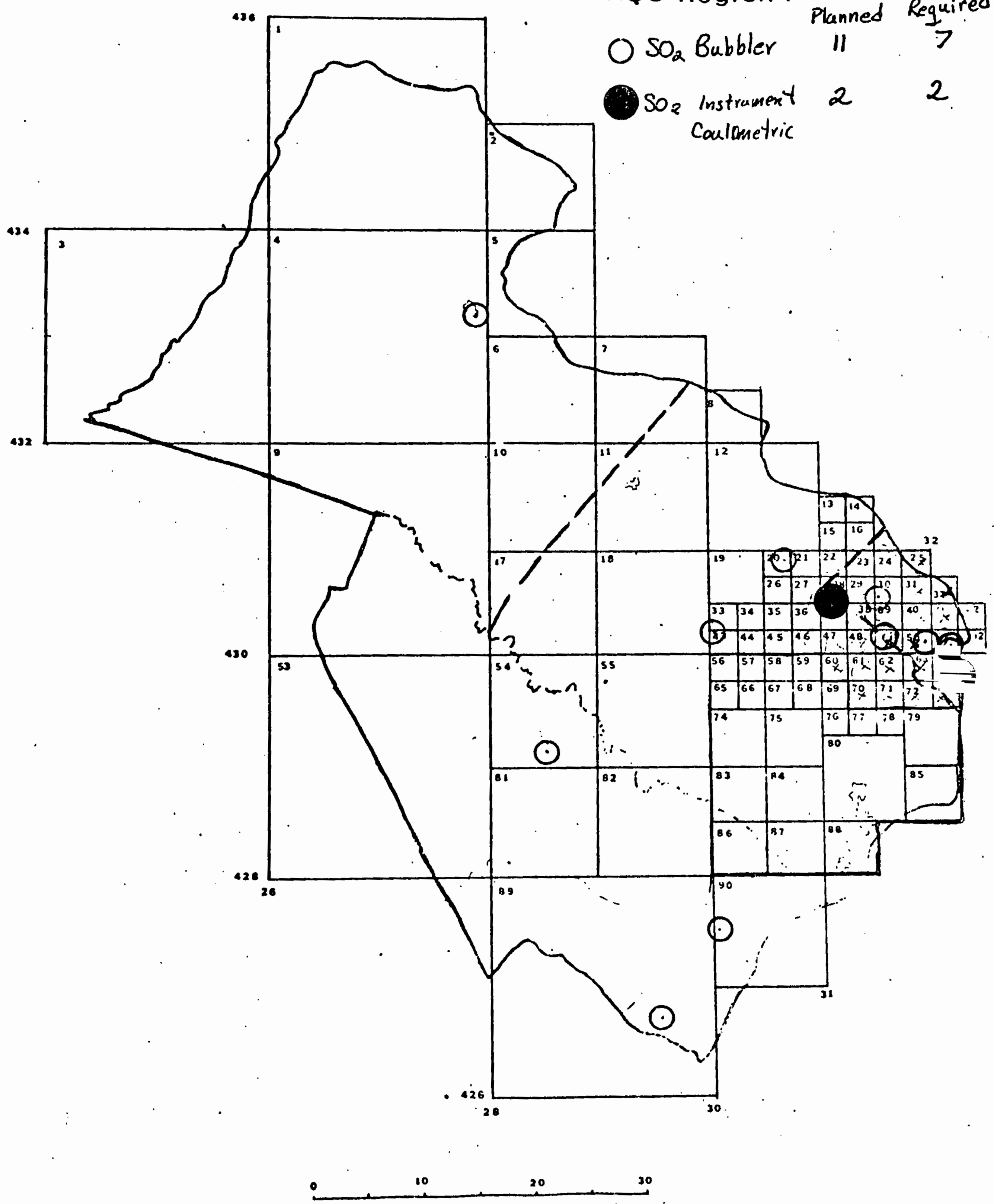
SO_2 (West Gaeke) Expected xxx (yyy) observed

Point Model (Appendix A) 22

Sulfer Dioxide Sensors

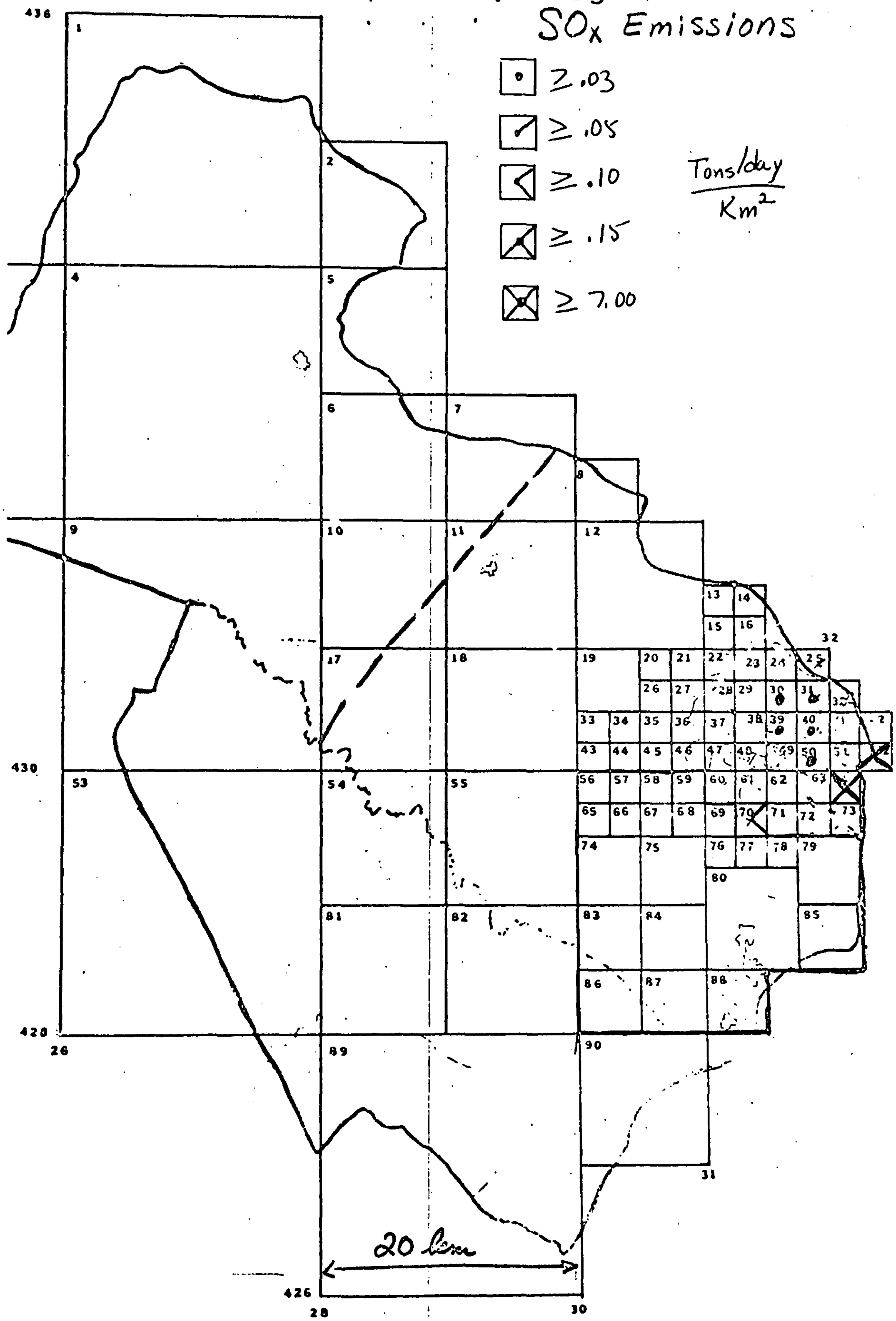
AQC Region 7

	Planned	Required
○ SO_2 Bubbler	11	7
● SO_2 Instrument Coulometric	2	2



AQC Region 7

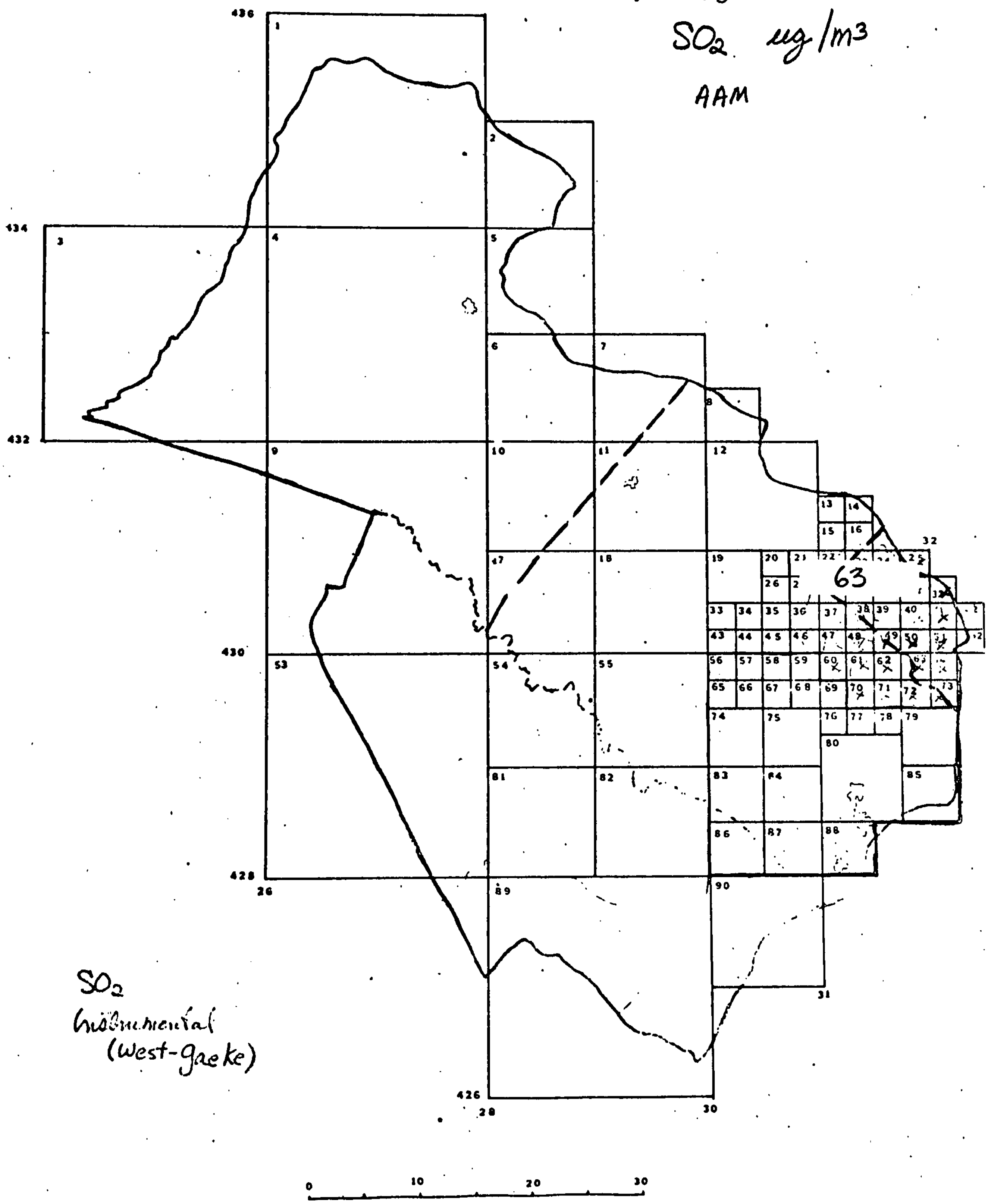
SO_x Emissions



AQC Region 7

SO_2 ug/m3

AAM

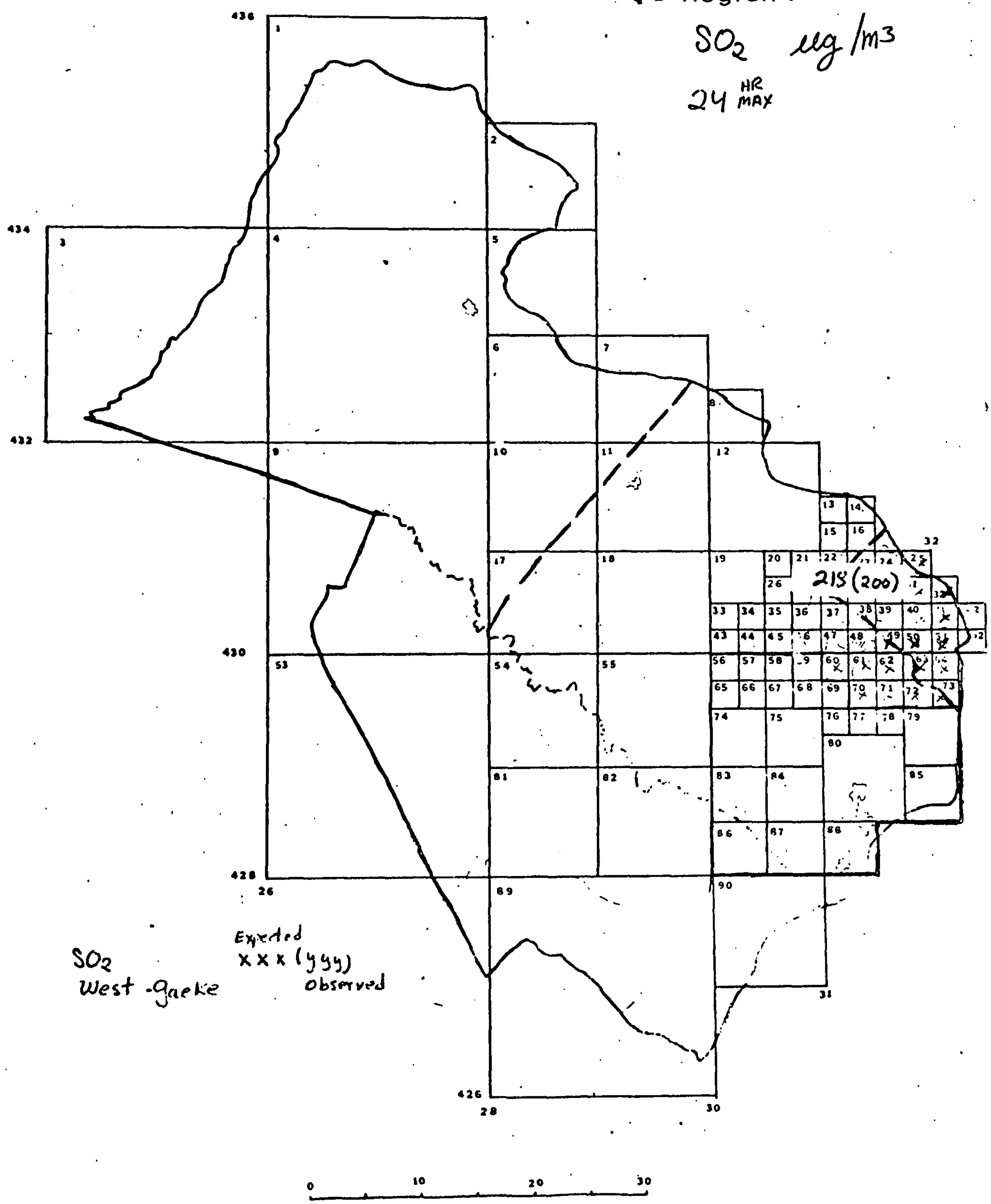


SO_2
Instrumental
(West-Gaeke)

AQC Region 7

SO_2 ug/m3

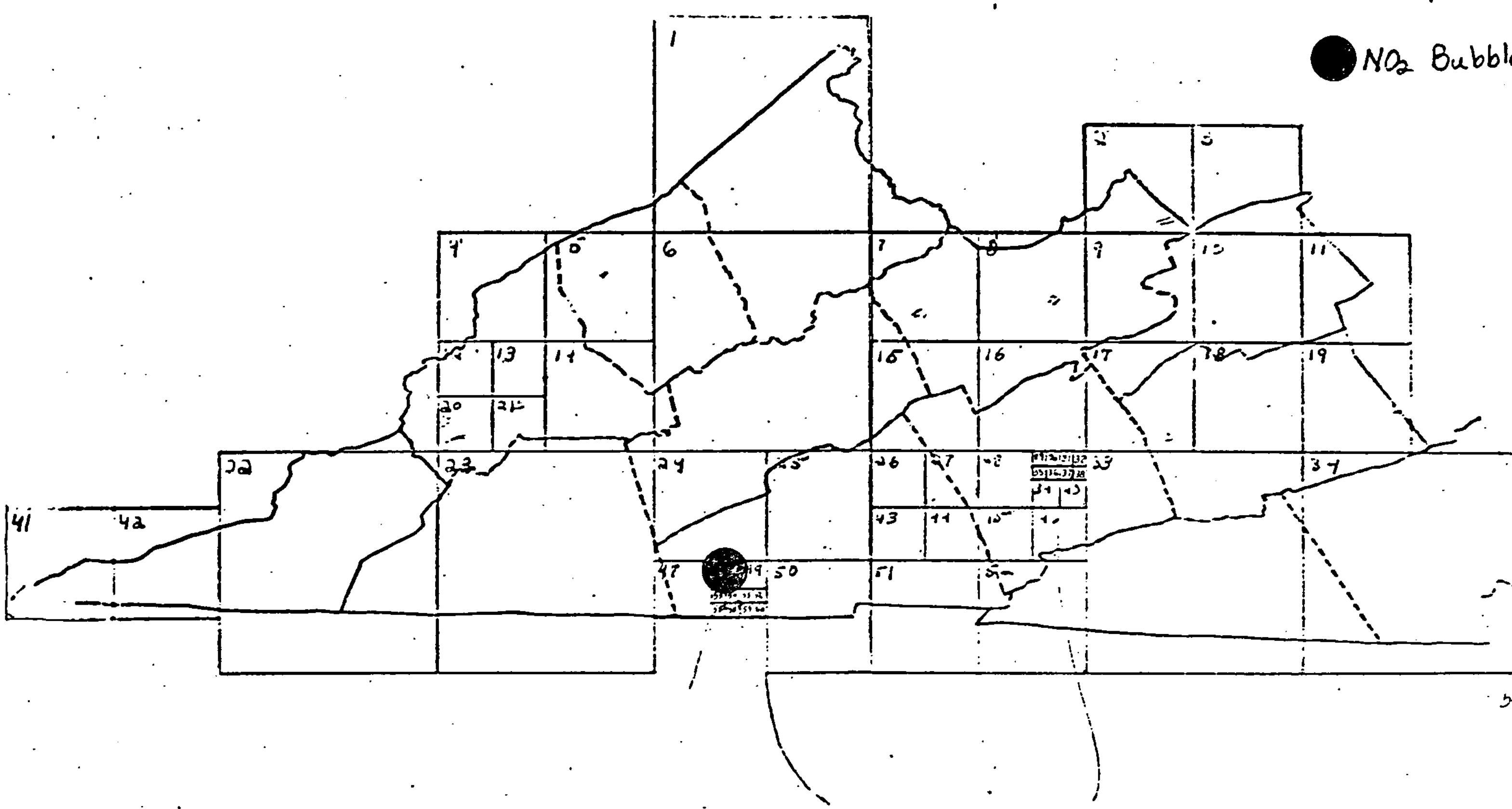
24 HR MAX



Nitrogen Dioxide Sensors

AQCR #1

	Planned	Required
● NO_2 Bubbler	1	0



404

54

NO_2

Emission Densities

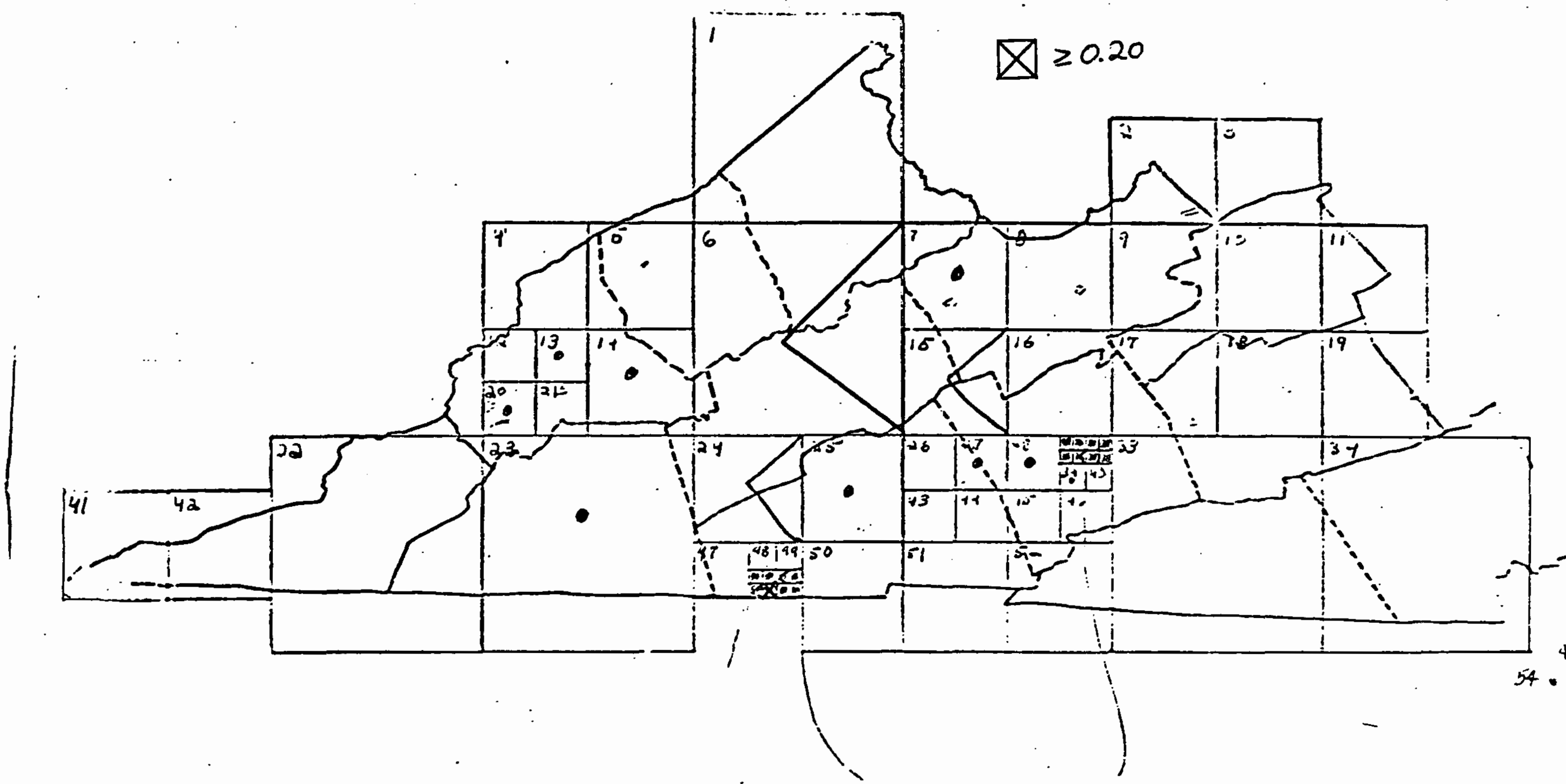
AQCR #1

$\frac{\text{Tons/day}}{Km^2}$

[·] ≥ 0.01

[◸] ≥ 0.05

[☒] ≥ 0.20

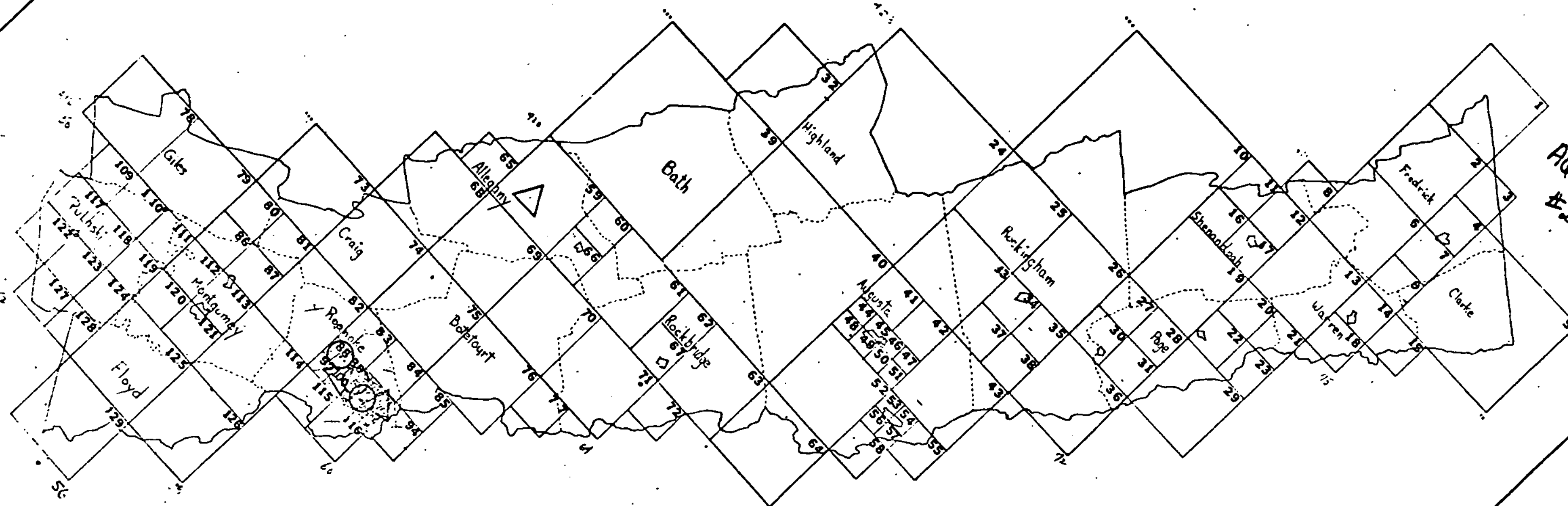


404

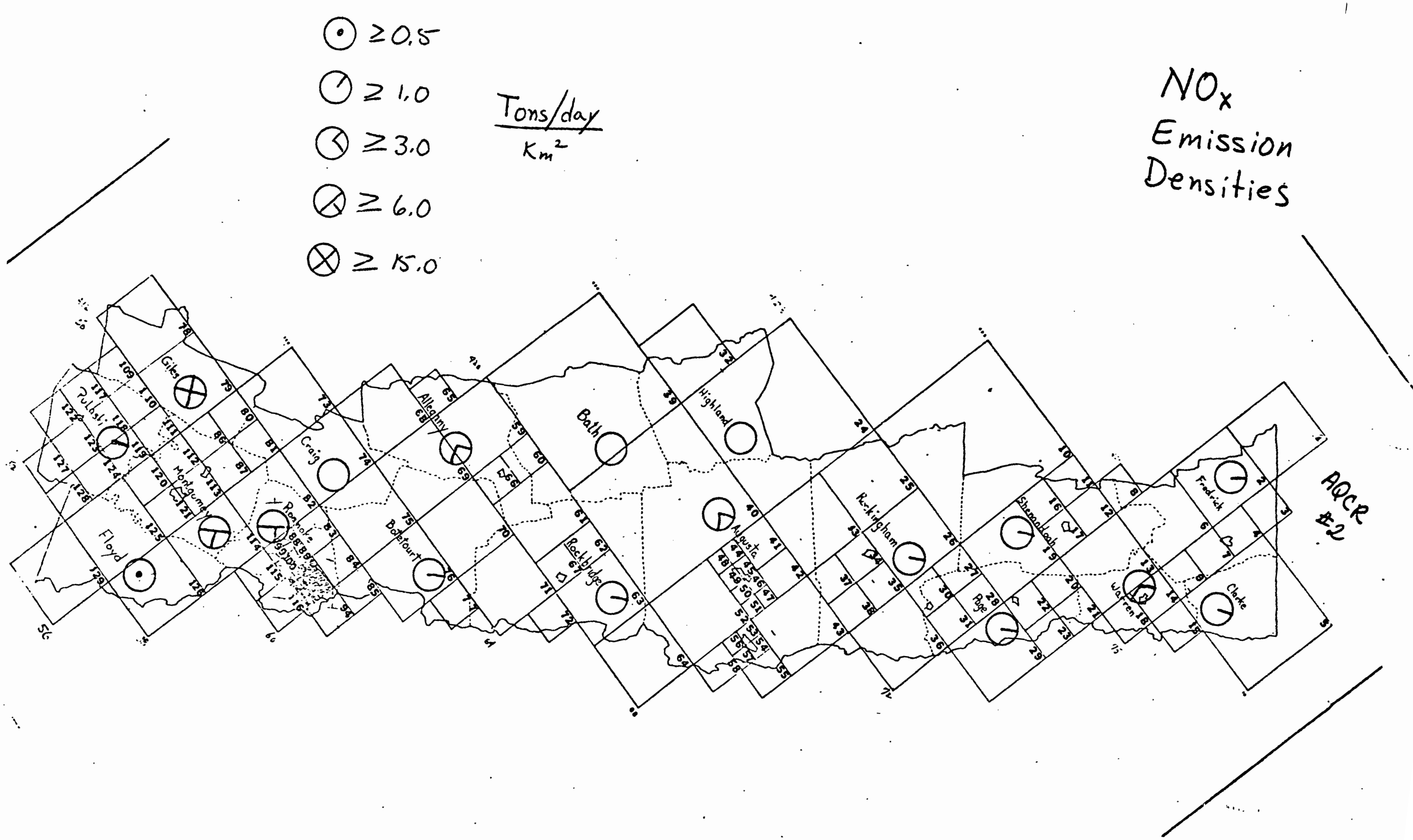
54

Nitrogen Oxides Sensors

		Planned	Required
○	NO_2	3	0
▷	NO_x	3	0



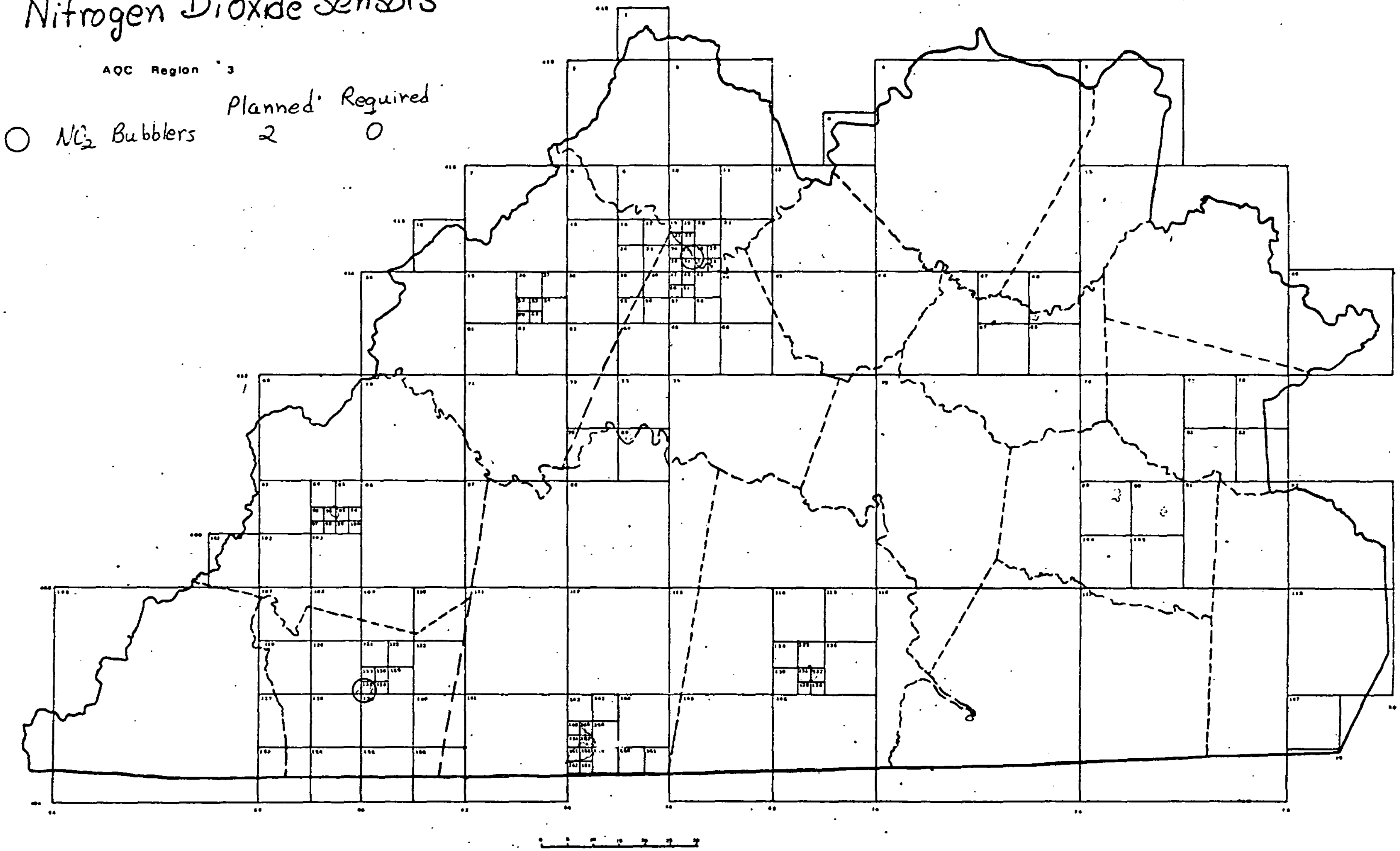
NO_x Emission Densities



Nitrogen Dioxide Sensors

AQC Region 3

	Planned	Required
○ NO_2 Bubblers	2	0



NO_x Emission Densities

AQC Region 3

≥ 0.05

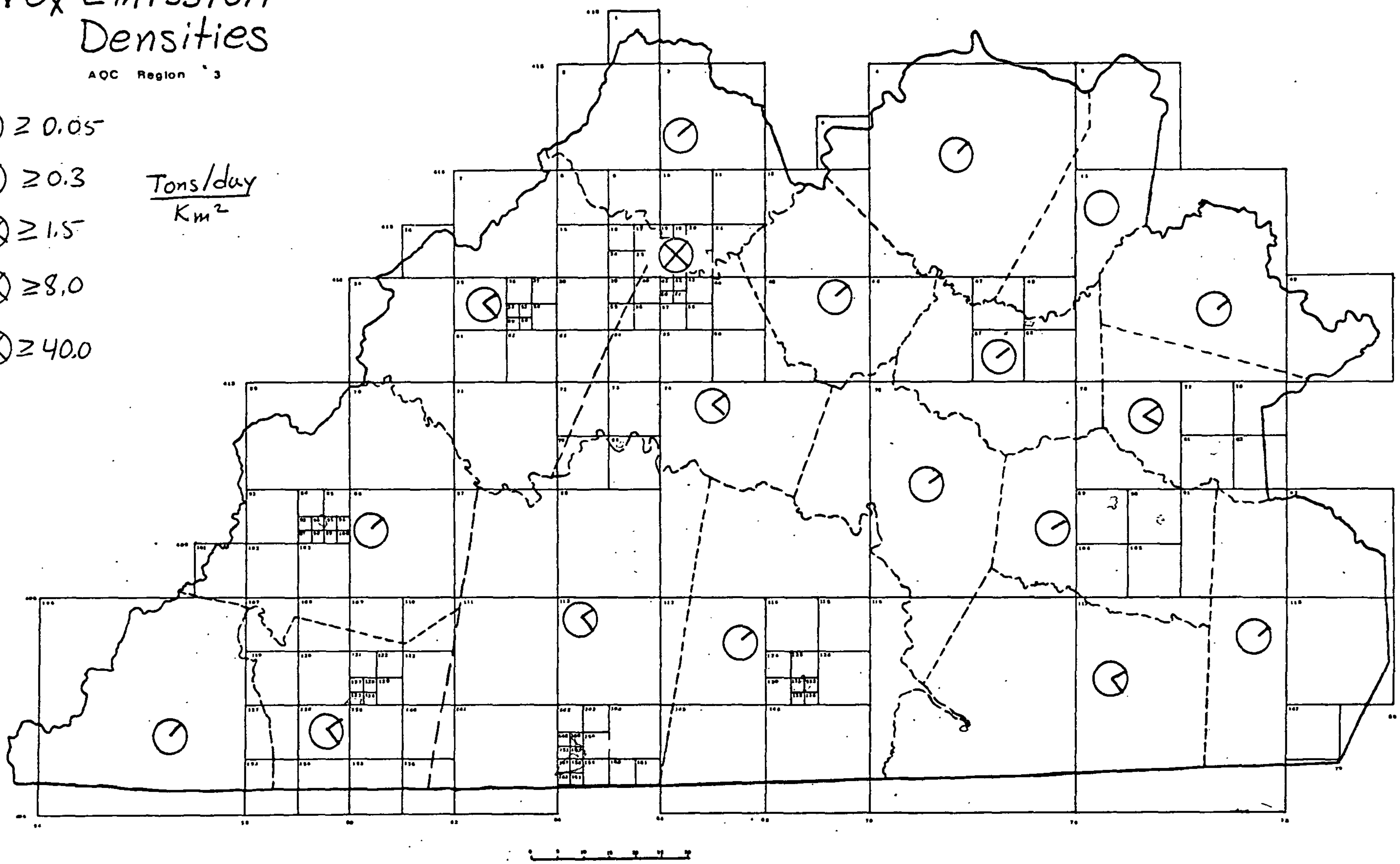
≥ 0.3

≥ 1.5

≥ 8.0

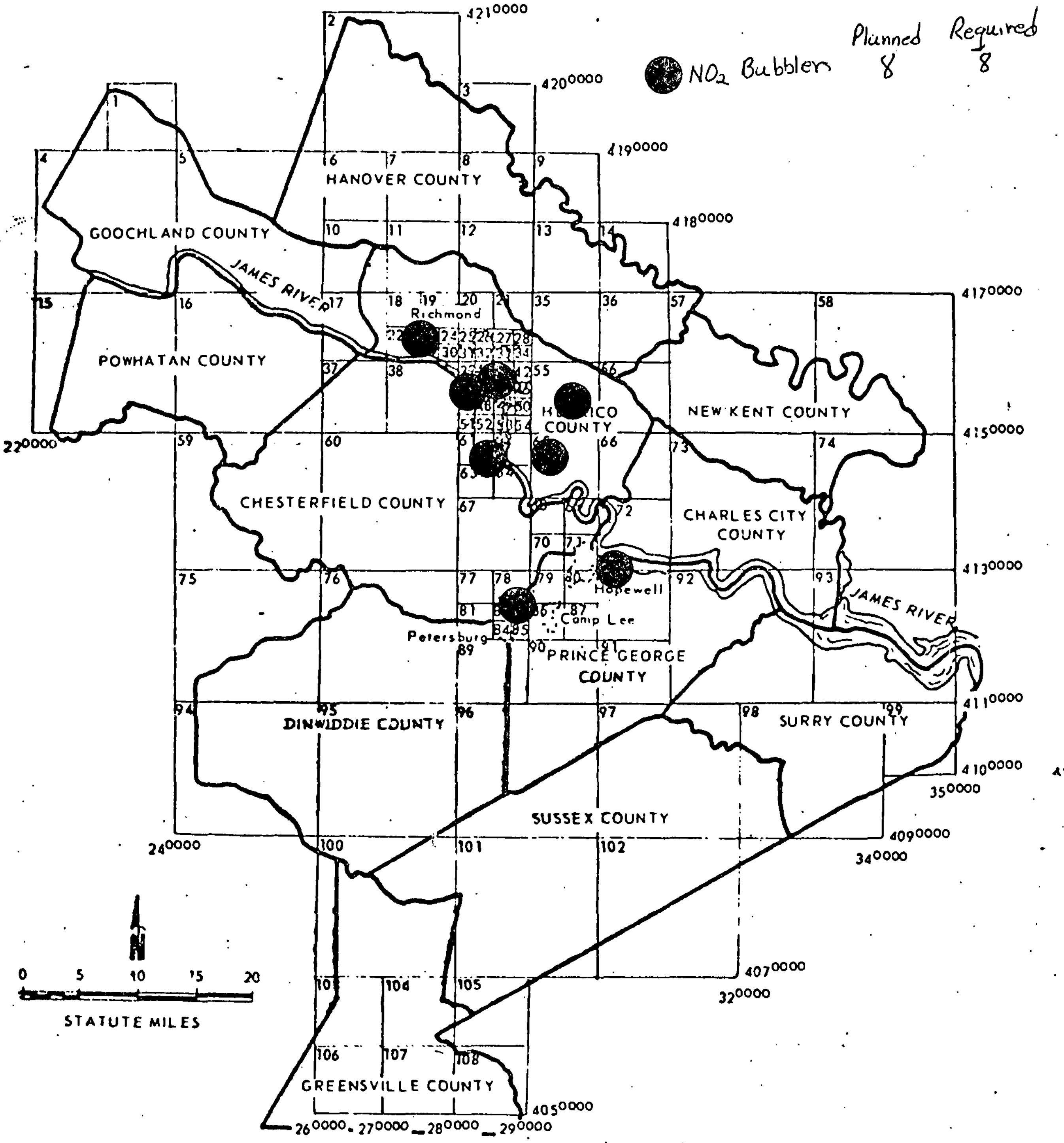
≥ 40.0

Tons/day / Km^2

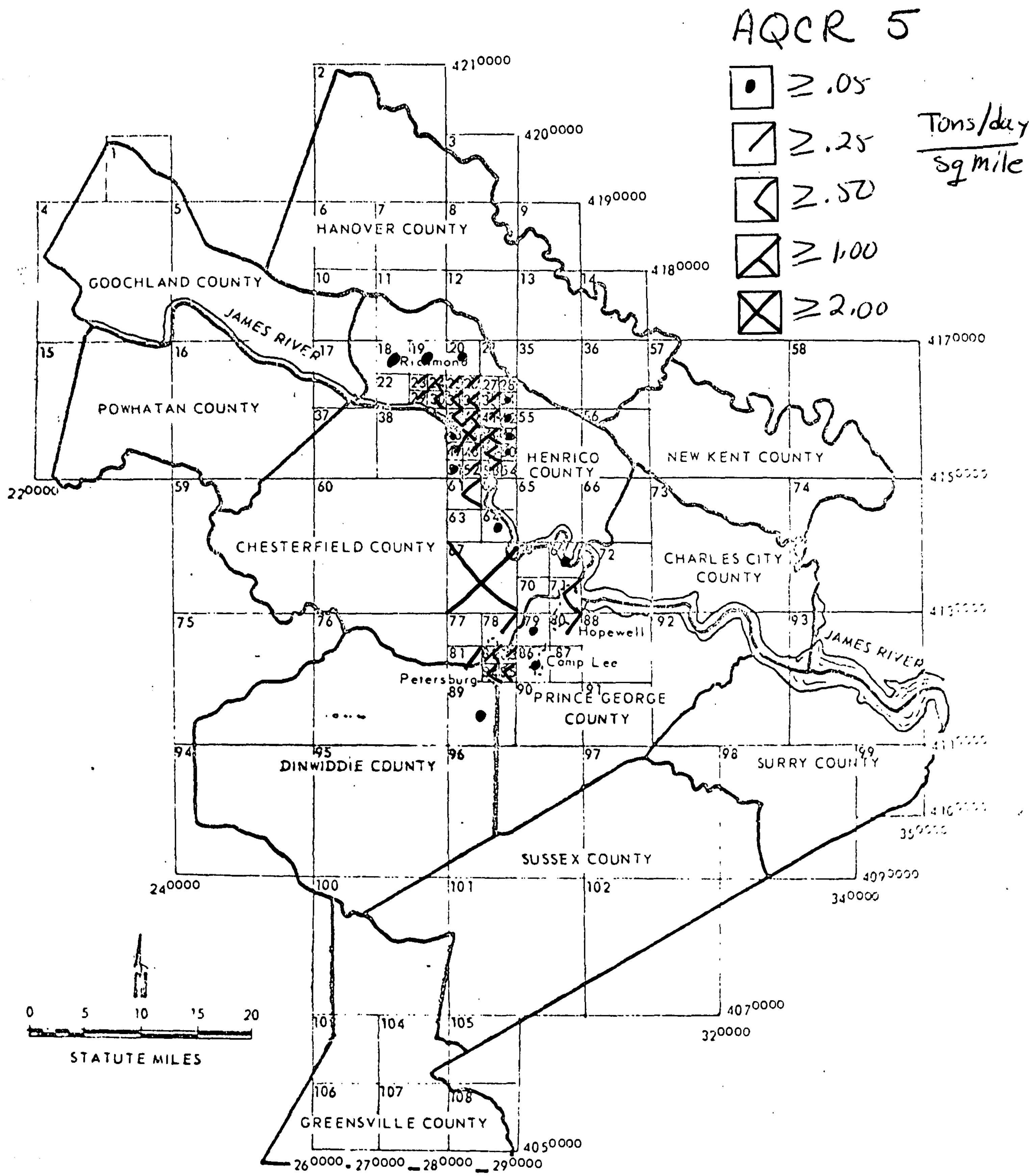


Nitrogen
Dioxide
Sensors

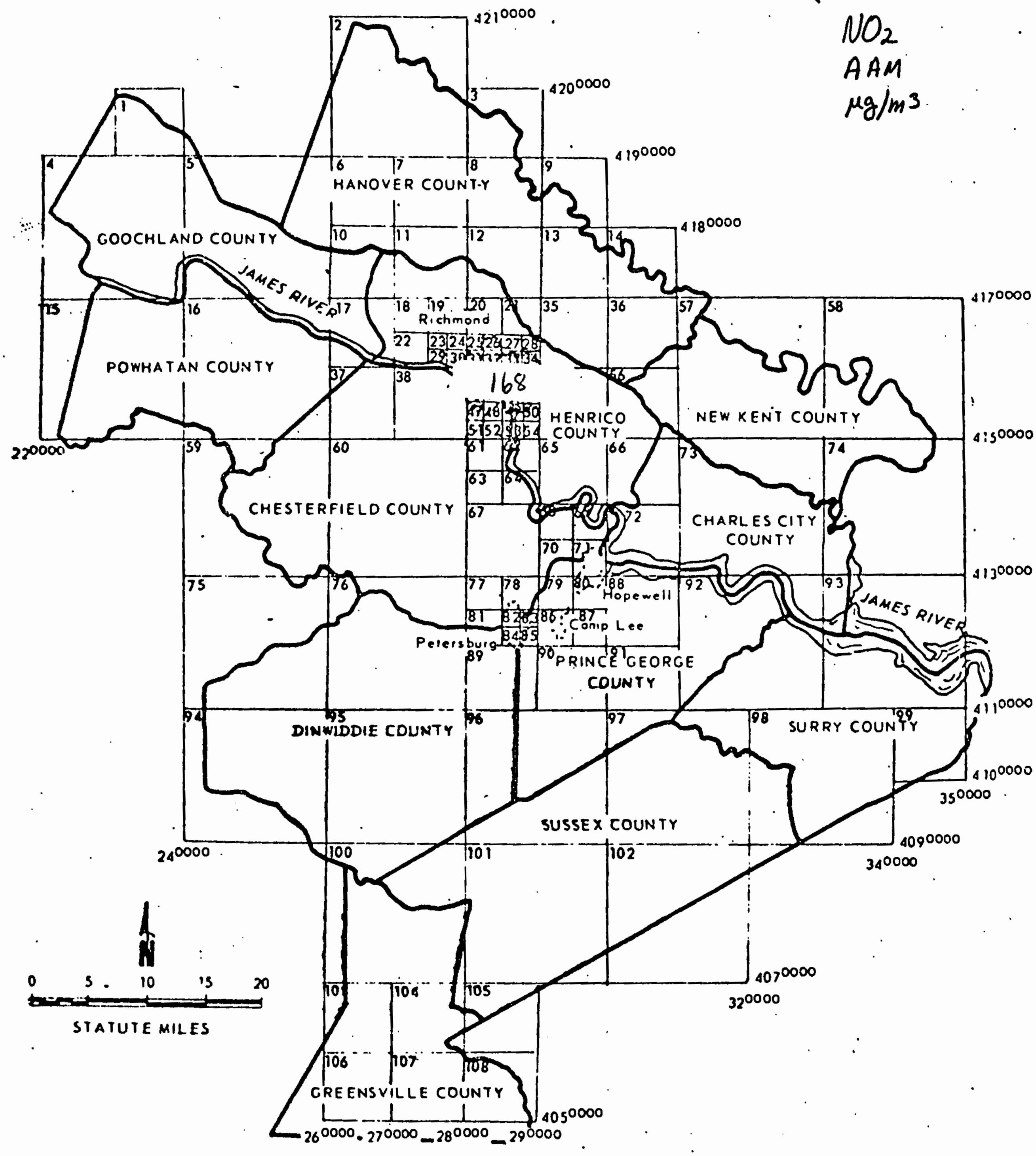
AQCR 5



NOx Emissions



AQCR 5
NO_2
AAM
$\mu g/m^3$

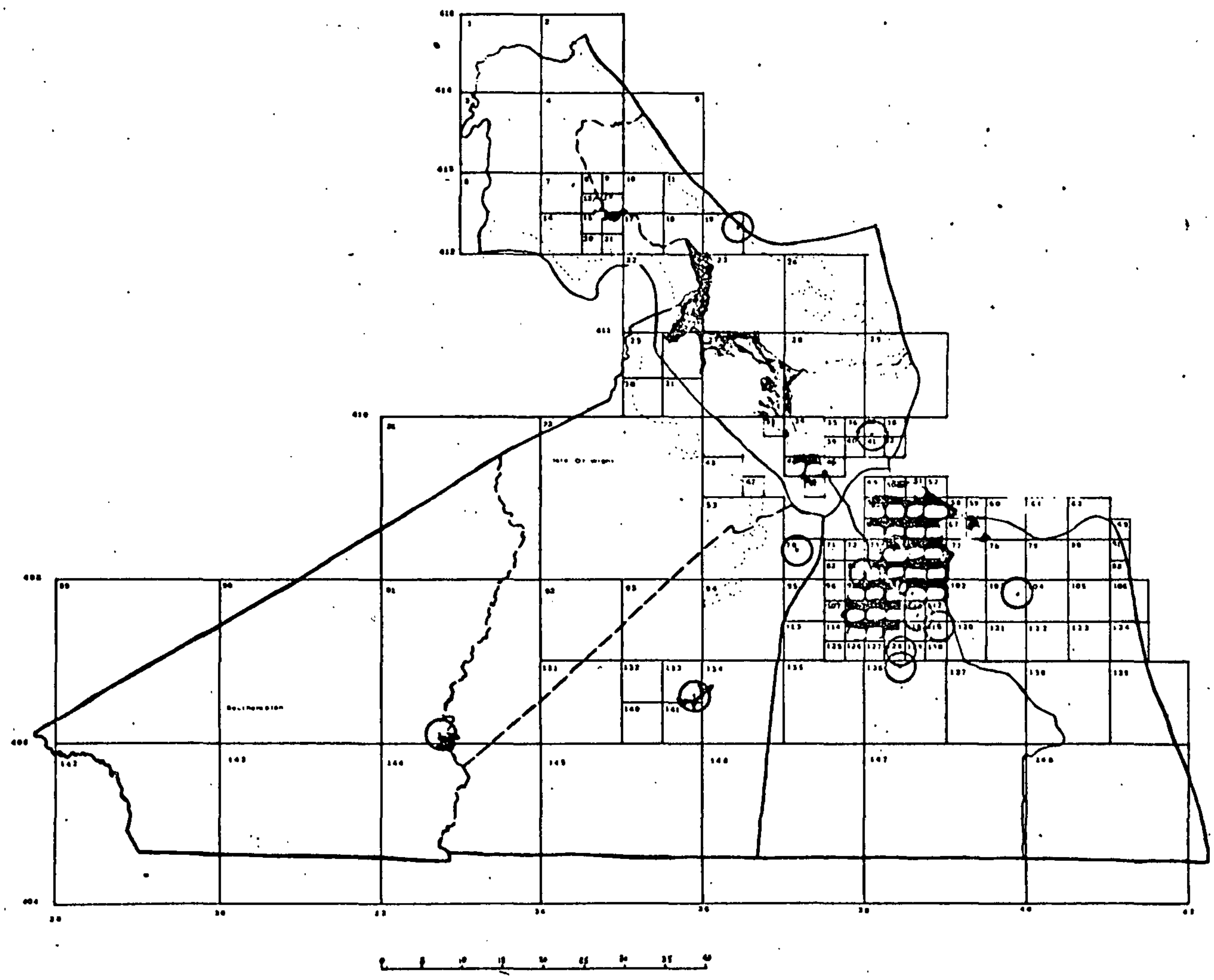


NASN Sampler
(100 ml tube + frit)
Jacobs - Hochheiser method
24 HR Time Interval

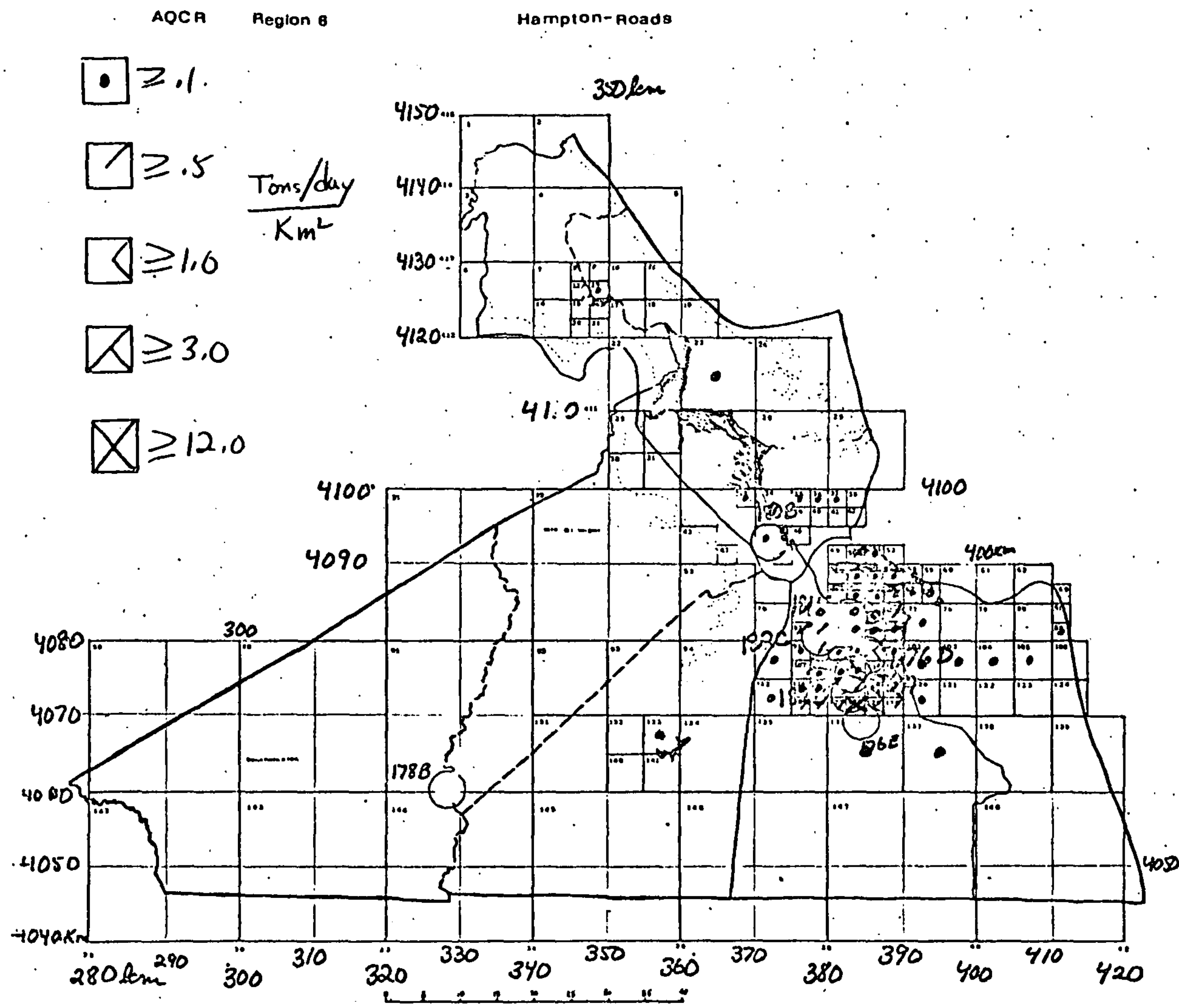
Nitrogen Dioxide Sensors

AQCR   Region 6   Hampton-Roads

	Planned	Required
○ NO_x Bubbler	13	11

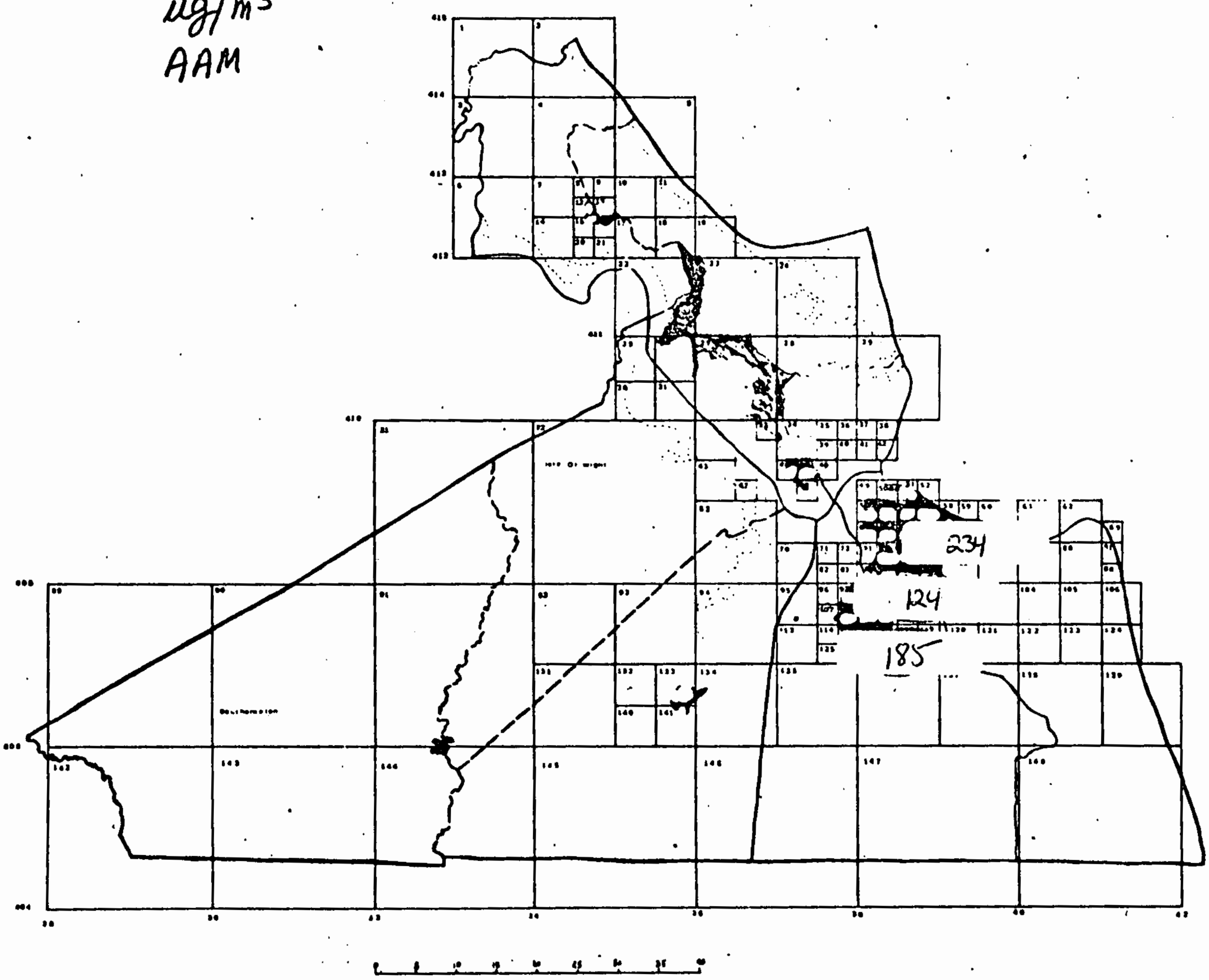


NOx Emissions



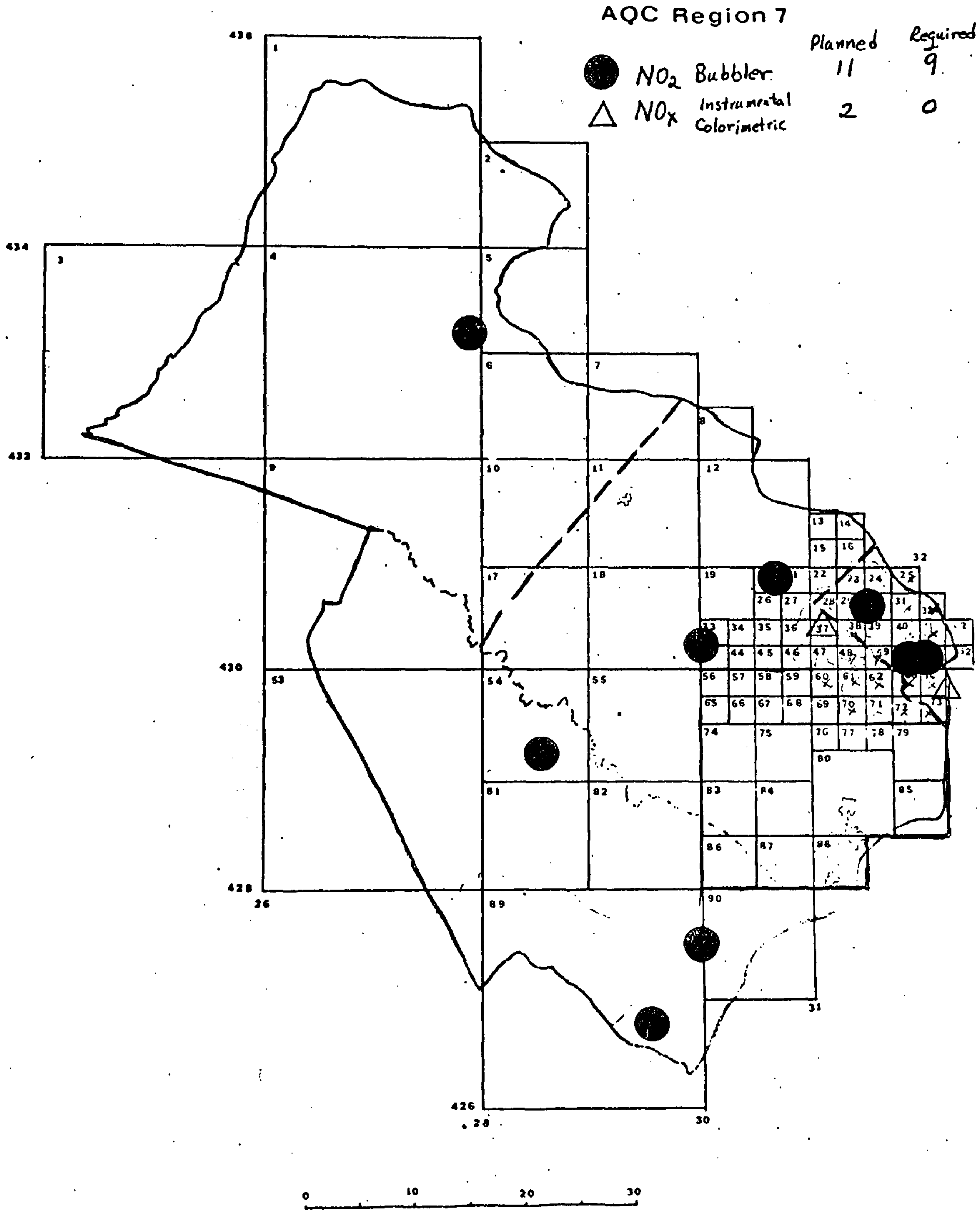
AQCR Region 6 Hampton-Roads

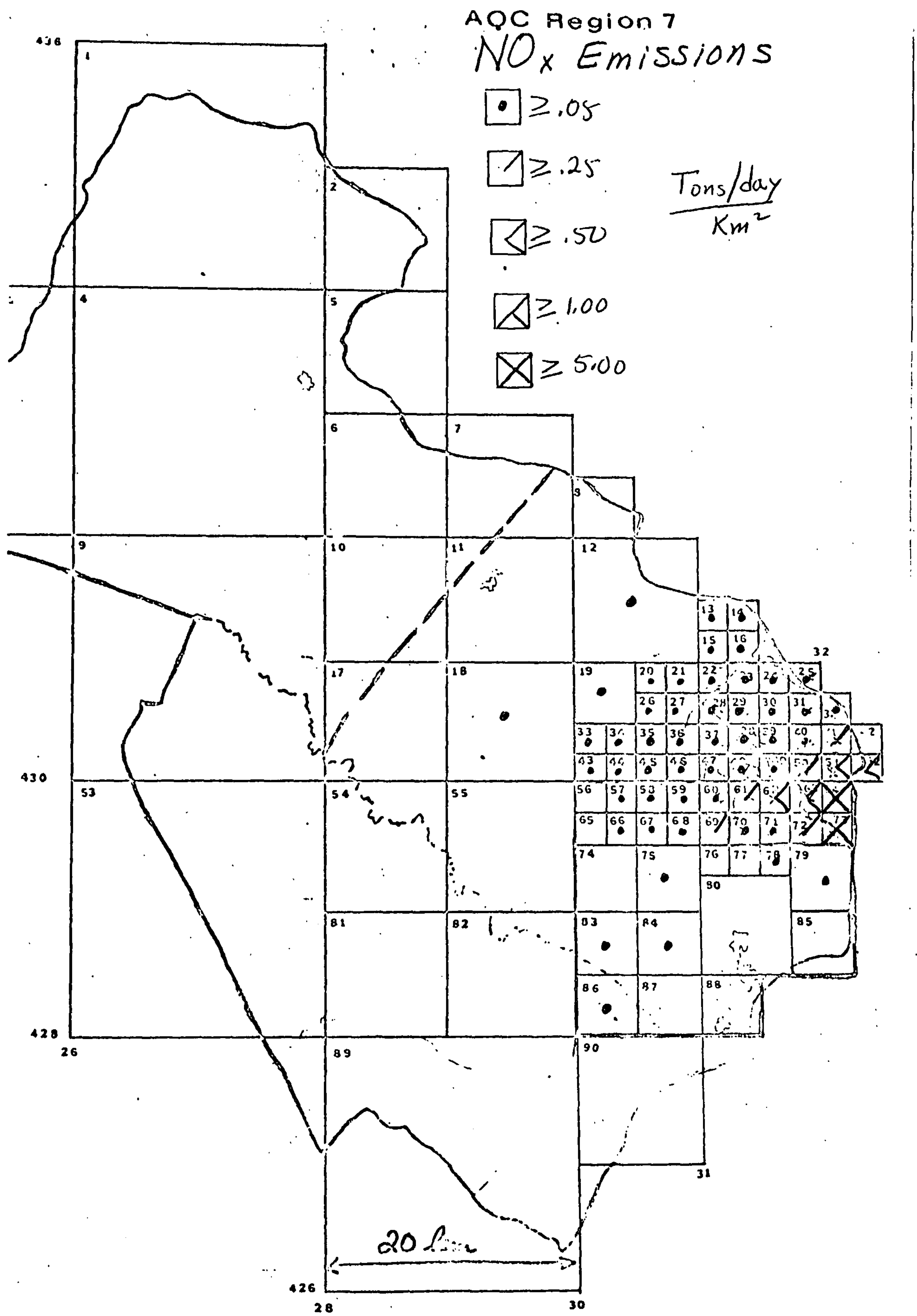
NO2
ug/m3
AAM



NASN Sampler
Jacobs-Hochheiser method
24 hr Time interval

Nitrogen Dioxide
Sensors

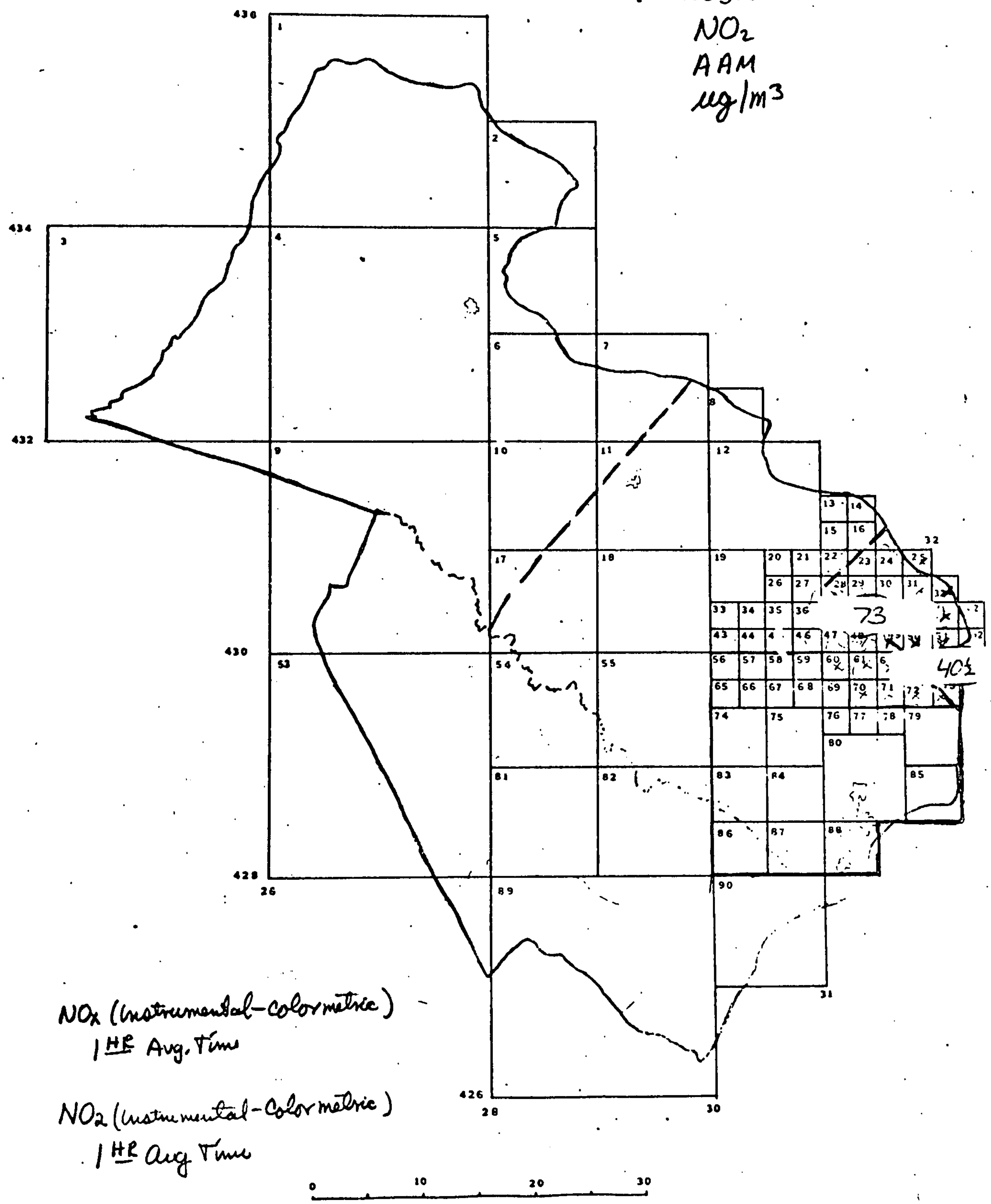




AQC Region 7
NOx Emissions
≥ .05
≥ .25
≥ .50
≥ 1.00
≥ 5.00
Tons/day / Km²
20 km

AQC Region 7

NO_2
AAM
ug/m^3

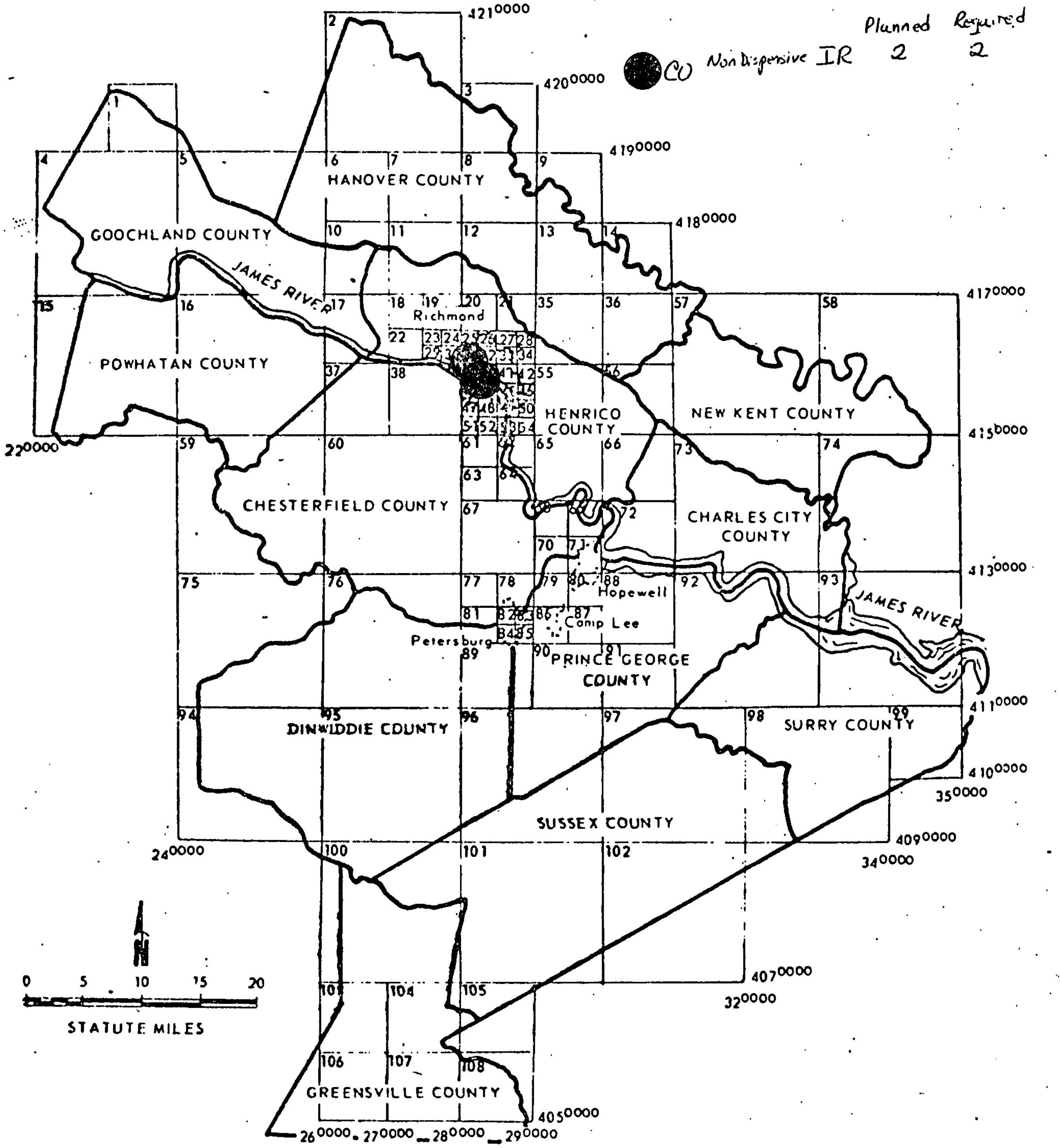


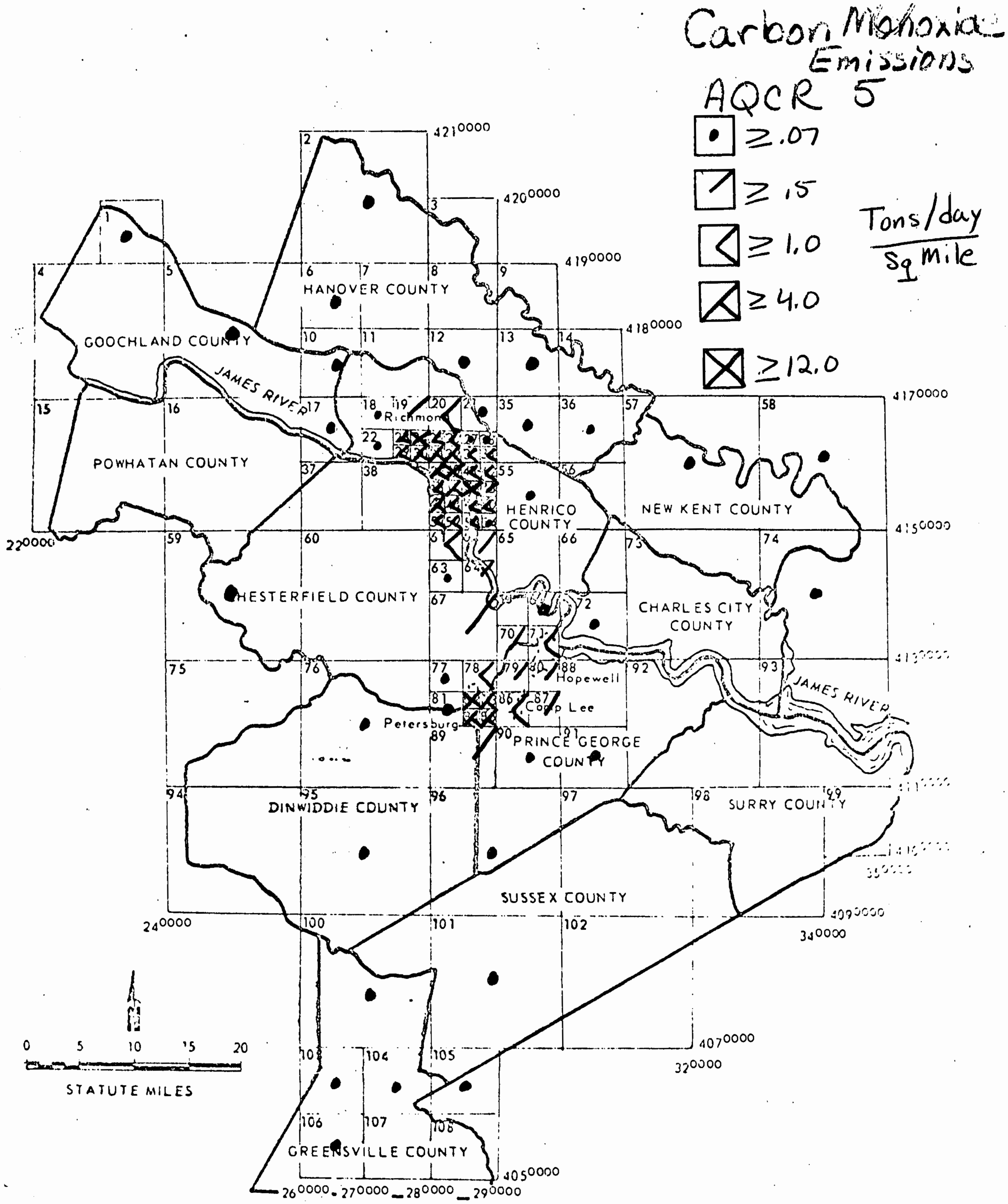
NO_x (instrumental-colormetric)
1 HR Avg. Time

NO_2 (instrumental-Colormetric)
1 HR Avg Time

Carbon Monoxide Sensors

AQCR 5





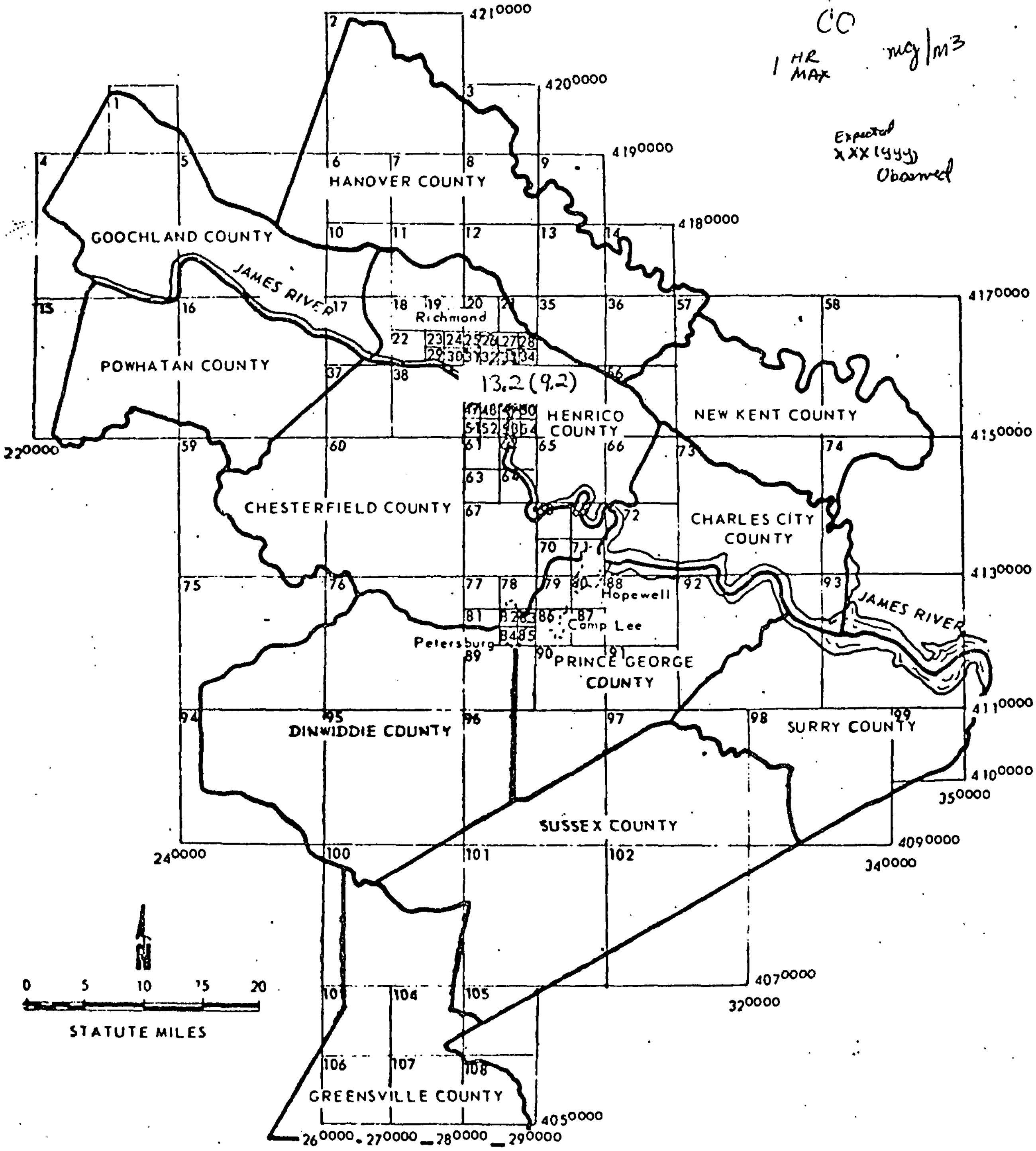
Carbon Monoxide Emissions
AQCR 5
≥ .07
≥ .15
≥ 1.0
≥ 4.0
≥ 12.0
Tons/day / Sq Mile
GOOCHLAND COUNTY
HANOVER COUNTY
POWHATAN COUNTY
HENRICO COUNTY
NEW KENT COUNTY
CHESTERFIELD COUNTY
CHARLES CITY COUNTY
DINWIDDIE COUNTY
PRINCE GEORGE COUNTY
SURRY COUNTY
SUSSEX COUNTY
GREENSVILLE COUNTY
JAMES RIVER
Richmond
Hopewell
Camp Lee
Petersburg
STATUTE MILES
0 5 10 15 20

AQCR 5

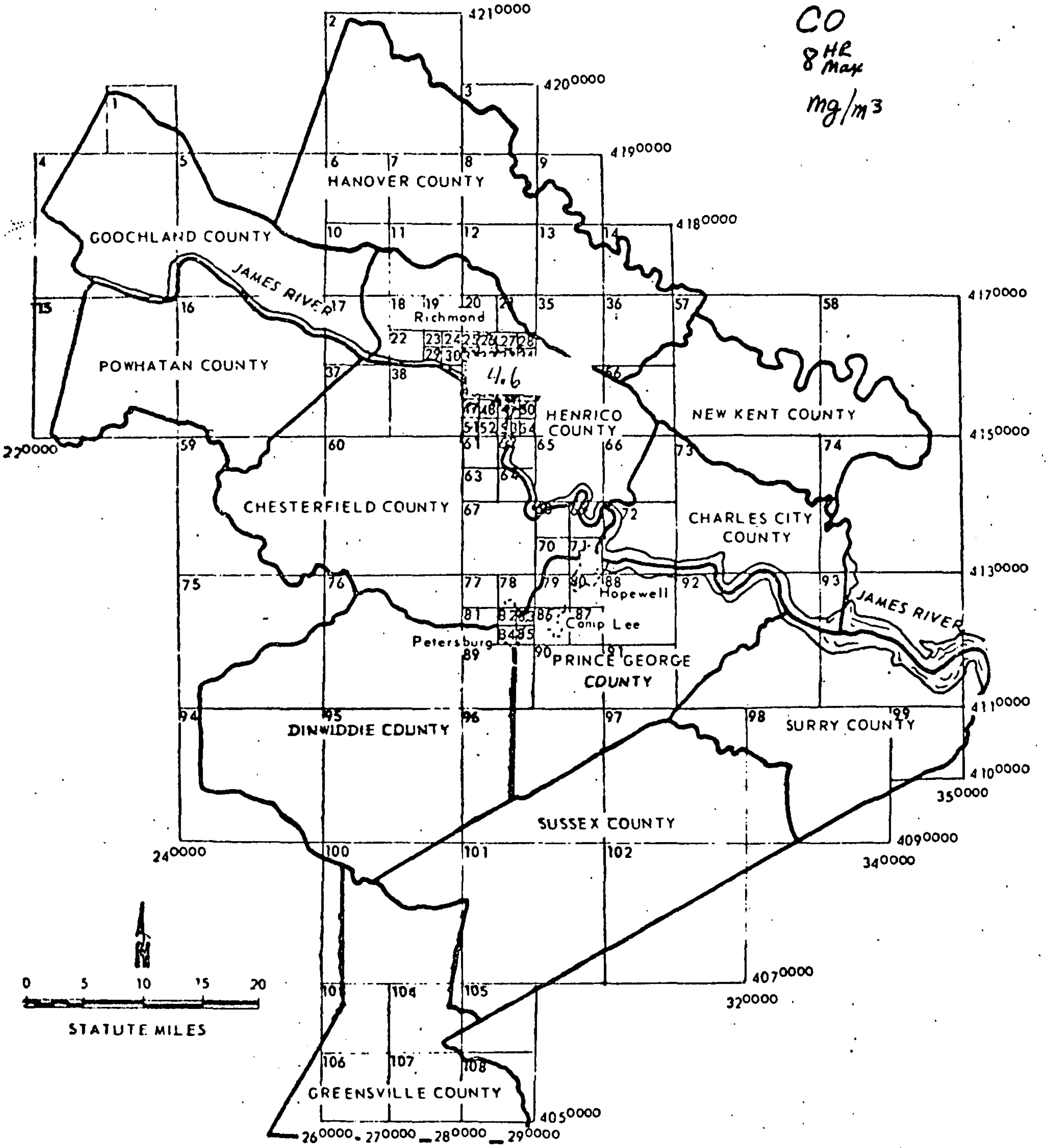
CO

1 HR MAX mg/m3

Expected
XXX (yyy)
Observed



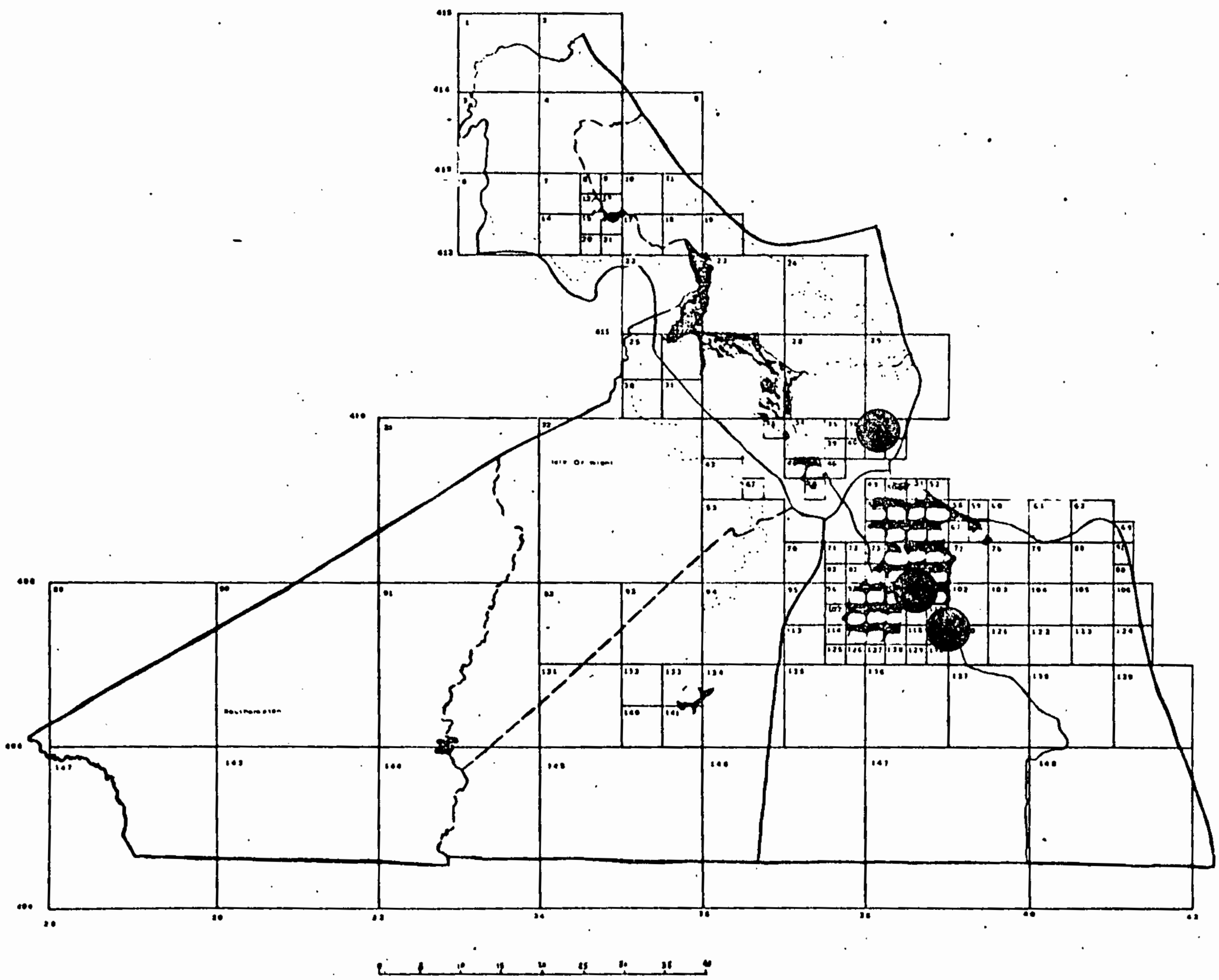
AQCR 5
CO
8 HR Max
mg/m3



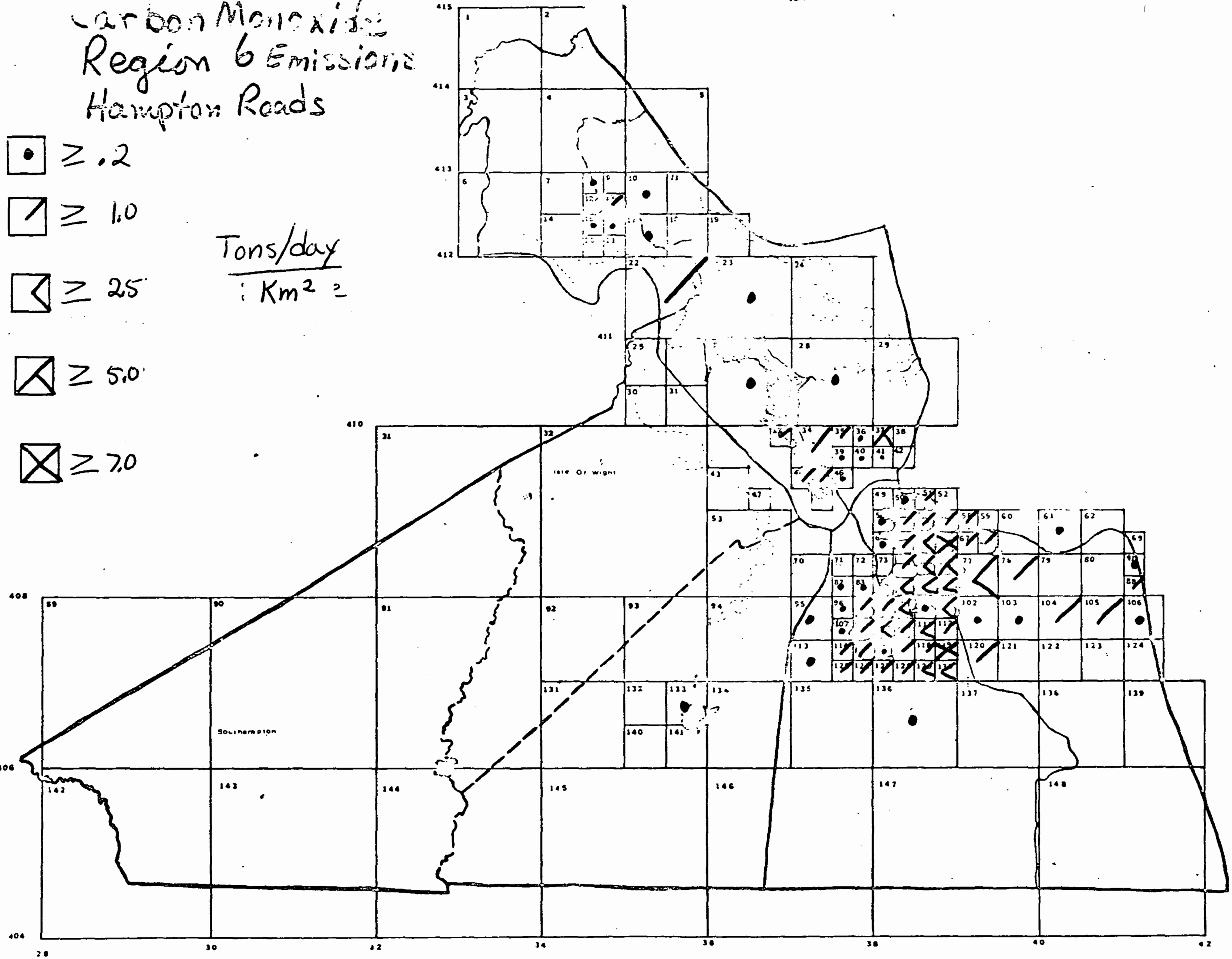
Carbon Monoxide Sensors

AQCR Region 6 Hampton-Roads

	Planned	Required
CO NonDispersive IR	3	3

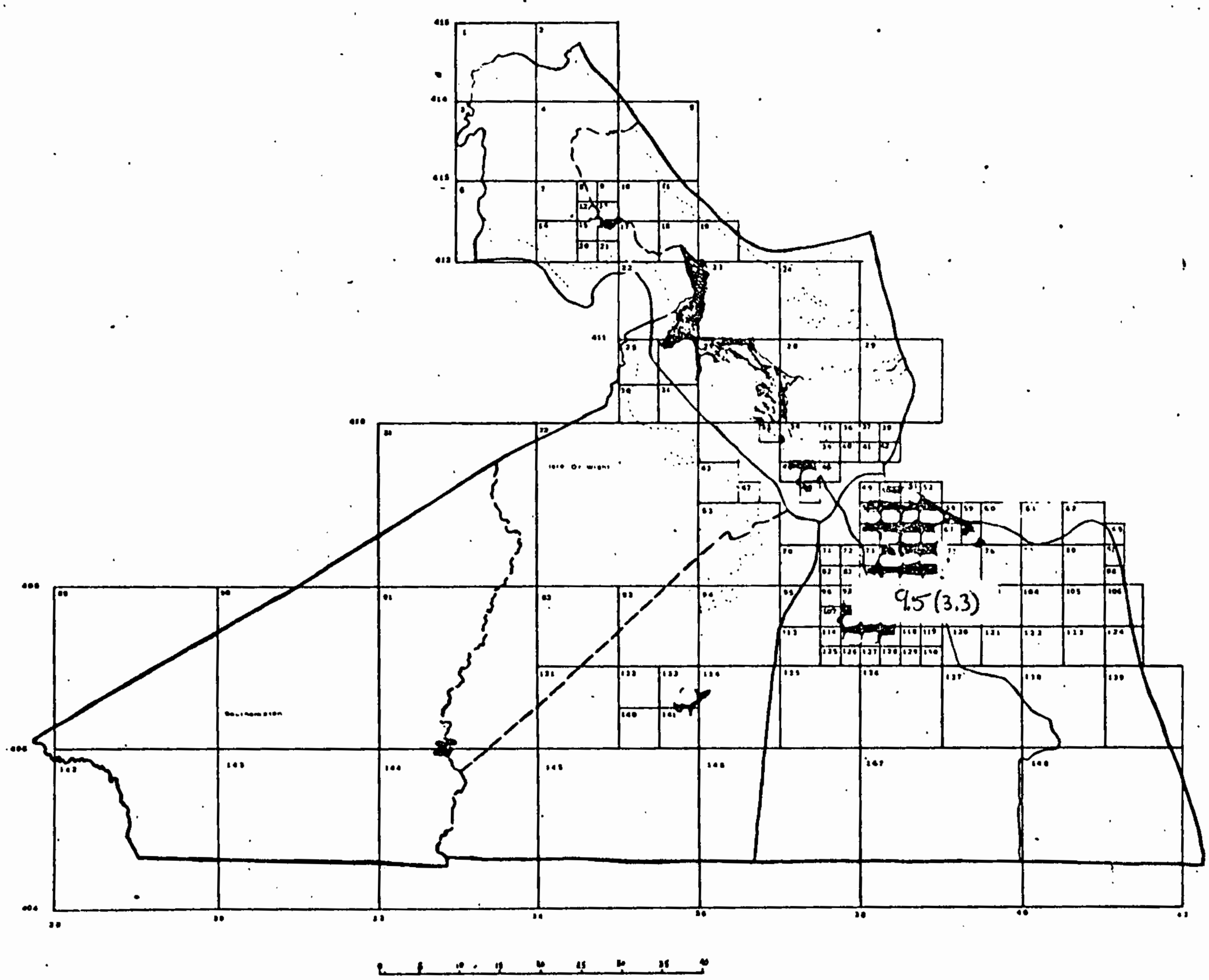


Carbon Monoxide
Region 6 Emissions
Hampton Roads



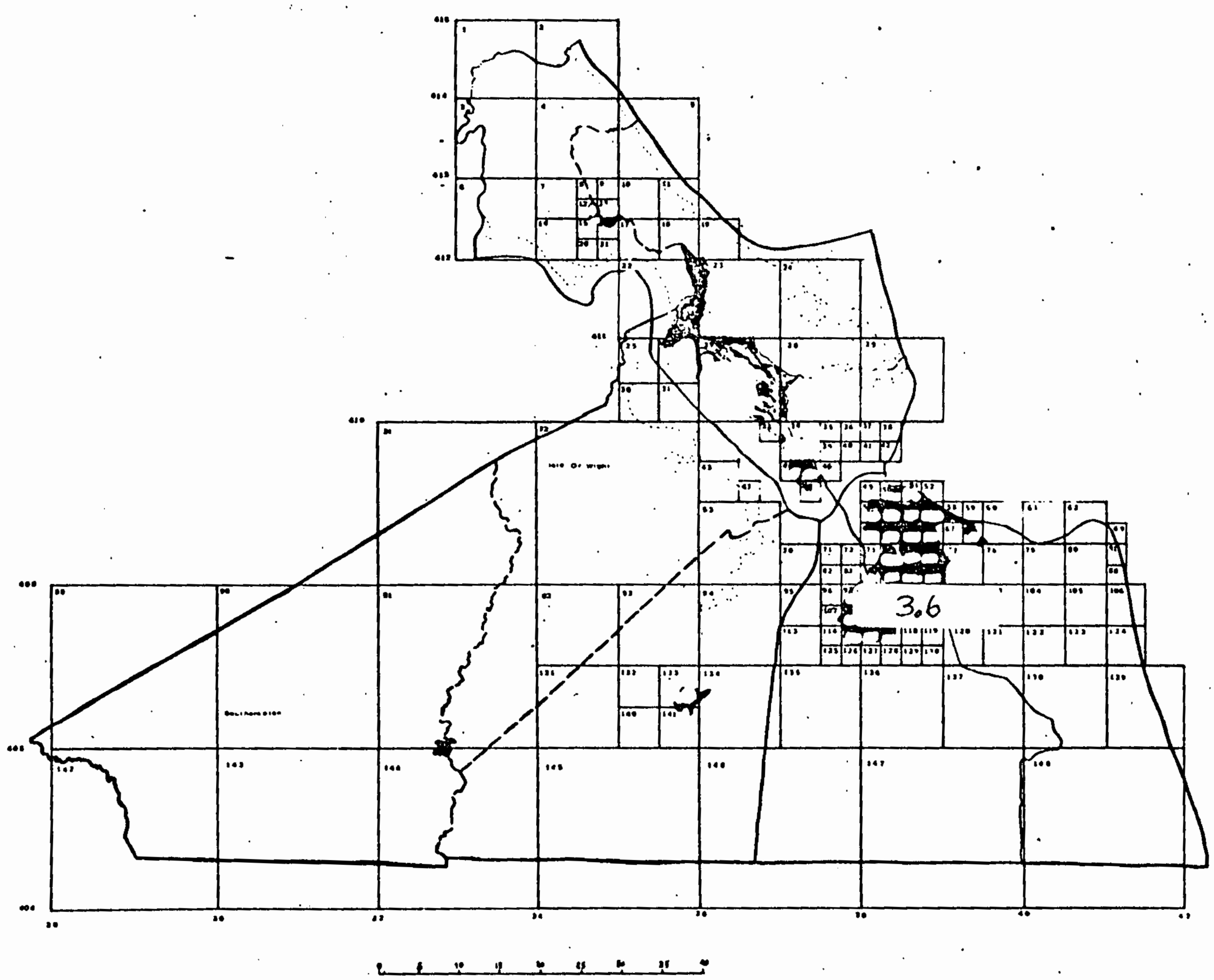
CO
1 HR Max
mg/m3
Expected
XXX (yyy)
Observed

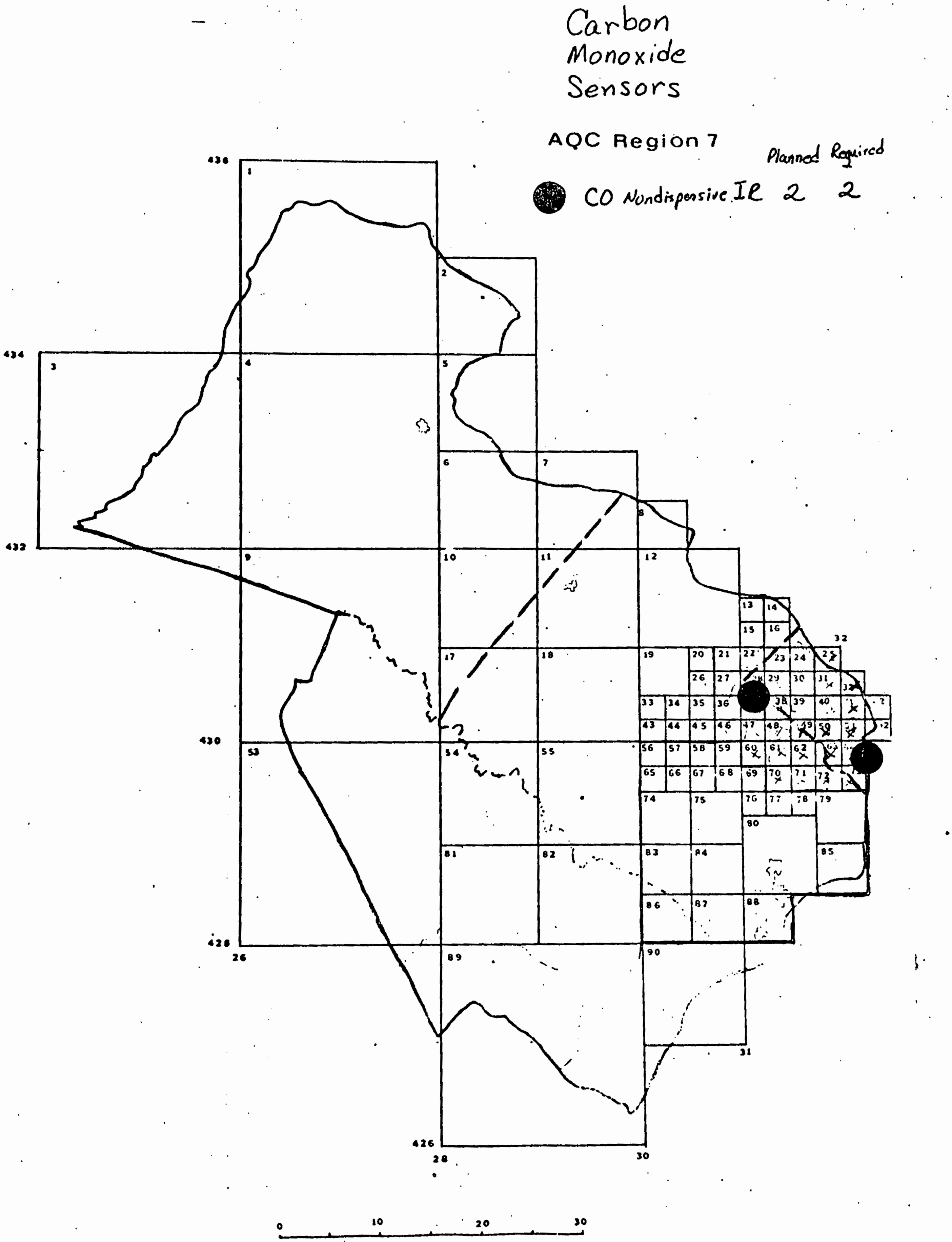
AQCR Region 6 Hampton-Roads

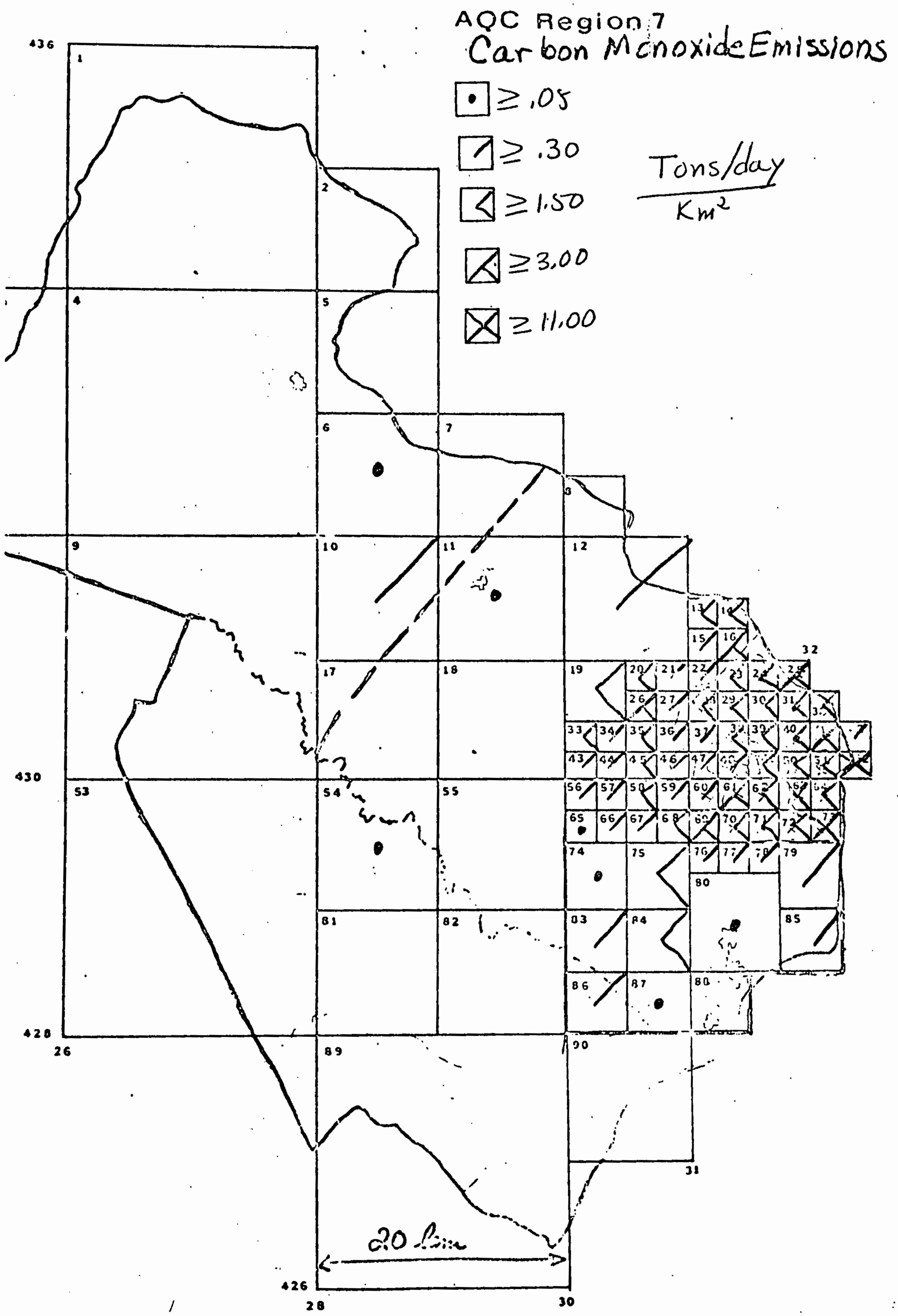


CO
8 HR Max
mg/m3

AQCR Region 6 Hampton-Roads




Carbon Monoxide Sensors
AQC Region 7
Planned Required
CO Nondispensive IR 2 2
0 10 20 30


AQC Region 7
Carbon Monoxide Emissions
≥ .05
≥ .30
≥ 1.50
≥ 3.00
≥ 11.00
Tons/day
Km²
20 km
436
430
428
426
26
28
30
31
32

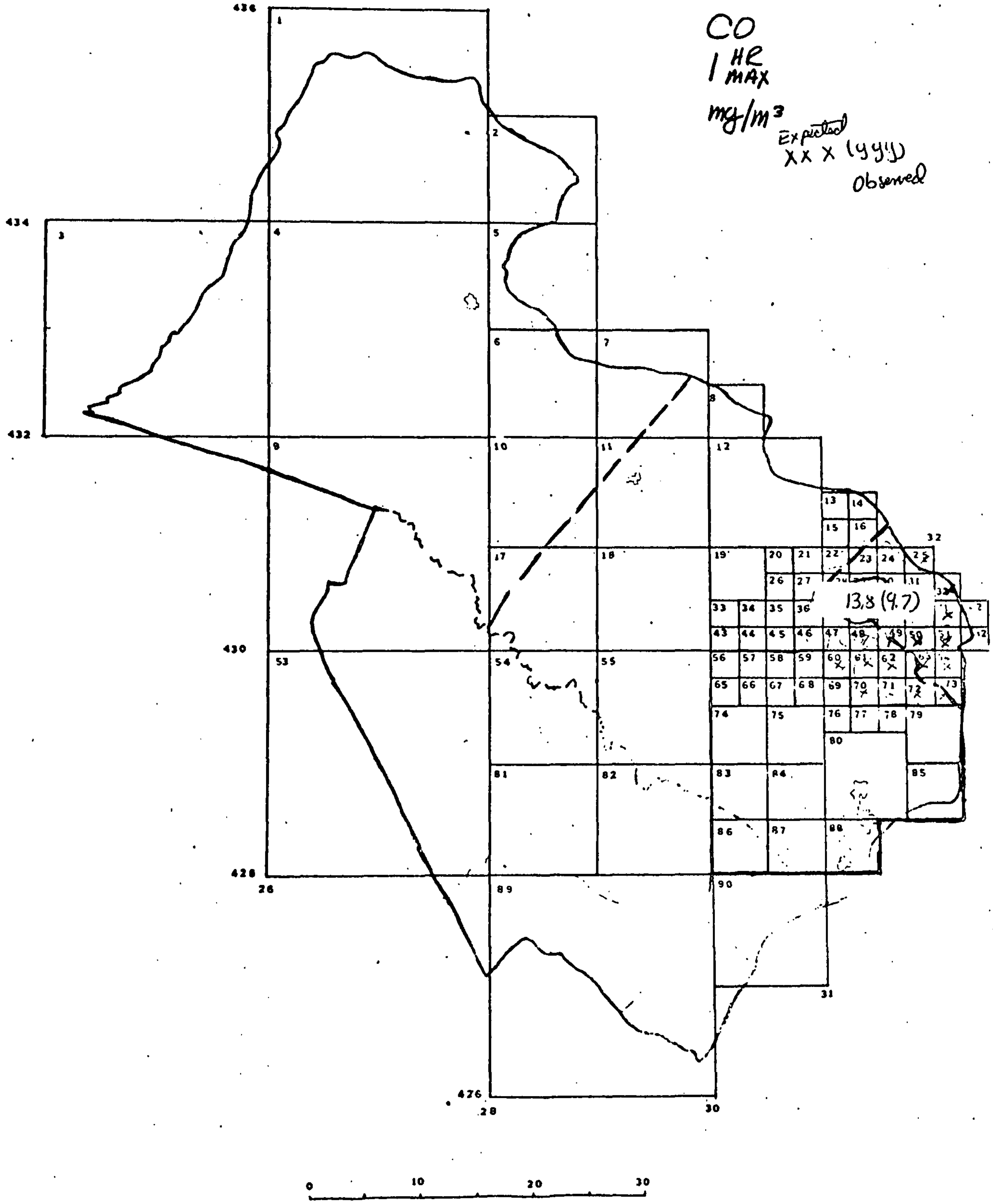
AQC Region 7

CO

1 HR MAX

mg/m³

Expected XXX (yyy) Observed

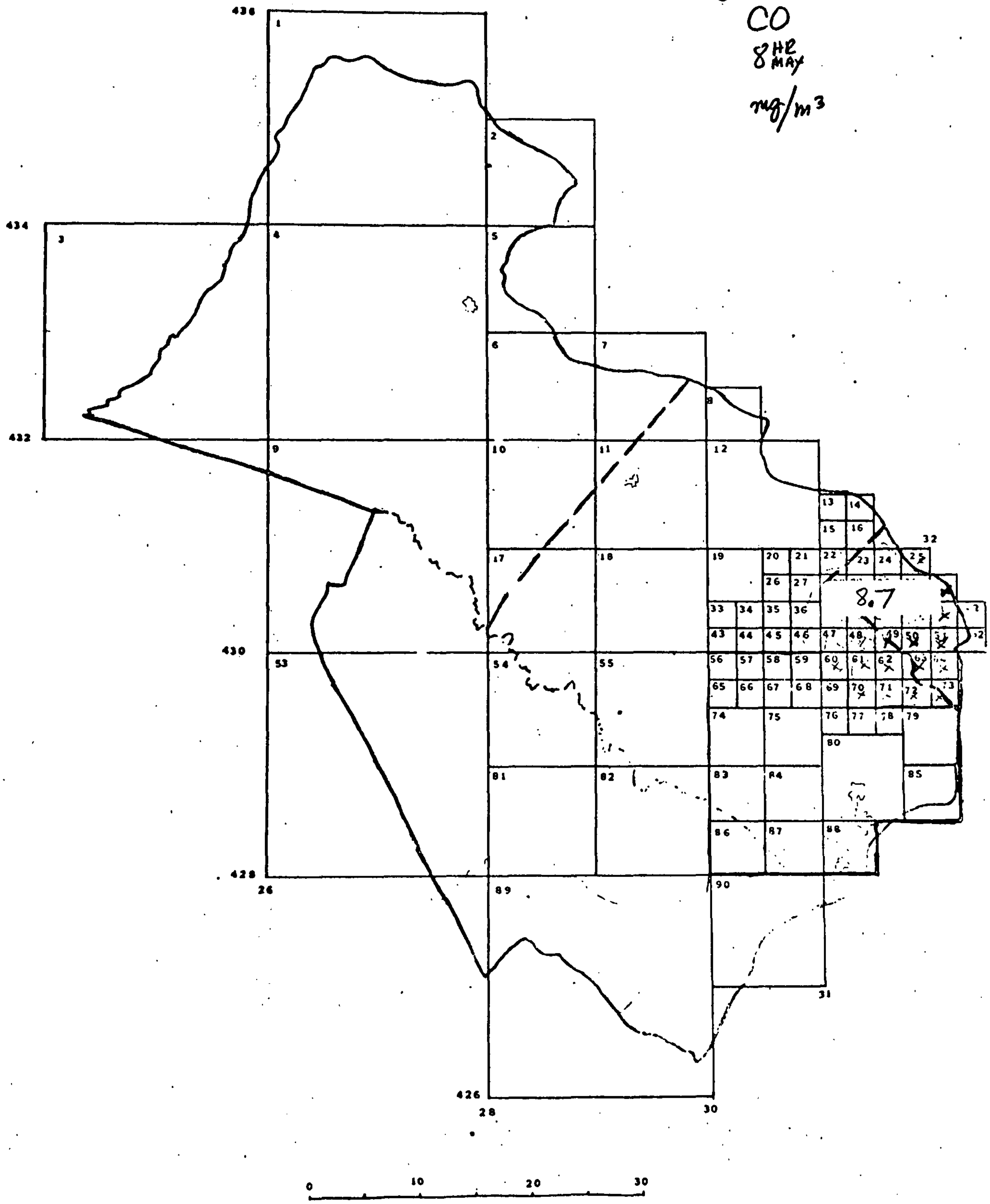


AQC Region 7

CO

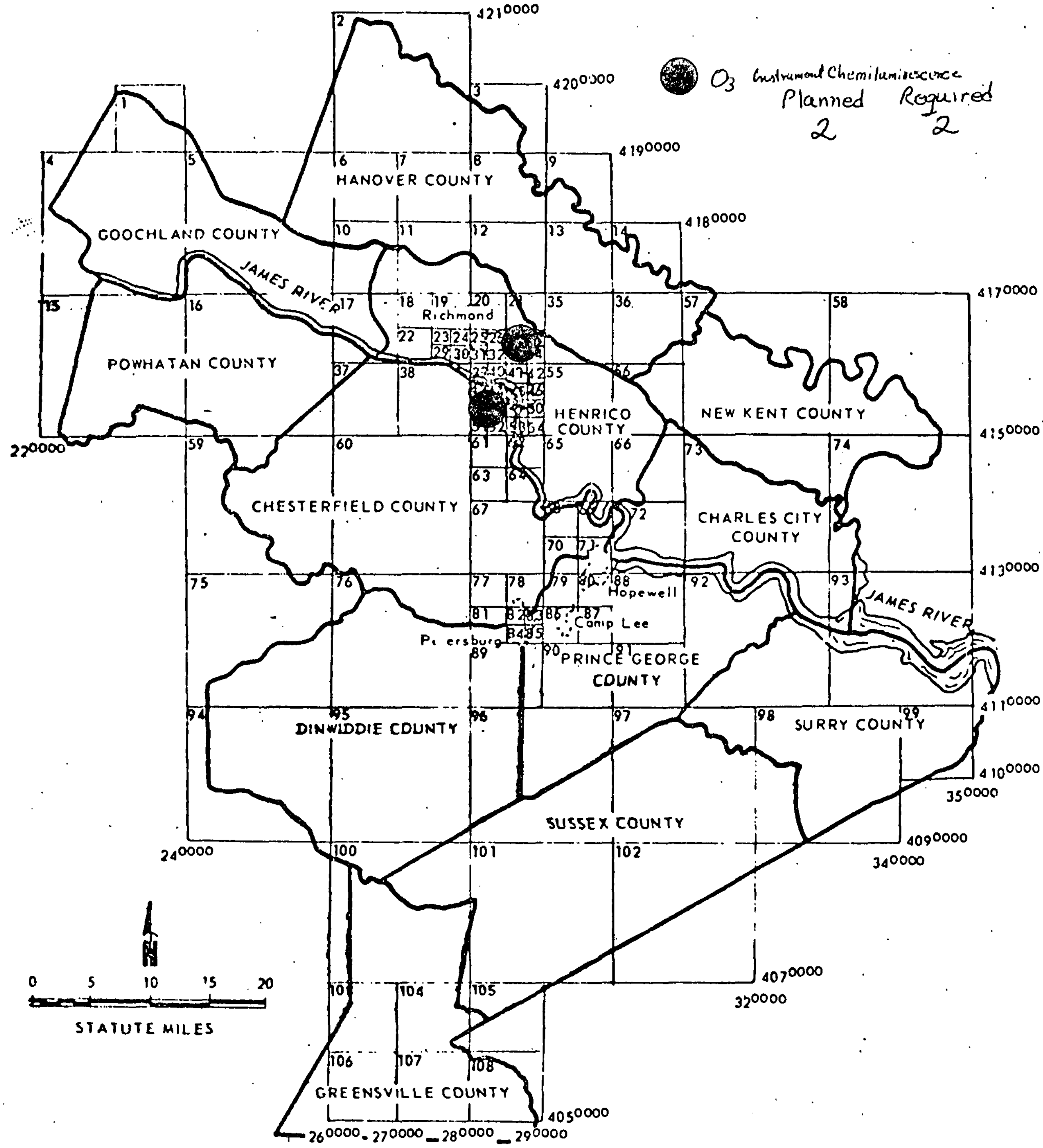
8 HR MAX

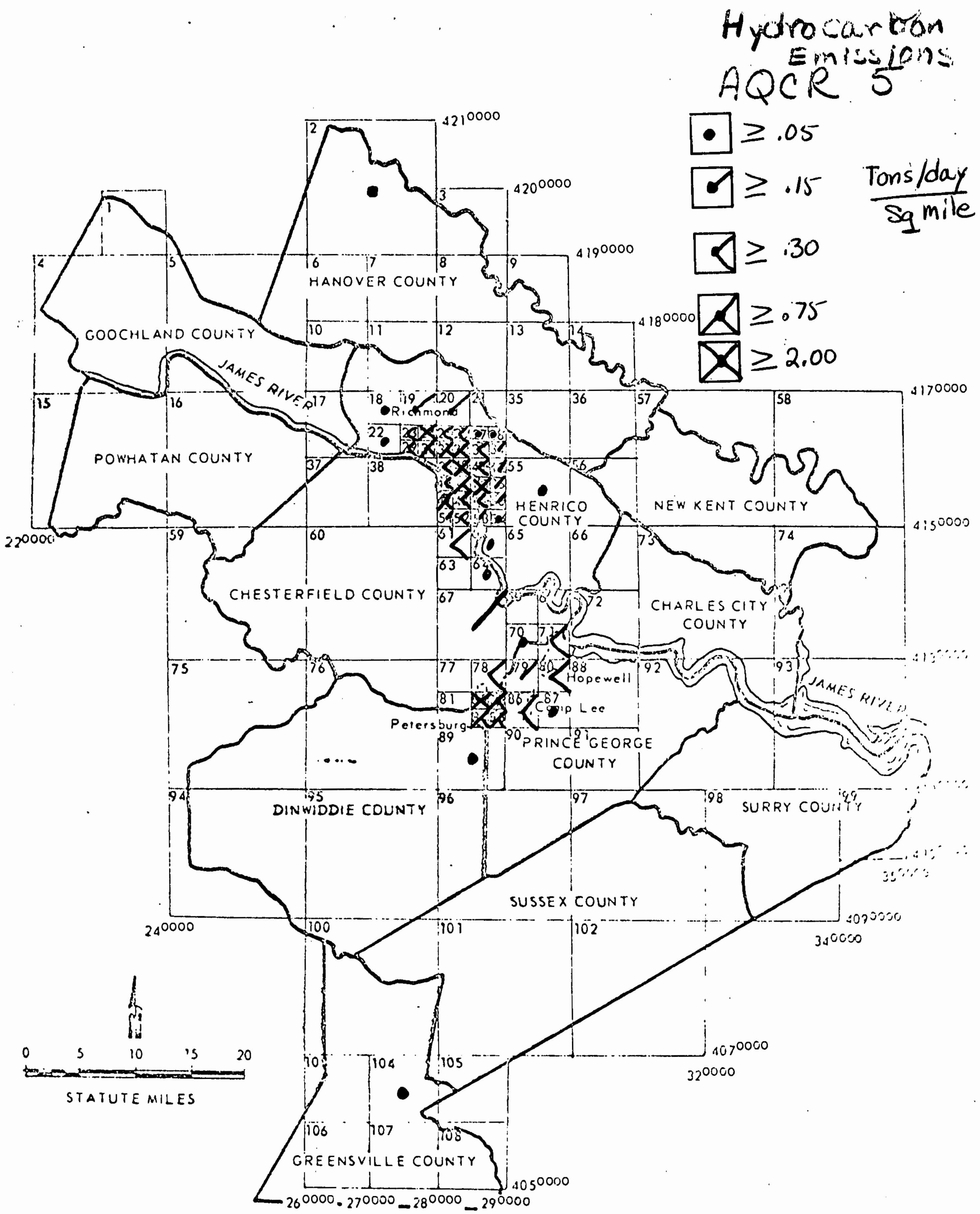
mg/m3



Oxidant Sensors

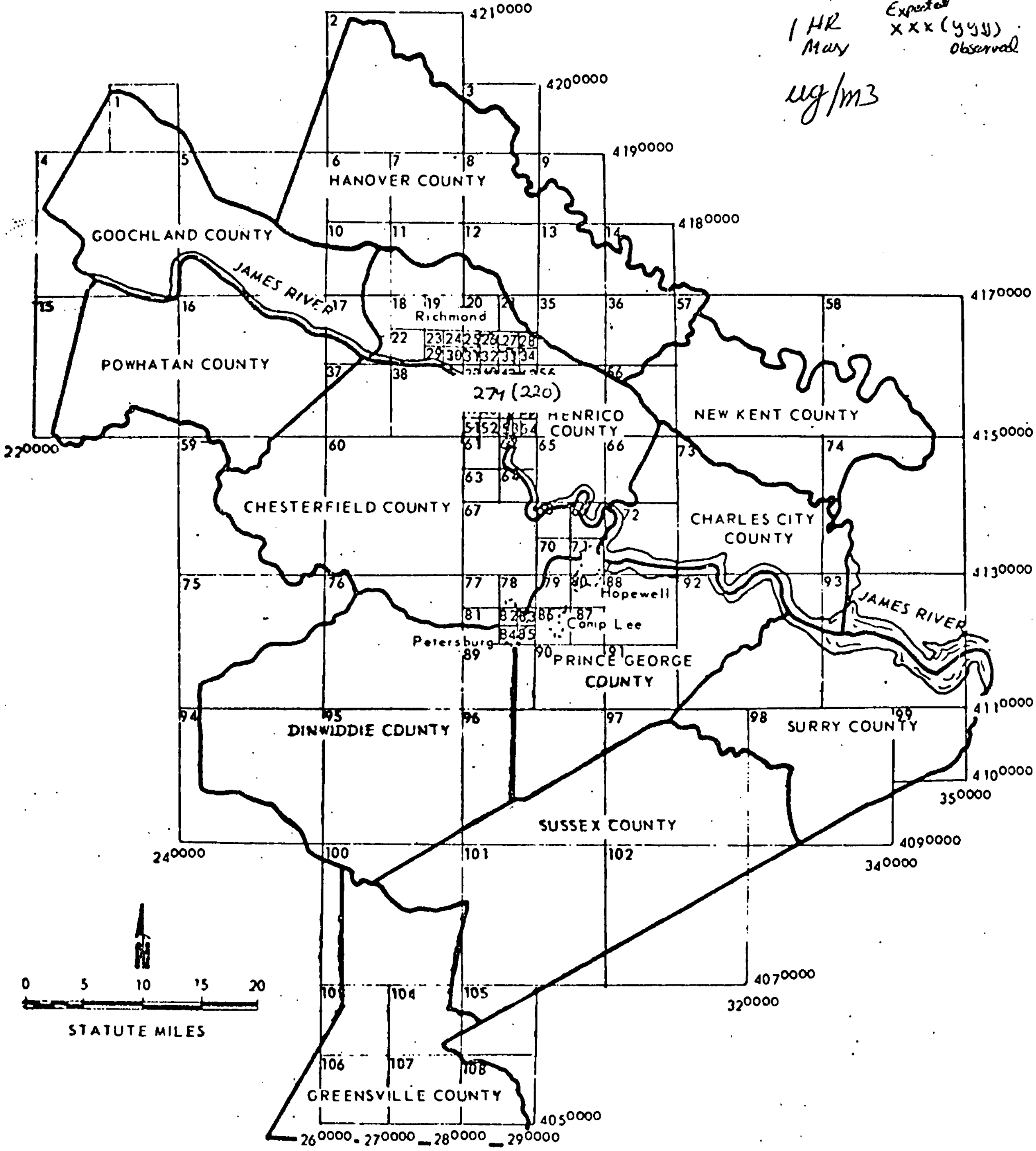
AQCR 5





Hydrocarbon Emissions
AQCR 5
≥ .05
≥ .15
≥ .30
≥ .75
≥ 2.00
Tons/day / Sq mile
HANOVER COUNTY
GOOCHLAND COUNTY
JAMES RIVER
POWHATAN COUNTY
Richmond
HENRICO COUNTY
NEW KENT COUNTY
CHESTERFIELD COUNTY
CHARLES CITY COUNTY
Hopewell
Camp Lee
Petersburg
PRINCE GEORGE COUNTY
DINWIDDIE COUNTY
SURRY COUNTY
SUSSEX COUNTY
GREENSVILLE COUNTY
STATUTE MILES
0 5 10 15 20
4210000
4200000
4190000
4180000
4170000
4150000
4090000
4070000
4050000
220000
240000
260000
270000
280000
290000
320000
340000

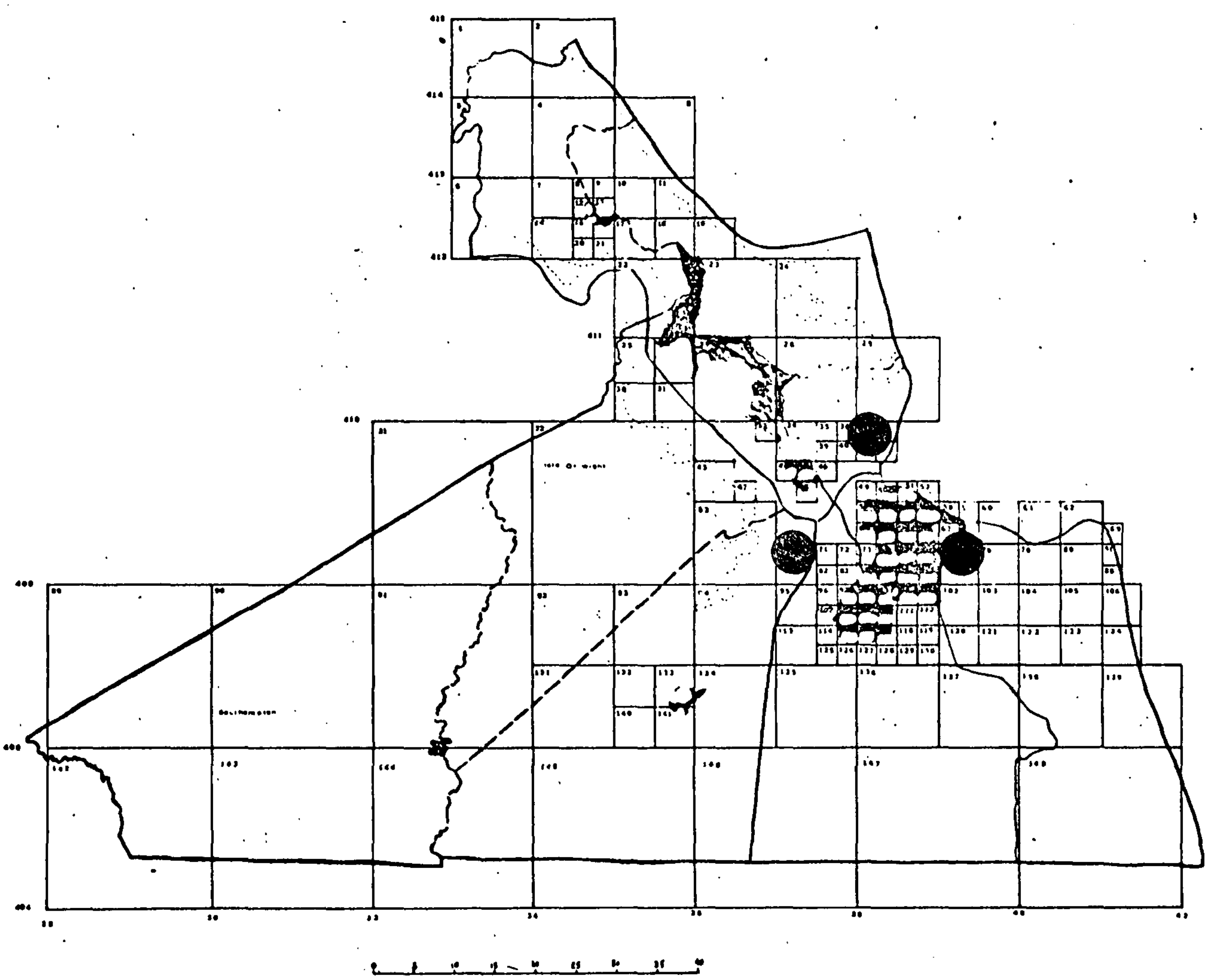
O3
AQCR 5
1 HR Max
Expected xxx (yyy) Observed
ug/m3



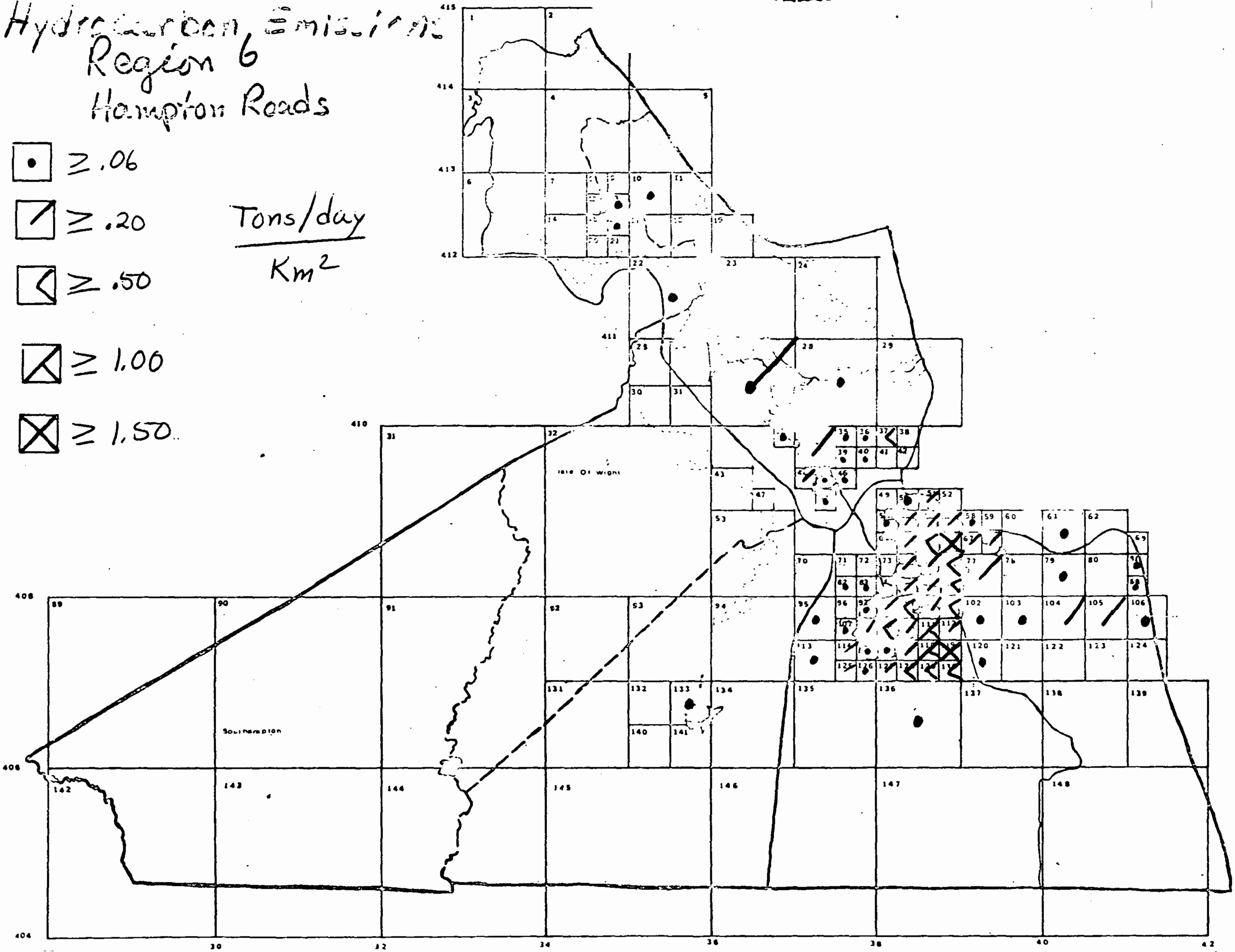
Oxidant Sensors

AQCR Region 6 Hampton-Roads

		Planned	Required
O_3	Instrument Chemiluminescence	3	3



Hydrocarbon Emissions
Region 6
Hampton Roads

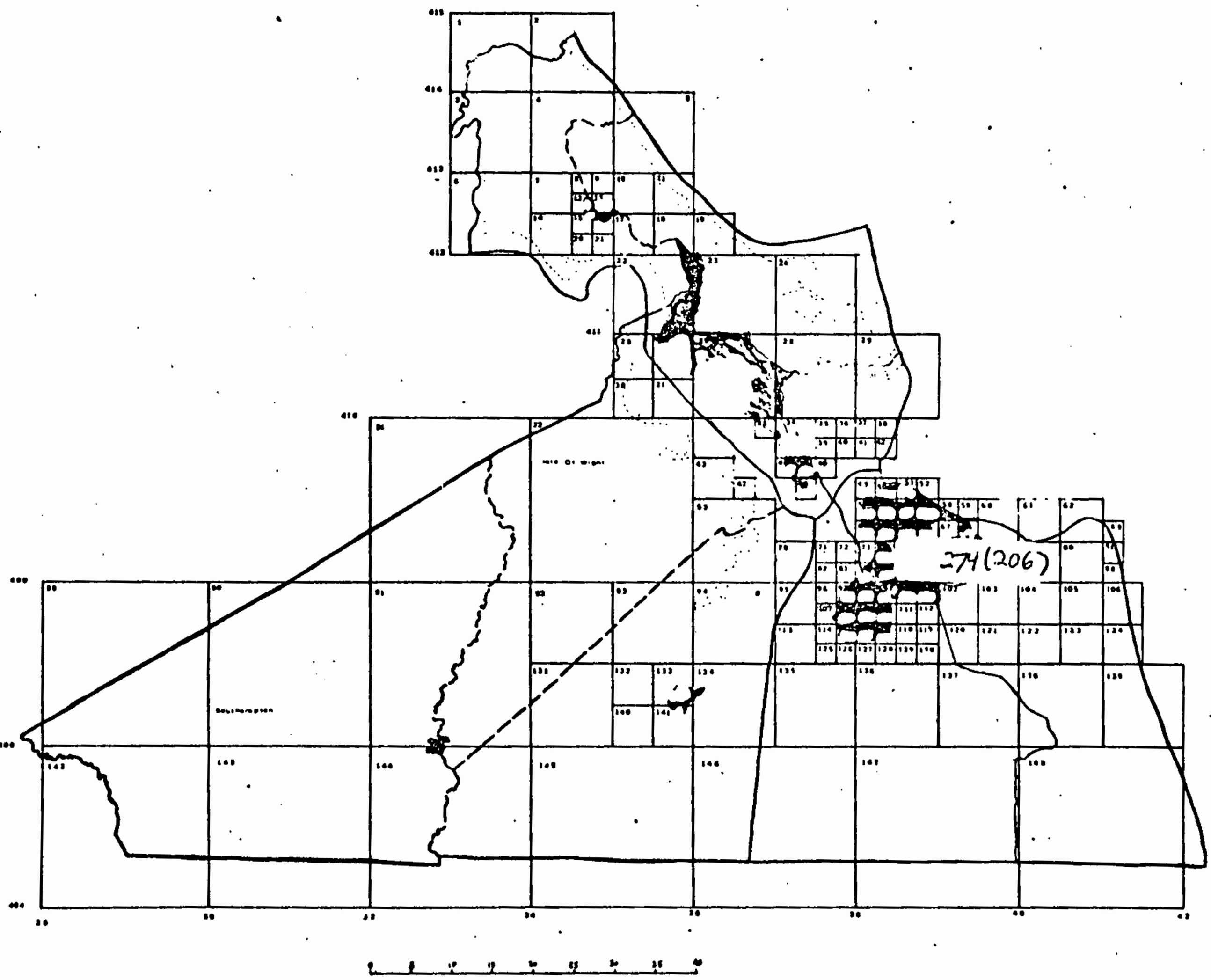


Oxidants

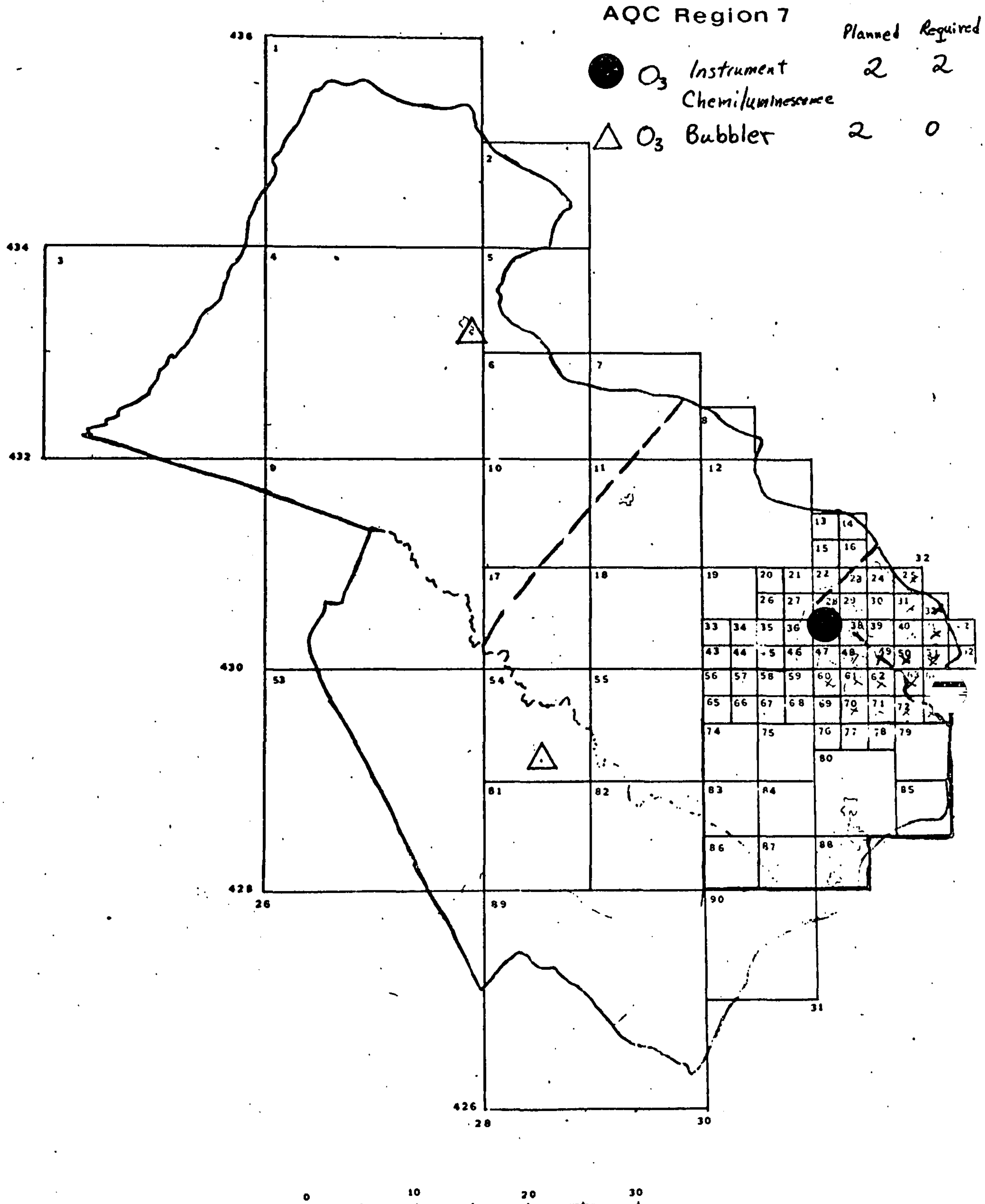
1 HR Max

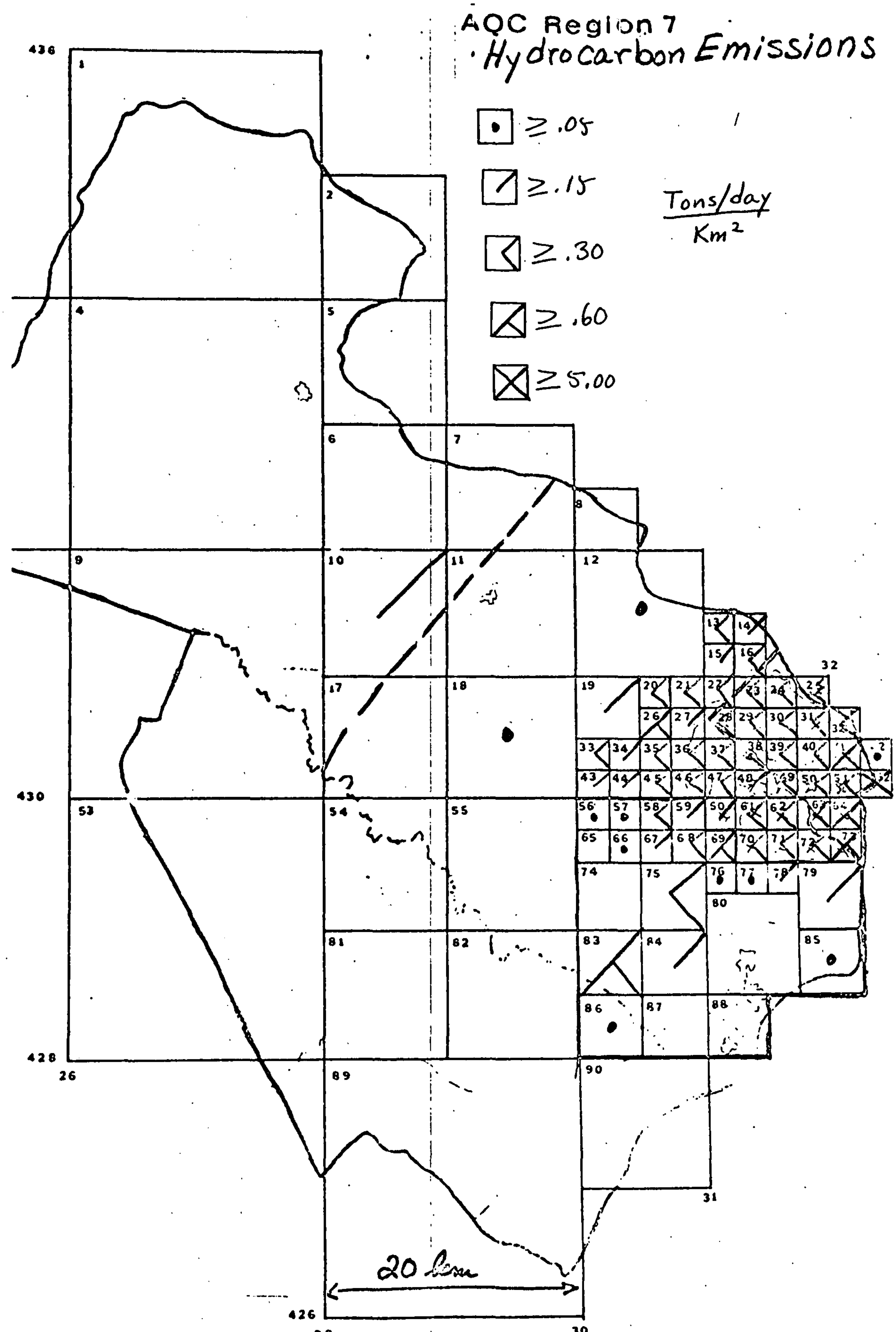
ug/m3
Expected
XXX (YYY)
Observed

AQCR Region 6 Hampton Roads

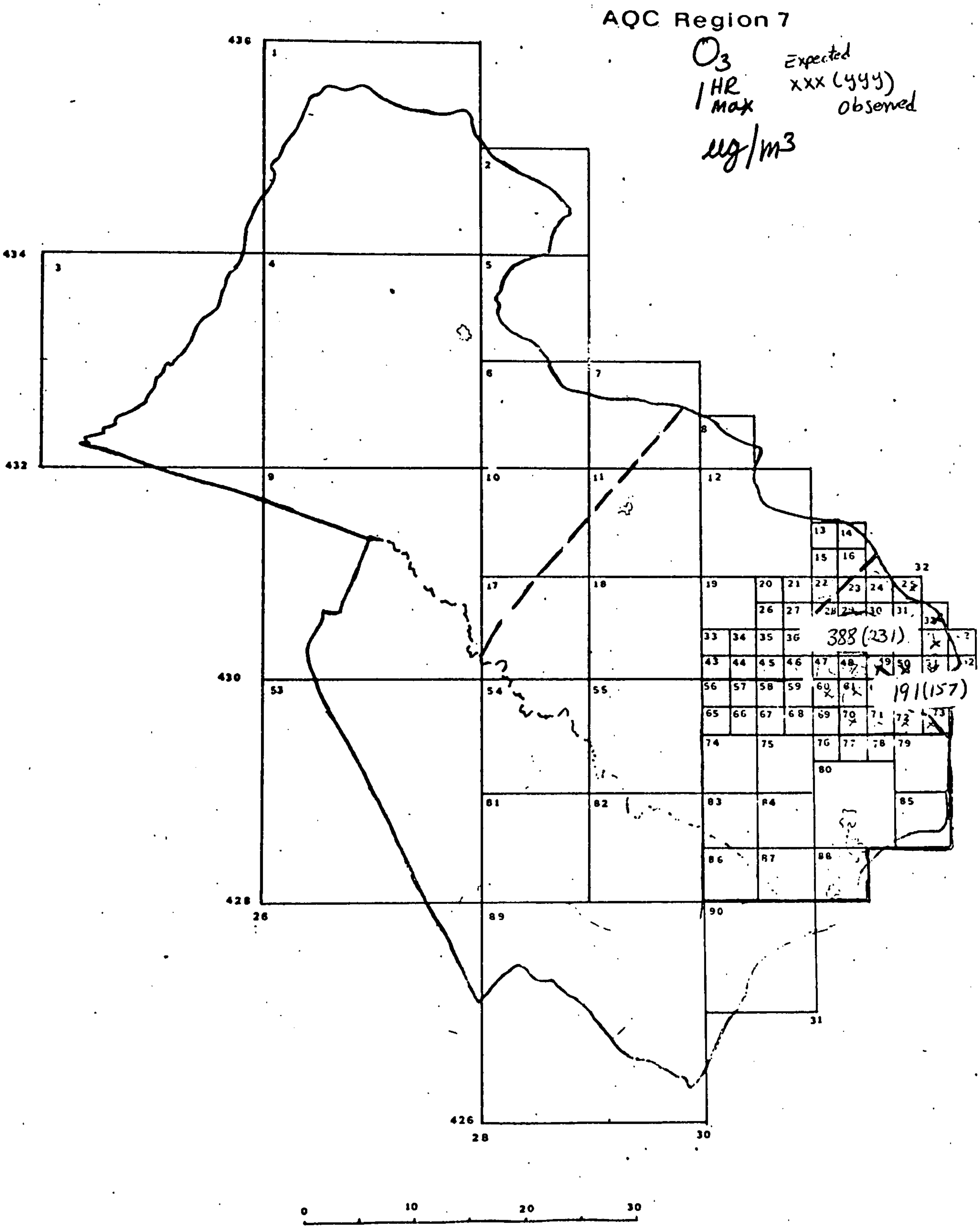


Oxidant Sensors





AQC Region 7
Hydrocarbon Emissions
≥ .05
≥ .15
≥ .30
≥ .60
≥ 5.00
Tons/day
Km²
20 km
436
430
428
426
26
28
30
31
32


AQC Region 7
O_3
1 HR max
Expected
xxx (yyy)
observed
ug/m3
388 (231)
191 (157)
436
434
432
430
428
426
26
28
30
31
32
0
10
20
30

REVIEW OF NEW SOURCES AND MODIFICATIONS

A permit system is established by Section 2.09 of the State Regulations for the Control and Abatement of Air Pollution and becomes operative upon the effective date of the Regulations. Any individual, group, or corporation who contemplates constructing a facility which may be a source of air pollution or who plans to change an existing facility must obtain a permit approving it from the Board before commencing construction or modification. Applications must be signed by a proprietor, partner, or corporate officer, who assumes responsibility for the correctness and completeness of the application and for the construction (or modification) and use of the facility.

Action on applications will be taken within 90 days by the Executive Secretary who by Section 10-17.23 of the Code of Virginia has been granted authority to act as the agent of the Board to enforce its rules. Each application, including plans and specifications will be reviewed by staff members under the direction of the Executive Secretary and will be tested according to the following criteria for the planned Source:

(1) It is consistent with the applicable rules and regulations.

(2) The Source is designed and is intended to be constructed in accordance with Federal or State standards of performance, as applicable.

(3) The Source as planned will not compromise any applicable ambient air quality standard.

Moreover, the Board may require that the Source be provided sampling ports, safe access to each port, instrumentation to monitor and record emission levels, or other sampling and testing facilities.

The owner of a source will be furnished copies of any objections to the applications and may submit answers and comments to the Board regarding such objections. The Board must notify the owner in writing of its reasons for conditional approval or denial of the application. The owner may request within 30 days of receipt of a denial or conditional approval a rehearing from which judicial review will be available.

After a new or modified source has been placed in operation the owner is required to conduct compliance tests of emissions within 60 days and in a manner acceptable to the Board. The tests may be witnessed by a representative of the Board. If the performance does not meet the predicted or agreed upon emission levels then the owner may adjust or change equipment and conduct additional tests to be witnessed by a Board representative and within a time schedule acceptable to the Board. If after a reasonable period of adjustment, the performance continues to fail to meet emission standards, the Board will instruct the owner in writing to submit a control program indicating a plan and schedule for compliance to achieve the agreed upon emission limitations. This control program will be legally enforceable in accordance with the Rules for compliance shcedules.

EMISSION SURVEILLANCE

A registration system is established by Section 2.10 of the State Regulations for the Control and Abatement of Air Pollution and becomes operative upon the effective date of the regulations. Each owner or operator of a facility capable of emitting contaminants into the air (a point Source) is required to notify the Board on or before June 30, 1972 that he owns or operates a Source and to provide to the Board such information as is required to adequately evaluate it as a source of air contaminant emissions, as determined by the Board.

The installation, use, and maintenance of monitoring equipment; emission sampling; the maintenance of records; and the submission of periodic emission reports can be required by the Board pursuant to Section 2.11 of the Regulations.

The provision of emission sampling holes, safe access facilities for sampling, and testing facilities (but not instruments or sensors) can be required by the Board pursuant to Section 2.12 of these Regulations in order to facilitate the testing of any source by the Board, also authorized by Section 2.12.

Rule 4.02 of the Regulations prohibits visible emissions of a shade darker than No. 1 on the Ringelmann Smoke Chart or of such opacity as to obscure an observer's view to a degree darker than does smoke designated No. 1 on the Ringelmann Smoke Chart. Also, all airborne discharges from a building or equipment that cause a nuisance are prohibited. Investigation of complaints resulting from violations of Rule 4.02 are authorized by Section 2.12, which authorizes the Board to conduct emission tests on any source.

Owners of motor vehicles are prohibited from action that would defeat the design purpose of a motor vehicle exhaust emission control system or device, fuel evaporative emission control system or device, or any other air pollution control system or device which has been installed on motor vehicles in accordance with federal laws and regulations, by Rule 4.10. The same rule restricts visible emissions from motor vehicles.

RESOURCES

The resources for air quality control in the Commonwealth of Virginia are channeled through one state agency, the State Air Pollution Control Board, and two types of local control activity, the local air pollution control agency or an air pollution control officer operating within an existing local government department. Each of these activities contributes to the control of air pollution. The State Air Pollution Control Board has the overall authority. It can allow local control to whatever degree it wishes provided the local control is as strict as state control. The State Board retains the option of exercising its authority if an allowed local program fails to act.

Active air pollution control programs in the Commonwealth of Virginia are:

1.	State Air Pollution Control Board	(71-72 Budget $685,000)*
2.	City of Alexandria	(71-72 Budget $ 73,000)*
3.	Arlington County	(71-72 Budget $ 25,000)
4.	Fairfax County (incl. Fairfax City, Falls Church)	(71-72 Budget $132,000)*
5.	Loudoun County	(71-72 Budget $ 2,000)
6.	Prince William County	(71-72 Budget $ 8,000)
7.	City of Roanoke	(71-72 Budget $ 18,000)
8.	Roanoke County/City of Salem	(71-72 Budget $ 45,600)*
9.	City of Lynchburg	(71-72 Budget $ 9,400)
10.	City of Richmond	(71-72 Budget $103,300)*

* Includes federal grant funds.

Other local governments have some air pollution control activity as additional duty for existing personnel but this is scattered and does not represent a significant impact on air pollution control at this time.

Manpower and Fund estimates for the State Air Pollution Control Board and other agencies cited above are given in the tables which follow. A summary table giving statewide figures preceeds the other tables.

No attempt has been made to provide a breakdown of state resources by Air Quality Control Regions. At the present stage of the agency growth such a breakdown would be meaningless. State figures are given then for the entire state. The state program will operate under a central office in Richmond with Regional activity developing as additional personnel are assigned. Resources will be allocated as required to meet the needs of the program.

STATE SUMMARY
MAN-YEAR ESTIMATES BY FUNCTION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)	(12.25)	(16.95)	(23.0)	(18.25)	(46.0)	(18.25)	(63.0)	(19.25)
Scheduled inspections	0.0	8.0	1.0	8.7	7.0	8.5	11.0	8.9
Complaints and field patrol	12.25	8.95	22.0	9.55	39.0	9.75	52.0	10.35
Engineering services (Subtotal)	(9.0)	(3.9)	(16.0)	(4.0)	(25.0)	(5.7)	(26.0)	(6.6)
Permit system	4.0	1.2	5.0	1.3	10.0	1.6	10.0	1.6
Emission estimates	4.0	0.7	4.0	0.8	5.0	0.9	5.0	1.0
Source testing	1.0	0.5	6.0	0.4	6.0	1.0	6.0	1.4
Reports, new legislation, etc.	0.0	1.5	1.0	1.5	4.0	2.0	5.0	2.6
Technical services (Subtotal)	(13.5)	(8.4)	(27.5)	(9.1)	(46.5)	(10.6)	(49.5)	(11.2)
ration of monitoring etwork	7.0	3.15	18.0	3.35	29.0	3.85	31.0	4.15
Special studies	0.0	0.4	0.0	0.4	3.0	0.5	3.0	0.5
Instrument Calibration and Maintenance	1.0	0.9	2.0	1.0	4.0	1.3	4.0	1.4
Laboratory operations	5.0	2.6	6.0	2.9	7.0	3.3	7.0	3.5
Data processing	0.5	1.35	1.5	1.45	3.5	1.65	4.5	1.65
Management services (Subtotal)	(23.5)	(9.7)	(32.5)	(9.8)	(45.5)	(10.7)	(54.5)	(11.2)
Policy, P/R, Strategies, etc	9.25	2.3	10.5	2.3	12.5	2.9	15.5	3.1
Staff training	0.0	0.4	0.0	0.4	2.0	0.4	3.0	0.4
Administrative and clerical support	14.0	7.0	22.0	7.1	31.0	7.4	36.0	7.7
Totals	58.0	38.95	99.0	41.15	163.0	45.25	193.0	48.25

Reported in thousands of dollars.

STATE SUMMARY
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services	(142)	(165.6)	(305)	(178.7)	(613)	(180.5)	(840)	(197.5)
Operating funds	142	165.6	305	178.7	613	171.5	840	190.5
Capital funds						9.0		7.0
Contract funds								
Engineering services	(104)	(42.9)	(212)	(48.5)	(333)	(58.8)	(347)	(62.8)
Operating funds	104	42.9	212	48.5	333	58.8	347	62.8
Capital funds								
Contract funds								
Technical services	(169)	(107.0)	(625)	(115.8)	(795)	(123.8)	(785)	(126.0)
Operating funds	157	81.0	475	86.8	720	98.8	710	101.0
Capital funds		26.0		29.0		25.0		25.0
Contract funds	12		150		75		75	
Management services	(270)	(100.8)	(432)	(102.4)	(607)	(114.4)	(726)	(120.9)
Operating funds	270	100.8	432	102.4	607	114.4	726	120.9
Capital funds								
Contract funds								
Total operating funds	673	390.3	1424	416.4	2273	443.5	2623	465.2
Total capital funds		26.0		29.0		34.0		32.0
Total contract funds	12		150		75		75	
Total funds	685	416.3	1574	445.4	2348	477.5	2698	479.2

Reported in thousands of dollars

STATE AIR POLLUTION CONTROL BOARD
MAN-YEAR ESTIMATES BY FUNCTION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)	(12.25)		(23.0)		(46.0)		(63.0)	
Scheduled inspections	0.0		1.0		7.0		11.0	
Complaints and field patrol	12.25		22.0		39.0		52.0	
Engineering services (Subtotal)	(9.0)		(16.0)		(25.0)		(26.0)	
Permit system	4.0		5.0		10.0		10.0	
Emission estimates	4.0		4.0		5.0		5.0	
Source testing	1.0		6.0		6.0		6.0	
Reports, new legislation, etc.	0.0		1.0		4.0		5.0	
Technical services (Subtotal)	(13.5)		(27.5)		(46.5)		(49.5)	
[illegible]ration of monitoring network	7.0		18.0		29.0		31.0	
Special studies	0.0		0.0		3.0		3.0	
Instrument Calibration and Maintenance	1.0		2.0		4.0		4.0	
Laboratory operations	5.0		6.0		7.0		7.0	
Data processing	0.5		1.5		3.5		4.5	
Management services (Subtotal)	(23.25)		(32.5)		(45.5)		(54.5)	
Policy, P/R, Strategies, etc	9.25		10.5		12.5		15.5	
Staff training	0.0		0.0		2.0		3.0	
Administrative and clerical support	14.0		22.0		31.0		36.0	
Totals	58.0		99.0		163.0		193.0	

STATE AIR POLLUTION CONTROL BOARD
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds	142		305		613		840	
Capital funds								
Contract funds								
Engineering services								
Operating funds	104		212		333		347	
Capital funds								
Contract funds								
Technical services								
Operating funds	157		475		720		710	
Capital funds								
Contract funds	12		150		75		75	
Management services								
Operating funds	270		432		607		726	
Capital funds								
Contract funds								
Total operating funds	673		1424		2273		2623	
Total capital funds								
Total contract funds	12		150		75		75	
Total funds	685		1574		2348		2698	

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
SUMMARY FOR LOCAL AGENCIES IN REGION VII - VIRGINIA PORTION
OF THE NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(9.9)		(11.2)		(10.8)		(11.4)
Scheduled inspections		4.5		5.2		5.0		5.4
Complaints and field patrol		5.4		6.0		5.8		6.0
Engineering services (Subtotal)		(2.9)		(2.8)		(4.3)		(5.0)
Permit system		.7		.7		1.0		1.0
Emission estimates		.6		.6		.7		.8
Source testing		.4		.3		.7		.9
Reports, new legislation, etc.		1.2		1.2		1.9		2.3
Technical services (Subtotal)		(6.0)		(6.9)		(8.2)		(8.6)
[illegible]ration of monitoring [illegible]etwork		2.3		2.6		3.0		3.2
Special studies		.2		.2		.3		.3
Instrument Calibration and Maintenance		.6		.7		1.0		1.1
Laboratory operations		2.1		2.4		2.7		2.8
Data processing		.8		1.0		1.2		1.2
Management services (Subtotal)		(4.9)		(5.0)		(5.7)		(6.0)
Policy, P/R, Strategies, etc		.9		.9		1.3		1.3
Staff training		.4		.4		.4		.4
Administrative and clerical support		3.6		3.7		4.0		4.3
Totals		23.7		25.9		29.0		31.0

FUND ESTIMATES BY FUNCTION
SUMMARY FOR LOCAL AGENCIES IN REGION VII - VIRGINIA PORTION
OF THE NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(85)		(96)		(89)		(92)
Operating funds		85		96		80		85
Capital funds		0		0		9		7
Contract funds		0		0		0		0
Engineering services		(29)		(30)		(37)		(41)
Operating funds		29		30		37		41
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Technical services		(76)		(85)		(89)		(91)
Operating funds		50		56		64		66
Capital funds		26		29		25		25
Contract funds		0		0		0		0
Management services		(50)		(51)		(57)		(59)
Operating funds		50		51		57		59
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		214		233		238		251
Total capital funds		26		29		34		32
Total contract funds		0		0		0		0
Total funds		240		262		272		283

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
THE CITY OF ALEXANDRIA PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(4.5)		(4.8)		(5.4)		(5.8)
Scheduled inspections		2.6		2.8		3.1		3.3
Complaints and field patrol		1.9		2.0		2.3		2.5
Engineering services (Subtotal)		(0.9)		(0.9)		(0.9)		(1.2)
Permit system		.1		.1		.1		.1
Emission estimates		.3		.3		.3		.4
Source testing		.1		.1		.1		.1
Reports, new legislation, etc.		.4		.4		.4		.6
Technical services (Subtotal)		(2.3)		(2.6)		(2.8)		(3.0)
ration of monitoring network		1.0		1.2		1.3		1.4
Special studies		.1		.1		.1		.1
Instrument Calibration and Maintenance		.2		.2		.2		.2
Laboratory operations		.9		1.0		1.1		1.2
Data processing		.1		.1		.1		.1
Management services (Subtotal)		(1.6)		(1.7)		(1.9)		(2.0)
Policy, P/R, Strategies, etc		.1		.1		.1		.1
Staff training		.1		.1		.1		.1
Administrative and clerical support		1.4		1.5		1.7		1.8
Totals		9.3		10.0		11.0		12.0

FUND ESTIMATES BY FUNCTION
THE CITY OF ALEXANDRIA PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(35)		(35)		(36)		(37)
Operating funds		35		35		27		30
Capital funds		0		0		9		7
Contract funds		0		0		0		0
Engineering services		(7)		(7)		(7)		(7)
Operating funds		7		7		7		7
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Technical services		(19)		(19)		(19)		(19)
Operating funds		11		11		11		11
Capital funds		8		8		8		8
Contract funds		0		0		0		0
Management services		(12)		(12)		(12)		(12)
Operating funds		12		12		12		12
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		65		65		57		60
Total capital funds		8		8		17		15
Total contract funds		0		0		0		0
Total funds		73		73		74		75

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
THE COUNTY OF ARLINGTON PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(1.5)		(1.5)		(1.5)		(1.5)
Scheduled inspections		.8		.8		.8		.8
Complaints and field patrol		.7		.7		.7		.7
Engineering services (Subtotal)		(0.4)		(0.4)		(1.0)		(1.0)
Permit system		.1		.1		.4		.4
Emission estimates		.1		.1		.2		.2
Source testing								
Reports, new legislation, etc.		.2		.2		.4		.4
Technical services (Subtotal)		(0.5)		(1.0)		(1.5)		(1.5)
Operation of monitoring network		.1		.2		.4		.4
Special studies						.1		.1
Instrument Calibration and Maintenance		.1		.2		.3		.3
Laboratory operations		.2		.4		.5		.5
Data processing		.1		.2		.2		.2
Management services (Subtotal)		(0.5)		(0.5)		(0.5)		(0.5)
Policy, P/R, Strategies, etc		.1		.1		.1		.1
Staff training		.1		.1		.1		.1
Administrative and clerical support		.3		.3		.3		.3
Totals		2.9		3.4		3.9		3.9

FUND ESTIMATES BY FUNCTION
THE COUNTY OF ARLINGTON PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(6)		(6)		(6)		(6)
Operating funds		6		6		6		6
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Engineering services		(3)		(3)		(3)		(3)
Operating funds		3		3		3		3
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Technical services		(9)		(17)		(17)		(17)
Operating funds		7		12		12		12
Capital funds		2		5		5		5
Contract funds		0		0		0		0
Management services		(7)		(7)		(7)		(7)
Operating funds		7		7		7		7
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		23		28		28		28
Total capital funds		2		5		5		5
Total contract funds		0		0		0		0
Total funds		25		33		33		33

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
THE COUNTY OF FAIRFAX PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(3.5)		(4.5)		(3.5)		(3.7)
Scheduled inspections		1.0		1.5		1.0		1.2
Complaints and field patrol		1.5		3.0		2.5		2.5
Engineering services (Subtotal)		(1.2)		(1.1)		(2.0)		(2.4)
Permit system		.3		.3		.3		.3
Emission estimates		.1		.1		.1		.1
Source testing		.3		.2		.6		.8
Reports, new legislation, etc.		.5		.5		1.0		1.2
Technical services (Subtotal)		(2.7)		(2.8)		(3.4)		(3.6)
[illegible]ration of monitoring network		1.0		1.0		1.1		1.2
Special studies		.1		.1		.1		.1
Instrument Calibration and Maintenance		.3		.3		.5		.6
Laboratory operations		.8		.8		.9		.9
Data processing		.5		.6		.8		.8
Management services (Subtotal)		(2.6)		(2.6)		(3.1)		(3.3)
Policy, P/R, Strategies, etc		.7		.7		1.1		1.1
Staff training		.2		.2		.2		.2
Administrative and clerical support		1.7		1.7		1.8		2.0
Totals		10		11		12		13

FUND ESTIMATES BY FUNCTION
THE COUNTY OF FAIRFAX PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(42)		(53)		(45)		(47)
Operating funds		42		53		45		47
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Engineering services		(17)		(18)		(25)		(29)
Operating funds		17		18		25		29
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Technical services		(43)		(44)		(48)		(50)
Operating funds		27		28		36		38
Capital funds		16		16		12		12
Contract funds		0		0		0		0
Management services		(30)		(31)		(37)		(39)
Operating funds		30		31		37		39
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		116		130		143		153
Total capital funds		16		16		12		12
Total contract funds		0		0		0		0
Total funds		132		146		155		165

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
THE CITY OF FAIRFAX PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Scheduled inspections								
Complaints and field patrol		.1		.1		.1		.1
Engineering services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Permit system		.1		.1		.1		.1
Emission estimates								
Source testing								
Reports, new legislation, etc.								
Technical services (Subtotal)								
[illegible]ration of monitoring network								
Special studies								
Instrument Calibration and Maintenance								
Laboratory operations								
Data processing								
Management services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Policy, P/R, Strategies, etc								
Staff training								
Administrative and clerical support		.1		.1		.1		.1
Totals		0.3		0.3		0.3		0.3

FUND ESTIMATES BY FUNCTION
THE CITY OF FAIRFAX PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds								
Capital funds								
Contract funds								
Engineering services								
Operating funds								
Capital funds								
Contract funds								
Technical services								
Operating funds								
Capital funds								
Contract funds								
Management services								
Operating funds								
Capital funds								
Contract funds								
Total operating funds								
Total capital funds								
Total contract funds								
Total funds								

Reported in thousands of dollars

Note: Services for Fairfax City are funded by Fairfax County and are included in the Fairfax County fund estimates.

MAN-YEAR ESTIMATES BY FUNCTION
THE CITY OF FALLS CHURCH PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
Scheduled inspections		.1		.1		.1		.1
Complaints and field patrol		.1		.1		.1		.1
Engineering services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
Permit system		.1		.1		.1		.1
Emission estimates		.1		.1		.1		.1
Source testing								
Reports, new legislation, etc.								
Technical services (Subtotal)								
ration of monitoring network								
Special studies								
Instrument Calibration and Maintenance								
Laboratory operations								
Data processing								
Management services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
Policy, P/R, Strategies, etc		.1		.1		.1		.1
Staff training								
Administrative and clerical support		.1		.1		.1		.1
Totals		0.7		0.7		0.7		0.7

FUND ESTIMATES BY FUNCTION
THE CITY OF FALLS CHURCH PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds								
Capital funds								
Contract funds								
Engineering services								
Operating funds								
Capital funds								
Contract funds								
T[illegible]nical services								
Operating funds								
Capital funds								
Contract funds								
Management services								
Operating funds								
Capital funds								
Contract funds								
Total operating funds								
Total capital funds								
Total contract funds								
To[illegible]l funds								

Reported in thousands of dollars

NOTE: Services for Falls Church are funded by Fairfax County and are included in the Fairfax County fund estimates.

MAN-YEAR ESTIMATES BY FUNCTION
THE COUNTY OF LOUDOUN PORTION OF THE
NATIO AL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Scheduled inspections		.1		.1		.1		.1
Complaints and field patrol								
Engineering services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Permit system		.1		.1		.1		.1
Emission estimates								
Source testing								
Reports, new legislation, etc.								
Technical services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
ration of monitoring network		.1		.1		.1		.1
Special studies								
Instrument Calibration and Maintenance								
Laboratory operations								
Data processing		.1		.1		.1		.1
Management services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Policy, P/R, Strategies, etc								
Staff training								
Administrative and clerical support		.1		.1		.1		.1
Totals		0.5		0.5		0.5		0.5

FUND ESTIMATES BY FUNCTION
THE COUNTY OF LOUDOUN PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds								
Capital funds								
Contract funds								
Engineering services								
Operating funds								
Capital funds								
Contract funds								
Technical services		(2)		(2)		(2)		(2)
Operating funds		2		2		2		2
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Management services								
Operating funds								
Capital funds								
Contract funds								
Total operating funds		2		2		2		2
Total capital funds		0		0		0		0
Total contract funds		0		0		0		0
Total funds		2		2		2		2

Reported in thousands of dollars

MAN-YEAR ESTIMATES BY FUNCTION
THE COUNTY OF PRINCE WILLIAM PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(0.3)		(0.3)		(0.3)		(0.3)
Scheduled inspections		.1		.1		.1		.1
Complaints and field patrol		.2		.2		.2		.2
Engineering services (Subtotal)		(0.3)		(0.3)		(0.3)		(0.3)
Permit system		.1		.1		.1		.1
Emission estimates		.1		.1		.1		.1
Source testing								
Reports, new legislation, etc.		.1		.1		.1		.1
Technical services (Subtotal)		(0.3)		(0.3)		(0.3)		(0.3)
ration of monitoring etwork		.1		.1		.1		.1
Special studies								
Instrument Calibration and Maintenance								
Laboratory operations		.1		.1		.1		.1
Data processing		.1		.1		.1		.1
Management services (Subtotal)		(0.1)		(0.1)		(0.1)		(0.1)
Policy, P/R, Strategies, etc								
Staff training								
Administrative and clerical support		.1		.1		.1		.1
Totals		1.0		1.0		1.0		1.0

FUND ESTIMATES BY FUNCTION
THE COUNTY OF PRINCE WILLIAM PORTION OF THE
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(2)		(2)		(2)		(2)
Operating funds		2		2		2		2
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Engineering services		(2)		(2)		(2)		(2)
Operating funds		2		2		2		2
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Te[illegible]ical services		(3)		(3)		(3)		(3)
Operating funds		3		3		3		3
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Management services		(1)		(1)		(1)		(1)
Operating funds		1		1		1		1
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		8		8		8		8
Total capital funds		0		0		0		0
Total contract funds		0		0		0		0
To[illegible] funds		8		8		8		8

Reported in thousands of dollars

CITY OF ROANOKE
MAN-YEAR ESTIMATES BY FUNCTION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(0.5)		(0.5)		(0.5)		(0.5)
Scheduled inspections		0.0		0.0		0.0		0.0
Complaints and field patrol		0.5		0.5		0.5		0.5
Engineering services (Subtotal)		(0.0)		(0.0)		(0.0)		(0.0)
Permit system								
Emission estimates								
Source testing								
Reports, new legislation, etc.								
Technical services (Subtotal)		(0.25)		(0.25)		(0.25)		(0.25)
[illegible]ration of monitoring [illegible]etwork		0.10		0.1		0.1		0.1
Special studies		0.0		0.0		0.0		0.0
Instrument Calibration and Maintenance		0.05		0.05		0.05		0.05
Laboratory operations		0.05		0.05		0.05		0.05
Data processing		0.05		0.05		0.05		0.05
Management services (Subtotal)		(1.25)		(1.25)		(1.25)		(1.25)
Policy, P/R, Strategies, etc		0.25		0.25		0.25		0.25
Staff training		0.0		0.0		0.0		0.0
Administrative and clerical support		1.00		1.0		1.0		1.0
Totals		2		2		2		2

CITY OF ROANOKE
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds		6.7		6.7		7.1		7.5
Capital funds								
Contract funds								
Engineering services								
Operating funds								
Capital funds								
Contract funds								
Technical services								
Operating funds		3.4		3.4		3.6		3.7
Capital funds								
Contract funds								
Management services								
Operating funds		7.9		7.9		8.3		8.8
Capital funds								
Contract funds								
Total operating funds		18.0		18.0		19.0		20.0
Total capital funds								
Total contract funds								
Total funds		18.0		18.0		19.0		20.0

Reported in thousands of dollars

ROANOKE COUNTY/CITY OF SALEM
MAN-YEAR ESTIMATES BY FUNCTION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(1.9)		(1.9)		(1.9)		(1.9)
Scheduled inspections		0.1		0.1		0.1		0.1
Complaints and field patrol		1.8		1.8		1.8		1.8
Engineering services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
Permit system		0.1		0.1		0.1		0.1
Emission estimates		0.0		0.0		0.0		0.0
Source testing		0.0		0.0		0.0		0.0
Reports, new legislation, etc.		0.1		0.1		0.1		0.1
Technical services (Subtotal)		(0.75)		(0.75)		(0.75)		(0.75)
ration of monitoring etwork		0.2		0.2		0.2		0.2
Special studies		0.0		0.0		0.0		0.0
Instrument Calibration and Maintenance		0.1		0.1		0.1		0.1
Laboratory operations		0.35		0.35		0.35		0.35
Data processing		0.1		0.1		0.1		0.1
Management services (Subtotal)		(0.9)		(0.9)		(0.9)		(0.9)
Policy, P/R, Strategies, etc		0.3		0.3		0.3		0.3
Staff training		0.0		0.0		0.0		0.0
Administrative and clerical support		0.6		0.6		0.6		0.6
Totals		3.75		3.75		3.75		3.75

ROANOKE COUNTY/CITY OF SALEM
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds		23.1		23.6		24.1		24.6
Capital funds								
Contract funds								
Engineering services								
Operating funds		2.4		2.5		2.5		2.6
Capital funds								
Contract funds								
Technical services								
Operating funds		9.1		9.3		9.5		9.7
Capital funds								
Contract funds								
Management services								
Operating funds		11.0		11.1		11.4		11.6
Capital funds								
Contract funds								
Total operating funds		45.6		46.5		47.5		48.5
Total capital funds								
Total contract funds								
Total funds		45.6		46.5		47.5		48.5

Reported in thousands of dollars

CITY OF LYNCHBURG
MAN-YEAR ESTIMATES BY FUNCTION

Function	Present State Agency	Present Local Agencies	FY-73 State Agency	FY-73 Local Agencies	FY-75 State Agency	FY-75 Local Agencies	FY-77 State Agency	FY-77 Local Agencies
Enforcement services (Subtotal)		(0.65)		(0.65)		(0.65)		(0.65)
Scheduled inspections		0.0		0.0		0.0		0.0
Complaints and field patrol		0.65		0.65		0.65		0.65
Engineering services (Subtotal)		(0.0)		(0.0)		(0.0)		(0.0)
Permit system		0.0		0.0		0.0		0.0
Emission estimates		0.0		0.0		0.0		0.0
Source testing		0.0		0.0		0.0		0.0
Reports, new legislation, etc.		0.0		0.0		0.0		0.0
Technical services (Subtotal)		(0.2)		(0.2)		(0.2)		(0.2)
ration of monitoring network		0.15		0.15		0.15		0.15
Special studies		0.0		0.0		0.0		0.0
Instrument Calibration and Maintenance		0.05		0.05		0.05		0.05
Laboratory operations		0.0		0.0		0.0		0.0
Data processing		0.0		0.0		0.0		0.0
Management services (Subtotal)		(0.15)		(0.15)		(0.15)		(0.15)
Policy, P/R, Strategies, etc		0.05		0.05		0.05		0.05
Staff training		0.0		0.0		0.0		0.0
Administrative and clerical support		0.1		0.1		0.1		0.1
Totals		1		1		1		1

CITY OF LYNCHBURG
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services								
Operating funds		6.1		6.7		7.4		7.7
Capital funds								
Contract funds								
Engineering services								
Operating funds		0.0		0.0		0.0		0.0
Capital funds								
Contract funds								
Technical services								
Operating funds		1.9		2.1		2.3		2.4
Capital funds								
Contract funds								
Management services								
Operating funds		1.4		1.5		1.7		1.8
Capital funds								
Contract funds								
Total operating funds		9.4		10.3		11.4		11.9
Total capital funds								
Total contract funds								
Total funds		9.4		10.3		11.4		11.9

Reported in thousands of dollars

CITY OF RICHMOND
MAN-YEAR ESTIMATES BY FUNCTION

Function	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services (Subtotal)		(4.0)		(4.0)		(4.4)		(4.8)
Scheduled inspections		3.4		3.4		3.4		3.4
Complaints and field patrol		0.6		0.6		1.0		1.4
Engineering services (Subtotal)		(0.8)		(1.0)		(1.2)		(1.4)
Permit system		0.4		0.5		0.5		0.5
Emission estimates		0.1		0.2		0.2		0.2
Source testing		0.1		0.1		0.3		0.5
Reports, new legislation, etc.		0.2		0.2		0.2		0.2
Technical services (Subtotal)		(1.2)		(1.0)		(1.2)		(1.4)
ration of monitoring etwork		0.4		0.3		0.4		0.5
Special studies		0.2		0.2		0.2		0.2
Instrument Calibration and Maintenance		0.1		0.1		0.1		0.1
Laboratory operations		0.1		0.1		0.2		0.3
Data processing		0.4		0.3		0.3		0.3
Management services (Subtotal)		(2.5)		(2.5)		(2.7)		(2.9)
Policy, P/R, Strategies, etc		0.8		0.8		1.0		1.2
Staff training		0		0		0		0
Administrative and clerical support		1.7		1.7		1.7		1.7
Totals		8.5		8.5		9.5		10.5

CITY OF RICHMOND
FUND ESTIMATES BY FUNCTION

	Year							
	Present		FY-73		FY-75		FY-77	
	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies	State Agency	Local Agencies
Enforcement services		(44.7)		(45.7)		(52.9)		(65.7)
Operating funds		44.7		45.7		52.9		65.7
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Engineering services		(11.5)		(16.0)		(19.3)		(19.2)
Operating funds		11.5		16.0		19.3		19.2
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Technical services		(16.6)		(16.0)		(19.4)		(19.2)
Operating funds		16.6		16.0		19.4		19.2
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Management services		(30.5)		(30.9)		(36.0)		(39.7)
Operating funds		30.5		30.9		36.0		39.7
Capital funds		0		0		0		0
Contract funds		0		0		0		0
Total operating funds		(103.3)		(108.6)		(127.6)		(143.8)
Total capital funds		0		0		0		0
Total contract funds		0		0		0		0
Total funds		103.3		108.6		127.6		143.8

Reported in thousands of dollars

COMMONWEALTH OF VIRGINIA

COMPLIANCE WITH EPA DIRECTIVES

1. Air Quality Data

   a. All data necessary for plan development has been exchanged with Maryland and the District of Columbia. Data exchanges with Tennessee are in preparation.

   b. The selection of sampling sites, equipment and frequency for air quality surveillance and the emergency episode plan are being and will be coordinated with each of the above States. Charts depicting sampling sites and associated sensors for Virginia Regions I and VII are attached.

   c. Data will be sent to EPA and States involved in interstate regions quarterly.

2. Source Data

   a. All data necessary for plan development is being prepared for exchange with Maryland, the District of Columbia, and Tennessee.

   b. All of the above States have cooperated in control strategy development.

   c. Point source data (name of plant, location, existing emissions, allowable emissions) has been exchanged with Maryland and the District of Columbia and will be exchanged with Tennesse. Charts indicating these point sources in Virginia Regions I and VII are attached.

d. Appropriate information on significant new (25 T/yr) or modified sources will be transmitted to States which air quality may be affected and to other agencies within the State.

3. Emergency Episode Plan

An emergency episode plan is being coordinated with Maryland and the District of Columbia and will be coordinated with Tennessee as follows:

a. Selection of sampling sites

b. Location of Sources

c. Communication (Manual)

d. Decision making procedures

e. Selection of episode criteria levels

f. An agreement to reduce emission in either state if sources there are producing air alert (etc.) in another state.

Intergovernmental Cooperation

Formal agreements for exchange of information has been negotiated between Virginia and the States of Tennessee and Kentucky. The same agreement is being negotiated between Virginia and West Virginia. The purpose of the agreement is to establish a flexible mechanism whereby the control agencies of the two states can readily exchange information and data of common interest in order to coordinate, insofar as possible, control efforts, achieve optimum utilization of data, avoid unnessary expense and duplication of effort, and enable the party states to develop and carry out effectively their respective Implementation Plans. A sample copy of this agreement is attached to the end of this section.

Informal agreements have been made between the air pollution control agencies of Virginia and the States of Maryland and North Carolina for similiar exchange of information needed to develop and carry out the respective Implementation Plans.

An"Administrative Agreement Covering Air Quality Planning for the National Capitol Interstate Air Quality Control Region" has been approved by the Governors of Virginia and Maryland, the Mayor of Washington, D. C. and the President of the Metropolitan Washington Council of Governments.

The responsibility for carrying out each portion of the plan lies with the State Air Pollution Control Board which may act through its duly authorized representatives in each of the Air Quality Control Regions. However, local governing bodies may adopt ordinances relating to air pollution provided that the ordinance is first approved by the State Air Pollution Control Board and is at least as strict as the corresponding state regulations. A local governing body is authorized to grant variances to its own air pollution control ordinances provided a public hearing is first held. Monitering data, control program status, variances granted, and other information obtained under local ordinances must be reported to the State Air Pollution Control Board.

Relationships are established with other state agencies having a related responsibility or factors that may significantly affect air quality. The relationships insure that transmittal of such information can be accomplished with no delay.

There are four federally funded local air pollution control agencies. They are Fairfax County who in turn helps fund the programs in the cities of Fairfax and Falls Church, the city of Alexandria, the city of Richmond, and Roanoke County who also administers the program in the city of Salem.

There are eight local air pollution control agencies that receive no direct federal funds. They are the cities of Fairfax and Falls Church (funds are received from Fairfax County), the cities of Fredericksburg, Lynchburg and Roanoke and the counties of Loudoun, Prince William, and Arlington.

In addition to the local air pollution agencies there are four air pollution control districts. The functions of these cooperative districts are primarily to insure uniformity of both understanding and enforcement in their districts. The four districts are Central Virginia, Southeastern Peninsula, and Alleghany-Covington. The most active district is the central Virginia which have funds and have purchased monitoring equipment. The members of the local air control districts are nominated by the governments of the local jurisdictions and confirmed by the State Board.

The responsibilities of the local air pollution agencies are as follows:

(1) FAIRFAX COUNTY-County Health Department Division of Environmental Health

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Maintain a registry of sources and an emissions inventory;

(e) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(f) Enforce rules, regulations, and standards at sources within its jurisdiction;

(g) Cooperate with State Board in complaint investigations, inspections and laboratory operations and in such other functions as assistance to and from the State Board may be needed;

(h) Provide laboratory services for neighboring jurisdictions that do not have the facilities and/or capabilities;

(i) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(j) Participate in planning for the Virginia section of AQCR VII;

(k) Make emission testing as necessary.

(2) CITY OF ALEXANDRIA-Public Health Department

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Maintain a registry of sources and an emissions inventory;

(e) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(f) Enforce rules, regulations, and standards at sources within its jurisdiction;

(g) Cooperate with State Board in Complaint investigations, inspections and laboratory operations and in such other functions as assistance to and from the State Board may be needed;

(h) Provide laboratory services for neighboring jurisdictions that do not have the facilities and/or capabilities;

(i) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(j) Participate in planning the Virginia section of AQCR VII;

(3) LOUDOUN COUNTY-County Health Department

(a) Assist in operation of air quality monitoring network;

(b) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(c) Participate in the planning for the Virginia sector of AQCR VII.

(4) FAIRFAX CITY-City Manager (Zoning Administrator)

(a) Make inspection of sources;

(b) Investigate complaints;

(c) Enforce rules, regulations, and standards at sources within its jurisdiction;

(d) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(e) Participate in the planning for the Virginia sector of AQCR VII.

(5) FALLS CHURCH-City Manager (Chief Inspector)

(a) Make Inspection of sources;

(b) Investigate complaints;

(c) Enforce rules, regulations, and standards at sources within its jurisdiction;

(d) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(6) PRINCE WILLIAM COUNTY-County Health Department

(a) Assist in the operation of air quality monitoring network;

(b) Make inspection of sources;

(c) Investigate complaints;

(d) Enforce rules, regulations, and standards at sources within its jurisdictions;

(e) Cooperate with State Board in complaint investigations and inspections and in such other functions as the assistance to and from the State Board is needed;

(f) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(g) Participate in planning for the Virginia sector of AQCR VII.

(7) ARLINGTON COUNTY-Department of Human Resources, Bureau of Environmental Health.

(a) Assist in the operation of air quality monitoring network;

(b) Make inspection of sources;

(c) Investigate complaints;

(d) Enforce rules, regulations, and standards at sources within its jurisdiction;

(e) Cooperate with State Board in complaint investigations and inspections and in such other functions as the assistance to and from the State Board is needed;

(f) Participate in the Air Quality Planning Agreement involving the District of Columbia and the States of Virginia and Maryland;

(g) Participate in planning for the Virginia sector of AQCR VII.

(8) CITY OF FREDERICKSBURG-City Manager (City inspector)

(a) Make inspection of sources;

(b) Investigate complaints;

(c) Enforce rules, regulations, and standards at sources within its jurisdiction.

(9) CITY OF RICHMOND-Bureau of Air Pollution

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Maintain a registry of sources and an emissions inventory

(e) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(f) Enforce rules, regulations, and standards at sources within its jurisdiction;

(g) Cooperate with State Board in complaint investigations, inspections and laboratory operations and in such other functions as assistance to and from the State Board may be needed;

(10) CITY OF LYNCHBURG-City Air Pollution Inspector

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Maintain a registry of sources and an emissions inventory;

(e) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(f) Enforce rules, regulations, and standards at sources within its jurisdiction;

(g) Cooperate with State Board in complaint investigations, inspections and laboratory operations and in such other functions as assistance to and from the State Board may be needed;

(11) ROANOKE COUNTY (City of Salem)-County Health Department, Air Pollution Control Division

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Maintain a registry of sources and an emissions inventory;

(e) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(f) Enforce rules, regulations, and standards at sources within its jurisdiction;

(g) Cooperate with State Board in complaint investigations, inspections and laboratory operations and in such other functions as assistance to and from the State Board may be needed;

(h) Provide laboratory services for neighboring jurisdictions that do not have the facilities and/or capabilities;

(i) Participates in planning for Air Quality Control Region II

(12) CITY OF ROANOKE, Dept. of Air Pollution Control

(a) Operate air quality surveillance network both routine and emergency operations. All data to be reported to State Board;

(b) Make inspection of sources;

(c) Investigate complaints and conduct field patrols;

(d) Participate with State Board in the operation of a permit system through joint review of plans and specifications with permits to be issued by the State Board;

(e) Enforce rules, regulations, and standards at sources within its jurisdiction;

Tennessee - Virginia
Air Pollution Control Committee

This statement of intent, effective November 1, 1971, and concurred in by the air pollution control agencies of the State of Tennessee and the Commonwealth of Virginia, is designed to set forth basic policies of interjurisdictional cooperation between the aforementioned parties in the area designated by the Administrator, Environmental Protection Agency, as the Eastern Tennessee - Southwestern Virginia Interstate Air Quality Control Region (hereinafter referred to as the "Region"). The purpose of this document is to establish a flexible mechanism whereby the control agencies of the two states can readily exchange information and data of common interest in order to coordinate, insofar as possible, control efforts, achieve optimum utilization of data, avoid unnecessary expense and duplication of effort, and enable the party states to develop and carry out effectively their respective Implementation Plans as required by Section 110 of the Clean Air Act (as amended).

Policies and Procedures

I. Name: The organization shall be known as the Tennessee and Virginia Air Pollution Control Committee (hereinafter referred to as the "Committee").

II. Membership: Representatives of the air pollution control agencies of the following states shall be members of the Committee:

The State of Tennessee

The Commonwealth of Virginia

III. Designated Representatives: For purposes of giving notice of meetings, exchanging data and other pertinent information, etc., the following are designated as the Representatives for each respective control agency:

The State of Tennessee -

Technical Secretary (or his designee)
Tennessee Air Pollution Control Board
C2-212 Cordell Hull Building
Nashville, Tennessee 37219
Telephone: (615) 741-3931

The Commonwealth of Virginia -

Director (or his designee)
Virginia Air Pollution Control Board
Ninth Street Office Building
Richmond, Virginia 23219
Telephone: (703) 770-2378/3248

IV. Local Representation: In recognition that local government units may be delegated significant responsibilities in carrying out Implementation Plans for the prevention and control of air pollution, and to assure proper co-ordination between state and local government officials, it is felt that local representation on the Committee would be desirable and appropriate. Therefore, it is mutually agreed that each member may invite two local representatives to attend and participate in all activities of the Committee as an observer and non-voting member. The names of said local representative, upon designation, will be appended to this document.

V. Federal Representation: Due to the impact of the Clean Air Act (as amended) on the control efforts of the various agencies having jurisdiction within the Region, and the desire of the Committee members to be informed of federal activities and available technical assistance which may inure to each other's benefit, it is felt that a federal representative on the Committee would be appropriate and advantageous. Therefore, it is mutually agreed that an official of the Office of Air Programs, Environmental Protection Agency, will be invited to attend and participate in all activities of the

Committee as an observer and non-voting member, such official's name upon designation to be appended to this document.

VI. Organization, Meetings, Minutes:

A. Organization - The organization and conduct of Committee meetings shall be as informal as possible. The Committee shall have no permanent chairman or secretary, but shall, at the discretion of the members, delegate such responsibilities and duties in an equitable manner.

B. Meetings - It is felt that the purposes of the Committee can, for the most part, be achieved by routine correspondence and telephone communications. Accordingly, the Committee shall meet at a mutually agreeable time and place on the call of one of the members when matters of impact dictate but in any event not less than once in every calendar year.

C. Minutes - Minutes of Committee meetings shall be recorded and distributed to the members by the person designated as the secretary of the meeting.

VII. Exchange of Information: It is the intention of the Committee members that information and data of common interest should be freely exchanged. Such exchanges will be directed to the Designated Representative for each respective control agency. Without limiting the scope of exchange, the following matters will form the basis of interjurisdictional exchange of information and data:

A. Legislative and Administrative: The Committee members will exchange copies of enabling legislation, adopted regulations or ordinances, annual reports and any other pertinent information relative to control activities within the Region.

B. Proposed Standards - Each Committee member will forward copies of proposed ambient air quality and emission standards applicable to any portion of the Region for the other Committee member's review and comment. Notice of any public hearings held relative to the adoption of said standards will be given the Committee through each member's Designated Representative.

C. Air Quality Monitoring Data - The Committee members will exchange summary tabulations of air quality data and other information on the location monitoring sites and methods used sufficient to interpret the data for each agency's portion of the Region. The Committee agrees to adopt report formats as are or may be required by the Environmental Protection Agency, or such other format that is suitable.

D. Source Emission Data -

1. Existing Sources. The Committee members will exchange summary tabulations of air pollutant emission data for both point and area sources within each agency's portion of the Region. Any Committee member will, upon request of another member, provide to such other member specific air pollutant emission data related to a particular source or sources. The Committee agrees to adopt report formats as are or may be required by the Environmental Protection Agency, or such other format that is suitable.

2. New Sources. Each Committee member will promptly notify the other one of proposed construction or expansion of air pollutant sources within the former agency's jurisdiction that have the potential of emitting 100 tons per year or more of any pollutant which may affect the other agency's area. Such information will include, but is not limited to, the type of source, the nature and quantity

of emissions, the stack height and diameter, the gas exit temperature and velocity, and the type and design efficiency of proposed control systems. As used here, a new or expanded source is one whose proposed or expanded operation begins after the date upon which this agreement takes effect.

E. Complaint Referrals - Any complaint received by one Committee member concerning air contaminant emissions originating in the other member's portion of the Region will be forwarded to that latter member for action. This latter member then will report on the action taken.

It is the intention of the Committee that progress reports submitted by its individual members to the Administrator, Environmental Protection Agency, which are related to the achievement of Implementation Plan Goals will be deemed to meet the objectives of this section contained in paragraphs C and D (1).

VIII. The Committee will work toward and cooperate in the development of communications and operational procedures as are necessary and appropriate for the conduct of joint air-quality monitoring and regulatory actions during emergency air pollution episodes that occur in the area of concern.

IX. Expression of Intent:

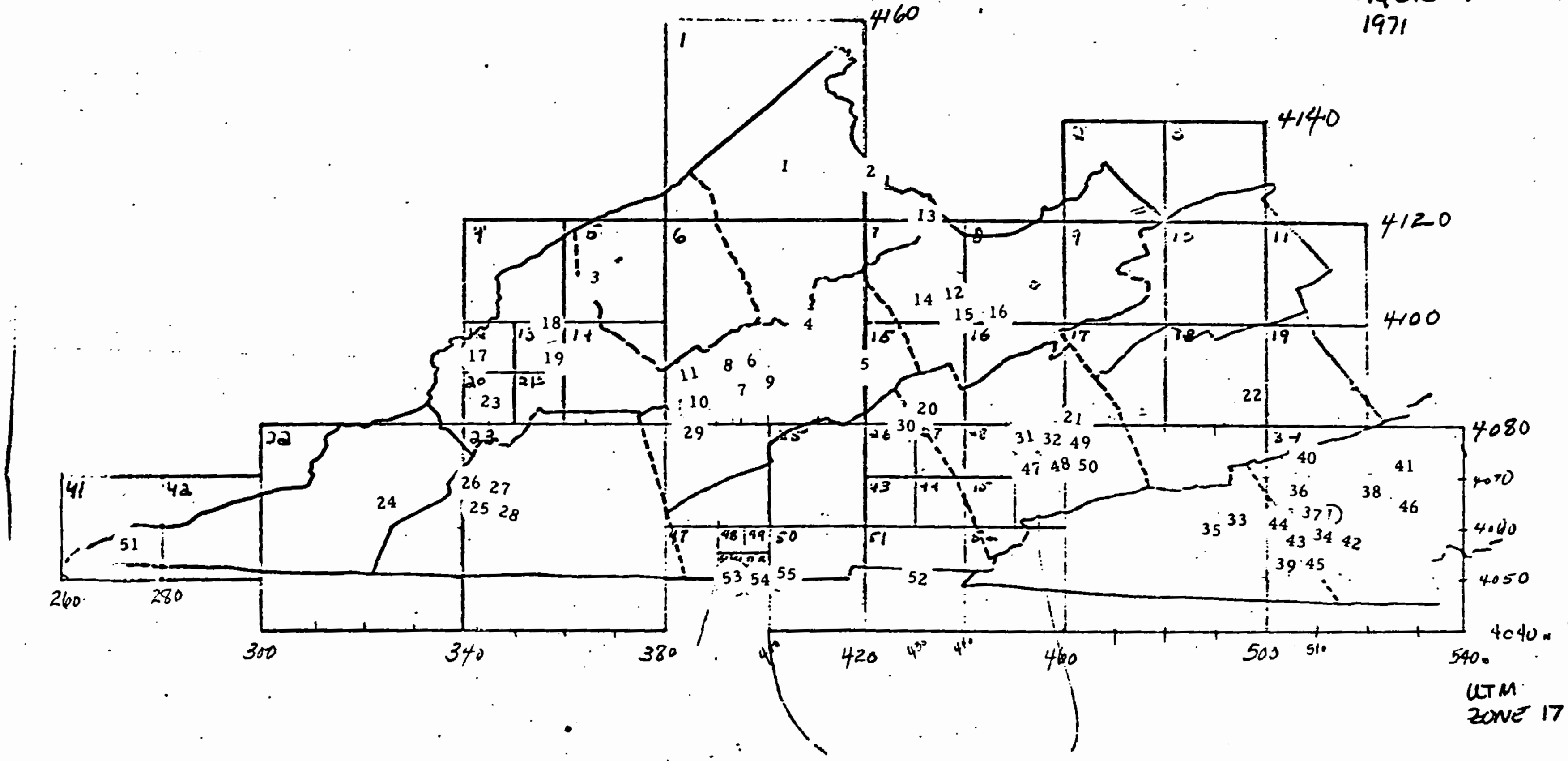
The undersigned hereby witness that they concur with the aforesaid purposes and objectives, and that they recognize the desirability and indeed the necessity of coordination of technical matters in interstate areas of joint interest and concern. It is understood that no legal liabilities or other binding commitments beyond the authority bestowed by each state's respective statutes are hereby made, but that a positive intent for cooperation in all the above matters is expressed.

____
Tennessee Air Pollution Control Board

____
Virginia Air Pollution Control Board

Sources Emitting
at least 25 Tons/year

Virginia
AQCR #1
1971



POINT SOURCES EMITTING AT LEAST

25 TONS/YEAR TOTAL EMISSIONS

AQCR 1

Number	Name	Grid	Horizontal	Vertical
1	BLACKWATCHCL	1	4023	41301
2	JEWELTWLVPRP	1	4234	41207
3	MOSICLINCHFL	5	3643	41079
4	JAMSRVRHVDT	6	4170	40980
5	BLUEGRASSLIN	6	4199	40919
6	MOS2CLINCHFL	6	3947	40937
7	MOS3CLINCHFL	6	3948	40905
8	CLINCHFLDAGG	6	3947	40904
9	APPOCOCLINCH	6	3936	40880
10	CLINCHRQUARY	6	3827	40826
11	ADAMSCSTPAUL	6	3828	40827
12	POUNDINGMILL	7	4373	41027
13	JEWELELVNPRP	7	4290	41226
14	GENSHALERICH	7	4281	41052
15	ADAMSPNDGMIL	7	4373	41032
16	GENINSTRUMCP	8	4450	41010
17	WESTMLNDCOAL	12	3410	40930
18	COALPROCESNG	13	3505	40996
19	CRISTIBCOAL	13	3567	40913

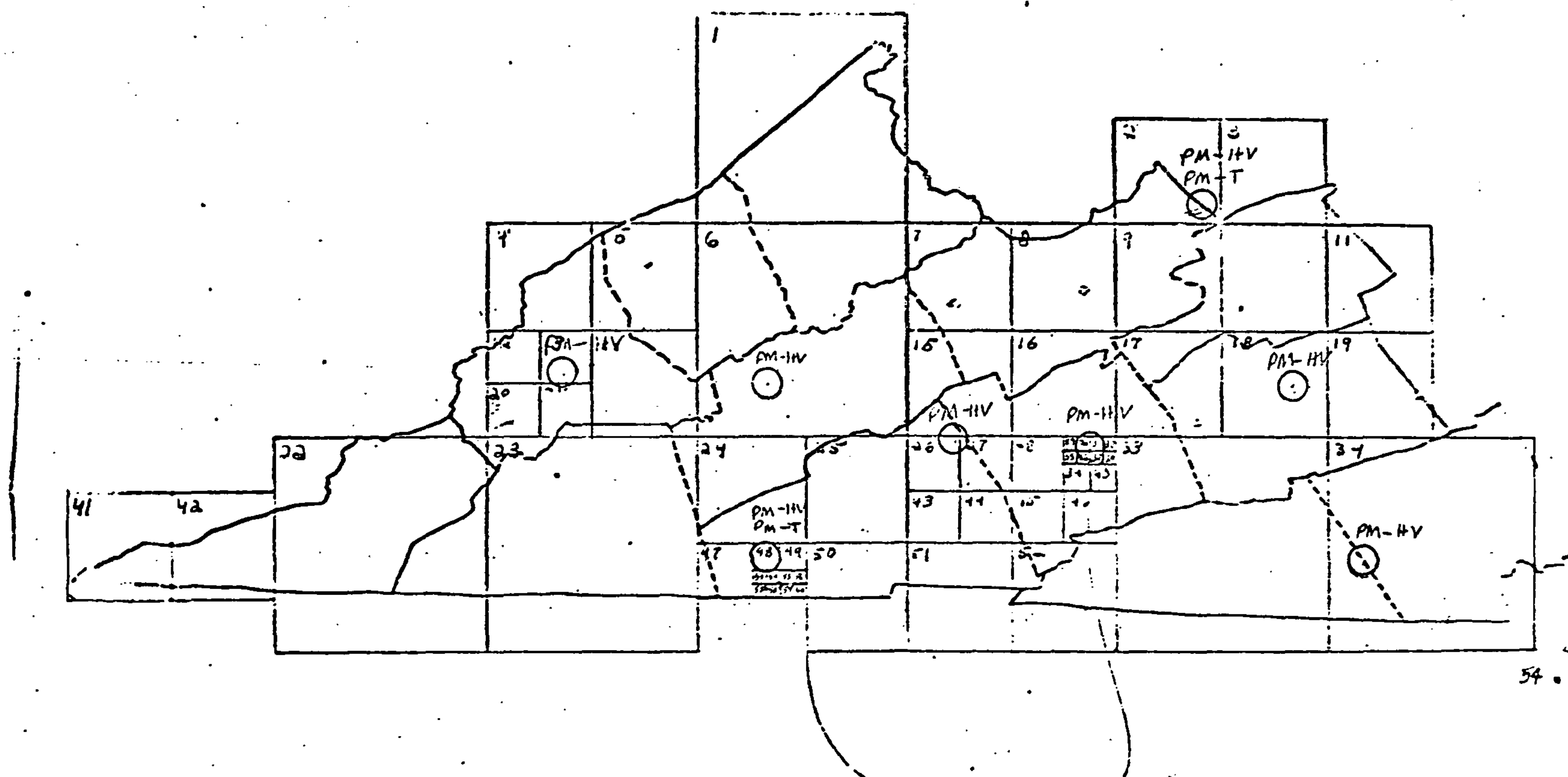
Number	Name	Grid	Horizontal	Vertical
20	CLINCHEMICAL	15	4315	40825
21	MOULDINGSINC	17	4615	40800
22	PENDLETONWYB	18	4978	40878
	PENDLETONWYA	18	4978	40878
23	JPHAMERLUMBR	20	3450	40871
24	WOODWAYSTONE	22	3226	40668
25	FOOTEMINSUNB	23	3424	40661
26	NATTUNNELSTO	23	3425	40619
27	PENNDIXIE	23	3444	40563
28	ADAMSCLINEHP	23	3427	40600
29	ADAMSSTPAUL	24	3839	40800
30	USGYPSUMCO	26	4294	40798
31	RGPOPEDICKEN	29	3915	40780
32	HOLSTONRQUAR	30	4545	40778
33	BLACKDIAMOND	33	4932	40513
34	BROOKSPHANES	33	5078	40583
35	GRAYSONGMTCO	33	4872	40528
36	BLUEMONTKNIT	34	5069	40572
37	BURLINGHOUSE	34	5071	40571
38	HDCROWDERSON	34	5217	40677
39	DIXONLUMBER	34	5055	40559
40	NEWJERSEYZIN	34	5072	40779

Number	Name	Grid	Horizontal	Vertical
41	NEWMANBROS	34	5240	40730
42	VAUGHANBASSE	34	5071	40571
43	VAUGHANFURNT	34	5060	40570
44	WASHMILLS	34	5021	40631
45	WEBBFURN	34	5071	40571
46	LEESCARPETS	34	5242	40687
47	EMPIREMFGCOR	36	4545	40755
48	HOLSTONRIVER	36	4543	40768
49	SWVASTATEHOS	37	4553	40761
50	BRUNSWICHMAN	39	4540	40770
51	KYVASTONECO	41	2717	40560
52	AMCYAHIMIOOM	51	4293	40537
53	VULCAHMATRL	58	3940	40500
54	VAWOODWORK	59	3953	40511
55	POPEDAVINGBR	60	3977	40507

○ Sensor Location

				Required
Particulate Matter	PM-HV	High Volume Sampler	(8)	6
	PM-T	Tape Sampler	(2)	1

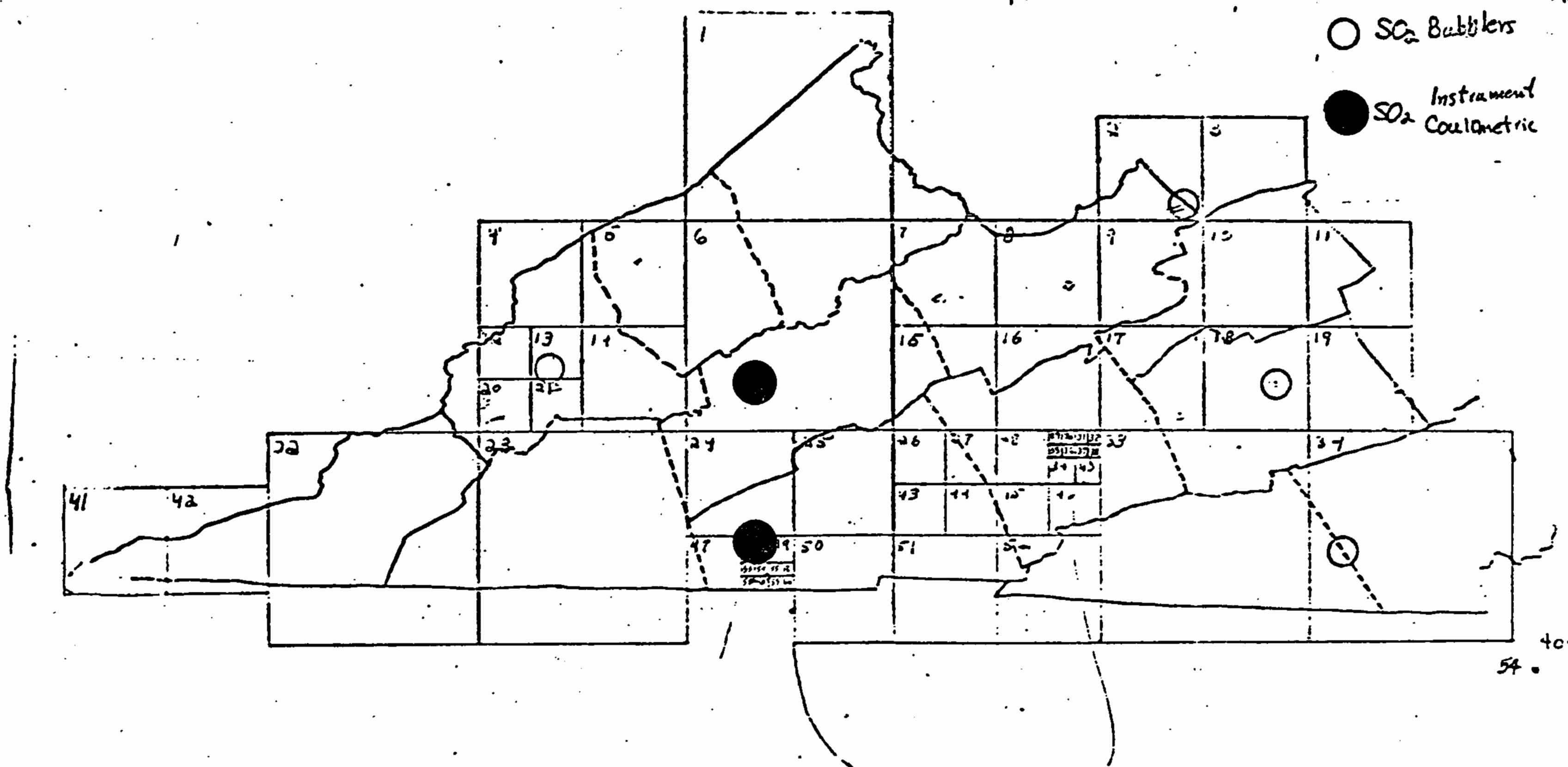
AQCR #1



Sulfer Dioxide
Sensors

AQCR #1

	Planned	Required
○ SO_2 Bubblers	4	4
● SO_2 Instrument Coulometric	2	2



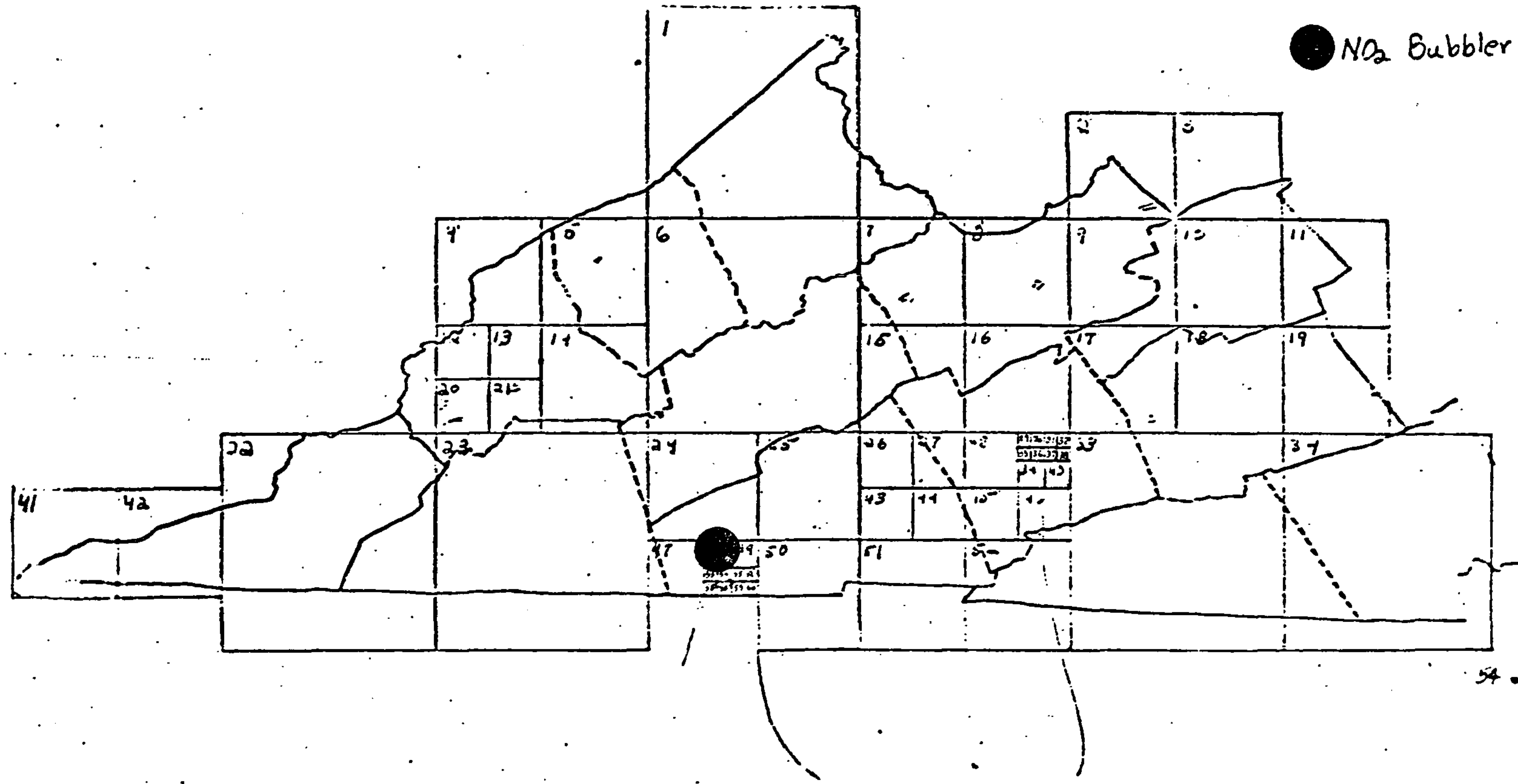
404

54

Nitrogen
Dioxide
Sensors

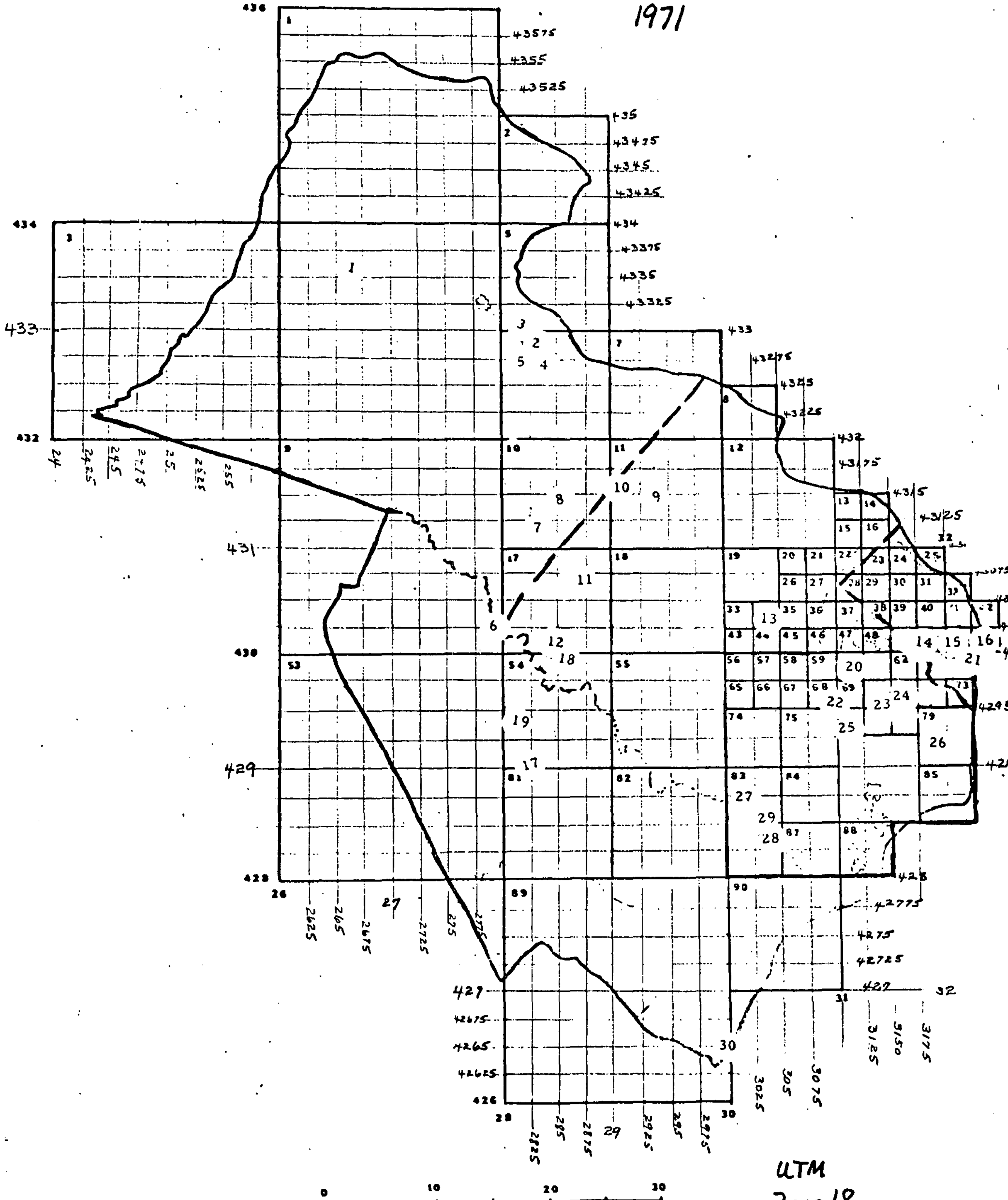
AQCR #1

	Planned	Require
● NO2 Bubbler	1	0



Sources Emitting at least 25 Tons/year

Virginia
AQC Region 7
1971



UTM
Zone 18

POINT SOURCES EMITTING AT LEAST

25 TONS/YEAR TOTAL EMISSIONS

AQCR 7

Number	Name	Grid	Horizontal	Vertical
1	JLYNNCORNWEL	4	2657	43356
2	ARLINGTSTONE	6	2828	43272
3	TRICOASPHALT	6	2820	43280
4	ASPHALTSUPLY	6	2830	43270
5	VIRGINTRAPRO	6	2823	43286
6	BULLRUNSTONE	9	2795	43036
7	CHANTILCRUSH	10	2837	43124
8	DULLESINTER	10	2850	43150
9	CHERRDALCEME	11	2938	43150
10	LOUDONQUARRY	11	2903	43160
11	SAMFINLEYINC	17	2870	43070
12	NEWTONASPHTB	17	2840	43004
13	NATASPHALTME	34	3035	43034
14	ARLNTONASPLT	50	3180	43018
15	PENTAGON	51	3220	43050
16	NATIONAL	52	3235	43015
17	WOODBRIDCLAY	54	2823	42907
18	LUCKQUARYFFX	54	2850	43000
19	VULCANMATERB	54	2809	42940

Number	Name	Grid	Horizontal	Vertical
20	CAMERON STATION	60	3120	42990
21	PEPCOPOTOMAC	64	3227	42988
22	FAIRFAXASPHT	68	3100	42950
23	NEWTONASPHAL	70	3145	42969
24	NEWTONASPHTA	70	3149	42969
25	GRAYCONCRPIP	76	3107	42936
26	FORT BELVOIR	79	3190	42920
27	POSSUMPTPWR	83	3008	42873
28	WARRENBROSCO	86	3040	42843
29	VULCANMATERA	86	3030	42844
30	QUANTICO	89	3000	42650

Particulate Matter Sensors

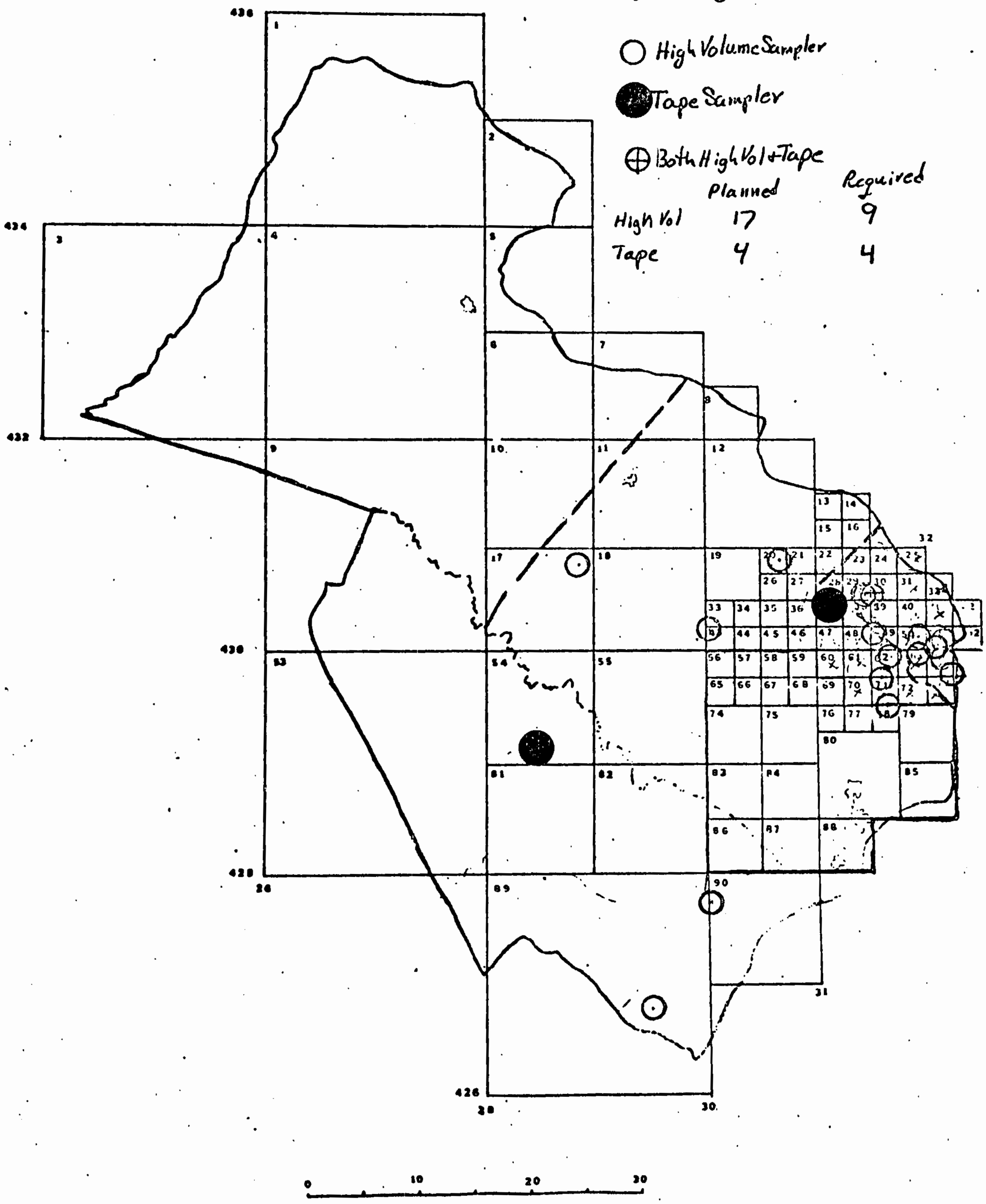
AQC Region 7

○ High Volume Sampler

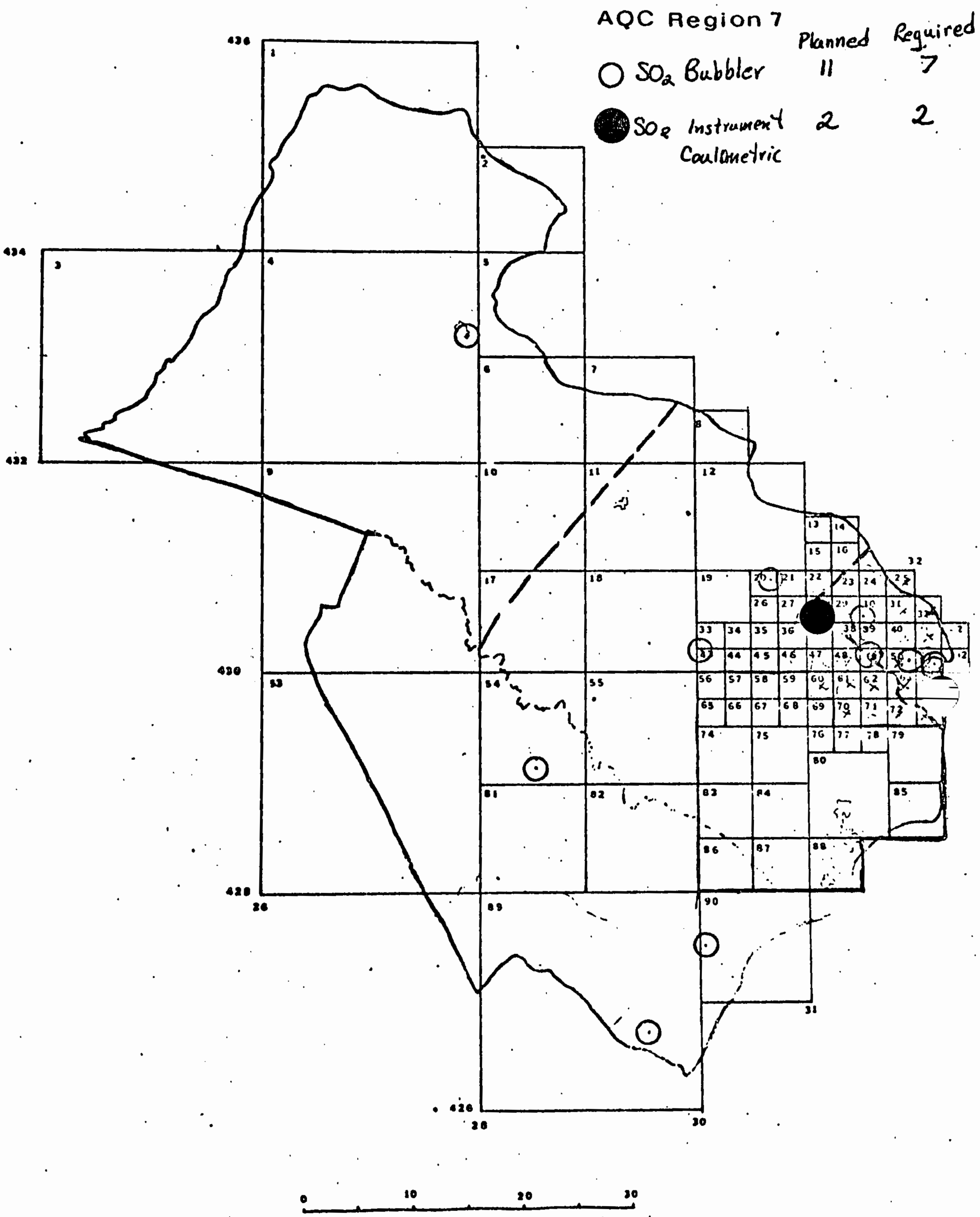
● Tape Sampler

⊕ Both High Vol + Tape

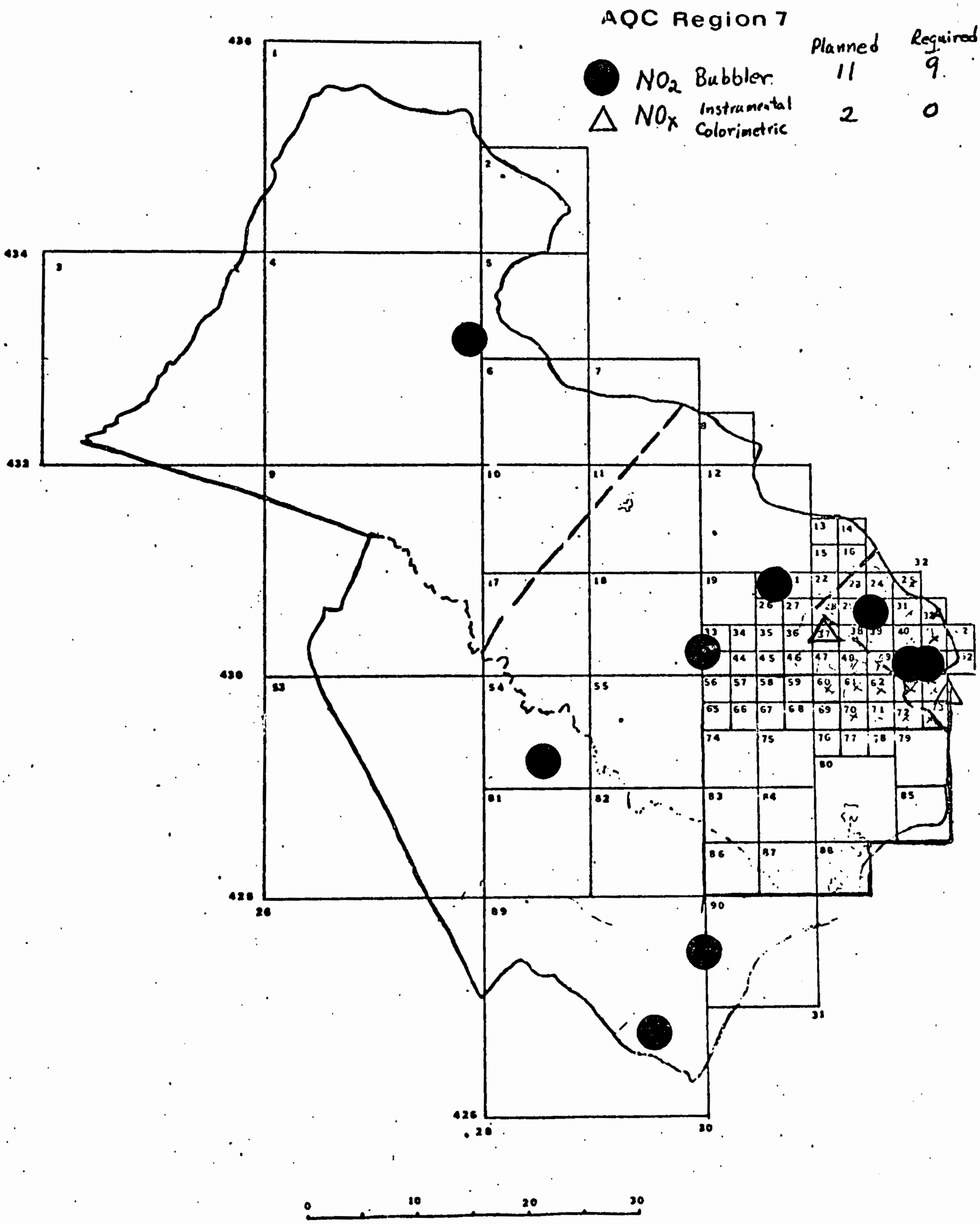
	Planned	Required
High Vol	17	9
Tape	4	4



Sulfer Dioxide Sensors



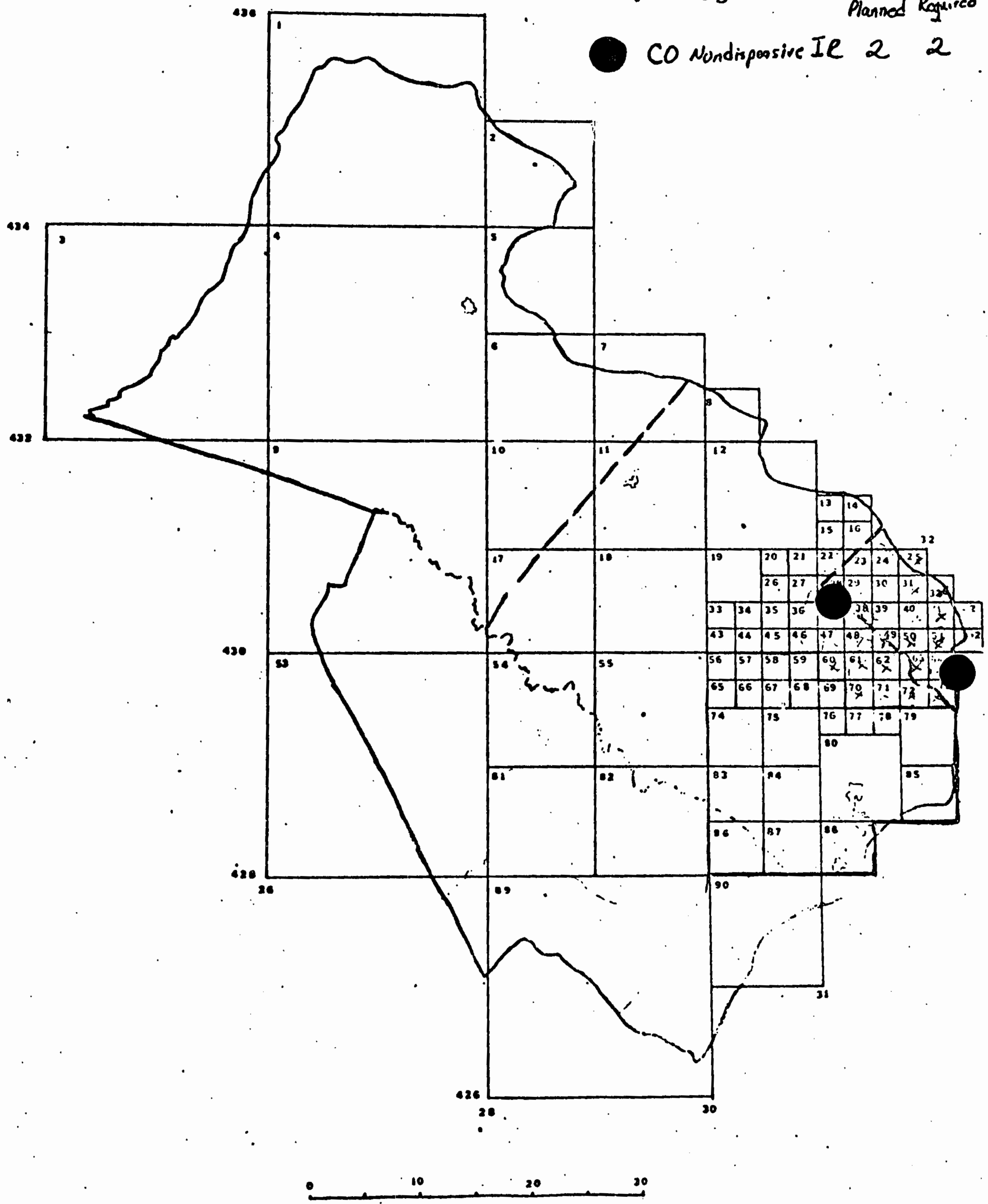
Nitrogen Dioxide
Sensors



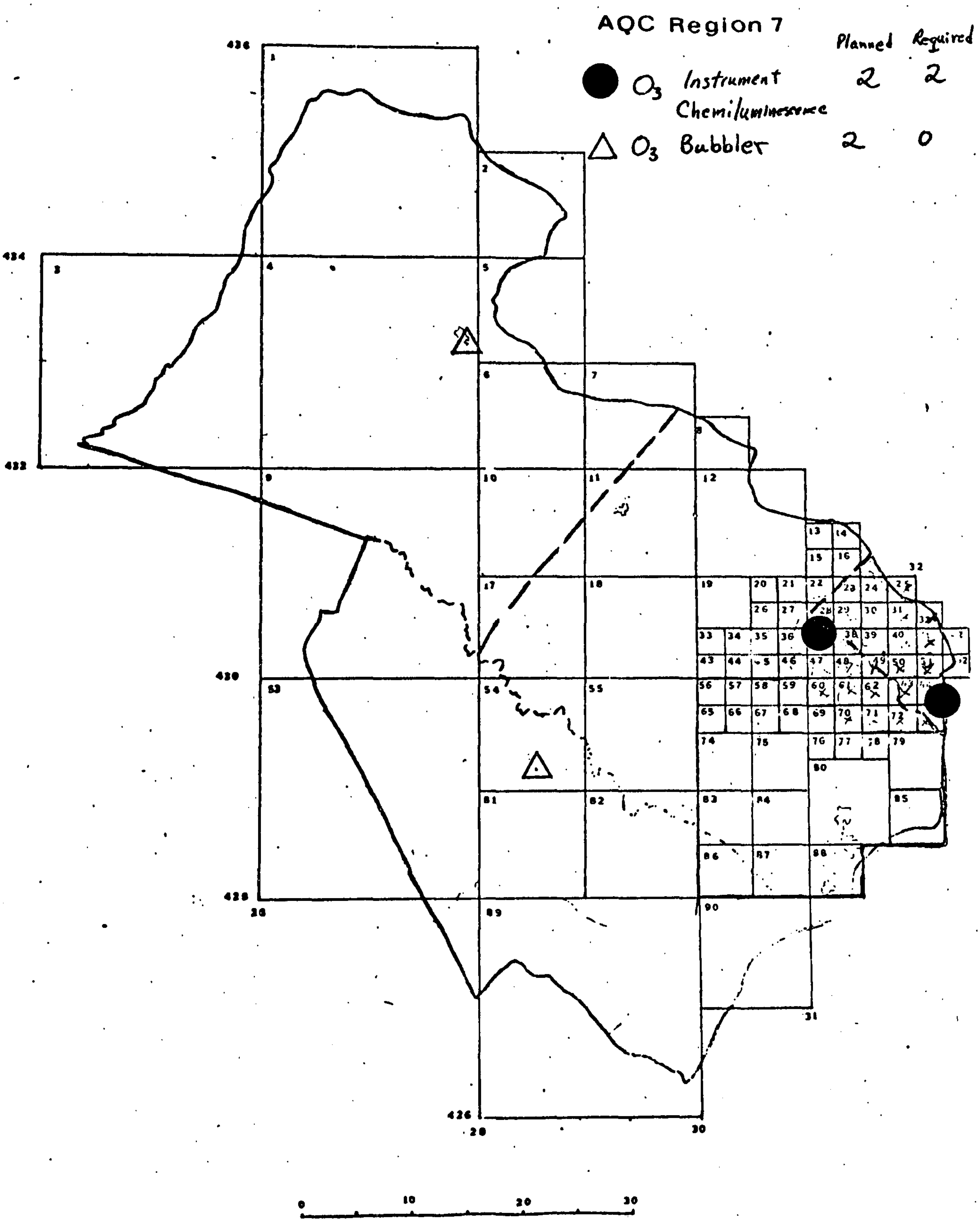
Carbon Monoxide Sensors

AQC Region 7

	Planned	Required
● CO Nondispersive IR	2	2



Oxidant Sensors



PREFACE

This PREFACE is intended to provide background information with reference to these REGULATIONS.

1. AIR POLLUTION CONTROL LAW OF VIRGINIA:

The Air Pollution Control Law of Virginia, enacted by the General Assembly of the Commonwealth of Virginia in 1966, and amended in 1968 and 1970, constitutes Title 10, Chapter 1.2 of the Code of Virginia (1950), as amended.

This law is administered by the State Air Pollution Control Board.

2. PROVISIONS OF THE VIRGINIA AIR POLLUTION CONTROL LAW PERTINENT TO THE ESTABLISHMENT AND IMPLEMENTATION OF REGULATIONS:

a. Public Policy:

It is declared to be the Public Policy of the Commonwealth to achieve and maintain such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable, prevent injury to plant and animal life and property, will foster the comfort and convenience of its people and their enjoyment of life and property, and will promote the economic and social development of the Commonwealth and facilitate the enjoyment of its attractions.

b. Definition of Air Pollution:

"Air Pollution" means the presence in the outdoor atmosphere of one or more substances which are or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interfere with the enjoyment by the people of life or property.

c. Powers and Duties of the Board:

The Board, at all times, shall have the power to develop a comprehensive program for the study, abatement and control of all sources of air pollution in the State; advise, consult and cooperate with agencies of the United States, and all agencies of the State, political subdivisions, private industry and any other affected groups in furtherance of the purpose of the law.

The Board, after having made an intensive and comprehensive study of air pollution in the various areas of the States, its causes, prevention, control and abatement, shall have the power to formulate, adopt and promote, amend and repeal rules and regulations (referred to herein as Regulations) abating, controlling, and prohibiting air pollution throughout the State or in such areas of the State as shall be affected thereby; provided that the provisions of the law with reference to public hearings, etc. are adhered to. The law further requires that the regulations shall not promote or encourage any substantial degradation of present air quality in any air basin or region which has an air quality superior to that stipulated in the regulations.

After the Board has adopted the regulations provided for in the Law, it shall have the power to: initiate and receive complaints as to air pollution; hold or cause to be held hearings and enter orders diminishing or abating the causes of air pollution and the enforcement of its regulations; institute legal proceedings, including suits for injunctions for the enforcement of penalties, all in accordance with the law.

The Board, in making regulations and in issuing orders is required to take into consideration all facts and circumstances bearing upon the reasonableness of the activity involved and the regulations proposed to control it, including:

(1) The character and degree of injury to, or interference with safety, health or the reasonable use of property which is caused or threatened to be caused;

(2) The social and economic value of the activity involved;

(3) The suitability or unsuitability of such activity to the area in which it is located; and

(4) The practicability, both scientific and economic, of reducing or eliminating the discharge resulting from such activity.

In all cases, the Board shall exercise a wide discretion in weighing the equities involved and the advantages and disadvantages to the residents of the area involved and to any lawful business, occupation or activity of any order or regulation.

3. FEDERAL CLEAN AIR ACT OF 1970:

Clean Air Act (42 U.S.C. 1857 et seq.) includes the Clean Air Act of 1963 (P.L. 88-206), and amendments made by the "Motor Vehicle Air Pollution Control Act"--P.L. 89-272 (October 20, 1965, the "Clean Air Act Amendments of 1966-- P.L. 89-675 (October 15, 1966), the Air Quality Act of 1967"--P.L. 90-148 (November 21, 1967),and the "Clean Air Amendments of 1970"--P.L. 91-604--(December 31, 1970).

This act is administered by the U. S. Environmental Protection Agency (EPA).

4. PROVISIONS OF FEDERAL CLEAN AIR ACT PERTINENT TO THE ESTABLISHMENT AND IMPLEMENTATION OF THESE REGULATIONS:

The requirements of this act are very comprehensive, but they may be very briefly summarized as follows:

(a) National Ambient Air Quality Standards:

Ambient Air Quality Standards established by EPA and applicable throughout the United States are contained in Section III of these regulations.

(b) Implementation Plans:

This section of the act requires that each State, after reasonable notice and public hearings, shall adopt and submit to the EPA Administrator for approval, a plan which provides for implementation, maintenance and enforcement of air quality standards in each air quality control region within the State. This section further gives EPA the authority to prepare and publish regulations setting forth the implementation plan if the state fails to submit such a plan within the time prescribed or if the plan submitted is determined by EPA not to be in accordance with the requirements of the Clean Air Act.

(c) Standards of Performance for New or Modified Stationary Sources:

This provision of the act requires that EPA publish a list of categories of stationary sources and to promulgate regulations establishing Federal Standards of performance for new or modified sources within such categories. These new regulations when promulgated will be included in SectionV.

(d) National Emission Standards for Hazardous Air Pollutants:

The act requires that EPA publish a list which includes each hazardous air pollutant for which it intends to establish an emission standard, and to publish regulations establishing emissions standards for such pollutants.

5. ESTABLISHMENT OF REGULATIONS

(a) The procedures used in the establishment of Regulations is described in Section II, 2.01.

(b) It is the policy of the Board that Regulations adopted be realistic and workable.

6. APPLICATION OF REGULATIONS

It is the policy of the Board that:

(a) Application of Regulations and assignment of time schedules be reasonable.

(b) Where special regulations have been established by the Board for a Region or Regions, they will be applicable only in that or those Regions. State Regulations will be applicable in the remaining portions of the Commonwealth.

(c) Regulations be applied on an individual case basis to the extent necessary, as determined by the Board after considering all pertinent factors, based on meeting the following criteria:

(1) Maintenance of ambient air quality standards

(2) Prevention of public nuisance

(3) Prevention of substantial degradation of present air quality in any air basin or region which has an air quality superior to ambient air quality standards.

7. EFFECTIVE DATES OF REGULATIONS

It is anticipated that these Regulations will be modified and amended from time to time as a result of experience and available new information. Sections I,II,III,V, & VI and the Rules of Section IV will each become effective on the date given under its heading.

8. AUTHORITY FOR THESE REGULATIONS

Under authority of Chapter 1.2 of Title 10, as amended, of the Code of Virginia Of 1950, and pursuant to public hearing procedures required by law, these regulations have been adopted by the State Air Pollution Control Board.

COMMONWEALTH OF VIRGINIA

REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

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Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

SECTION I

1.00 DEFINITIONS

1.01 Certain Terms Defined.

For the purpose of subsequent rules and regulations adopted or orders issued by the State Air Pollution Control Board under the provisions of Chapter 1.2, Title 10, Code of Virginia of 1950, as amended, the following additional words or terms shall have the meanings indicated:

AIR POLLUTION. The presence in the outdoor atmosphere of one or more substances which are or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interfere with the enjoyment by the poeple of life or property.

AIR POLLUTION EMERGENCY EPISODE. Meteorological conditions, generally temperature inversion, that reduces the effective volume of air in which the contaminants are diluted and as a result air pollution may reach levels that would cause imminent and substantial endangerment to the health of persons.

AIR QUALITY. The specific measurement in the ambient air of a particular air contaminant at any given time.

AIR TABLE. A source consisting of a device using a gaseous separating medium for the primary purpose of improving the product quality.

AMBIENT AIR. The surrounding or outside air.

PRIMARY AMBIENT AIR QUALITY STANDARD. Air quality which, allowing an adequate margin of safety, is requisite to protect the public health.

SECONDARY AMBIENT AIR QUALITY STANDARD. Air quality which is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of air contaminants in the ambient air.

AREA SOURCE. Any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite waste disposal facility; motor vehicle, aircraft, vessels, or other transportation facilities, or other miscellaneous sources.

BEEHIVE COKE OVEN. A source consisting of an arched, beehive shaped, oven in which heat is supplied by partial combustion of the coal within the oven chambers and in which destructive distillation of coal occurs with no recovery of by-products.

BOARD. The State Air Pollution Control Board, sometimes hereinafter referred to as "Board" or "State Board".

BY-PRODUCT COKE PLANT. A source consisting of a plant, oven or device used in connection with the distillation process to produce coke. Such plant consists of, but is not limited to, coal and coke handling equipment, by-product chemical plant and other equipment associated with and attendant to the coking chambers or ovens making up a single battery operated and controlled as a single unit.

CHEMICAL FERTILIZER. A compound or mixture whose chief ingredients are nitrogen, phosphorous, or potassium; or any combination of these ingredients, and having agronomic value.

COAL PREPARATION. A source consisting of, but not limited to, coal crushing, screening, washing, drying and air separation operations used for the purpose of preparing the product for marketing.

COAL REFUSE. Any waste coal, rock, shale, culm, boney, slate, clay and related materials, associated with or near a coal seam, which are either brought above ground or otherwise removed from the mine in the process of mining coal, or which are separated from coal during the cleaning or preparation operations, provided, however, that coal refuse shall not mean overburden from strip mining operations or rock from mine shafts and mine tunnels.

COAL REFUSE DISPOSAL AREA. Any source or potential source consisting of any area or plot of land used as a place for dumping, storage, or disposal of coal refuse. A coal refuse pile must be contained in a single coal refuse disposal area; however, a coal refuse disposal area may contain two or more coal refuse piles if the area is so designated.

COAL REFUSE PILE. Any source consisting of any deposit of coal refuse on or buried in the earth and intended as permanent disposal of or long-term storage of such material. Continuous deposits of coal refuse and deposits not separated by an approved method shall be considered as a single coal refuse pile.

COMBUSTION INSTALLATION. A source consisting of any furnace, oven, kiln, incinerator, fuel burning equipment, or any other stationary equipment in which solid, liquid, or gaseous materials are burned.

COMMENCING NEW SOURCE OR MODIFICATION. Any substantial physical or financial commitment relating to the design criteria concerning preparation of a new site, or the beginning of a modification. (See definition of <u>Existing Source</u>, <u>Modification</u> and <u>New Source</u>.)

CONTAMINANT. Smoke, dust, soot, grime, carbon, or any other particulate matter, radioactive matter, noxious gas, acids, fumes, gases, odor, vapor, or any combination thereof.

CONTROL PROGRAM. Control program submitted to the Board, voluntarily or upon request of the Board, by the owner of an existing and/or proposed new source, to establish pollution abatement goals and time schedules to achieve such goals, so as to ensure compliance by the owner with standards, policies and regulations adopted by the Board. In accordance with Section 10-17.21 of the Air Pollution Control Law of Virginia the control program will include such system and equipment information and projected operating performance as is required by the Board for evaluation of the probability of achieving goals of the control program.

DIRECTOR. The Director or Executive Secretary of the State Air Pollution Control Board.

DUST. Solid particles projected into the air by natural forces, such as wind, volcanic eruption, or earthquake, and by mechanical or manmade processes such as crushing, grinding, milling, drilling, demolition, shoveling, conveying, screening, bagging, and sweeping.

EFFLUENT WATER SEPARATOR. Any source consisting of any tank, box, sump, or other container in which any volatile organic compound floating on or entrained or contained in water entering such tank, box, sump, or other container is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

EXISTING SOURCE. Any source which is in being on the effective date of these regulations or on which construction or modiciation has been commenced; except that any such existing source or any emission point from such existing source (where such source involves multiple emission points) which is modified after the effective date of these regulations shall be reclassified as a "new source." (See definition of Commencing New Source or Modification, Modification, and New Source.)

FLY ASH. Particulate matter capable of being gas-borne or airborne and consisting of fused ash and partially burned or unburned fuel or other material from a combustion installation.

FOUNDRY CUPOLA. A shaft type furnace used for melting of metals, consisting of, but not limited to, furnace proper, tuyeres, fans, or blowers, tapping spout, charging equipment, gas cleaning devices and other auxilaries.

FOUNDRY OPEN HEARTH. A furnace in which the melting and refining of metal is accomplished by the application of heat to a saucer type or shallow hearth in a closed chamber, consisting of, but not limited to, the furnace proper, checkers, flues, and stacks and other auxiliaries.

FUEL-BURNING EQUIPMENT. A source consisting of any furnace, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

FUGITIVE DUST. Solid airborne particulate matter or dust emitted from any source other than a flue or stack.

FUMES. Minute particulate matter generated by the condensation of vapors from solid matter after volatilization from the molten state, or generated by sublimation, distillation, calcination or chemical reaction when these processes create airborne particles.

FURNACE. An enclosed space provided for combustion.

GASOLINE. Any petroleum distillate having a Reid vapor pressure in the range of four (4) to fifteen (15) pounds at $100^{o}F$.

GASES. Formless fluids which, under standard conditions, occupy the space of enclosure and which can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature.

HAZARDOUS AIR CONTAMINANT. An air contaminant to which no ambient air quality standard is applicable and which may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.

HEATING VALUE. The heat released by combustion of one pound of fuel or other material measured in British Therman Units (BTU) on an as received basis.

INCINERATOR. Any source consisting of a furnace and all appurtenances thereto designed for the destruction of refuse by burning. "Open Burning" is not considered incineration. For purposes of these rules, the destruction of any combustible liquid or gaseous material by burning in a flare or flare stack shall be considered incineration.

MANUFACTURING OPERATION. Any source consisting of any process or combination of physically connected dissimilar processes which is operated to effect physical and/or chemical changes in an article.

MATERIALS HANDLING EQUIPMENT. Any source consisting of any equipment used as a part of a process or combination of processes which does not effect a physical or chemical change in the material or in an article, such as, but not limited to, conveyors, elevators, feeders, or weighers.

MELT TIME. The time in which the metal is melting and available at the spout or tap hole, excluding any time the equipment is idle, preheating or preparing for shutdown.

MIST. A state of atmospheric obscurity produced by suspended liquid droplets.

MOBILE SOURCES. Any vehicle, including, but not limited to any motor vehicle, truck, or other land craft, air craft, locomotive, bus or ship, rail vehicle, or water craft, which emits or may emit any air contaminant.

MODIFICATION. Any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air contaminant not previously emitted. (See definition of Commencing New Source or Modification, Existing Source, and New Source.)

MOTOR VEHICLE. Any powered conveyance normally licensed by the Virginia Division of Motor Vehicles.

NEW SOURCE. Any source the construction or modification of which is commenced on or after the effective date of these regulations, and any source relocated from an approved site. (See definition of Commencing New Source or Modification, Existing Source, and Modification.)

ODOR. The sensation resulting from stimulation of the human sense of smell.

OPACITY. The characteristic of a substance which renders it partially or wholly impervious to rays of light. Opacity as used herein generally refers to the obscurity of an observer's view.

OPEN BURNING. The burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the ambient air without passing through a stack, duct, or chimney.

OWNER. State, , a county, sanitary district, municipality, political subdivision, a public or private institution, corporation, association, firm or company organized or existing under the laws of this or any other state or county, lessee, or person otherwise in possession of property, any person or individual, or group of persons or individuals, acting individually or as a group.

PARTICULATE MATTER. Any material, except water in uncombined form, that is airborne and exists as a liquid or a solid at standard conditions except that any material that persists in the vapor phase after emission into the atmosphere shall not be considered particulate matter. Particulate matter is sometimes hereinafter referred to as "Particulate."

PERSON. Any individual, corporation, cooperative, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other State or political subdivision or agency thereof or any legal successor, representative, agent or agency of the foregoing.

PHYSICALLY CONNECTED. Any combination of processes connected by materials handling equipment and designed for simultaneous complementary operation.

POINT SOURCE. (1) Any stationary source causing emissions in excess of 100 tons per year of any contaminant for which there is a national standard in a region containing an area whose 1970 "urban place" population, as defined by the U. S. Bureau of the Census, was equal to or greater than 1 million,

(2) Any stationary source causing emissions in excess of 25 tons per year of any contaminant for which there is a national standard in a region containing an area whose 1970 "urban place" population, as defined by the U. S. Bureau of the Census, was less than 1 million,

(3) Without regard to amount of emissions, stationary sources such as those listed in Appendix C.

PROCESS OPERATIONS. Any source consisting of any method, form, action, operation, or treatment of manufacturing or processing, and shall include any storage or handling of materials or products before, during or after manufacturing or processing.

PROCESS UNIT. Any step in a manufacturing operation which results in the emission of particulate matter to the atmosphere.

PROCESS WEIGHT. Total weight of all materials introduced into any source process unit which may cause any emissions of particulate matter. Process weight includes solid fuels charged, but does not include liquid and gaseous fuels charged or combustion air for all fuels.

PROCESS WEIGHT RATE. A rate established as follows:

(a) For continuous or long-run steady-state source operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

(b) For cyclical or batch unit operations, or unit processes, the total weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period.

Where the nature of any process operation or the design of any equipment is such as to permit more than one interpretation of this definition, the interpretation which results in the minimum value for allowable emission shall apply.

PRODUCTION RATE. The weight of final product obtained per hour of operation. If the rate of product going to storage can vary the production rate shall be determined by calculation from the feed rates of raw material.

REFUSE. Includes garbage, rubbish and trade wastes;

(1) Garbage. Animal and vegetable matter such as that originating in houses, kitchens, restaurants, and hotels, produce markets, food service or processing establishments, greenhouses, and hospitals, clinics or veterinary facilities.

(2) Rubbish. Solids not considered to be highly flammable or explosive such as, but not limited to, rags, old clothes, leather, rubber, carpets, wood, excelsior, paper, ashes, tree branches, yard trimmings, furniture, metal food containers, glass, crockery, masonry, and other similar materials.

(3) Trade Waste. All solid or liquid material resulting from construction, building operations, or the prosecution of any business, trade or industry such as, but not limited to, plastic products, chemicals, cinders and other forms of solid or liquid waste materials.

RINGELMANN CHART. A chart published as U. S. Bureau of Mines Information Circular 8333, dated May, 1967.

SALVAGE OPERATIONS. Any source consisting of any business, trade or industry engaged in whole or in part in salvaging or reclaiming any product or material, such as, but not limited to, reprocessing of used motor oils, metals, chemicals, shipping containers, or drums, and specifically including automobile graveyards and junkyards as defined in Sec. 33-279.3 of the Code of Virginia of 1950, as amended.

SCREENING EQUIPMENT. Any equipment or device designed or used for the purpose of effecting particle size separations of materials.

SMOKE. Small gasborne particulate matter consisting predominantly but not exclusively of carbon, ash and other material in concentrations sufficient to form a visible plume.

SOILING INDEX. A measure of the soiling properties of suspended particles in air determined by drawing a measured volume of air through a known area of Whatman No. 4 filter paper for a measured period of time (normally two hours) expressed on COH's/1000 linear feet.

SOURCE. Any and all sources of emission of air contaminants, whether privately or publicly owned or operated, or person contributing to emission of air contaminants. Without limiting the generality of the foregoing, this term includes all types of business, commercial and industrial plants, works, shops and stores, and heating and power plants or stations, buildings and other structures of all types.

STACK OR CHIMNEY. Dry gas temperature of 70 degrees fahrenheit and gas pressure of 14.7 pounds per square inch absolute.

STANDARD OF PERFORMANCE. Degree of air contaminant emission limitation achieveable through the application of the best system of emission reduction which the Board determines has been adequately demonstrated.

STATIONARY SOURCE. Sources other than mobile sources.

SUBMERGED FILL PIPE. Any fill pipe the discharge opening of which is entirely submerged when the liquid level is 6 inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean that the fill pipe is adequately covered at all times during normal working of the tank.

SUPERPHOSPHATE. The product resulting from a controlled reaction between sulfuric acid and phosphate rock, and having agronomic value.

THERMAL DRIER. A device using fuel burning equipment for the primary purpose of reducing the moisture content of materials.

VOLATILE ORGANIC COMPOUND. Any compound, containing carbon and hydrogen or containing carbon and hydrogen in combination with any other element, which has a vapor pressure of 2.5 pounds per square inch absolute or greater under actual storage conditions.

Unless specifically defined in the Law or in the Regulations of the Board, the technical terms used by the Board have the meanings commonly ascribed to them by recognized authorities.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

SECTION II

2.00 Procedures

2.01 Regulations

(a) Establishment

Regulations for the control and abatement of air pollution are adopted, amended, or repealed only after:

(1) Thorough study of the need and technical requirements by the Staff of the Board and, when required, by the State Technical Advisory Committee on Air Pollution.

(2) Public hearing.

(3) Thorough study of comments made by the public.

(4) Adoption by the Board at a public meeting.

(b) Effective Date

No regulation, rule, amendment, or repeal will become effective until sixty days after adoption by the Board.

(c) Enforcement of Regulations

(1) Whenever the Executive Secretary or his representative has reason to believe that a violation of any of the Regulations promulgated by the Board has occurred, he shall serve notice on the alleged violator or violators, citing the Regulation involved and the facts on which the notice is based, and may order that necessary corrective action be taken within a reasonable time. Such corrective action shall mean the cessation of the violation, or an agreement to proceed under an approved control program, or an application to the Board for a variance, or a combination of these actions as directed by

the Executive Secretary. The Executive Secretary may act as the agent of the <u>Board</u> to obtain legal remedy should any <u>owner</u> fail to comply with such an order, pursuant to Sec. 10-17.23 of the Code of Virginia.

(2) Nothing in this section shall prevent the Executive Secretary from making efforts to obtain voluntary compliance through conference, warning, or other appropriate means.

(d) Special Orders

The <u>Board</u> shall have the power to issue Special Orders pursuant to Sec. 10-17.18:1 of the Code of Virginia, as amended.

(e) Hearings

(1) Hearings by the <u>Board</u> may take either of the following forms:

(i) The public hearing required before considering rules and regulations or before considering local variances in accordance with Sec. 10-17.18(b) and (c) of the Code of Virginia of 1950 as amended.

A public hearing may be held in connection with a regular or special meeting of the <u>Board</u>. The procedure for a public hearing shall conform to Sec. 9-6.6 except as modified by Sec. 10-17.18(b) and (c) of the Code of Virginia, as amended.

(ii) The formal hearing for the determination of violations and the enforcement or review of its orders, rules and regulations in accordance with Sec. 10-17.18(d) of the Code of Virginia of 1950 as amended.

A formal hearing shall be conducted as part of the business of a regular or special meeting of the <u>Board</u>. The procedure for a formal hearing shall conform to Sec. 9-6.10 through 9-6.12 except as modified by Sec. 10-17.18 (d) of the Code of Virginia as amended.

(2) Record of the Hearings by the Board may take any of the following forms:

(i) Oral statements or testimony at any hearing may be stenographically or electronically recorded for transcription to written form.

(ii) Formal hearings will be recorded by a court reporter.

(3) Availability of Record of the Hearings by the Board

(i) A copy of the transcript of public hearing, if transcribed, will be provided within a reasonable time to any person upon written request and payment of the cost, if not transcribed, cost of preparation will be borne by person making request.

(ii) Any person desiring a copy of the transcript of formal hearings recorded by a court reporter may make arrangements directly with the court reporter to purchase such copies.

(f) Variances

Pursuant to Sec. 10-17.18(c) of the Code of Virginia of 1950, as amended, the Board may in its discretion grant local variances to any regulation adopted by the Board pursuant to Sec. 10-17.18(b) if it finds after a thorough investigation and hearing that local conditions warrant provided that:

(1) The emission occurring or proposed to occur does not endanger or tend to endanger human health, welfare, and safety or

(2) Compliance with the regulations from which variance is sought would produce serious hardship without equal or greater benefits to the public or

(3) The emission occurring will not cause established ambient air quality standards to be exceeded.

Notices of public hearings concerning granting of variances shall be advertised at least fifteen days prior to the date of the hearing. Variances will be granted for a limited period of time--normally such a period is not to be greater than a year. The Board may renew variances beyond one year only after a thorough investigation and a public hearing has determined that the circumstances which created a variance situation continue to exist.

2.02 Local Ordinances

(a) Ordinances

The governing body of any locality proposing to adopt an ordinance, or an amendment to an existing ordinance, relating to air pollution shall first obtain the approval of the Board as to the provisions of any such ordinance or amendment. The provisions of any such ordinance must be as strict as the State or regional regulations, whichever is applicable. The Board in approving local ordinances will consider such factors as, but not limited to,:

(1) Whether the local ordinance is as strict as the State or regional regulation, whichever is applicable,

(2) Does the local ordinance provide for intergovernmental cooperation and exchange of information,

(3) Is information provided giving local resources which will be committed to the enforcement of the proposed local ordinance.

Approval of any local ordinance may be withdrawn if the Board determines that the local ordinance is not as strict as State or regional regulations. Where an amendment to a State or regional regulation causes a local ordinance to be less strict, a reasonable time will be allowed for the locality to amend its ordinance. A local governing body may grant a variance to any of its air pollution control ordinances providing a public hearing is held before doing so. Notice of public hearings concerning granting of variances must be advertised at least fifteen (15) days prior to the date of the hearing.

(b) Reports

Local ordinances will make provision for reporting to the Board such data as may be required in carrying out its responsibilities under the Code of Virginia of 1950, as amended, and the Clean Air Act. Such reports will include, but are not limited to: monitoring data, surveillance programs, procedures for investigation of complaints, variance hearings, and status of control programs.

(c) Relationship to State or Regional Regulations

Local ordinances are an extension of State or regional regulations which have been adopted, or may in the future be adopted or amended, by the Board in accordance with Sections 10-17.18 and 10-17.30 of the Code of Virginia of 1950, as amended. Any provisions of local ordinances which may be stricter than the State or regional regulations shall take precedence over such regulations within the respective political subdivisions.

It is the intention of the Board to coordinate activity of the enforcement officers of the localities in the enforcement of

State and regional regulations. The Board will also provide technical and other assistance to local authorities in the development of air quality or emission standards, in the investigation and study of air pollution problems, and in the enforcement of local ordinances and State and regional regulations.

The Board emphasizes its intention to assist in the local enforcement of local ordinances. The Board reserves the right, however, to hear appeals from any party aggrieved by any regulation, order or requirement issued with respect to State or regional regulations, conduct investigations, and issue any appropriate orders.

2.03 Registration

(a) By June 30, 1972 all persons owning and/or operating any existing point source shall have registered such source operations with the Board. The information required for registration shall be determined by the Board, and shall be provided in the manner specified by the Board.

(b) Persons owning and/or operating registered sources to be modified shall comply with Sec. 2.06.

2.04 Date of Compliance

Except as otherwise specified, compliance with the provisions of these regulations shall be according to the following schedule.

(a) New Point Sources. All new point sources constructed after the effective date of these regulations shall comply as of going into operation.

(b) Existing Point Sources. All existing point sources not in compliance as of the effective date of these regulations, shall be in compliance by June 30, 1972. If compliance is not possible by

June 30, 1972, the owner or person responsible for the operation of the installation shall have submitted by this date to the Board in a form and manner satisfactory to them a control program and schedule to contain a date on or before which full compliance will be attained. If approved by the Board, such date will be the date on which the person shall comply. The Board may require persons submitting such a program to submit periodic reports on progress in achieving compliance. Reports shall be submitted in form and manner prescribed by the Executive Secretary or his representative.

2.05 Action on Control Programs

(a) The Board shall act, and notify the owner of its actions, as early as practicable but within 90 days.

(b) The owner shall be furnished copies of any objections by the Board to the control program and may submit answers and comments, in duplicate, to the Board on such objections.

(c) The Board will consider the owner's answers and comments to any objections, and shall notify the owner in writing its reasons for conditional approval, or denial, of the control program.

(d) If a control program is denied or conditionally approved, an owner may, by filing a request within 30 days from the date he receives notice of denial or conditional approval, request a rehearing which shall be conducted as a formal hearing pursuant to Section 2.01(e) of these regulations, from which judicial review pursuant to Virginia Code Sec. 10-17.23:2 shall be available.

2.06 Permits

(a) General Requirements

Commencing on the effective date of these regulations, no owner shall cause or permit the commencement of construction of a new source or modification of any source without first obtaining from the Board a permit approving the location and basic pollution control design criteria of the proposed new source or the modification of an existing source and its operation.

(b) Applications

(1) Application for authority to construct or modify shall be made in the following manner. If the applicant is a partnership, other than a corporation, a general partner shall sign the application. If the applicant is a corporation, association, or cooperative, an officer shall sign the application. If the applicant is a sole proprietorship, the proprietor shall sign the application.

(2) A separate application is required for each source subject to these regulations. The applicant may be required to furnish additional information deemed necessary by the Board.

(3) Each application shall be signed under oath.

(c) Information Required

(1) Each application for permit to construct or modify a source shall include such information as may be required by the Board to analyze the effect of the proposed source on the ambient air quality standard of the area and the emission standards which are applicable. The information required would include not less than (but is not limited to) the following:

(i) siting information

(ii) general description of plant or modifications

(iii) complete information regarding proposed air pollution control facilities, and an inventory of type and quantity of contaminants to be emitted.

(d) Standards for Granting Permit

No permit to construct or modify and to operate will be granted unless the applicant shows to the satisfaction of the Board that:

(1) The source is designed and will be constructed or modified to operate without causing a violation of the applicable regulations.

(2) The source is designed, built and equipped in accordance with established Federal Standards of Performance, or if none are applicable, with standards of performance established by the Board.

(3) The source, as designed or modified, does not endanger maintenance or attainment of any applicable ambient air quality standard.

(4) The source, if required by the Board, shall be provided with:

(i) sampling ports of a size, number, and location as the Board may specify,

(ii) safe access to each port,

(iii) instrumentation to monitor and record emission levels,

(iv) any other sampling and testing facilities the Board may permit or require.

(5) If the air pollution control facilities do not achieve the emission limitations stated in Sec. 2.06(e) temporary operation and corrections will be in accordance with Sec. 2.06(f) (2) and (3).

(e) Action on Permit Applications

The actions of the Board shall include:

(1) Confirmation with Section 2.05.

(2) Stating in its written approval to the applicant the emission limitations acceptable to it during performance testing in accordance with Section 2.06(f).

(f) Performance Testing and Compliance

(1) Within 60 days after placing a new or modified source into operation, the owner shall schedule tests of the emissions in the manner acceptable to the Board. These tests may be witnessed by a representative of the Board.

(2) In case the performance does not meet the emission predicted and agreed upon, the owner may adjust and/or change the equipment as required and make additional tests witnessed by representatives of the Board, within a time period acceptable to the Board.

(3) In case the performance does not meet the emission limitations specified in Section 2.06(e)(2) the Executive Secretary or his representative may allow a reasonable period for adjustment. If such adjustment is not successful, the owner shall, upon instruction by the Executive Secretary or his representative, immediately submit a control program to specifically meet the emission limitation in Section 2.06(e)(2).

(g) Exceptions

An authority to construct and operate will not be required for:

(1) The installation or alteration of an air contaminant detector, air contaminant recorder, combustion controller, or combustion

shutoff controls.

(2) Air conditioning or ventilating systems not designed to remove air contaminant generated by or released from such equipment.

(3) Low capacity fuel burning equipment, such as: process smoke house generators; devices that use gas as a fuel for space heating, air conditioning, or heating water; or heating devices used in private dwelling with a BTU input of less than 1,000,000 BTU per hour.

(4) Internal combustion engines under 3000 H.P.

(5) Laboratory equipment used exclusively for chemical or physical analysis.

(6) Other sources of minor significance specified by the Board.

(h) Suspension or Revocation of Permit

(1) The Board may, after a formal hearing pursuant to Sec. 2.01 (e)(i)(ii) of the regulations, suspend or revoke a permit for willful or continued violation of regulations.

(2) Suspension or revocation of a permit to operate shall become effective upon actual receipt of the suspension or revocation of the permit by the Board by the holder of the permit.

2.07 Monitoring, Records, Reporting

(a) The Board may require the owner or operator of any source to: install, use, and maintain monitoring equipment and sample the emission in accordance with approved methods; and maintain records and make periodic emission reports as required in Sec. 2.07(b).

(b) Records and reports, as the Board shall prescribe, pertaining to air contaminants or fuel shall be recorded, compiled, and submitted on forms furnished by the Board.

2.08 Sampling and Testing Methods

(a) All tests shall be made and the results calculated in accordance with test procedures approved by the Board. All tests shall be made under the direction of persons qualified by training and/or experience.

(b) The Board may test emissions of air contaminants from any source. Upon request of the Board the person responsible for the source to be tested shall provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants. This requirement shall be in addition to Section 2.07.

2.09 Reporting of Control Equipment Maintenance or Malfunction

(a) In case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shutdown such equipment shall be reported to the Executive Secretary or his representative at least twenty-four (24) hours prior to the planned shutdown. Such prior notice shall include, but is not limited to, the following:

(1) Identification of the specific facility to be taken out of service as well as its location and permit and/or registration number.

(2) The expected length of time that the air pollution control equipment will be out of service.

(3) The nature and quantity of emissions of air contaminants likely to occur during the shutdown period.

(4) Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period.

(b) In the event that any emission source, air pollution control equipment, or related facility fails in a manner that may cause an increase in the emission of air contaminants in violation of applicable regulations of the Board the person responsible for such equipment shall immediately notify the Executive Secretary or his representative by telephone of such failure or breakdown and provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. When the condition causing the failure or breakdown has been corrected and the equipment is again in operation, the Executive Secretary or his representative shall be notified.

2.10 Circumvention

No owner shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which would otherwise violate these regulations (this section does not prohibit the construction of a stack or chimney).

2.11 Severability

If any provision of these regulations or the application thereof to any person or circumstances is held to be invalid, such invalidity shall not affect other provisions or application of any other part of these regulations which can be given effect without the invalid provisions of application, and to this end the provisions of these regulations and the various applications thereof are declared to be severable.

Commonwealth of Virginia
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REGULATIONS

Section III

3.00 AIR QUALITY STANDARDS

3.01 General Provisions

(a) Air quality standards are required to assure that ambient concentrations of air contaminants are consistent with established criteria and shall serve as the basis for effective and reasonable management of the air resources of the Commonwealth of Virginia.

(b) At such time as additional pertinent information becomes available with respect to applicable air quality criteria, such information shall be considered and the air quality standards revised accordingly.

(c) The absence of a specific air quality standard shall not preclude action by the Board to control contaminants to assure protection, safety, welfare, and comfort of the people of the Commonwealth of Virginia.

(d) The air quality standards established herein shall apply to all areas outside a source property line.

(e) Where applicable, all measurements of air quality shall be corrected to a reference temperature of 70° F and to a reference pressure of 14.7 pounds per square inch absolute.

3.02 Particulate Matter.

(a) Primary air quality standards are

(1) 75 micrograms per cubic meter - annual geometric mean.

(2) 260 micrograms per cubic meter - maximum 24 hr. concentration not to be exceeded more than once per year.

(b) Secondary air quality standards are

(1) 60 micrograms per cubic meter - annual geometric mean.

(2) 150 micrograms per cubic meter - maximum 24 hr. concentration not to be exceeded more than once per year.

(c) Particulate matter shall be determined by the high volume method as described in Appendix B, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.03 Sulfur Oxides (Sulfur Dioxide)

(a) Primary air quality standards are

(1) 80 micrograms per cubic meter (0.03 ppm) - annual arithmetic mean.

(2) 365 micrograms per cubic meter (0.14 ppm) - maximum 24 hr. concentration not to be exceeded more than once per year.

(b) Secondary air quality standards are

(1) 60 micrograms per cubic meter (0.02 ppm) - annual arithmetic mean.

(2) 260 micrograms per cubic meter (0.10 ppm) - maximum 24 hr. concentration not to be exceeded more than once per year.

(3) 1,300 micrograms per cubic meter (0.50 ppm) - maximum 3 hr. concentration not to be exceeded more than once per year.

(c) Sulfur dioxide shall be measured by the pararosaniline method as described in Appendix A, Part 410, Chapter IV, Title 42, Code of Federal Regulations or by an equivalent method.

3.04 Carbon Monoxide.

(a) Primary and secondary air quality standards are

(1) 10 milligrams per cubic meter (9 ppm) - maximum 8 hr. concentration not to be exceeded more than once per year.

(2) 40 milligrams per cubic meter (35 ppm) - maximum 1 hr.

concentration not to be exceeded more than once per year.

(b) Carbon monoxide shall be measured by the nondispersive infrared spectrometry method, as described in Appendix C, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.05 Photochemical Oxidants.

(a) Primary and secondary air quality standard is 160 micrograms per cubic meter (0.08 ppm) - maximum 1 hr. concentration not to be exceeded more than once per year.

(b) Photochemical oxidants shall be measured and corrected for interferences due to nitrogen oxides and sulfur dioxide by the method described in Appendix D, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.06 Hydrocarbons.

(a) Primary and secondary air quality standard for hydrocarbons is 160 micrograms per cubic meter (0.24 ppm) - maximum 3 hr. concentration (6-9 am) not to be exceeded more than once per year.

(b) Hydrocarbons shall be measured and corrected for methane by the method described in Appendix E, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

(c) The hydrocarbon air quality standard is for use as a guide in determining hydrocarbon emission control required to achieve the photochemical oxidant standard.

3.07 Nitrogen Dioxide.

(a) Primary and secondary air quality standard is 100 micrograms per cubic meter (0.05 ppm) - annual arithmetic mean.

(b) Nitrogen dioxide shall be measured by the method described in Appendix F, Part 410, Chapter IV, Title 42, Code of Federal

Regulations, or by an equivalent method.

3.08 Dustfall.

(a) Geometric mean of monthly values for four consecutive months at any one location shall not exceed 15 tons per square mile per month (metric equivalent: 0.525 milligrams per square centimeter per month or 5.25 grams per square meter per month) including background concentration.

(b) Geometric mean of monthly values for three consecutive months from four dustfall stations not less than one-quarter mile apart shall not exceed 15 tons per square mile per month including background concentration.

Commonwealth of Virginia
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REGULATIONS

SECTION IV
(Rule 1)

4.01.00 OPEN BURNING

4.01.01 Prohibition of Open Burning.

(a) No owner shall cause, suffer, allow or permit open burning of refuse except as provided in paragraph 4.01.02; however, such exceptions shall not allow the burning of rubber tires, asphaltic materials, used crankcase oil, impregnated wood, or similar materials which produce dense smoke nor shall such exceptions permit any owner to conduct salvage operations by open burning.

(b) Open burning under the exceptions of paragraph 4.01.02 does not exempt or excuse a person from the consequences, damages or injuries which may result from such conduct, nor does it excuse or exempt any person from complying with all applicable laws, ordinances, regulations, and orders of the governmental entities having jurisdiction, even though the open burning is conducted in compliance with paragraph 4.01.02.

(c) All open burning permitted under paragraph 4.01.02, Exceptions, shall be immediately terminated in any region upon declaration of a step of the Air Pollution Emergency Episode as described in section VI.

4.01.02 Exceptions.

If no smoke or fly ash nuisance is created, open burning is permitted as follows:

(a) In the performance of an official duty of any public health or safety officer, after notification of the Executive Secretary or his representative and local air pollution control agency, if any, if the fire is necessary for one or more of the following reasons or purposes:

(1) Prevention of a fire hazard which cannot be abated by other means.

(2) Destruction of deteriorated or unused explosives, munitions, and certain hazardous chemicals on government or designated private property, in accordance with recognized procedures.

(3) Instruction of public fire fighters under the supervision of the designated fire marshall.

(4) Protection of public health.

(b) For training of industrial in-house fire fighting personnel with clearance from the local fire fighting authority.

(c) In the recognized practices of reforestation, after notification of Executive Secretary or his representative and local air pollution control agency, if any, when such burning is undertaken in compliance with the forestry practices recommended by the State Division of Forestry, Department of Conservation and Economic Development, provided the following conditions are met:

(1) The burning shall be done only when there is good ventilation or when the wind is away from any built-up area or primary highway.

(2) The location of the burning shall be no closer than the following limits: 1000 feet from any dwelling located in a predominantly residential area; and 1 mile from any military, commercial or private airfield.

(3) At no time shall the fire be left unattended.

(d) In the recognized practices of agriculture, after notification of the county agent and/or district forester or the Executive Secretary or his representative and local air pollution control agency, if any, provided the following conditions are met:

(1) The burning shall be done only when there is good ventilation or when the wind is away from any built-up area or primary highway.

(2) The location of the burning shall be no closer than the following limits: 1000 feet from any dwelling located in a predominantly residential area; and 1 mile from any military, commercial or private airfield.

(3) At no time shall the fire be left unattended.

(e) For cooking of food, recreational purposes, and ceremonial occasions.

(f) For operation of craft exhibits and pageants of historical significance.

(g) For warming of construction or other workers by use of salamanders or other devices providing good combustion.

(h) For burning of leaves, while not encouraged, in approved containers in those areas where provision for public or private collection of leaves is not available.

(i) For burning of ordinary household trash by householders, while not encouraged, in those areas where provision for public or private collection of trash is not available provided that:

(1) Burning is done in an approved container.

(2) Dead animals and animal waste are not burned.

(j) By a railroad company to clear its right-of-way of dead vegetation, when such burning is approved by and carried out under the direction of the Division of Forestry, Department of Conservation and Economic Development if the following conditions are met:

(1) When the burning is within independent cities and towns and Standard Statistical Metropolitan Areas, as determined by the U. S. Bureau of the Census, the railroad company must obtain a variance from the local air pollution control agency, if any or the Board. A copy of each variance must be forwarded to the Executive Secretary or his representative by the railroad company before the burning is commenced.

(2) Other information, as required by the Board, must be submitted.

(3) At no time shall the fire be left unattended.

(k) For land clearing for the construction or modification of roads and highways, parking areas, railroad tracks, pipelines, power facilities or communication lines or any other operation which can meet the requirements and is approved by the Board if the following conditions are met:

(1) Trunks of felled merchantable timber with a diameter greater than four (4) inches shall be cut into saw log or pulp wood lengths and disposed of by means other than open burning. Stumps to be burned must contain no more than two (2) feet of trunk.

(2) Burning shall be performed only when there is good ventilation or when the wind direction is away from any built-up area.

(3) Burning shall be performed at locations along the right-of-way, easement, or within the boundaries of the property at the greatest distance practicable from dwellings, highways, and military, commercial and private airfields.

(4) At no time shall the fire be left unattended.

(5) When the burning is within independent cities and towns and Standard Statistical Metropolitan Areas, as determined by the U. S. Bureau of the Census, those responsible for the burning must obtain a variance from the local <u>air pollution</u> control agency, if any, or the <u>Board</u>. A copy of each variance must be forwarded to the Executive Secretary or his representative before the burning is commenced.

(1) For land clearing for the development or modification of buildings or building areas if the following conditions are met:

(1) Trunks of felled merchantable timber with a diameter greater than four (4) inches shall be cut into saw log, pulp wood, or fire place length and disposed of by means other than open burning. Stumps to be burned must contain no more than 2 feet of tree trunk.

(2) The burning shall be done only when there is good ventilation or when the wind direction is away from any built-up area.

(3) The location of the burning shall be no closer than the following limtis: 1000 feet from any dwelling located in a predominantly residential area other than a dwelling

or structure located on the property on which the burning is conducted; ½ mile from a major highway as indicated on State Highway map; and 1 mile from any military, commercial or private airfield.

(4) At no time shall the fire be left unattended.

(5) When the burning is within independent cities and towns and Standard Statistical Metropolitan Areas, as determined by the U. S. Bureau of the Census, those responsible for the burning must obtain a variance from the local air pollution control agency, if any, or the Board. A copy of each variance must be forwarded to the Executive Secretary or his representative before the burning is commenced.

4.01.03 Exclusion.

This rule does not apply to open burning using devices or methods specifically designed to provide good combustion performance under the following conditions:

(a) Visible emissions shall comply with Section 4.02.00 (Rule 2).

(b) All devices or methods under this Section 4.01.03 shall be approved by the Executive Secretary or his representative and local air pollution control agency, if any, prior to installation.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 2)

4.02.00 SMOKE OR OTHER VISIBLE EMISSIONS - STATIONARY SOURCES

4.02.01 Prohibition of Smoke or Other Visible Emissions

(a) No owner shall cause, suffer, allow or permit the discharge into the outdoor atmosphere from any single point of emission from a source any air contaminant which is

(1) darker in shade than smoke designed at No. 1 on the Ringelmann Chart, or

(2) of such opacity as to obscure an observer's view to a degree greater than does smoke designated as No. 1 on the Ringelmann Chart (when used as a measure of opacity).

(b) No owner shall cause, suffer, allow, or permit the discharge of dust, fumes, gases, mist, vapors, or any combination thereof to escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any regulation.

4.02.02 Exceptions

(a) If it can be proven that emissions discharging from a single point of emission are in compliance with applicable regulations on particulate emissions for the specific source in question, the Board may modify the requirements of this regulation.

(b) When starting a new fire or blowing tubes or cleaning a fire box, a person may discharge into the atmosphere from any single point of emission, emissions of a shade or density not darker than No. 3 on the Ringelmann Chart or 60 percent opacity for brief periods.

(c) The limits of section 4.02.01 shall not apply when the opacity of the visible emission is due to the presence of uncombined water.

4.02.03 Traffic Hazard

No person shall discharge from any source whatsoever such quantities of air comtaminants, uncombined water, or other materials which may cause a traffic hazard.

Commonwealth of Virginia
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Section IV
(Rule 3)

4.03.00 PARTICULATE EMISSION FROM EXISTING FUEL BURNING EQUIPMENT

4.03.01 Emission Standards for Furnaces

(a) No owner shall allow to be emitted into the outdoor atmosphere from any fuel burning equipment or to pass a convenient measuring point near the stack outlet, particulate matter in the flue gases to exceed the appropriate following standard:

(1) For operations with total heat input less than twenty-five million (25×10^6) BTU per hour, the maximum allowable emission shall be 0.6 pounds of particulate per million BTU input.

(2) For operations with total heat input between twenty-five million (25×10^6) and ten billion ($10{,}000 \times 10^6$) BTU per hour, the maximum allowable emission, E, shall be determined by the following equation: $E = 1.264\ H^{-0.2314}$, where H is the total heat input in millions of BTU per hour.

(3) For operations with total heat input in excess of ten billion ($10{,}000 \times 10^6$) BTU per hour, the maximum allowable emission shall be 0.15 pounds of particulate per million BTU input.

(4) Figure 4.3.1 illustrates the above emission standards.

(b) For purposes of this regulation, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or stacks. The heat input value used shall be the equipment manufacturer's or designer's guarantee maximum input, or maximum continuous heat input, or maximum continuous heat input determined by test, whichever is greater. The total heat input of all fuel burning units at a plant or on a premise normally operated simultaneously shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

4.03.02 Emission Testing

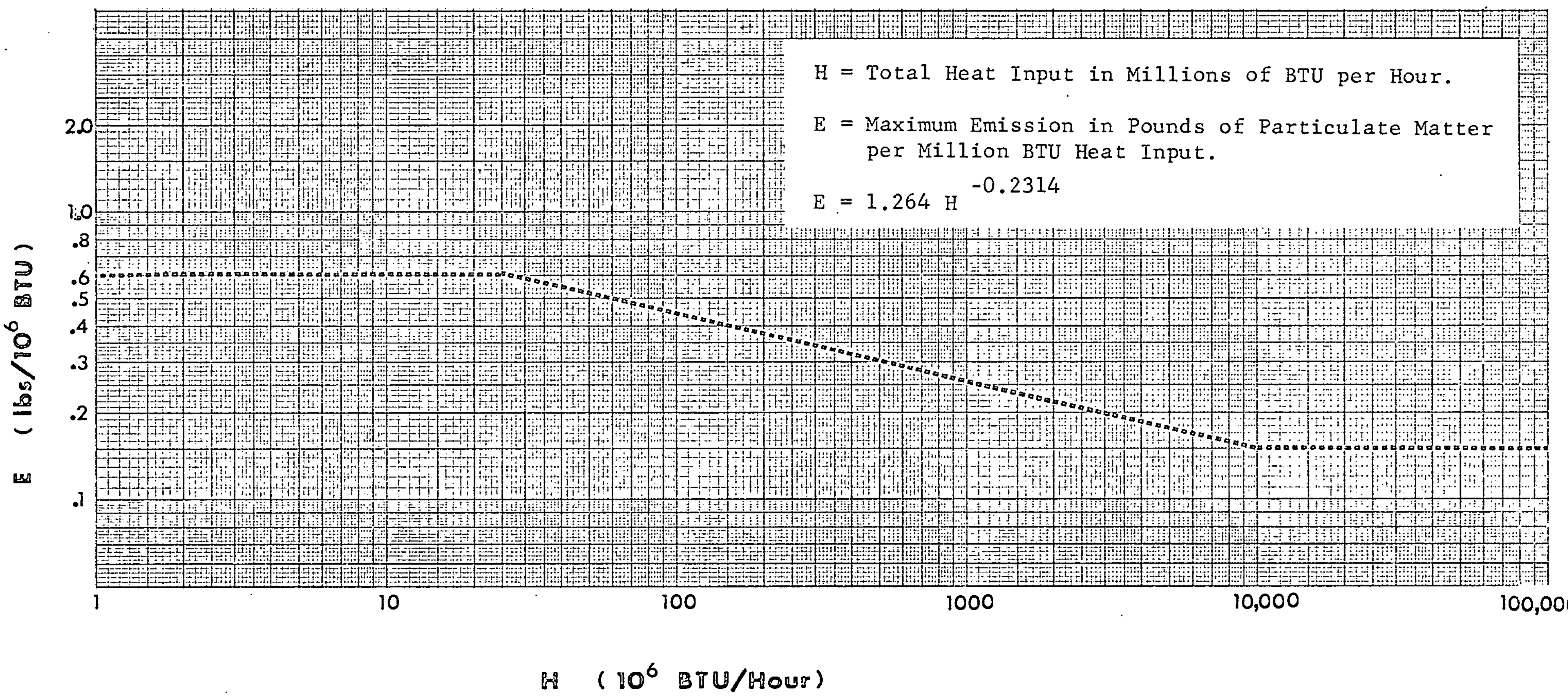
Emission tests relating to this rule shall be made by generally recognized standards or methods or measurement. Methods can be found in the ASME Test Code for Dust Separating Apparatus (PTC-21-1941) and the ASME Test Code for Determining Concentrations in Gas Streams (PTC-27-1957) but these may be adjusted or changed by the Board to suit specific sampling conditions or needs based upon good practice, judgement and experience. When such tests are adjusted, consideration shall be given to the effect of such change on established emission standards.

4.03.03 Exemptions

All residential fuel burning equipment, including equipment used solely for heating apartment buildings up to and including six apartments shall be exempt from this rule.

Figure 4.3.1

Allowable Particulate Emissions from Fuel Burning Equipment



Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 4)

4.04.00 PARTICULATE MATTER

4.04.01 Restriction of Emission of Particulate Matter from Manufacturing Operations.

(a) General Provisions

(1) Unless covered by a specific regulation for a particular process in a subsequent section of this Rule no person shall cause, suffer, allow or permit the emission of particulate matter in any one hour from any process unit in excess of the amount shown in Table 4.4.1 for the process weight rate allocated to such process unit.

(2) Emission tests relating to this rule shall be made by generally recognized standards or methods or measurement. Methods can be found in the ASME Test Code for Dust Separating Apparatus (PTC-21-1941) and the ASME Test Code for Determining Concentrations in Gas Streams (PTC-27-1957) but these may be adjusted or changed by the Board to suit specific sampling conditions or needs based upon good practice, judgement and experience. When such tests are adjusted, consideration shall be given to the effect of such change on established emission standards.

(3) Interpolation of the data in Table 4.4.1 for process weight rates up to 60,000 lb/hr shall be accomplished by use of the equation $E - 4.10\ P^{0.67}$, and

TABLE 4.4.1

PROCESS WEIGHT RATE Lb/Hr.	Tons/Hr.	MAXIMUM ALLOWABLE EMISSION RATE Lb/Hr.
100	0.05	0.551
200	0.10	0.877
400	0.20	1.40
600	0.30	1.83
800	0.40	2.22
1000	0.50	2.58
1500	0.75	3.38
2000	1.00	4.10
2500	1.25	4.76
3000	1.50	5.38
3500	1.75	5.96
4000	2.00	6.52
5000	2.50	7.58
6000	3.00	8.56
7000	3.50	9.49
8000	4.00	10.4
9000	4.50	11.2
10000	5.00	12.0
12000	6.00	13.6
16000	8.00	16.5
18000	9.00	17.9
20000	10.00	19.2
30000	15.00	25.2
40000	20.00	30.5
50000	25.00	35.4
60000	30.00	40.0
70000	35.00	41.3
80000	40.00	42.5
90000	45.00	43.6
100000	50.00	44.6
120000	60.00	46.3
140000	70.00	47.8
160000	80.00	49.1
200000	100.00	51.3
1000000	500.00	69.0
2000000	1000.00	77.6
6000000	3000.00	92.7

interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/hr shall be accomplished by use of the equation $E = 55.0 P^{0.11} - 40$, where E = rate of emission in lb/hr and P = process weight rate in tons/hr.

(4) Process weight per hour is the total weight of all materials introduced into any specific process unit that may cause any discharge of particulate matter. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not. For a cyclical or batch operation, the process weight per hour will be derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is not in service. For a continuous operation, the process weight per hour will be derived by dividing the process weight for a typical period of time.

(5) Where the nature of any process or operation or the design of any equipment is such as to permit more than one interpretation of this regulation, the interpretation that results in the minimum value for allowable emission shall apply.

(6) For purposes of this regulation, the total process weight for each individual process unit at a plant or premises shall be used for determining the maximum

allowable emission of particulate matter that passes through a stack or stacks.

(7) This rule does not apply to fuel burning equipment, as defined in Section I.

(b) Particulate Emission Standards, Specific Industries

(1) Existing Petroleum Refining - Catalytic Cracking Units - Any existing petroleum catalytic cracking unit equipped with cyclone separators, electrostatic precipitors or other gas cleaning devices which recover 99.95% or more of the circulating catalyst or total gas-borne particulate, shall be deemed to be in compliance with all provisions of this regulation.

(2) Particulate Emission Standards for Hot Mix Asphalt Plants - No person shall cause, suffer, allow or permit particulate matter resulting from the operation of a hot mix asphalt plant to be discharged into the atmosphere in excess of the rates set forth in the following table:

Aggregate Process Rate Tons/Hour	Maximum Allowable Emission of Particulate Matter in Lbs./Hour
5	10
10	16
15	22
20	28
25	31
50	33
100	37
150	40
200	43
250	47
300 and above	50

Linear interpolation shall be used for rates between any two consecutive rates stated in the preceding table.

All such airborne particulate matter emanating from the yards, sidings or roads of such operations shall be controlled as stipulated in Paragraph 4.04.02.

(3) Particulate Emission Standard for Chemical Fertilizer Manufacturing Plants - No person shall cause, suffer, allow, or permit particulate matter caused by chemical fertilizer manufacturing operations, which utilize recycle and physically connected dissimilar processes as a part of the manufacturing operation to be discharged from any stack or outlet into the atmosphere in excess of the rates shown in the following table:

TABLE 4.4.2

Process Weight Rate, Tons/Hr.(*)	Rate of Emission Lb/Hr.
15	19.2
30	30.5
60	42.5
90	46.3
120	49.0
150	51.2
180	53.1

*The process weight rate entry to be used in the above table for chemical fertilizer manufacturing processes shall be considered as the production rate, or for chemical fertilizer operations involving physically connected dissimilar processes shall be the sum of the process weight rates of each of the dissimilar processes. The materials handling and screening equipment shall not be considered processes for the determination of process weight rate. For a process weight rate between any two consecutive rates stated in the preceding table, maximum allowable emissions of particulate matter may be calculated by the following formula:

For process weight rates up to 45 tons per hour -

$$E = 4.10\left(\frac{2P}{3}\right)^{0.67}$$

or for process weight rates over 45 tons per hour -

$$E = 55.0 \left(\frac{2P}{3}\right)^{0.11} - 40$$

Where E = Emission Rate in Lb/Hr. and P = Process Rate in Tons/Hr.

When one manufacturing operation, or combination of physically connected processes, is vented through separate stacks, the allowable stack emission rate for each stack shall be such that the sum of the emission rates for all of the stacks from that operation is equal to the allowable rates from that operation vented through a single stack. For purpose of emission testing samples taken of separate stacks within a three-day period, on the same fertilizer grade, would be considered as simultaneous for the purpose of determining total operation emissions.

(4) Particulate Emission Standard for Pulp and Paper Mills - No person shall cause, suffer, allow or permit particulate matter resulting from the production of pulp and paper to be discharged from stacks or chimneys into the atmosphere in excess of the following:

	Maximum Allowable Emission of Particulate in Lbs./Equivalent Ton of Air Dried Pulp
All Recovery Furnace Stacks	4.0
All Dissolving Tank Vents	0.75
All Lime Kiln Stacks	1.0
All Slaker Tank Vents	0.3

(5) Particulate Emission Standards for Production and Handling of Materials in Sand, Gravel and Crushed Stone Operations - No person shall cause, suffer, or permit any material to be produced, handled, stockpiled or transported without taking measures to reduce to a minimum any particulate matter from

becoming airborne. All such airborne particulate matter emanating from the yards, sidings or roads of such operations shall be considered fugitive dust, and shall be controlled as stipulated in Paragraph 4.04.02. All crushers shall be fitted with liquid sprays or other appropriate systems which effectively limits the escape of airborne dust. Virbrating and shaker screens handling dry materials shall be enclosed or fitted with a collector system capable of releasing less than 0.05 grains per standard cubic foot. All feeders, elevators, conveyors, transfer points, discharge points and loading points shall be equipped with collectors, sprays or other means when necessary to minimize the escape of dust.

(6) Particulate Emission Standard for Coal Thermal Drying Operations of a Coal Preparation Plant - No person shall cause, suffer, allow or permit particulate matter to be vented into the open air from any thermal drier exhaust in excess of the following limitations:

Process Wts. Tons/Hr.	Maximum Allowable Emission of Particulate Matter in Lbs./Hr.
100 or less	45
200 or above	105

For any process rate between the two process rates stated in the above table, limitations shall be as determined by linear interpolation.

Any stack venting thermal drier exhaust gases into the open air shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.

(7) Particulate Emission Standards for an Air Table Operation of a Coal Preparation Plant - No person shall cause, suffer, allow or permit particulate matter to be vented into the open air from any air table exhaust in excess of 0.05 grains per standard cubic foot or exhaust gases. No person shall circumvent this Regulation by adding additional gas to any table or group of air exhausts for the purpose of reducing the grain loading. Any stack venting air table exhaust gases into the open air shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.

(8) Particulate Emission Standards for Portland Cement Plants - No person shall cause, suffer, allow or permit the particulate emissions from cement plants to exceed the emission limits contained in Table 4.4.1 of this rule.

(9) Particulate Emission for Plants Engaged in the Manufacturing of Wood Products - No person shall cause, suffer, allow or permit particulate matter, caused by the working or sanding of wood, to be

discharged from any stack, vent or building into the atmosphere without providing, as a minimum for its collection, adequate duct work and properly designed collectors, or such other devices as approved by the Board. Particulate emissions shall conform to Table 4.4.1.

(10) Particulate Emission Standard from Secondary Metal Operations - No person shall cause, suffer, allow or permit particulate emissions from secondary aluminum, brass, lead or steel operations into the open air in excess of the quantity as listed in table 4.4.3.

TABLE 4.4.3

ALLOWABLE MASS EMISSION RATE
FROM EXISTING SECONDARY METAL OPERATIONS

Process Weight Rate (lb./hr.)	Stack Emission Rate (lb./hr.)
1,000 or less	3.05
2,000	4.70
3,000	6.35
4,000	8.00
5,000	9.05
6,000	11.30
7,000	12.90
8,000	14.30
9,000	15.50
10,000	16.65
12,000	18.70
16,000	21.60
18,000	22.80
20,000	24.00
30,000	30.00
40,000	36.00
50,000 or more	42.00

For a process weight between any two consecutive process weights stated in this table, the emission limitation shall be determined by linear interpolation.

The permissible emission rates as shown in the table shall apply during the melt time but shall not apply during the time of preheat or preparing for shutdown. The exemptions for preheating and shutdown shall be limited to two twenty minute periods in a given eight-hour period for each furnace unit for existing equipment. For purposes of Paragraphs 4.04.01(b)11, the allowable mass emission rate of particulate matter shall be determined for individual units of equipment. For operations involving similar units which are manifolded to a common stack, in Paragraphs 4.04.01(b)11, control techniques shall be such that no unit is emitting particulate matter at a rate which is in excess of the mass emission rate allowed by Table 4.4.3.

(11) Particulate Emission Standard for Light Weight Aggregate Industry - No person shall cause, suffer, allow or permit the particulate emissions from light weight aggregate plants to exceed the emission limits in Table 4.4.4.

TABLE 4.4.4

ALLOWABLE MASS EMISSION RATE
FROM EXISTING LIGHT WEIGHT AGGREGATE PLANTS

Process Weight Rate (Tons/Hr.)	Emission Rate (Lb/Hr.)	Process Weight Rate (Tons/Hr.)	Emission Rate (Lb/Hr.)
.05	.176	4.0	14.0
.10	.351	6.0	21.1
.20	.702	8.0	28.1
.30	1.053	10.0	35.1
.40	1.404	15	52.7
.50	1.76	20	70.2
.75	2.64	25	87.8
1.0	3.51	30	105
1.25	4.38	35	123
1.50	5.27	40	140
1.75	6.15	45	158
2.0	7.02	50	176

For a process weight rate between any two consecutive rates in the above table or for rates over 50 tons per hour, the maximum allowable emission of particulate matter may be calculated by the following formula.

$$E = 3.51P$$

where E = Emission Rate in lb/hr. and P = Process Weight Rate in tons/hr.

(c) Toxic Materials. (Reserve for future Emission Standards.)

(d) Corrosive Materials. (Reserve for future Emission Standards.)

4.04.02 Control of Fugitive Dust

No person shall cause, suffer, allow or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to the following:

(a) Use, where possible, water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

(b) Application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can create airborne dusts;

(c) Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations;

(d) Open equipment for conveying or transporting materials likely to become airborne which would create objectionable air pollution shall be covered, or treated in an equally effective manner at all times when in motion.

(e) The paving of roadways and their maintenance in a clean condition.

(f) The prompt removal of earth or other material from paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 5)

4.05.00 GASEOUS CONTAMINANTS

4.05.01 Prohibition of Gaseous Contaminant Emissions.

No owner shall allow the operation of combustion installation and process equipment so as to disperse into the outdoor atmosphere gaseous contaminant emissions in such quantities or concentrations as to injure human, plant or animal life, or cause a condition of air pollution.

4.05.02 Sulfur Containing Gases and Compounds.

(a) Control of the Emission of Sulfur Dioxide From Fuel Burning Equipment.

(1) No person shall cause, suffer, allow, or permit sulfur dioxide caused by the combustion of fuel to be discharged from all combustion equipment at a given location in excess of the quantity shown on Graph 4.5.1 Curve A. In those regions, districts, or locations where attainment of the ambient air quality standards is required, the Board may require emission performance in accordance with Graph 4.5.1 Curve B and/or Curve C.

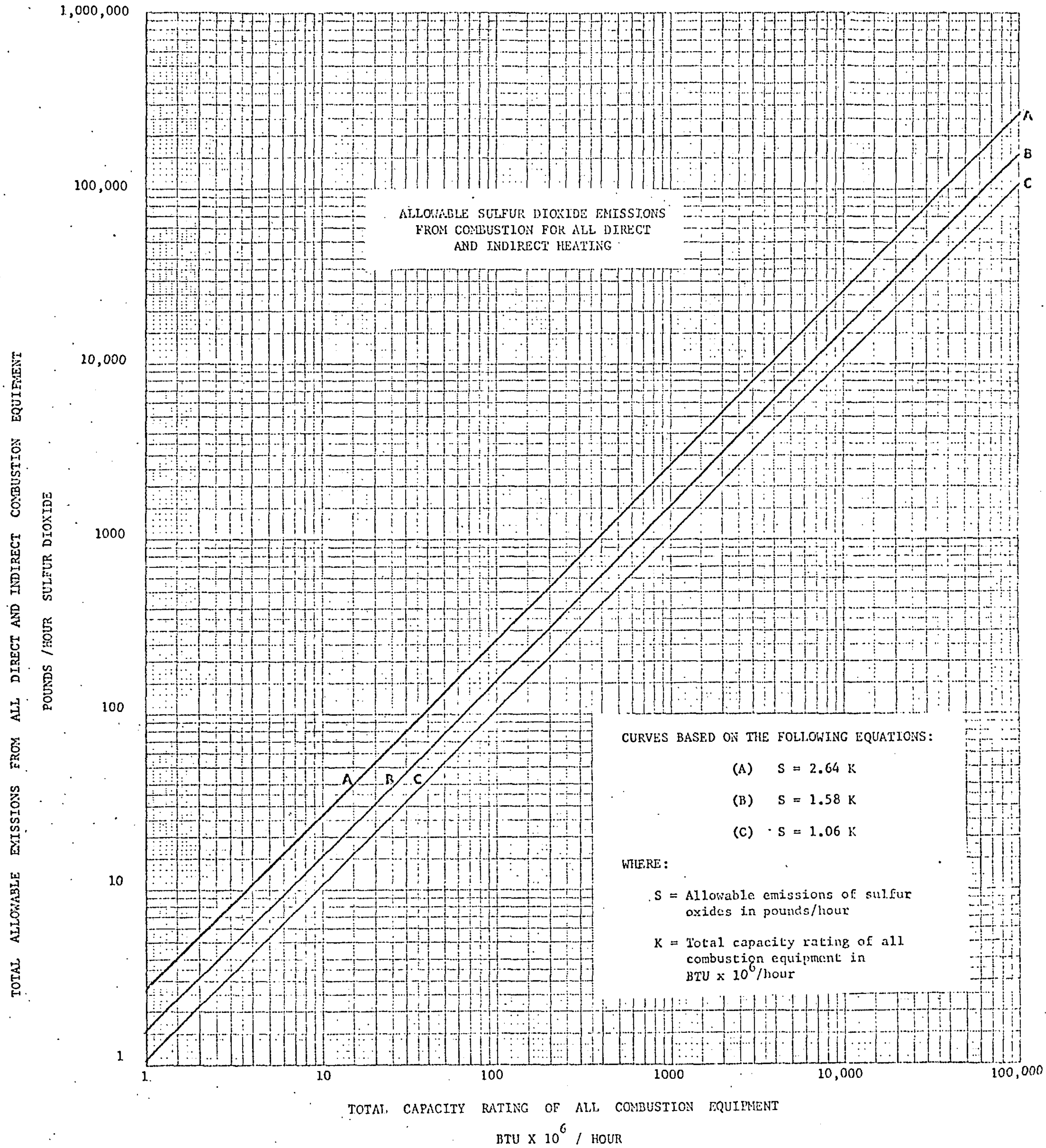
(b) Ocean Going Vessels.

(1) (Reserve for future regulations.)

(c) Sulfuric Acid Plants

(1) The sulfur dioxide in the tail gases from any existing sulfuric acid manufacturing operation shall not exceed a concentration of 2000 parts per million by volume and a mass emission rate of 27 pounds per ton of 100% acid

Graph 4.5.1


1,000,000
100,000
10,000
1000
100
10
1
1.
10
100
1000
10,000
100,000
A
B
C
ALLOWABLE SULFUR DIOXIDE EMISSIONS FROM COMBUSTION FOR ALL DIRECT AND INDIRECT HEATING
CURVES BASED ON THE FOLLOWING EQUATIONS:
(A) S = 2.64 K
(B) S = 1.58 K
(C) S = 1.06 K
WHERE:
S = Allowable emissions of sulfur oxides in pounds/hour
K = Total capacity rating of all combustion equipment in BTU x 10^6/hour
TOTAL ALLOWABLE EMISSIONS FROM ALL DIRECT AND INDIRECT COMBUSTION EQUIPMENT
POUNDS /HOUR SULFUR DIOXIDE
TOTAL CAPACITY RATING OF ALL COMBUSTION EQUIPMENT
BTU X 10^6 / HOUR

produced when elemental sulfur is used for feed material, or 3500 ppm by volume and a mass emission rate of 45 pounds per ton of 100% acid produced when other raw materials such as recycled spent acid and ores are used as feed. These emission levels may be exceeded for a period not longer than 24 hours during start-up.

(2) All plants must reduce acid mist emissions to not more than 5.0 mg. H_2SO_4 including uncombined SO_3 per standard cubic foot.

(d) Hydrogen Sulfide

No person shall cause or permit the continuing emission of any refinery process gas stream or any other process gas stream that contains H_2S in concentration greater than 15 grains per 100 cubic feet of gas without burning or removing H_2S in excess of this concentration provided that SO_2 emissions in burning operation meet the requirements of Paragraph 4.05.02.

(e) Sulfur Recovery Operation

The sulfur dioxide in the tail gases from existing sulfur recovery operations shall not exceed a concentration of 8000 parts per million by volume and shall not exceed a mass emission rate as specified in Table 4.5.1.

TABLE 4.5.1.

ALLOWABLE MASS EMISSION RATE OF SULFUR DIOXIDE
FOR SULFUR RECOVERY OPERATIONS

Sulfur Production Rate (tons 1 day)	SO_2 Mass Emission Rate (lbs. 1 hr.)
50	415
100	830
200	1660
300	2490
400	3320
500	4150

(f) Kraft Pulp Mill Total Reduced Sulfur Emissions

(1) All existing Kraft pulp mills shall submit to the Board a control program including detailed methods to reduce total reduced sulfur emissions using the best practicable technology for control of the total reduced sulfur emissions from recovery furnaces, lime kilns, digestors and multiple effect evaporators. The daily average value per quarter shall not exceed 1.2 pounds of total sulfur as H_2S per ton of equivalent air dry pulp from the above sources.

(2) Semi-Chemical Pulp Mills

(a) (Reserve for future inclusion)

(g) Lightweight Aggregate

No person shall cause, suffer, allow or permit sulfur dioxide caused by the kilning in light weight aggregate in excess of the quantity shown on Graph 4.5.1 Curve A.

(h) Non-Ferrous Smelters

No person shall cause or permit emissions of sulfur oxides from primary non-ferrous smelters to exceed that set forth according to the following equations.

Copper Smelters : $Y = 0.2X$

Zinc Smelters : $Y = 0.564X^{0.85}$

Lead Smelters : $Y = 0.98X^{0.77}$

Where X is the total sulfur fed to the smelter in Lb/hr and Y is the allowable sulfur emissions in lb/hr.

Note: This rule in effect, requires removal of about 90 percent of the input-sulfur to the smelter.

4.05.03 Control of Hydrocarbon Emissions Form Stationary Sources

(a) General Provision

The application of this section shall apply only to those areas or locations where the photo-chemical oxidant levels are designated by the Board as being excessive because of health effects or other reasons.

(b) Storage of Volatile Organic Compounds

No person shall place, store, or hold in any stationary tank reservoir or other container of more than 65,000 gallons capacity any volatile organic compounds unless such tank, reservoir, or other container is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the atmosphere or is designed, and equipped with one of the following vapor loss control devices:

A floating roof, consisting of a pontoon type, double deck type roof or internal floating cover, which will rest on the surface of the liquid contents and be equipped with a closure seal or seals to close the space between the roof edge and tank wall. This control eqipment shall not be permitted if the volatile organic compounds have a vapor pressure, whichever is limiting. All tank gauging or sampling devices shall be gas-tight except when tank gauging or sampling is taking place.

(2) A vapor recovery system, consisting of a vapor gathering system capable of collecting the volatile organic compound vapors and gases discharged and a vapor disposal system capable of processing such volatile organic vapors and gases so as to prevent their emission to the atmosphere and with all tank gauging and sampling devised gas-tight except when gauging or sampling is taking place.

(3) Other equipment or means of equal efficiency for purpose of air pollution control as may be approved by the Board.

(4) No person shall place, store, or hold in any stationary storage vessel of more than 250 gallons capacity any volatile organic compound unless such vessel is equipped to be filled through a submerged fill pipe or is a pressure tank as described in paragraph 4.05.03 (b) (1) or is fitted with a vapor recovery system as described in Section 4.05.03 (b) (1) (ii).

(c) Volatile Organic Compounds Loading Facilities

(1) No person shall load any volatile organic compounds into any tank truck or trailer from any loading facility handling more than 50,000 gallons per day unless such

loading facility is equipped with a vapor collection and disposal system or its equivalent, properly installed, in good working order, and in operation.

(2) No person shall load any volatile organic compounds into any tank truck or trailer from any loading facilities handling more than 50,000 gallons/day of such compounds unless such loading facility is equipped with a loading arm with a vapor collection adaptor, pneumatic, hydraulic, or other mechanical means shall be provided to force a vapor-tight seal between the adaptor and the hatch. A means shall be provided to prevent liquid organic compounds drainage from the loading device when it is removed from the hatch of any tank, truck or trailer, or to accomplish complete drainage before such removal. When loading is effected through means other than hatches, all loading and vapor lines shall be equipped with fittings which make vapor-tight connections and which close automatically when disconnected.

(d) Volatile Organic Compound Water Separation

No person shall use any compartment of any single or multiple compartment equipment designed to separate water from only volatile organic compounds which compartment received effluent water containing 200 gallons a day or more of any equipment processing, refining, treating, storing, or handling volatile organic compounds unless such compartment is equipped with one of the following vapor loss control devices, properly installed, in good working order, and in operation:

(1) A container having all openings sealed and totally enclosing the liquid contents. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(2) A container equipped with a floating roof, consisting of a pontoon type, double deck type roof, or internal floating cover, which will rest on the surface of the contents and be equipped with a closure seal or seals to close the space between the roof edge and container wall. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(3) A container equipped with a vapor recovery system consisting of a vapor gathering system capable of collecting the hydrocarbon vapors and gases discharged and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere and with all container gauging and sampling devised gas-tight except when gauging or sampling is taking place.

(4) A container having other equipment of equal efficiency for purposes of air pollution control as may be approved by the Board.

(e) Pumps and Compressors

All pumps and compressors handling volatile organic compounds shall have mechanical seals or other equipment of equal efficiency for purposes of air pollution control as may be approved by the Board.

(f) Waste Gas Disposal

(1) No person shall emit a waste gas stream from any plant producing ethylene for chemical feed stock or utilizing ethylene as a raw material into the atmosphere in excess of 40 pounds per day unless the waste gas stream is properly burned at 1300^{o} for 0.3 seconds or greater in a direct-flame afterburner or removed by other methods of comparable efficiency.

(2) No person shall emit continously hydrocarbon gases to the atmosphere from a vapor blowdown system unless these gases are burned by smokeless flares, or an equally effective control device as approved by the Board. This rule is not intended to apply to accidental, emergency, or other infrequent emissions of hydrocarbons, needed for safe operation of equipment and processes.

(g) Organic Solvents

(1) A person shall not discharge more than 15 pounds of organic materials to the atmosphere in any one day from any article, machine, equipment or other contrivance in which any organic solvent or any naterial containing organic solvent comes into contact with flame or is baked, heat-cured, or heat-polymerized, in the presence of oxygen unless such a discharge represents an overall recovery of 85% or greater.

(2) A person shall not discharge more than 40 pounds of organic material into the atmosphere in any one day from any article, machine, equipment, or other contri-

vance used under conditions other than described in paragraph 4.05.03 (g) (1), for employing, applying, evaporating, or drying any photochemically reactive solvent, as defined in paragraph 4.05.03 (g) (11), or material containing such solvent, unless all organic materials discharged from such article, machine, equipment or other contrivance have been reduced by at least 85% overall.

(3) Any series of articles, machines, equipment or other contrivances designed for processing a continuously moving sheet, web, strip, or wire which is subjected to any combination of operations described in paragraph 4.05.03 (g) (1) or 4.05.03 (g) (2) involving any photochemically reactive solvent, as defined in paragraph 4.05.03 (g) (11) or material containing such solvent, shall be subject to compliance with paragraph 4.05.03 (g) (2). Where only non-photochemically reactive solvents are employed or applied, and where any portion or portions of said series of articles, machines, equipment, or other contrivances involves operations described in paragraph 4.05.03 (g) (1) said portions shall be collectively subject to compliance with paragraph 4.05.03 (g) (1), provided, that the above limitations shall not apply to any complying industrial surface coating, which means any paint, lacquer, varnish, ink, adhesive, or other surface coating material, which emits to the atmosphere organic compounds which on condensation contain 20% by volume or less of photochemically reactive solvents; and provided further, that in determining percentage for water-based paints, the quantity of water shall

be in the calculation of percentage.

(4) Emissions of organic materials to the atmosphere from the clean-up with photochemically reactive solvents, as defined in paragraph 4.05.03 (g) (11) article, machine, equipment or other contrivances described in paragraph 4.05.03 (g) (1), 4.05.03 (g) (2), or 4.05.03 (g) (3), shall be included with the other emissions of organic materials from that article, machines, equipment or other contrivances for determining compliance with these regulations.

(5) Emissions of organic materials to the atmosphere as a result of spontaneously continuing drying of products for the first 12 hours after their removal from any article, machine, equipment, or other contrivance described in paragraphs 4.05.03 (g) (1), 4.05.03 (g) (2), or 4.05.03 (g) (3), shall be included with other emissions of organic materials from that article, machine, equipment, or other contrivance, for determining compliance with this rule.

(6) Emissions of organic materials into the atmosphere required to be controlled by paragraph 4.05.03 (g) (1) 4.05.03 (g) (2), or 4.05.03 (g) (3) shall be reduced by:

(a) Incineration, provided that 90 percent or more of the carbon in the organic material being incinerated is oxidized to carbon dioxide, or

(b) Absorption, or

(c) Processing in a manner determined by the Board to be not less effective than (a) or (b) above.

(7) A person incinerating, adsorbing, or other wise processing organic materials pursuant to this rule shall provide, properly install, and maintain in calibration, in good working order and in operation, devices as specified in the permit to construct or the control program to operate, or as specified by the Board, for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine the degree and effectiveness of air pollution control.

(8) Any person using organic solvents or any materials containing organic solvents shall supply the Executive Secretary or his representative upon request and in the manner and form prescribed by him, written evidence of the chemical composition, physical properties, and amount consumed for each organic solvent used.

(9) The provisions of this rule shall not apply to:

(a) The manufacture of organic solvents, or the transport or storage of organic solvents or materials containing organic solvents.

(b) The use of equipment for which other requirements are specified by 4.05.03 (a), 4.05.03 (b), or 4.05.03 (c) or which are exempt from air pollution control requirements by said rules.

(c) The spraying or application with other equipment of insecticides, pesticides, or herbicides.

(d) The employment, application, evaporation, or drying of saturated halogenated hydrocarbons, or organic compounds in which olefinic groups contain 3 or more halogen atoms.

(10) For the purpose of this rule, organic solvents include diluents and thinners and are defined as organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents.

(11) For the purpose of this rule, a photochemically reactive solvent is any solvent with an aggregate of more than 20 percent of its total volume composed of chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent:

(a) A combination of hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones having an olefinic or cyclo-olefinic type of unsaturation: 5 percent,

(b) A combination of aromatic hydrocarbons: 20 percent.

(12) For the purpose of this rule, organic materials are defined as chemical compounds of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate.

(h) Architectural Coatings

(1) A person shall not sell or offer for sale in containers exceeding one gallon capacity, any architectural coating containing photochemically reactive solvent, as defined in 4.05.03 (g) (11).

(2) A person shall not employ, apply, evaporate, or dry any

architectural coating, purchased in containers exceeding one gallon capacity, containing photochemically reactive solvent, as defined in 4.05.03 (g) (11).

(3) A person shall not thin or dilute any architectural coating with a photochemically reactive solvent, as defined in 4.05.03 (g) (11).

(4) For the purpose of this rule, an architectural coating defined as a coating used for residential, commercial buildings and their appurtenances, or industrial buildings.

(i) Disposal and Evaporation of Solvents

(1) A person shall not, during any one day, dispose of a total of more than 1½ gallons of any such photochemically reactive solvent by any means which will permit the evaporation of such solvent into the atmosphere.

4.05.04 Control of Carbon Monoxide Emissions

(a) General Provision

The application of this section shall apply only to those areas of locations where carbon monoxide levels are designated by the Board to have adverse health or other effects.

(b) No person shall emit carbon monoxide waste gas stream from any catalyst regeneration of a petroleum cracking system, petroleum coker, or other petroleum process or from the operation of a grey iron cupola, blast furnace, or basic oxygen steel furnace into the atmosphere unless (1) the waste gas stream is burned at 1300°F. for 0.3 seconds or greater in a direct-flame afterburner or boiler equipped with a combustion control indicator or (2) other devices or procedures are employed that reduce carbon monoxide emissions to levels comparable with a boiler or after burner installation.

4.05.05 Control of Nitrogen Oxides Emissions

(a) Nitric Acid Manufacture

No person shall cause, suffer, allow or permit the emission of nitrogen oxides from nitric acid manufacturing plants into the outdoor atmosphere in excess of 5.8 pounds per ton of 100% acid produced.

(b) Existing Fuel-Burning Equipment

(1) General Provision

The application of this section shall be made only in those areas or locations where the ambient levels of nitrogen oxides have been determined by the Board to be excessive due to health effects or for other reasons.

(2) No person shall cause, suffer, allow or permit nitrogen oxides caused by the combustion of fuel in existing fuel-burning equipment to be discharged into the outdoor atmosphere in excess of:

(a) 0.40 lb. per million BTU heat input, maximum 2-hour average expressed as NO_2 when gaseous fuel is burned.

(b) 0.70 lb. per million BTU heat input, maximum 2-hour average expressed as NO_2 when liquid fuel is burned.

(c) 0.90 lb. per million BTU heat input, maximum 2-hour average expressed as NO_2 when solid fuel is burned.

(c) Emission tests relating to this rule shall be made by generally recognized standards or methods or measurements. An accepted method may be found in the Annual Book of ASTM Standards: Standard Method of Test for OXIDES OF NITROGEN IN GASEOUS COMBUSTION PRODUCTS, D 1608-60 (Reapproved 1967). This test method may be adjusted or changed by the Board to suit specific sampling conditions or needs based upon good proctice, judgement and experience. When such adjustments are made, consideration shall be given by the Board to the effect of such change on emission standards.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 6)

4.06.00 ODOR

4.06.01 Scope.

This regulation shall apply to all operations that produce odorous emissions for which no other gaseous emission control standards are applicable.

4.06.02 Prohibition of objectionable Odor.

No person shall cause, suffer, allow or permit any source to discharge air contaminants which cause an objectionable odor without employing adequate measures for the control of odorous emissions, as may be approved by the Board.

4.06.03 Determination of Violation

The determination of objectionable odor is to be made after a through review of all data or evidence relating to the situation which may be obtained by an investigation directed by the Board, and by holding a public hearing to hear complaints as prescribed in these regulations. The investigation may include use of an odor panel survey and/or other methods approved by the Board.

4.06.04 Exception.

This Rule is not intended to be applied to accidental or other infrequent emissions of odors.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 7)

4.07.00 INCINERATORS

4.07.01 Prohibition of Smoke, Particulates and Odor Emissions from Incinerators.

No owner shall cause, suffer, allow or permit the operation of an incinerator so as to discharge into the outdoor atmosphere smoke, particulate, or odor sufficient to cause a condition of air pollution.

4.07.02 Determination of Violation

(a) Smoke From Incinerators.

Smoke emitted into the atmosphere from any incinerator shall not be darker in shade than No. 1 on the Ringelmann Chart; or of such opacity as to obscure an observer's view to a degree greater than does smoke designated as No. 1 on the Ringelmann Chart (when used as a measure of opacity).

(b) Odor From Incinerators.

Incinerators, including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emissions of objectionable odors.

(c) Visible Particulate Emissions.

No owner shall cause, suffer, allow or permit the discharge into the outdoor atmosphere particulate matter in excess of the emissions standards set forth in Paragraph 4.07.03.

4.07.03 Emission Standards for Existing Incinerators

Incinerators shall not discharge particulate matter in excess of 0.2 grains per standard cubic foot of dry flue gas corrected to 12% carbon dioxide (without the contribution of auxiliary fuel). This limitation shall apply when the incinerator is operating at design capacity.

4.07.04 Flue-Fed Incinerators

Flue-fed incinerators (those which use the same flue for feeding the refuse and discharging the gases of combustion) are prohibited for incineration usage.

4.07.05 Emission Testing

Emission tests relating to this rule shall be made by generally recognized standards or methods or measurement. Methods can be found in the ASME Power Test Code PTC-27 of Incinerator Institute of America Bulletin T-6 "Incinerator Testing" but these may be adjusted or changed by the Board to suit specific sampling conditions or needs based upon good practice, judgment and experience. When such tests are adjusted, consideration shall be given to the effect of such change on established emission standards.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 8)

4.08.00 COAL REFUSE DISPOSAL AREAS

4.08.01 Purpose.

This regulation is adopted for the purpose of preventing, abating, and controlling air pollution caused by air contaminants discharged from burning coal refuse disposal areas.

4.08.02 Operation of New Coal Refuse Disposal Areas Prohibited Without Prior Approval.

The operation of a coal refuse disposal area, not used for the purpose of coal refuse disposal prior to the effective date of this regulation, is prohibitied unless the procedures for disposal have been submitted to and approved by the Board prior to disposal. Application is to be made on forms provided by the Board.

4.08.03 Operation of Existing Coal Refuse Disposal Areas Prohibited Without Approval.

Within ninety (90) days after (a) the effective date of this regulation or (b) the application forms become available, whichever is later, or within such additional period as the Board may authorize, any person, firm, corporation or association who desires to continue the operation of an existing coal refuse disposal area shall make application to the Board, on forms provided by it, for approval to continue operation of such area. The operation of an existing coal refuse disposal area may continue while the application is under consideration by the Board and thereafter unless disapproved by the Board.

4.08.04 Guideline for Approval of Coal Refuse Disposal Areas.

(a) The procedure outlined in this section will be used as a basis for approval of coal refuse disposal areas; in no case shall refuse and like materials be deposited on or near any coal refuse disposal area.

(b) Site Selection

(1) Strip pits are considered to be suitable sites for the disposal of coal refuse. The overburden (i.e., rock clay, earth, etc. which must be removed to expose the coal seam) at strip pits are a ready source of seal for the refuse pile. Such piles when sealed with overburden are not likely to ignite because the spoil cover will prevent air from circulating within the pile and will also provide the pile with a blanket of non-combustible material.

(2) Hillsides are not desirable sites for the disposal of coal refuse. If a hillside is to be used as a disposal site for coal refuse, the site should be prepared so as to minimize the possibility of shifting of the pile and ignition of the coal refuse.

(3) Sites should be selected to minimize the possibility of stream pollution.

(c) Site Preparation

(1) All vegetation should be cleaned from a strip 10 feet wide adjacent to and surrounding the coal refuse pile. This will prevent accidental ignition of the coal refuse from brush fires.

(2) In case of strip pit sites, all coal outcrops should be protected by covering with a layer of clay or overburden.

(3) If an old coal refuse pile is to be reactivated and made

into a disposal area, a barrier of clay or other inert material should be placed between the old pile and the old pile and the new coal refuse.

(4) If a pile is to be located on a hillside, disposal procedures to prevent the slippage of coal refuse must be employed. One procedure to be considered is the construction of a properly designed trench at the base of the pile.

(5) If there is a possibility of stream pollution from drainage, run-off water should be diverted around the pile by trenching.

(d) Pile Construction

The following guidelines are to apply unless it can be demonstrated, to the satisfaction of the Board, that the proposed techniques in the application will achieve the same objectives.

(1) Depositing of coal refuse on the coal refuse pile in layers is desirable. Each layer should be compacted with coal refuse hauling trucks or other suitable equipment in order to reduce voids and minimize air circulation within the pile.

(2) Coal refuse should be deposited in layers not exceeding two feet in depth when practical. If the coal refuse is highly "reactive" each layer should be covered with a six-inch layer of clay or other inert material.

(3) The sides of the pile, when possible, should have a slope that will allow access for heavy equipment to the pile, if needed. It will also permit better compaction

of the sides and reduce air penetration into the pile.

(4) The slopes (sides) of the pile should be sealed with clay or other sealing materials so as to prevent the flow of air within the pile. The seal should be applied as the pile is constructed. The seal should be planted with rapid growing vegetation to prevent erosion.

(5) If mine rock cannot be adequately compacted when mixed or if it may cause size segregation when mixed with coal refuse, it should be disposed of in separate rock piles.

(6) Drainage ditches for run-off water should be provided to prevent erosion of the face of the pile.

(7) A pile should not be constructed by dumping coal refuse down the side of a hill, nor should a pile be extended by dumping down its side. A pile constructed in this manner cannot be compacted during construction. Also, this procedure will create many voids because of size segregation. If the coal refuse is highly reactive, the air circulation through the voids is likely to cause the coal refuse to ignite.

(8) Where practical hillside piles should be formed by terracing.

(9) If an aerial tramway, truck or belt conveyor is to be used to dispose of reactive coal refuse, bulldozers or other suitable equipment should be used to spread and compact the coal refuse.

(e) Trouble-Shooting

(1) The coal refuse piles should be patrolled frequently to (a) insure that proper disposal procedures are being followed and (b) detect "hot spots."

(2) As soon as a hot spot is detected, it should be either dug out and spread to cool or intensively compacted. This will minimize the chances of ignition.

(3) If the coal refuse has ignited, the burning portion of the pile should be isolated if possible from the rest of the pile by cutting a trench to the surface of the earth. The face of the non-burning portion should be covered with inert sealing material. The fire in the burning section of the pile should be promptly brought under control by one of the following, or any other effective method:

(a) Use water in conjunction with a shovel or bulldozer to dig out, level and extinguish the burning coal refuse.

(b) Level the top, grade the slopes, compact intensively and seal the entire surface of the pile.

(c) Seal the pile with a fine cleaning plant refuse (silt) and/or other suitable material.

(d) Grout with slurry of water and limestone or cement.

4.08.05 Deliberate Ignition of a Coal Refuse Disposal Area is Prohibited.

The deliberate ignition of a coal refuse disposal area or the ignition of any meterials on such an area by any person or persons is prohibited.

4.08.06 Burning Coal Refuse Disposal Areas.

(a) Each burning coal refuse disposal area which causes air pollution will be considered on an individual basis by the Board. After considering the established facts and circumstances of the particular case, the Board will determine and may order the effectuation of those air pollution control measures which the Board deams reasonably adequate for each such coal refuse disposal area;

(b) With respect to all other burning coal refuse disposal areas; the person responsible for such coal refuse disposal areas or the land on which such coal refuse disposal areas are located shall use due diligence to control air pollution from such coal refuse disposal areas. The Board shall determine what constitutes due diligence;

(c) When the Board determines that air pollution exists or may be created, the person responsible for such coal refuse disposal area or the owner of the land on which such coal refuse disposal area is located shall submit to the Board a satisfactory program setting forth methods and procedures to eliminate, prevent, or reduce such air pollution. This program shall be submitted within thirty (30) days after notification and shall contain sufficient information to establish that such program can be executed with due diligence.

4.08.07 Exceptions.

Nothing in this regulation is intended to permit any practice which is a violation of any statute, ordinance or regulation.

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 9)

4.09.00 COKE OVENS AND CHARCOAL KILNS

4.09.01 Beehive Coke Ovens.

Beehive coke ovens should be constructed so that all emissions, both gaseous and particulate matter, are directed through an air pollution control device prior to emission to the ambient atmosphere. The control device should also provide for the complete combustion of all gases emitted from the oven.

4.09.02 Other By-Product Coke Ovens.

(a) All by-product coke oven batteries shall have air pollution control equipment which will control contaminant emissions as effectively as is practicable.

(b) All by-product coke ovens shall control visible emissions to the extent provided in 4.02.01 (Rule 2) except as follows:

(1) When charging and discharging coke ovens, emissions of smoke the shade or appearance of which is not as dark as or darker than No. 2 on the Ringelmann Chart or the equivalent opacity of that Ringelmann Chart number shall be permitted for a period or periods aggregating no more than two (2) minutes per charge and one (1) minute per push.

4.09.03 Charcoal Kilns.

(a) Charcoal kilns should be constructed so that all emissions, both gaseous and particulate matter, are directed through an air pollution control device prior to emission to the ambient atmosphere. The control device should also provide for the complete combustion of all gases from the kiln.

(b) Screening and crushing areas, loading and transfer points or any other place within the plant where fugitive dust may originate should be enclosed and controlled.

(c) Any air pollution control device used should provide for control of all contaminant emissions as effectively as practicable.

Commonwealth of Virginia

STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

Section IV
(Rule 10)

4.10.00 MOTOR VEHICLE EMISSIONS

4.10.01 Prohibition of Acts Affecting Emissions from Motor Vehicles.

(a) No person shall cause, suffer, allow, or permit the removal, disconnection or disabling of a crankcase emission control system or device, exhaust emission control system or device, fuel evaporative emission control system or device, or other air pollution control system or device which has been installed on a motor vehicle in accordance with federal laws and regulations while such motor vehicle is operating in the Commonwealth of Virginia.

(b) Nor shall any person defeat the design purpose of any such motor vehicle pollution control system or device by installing therein or thereto any part or component which is not a standard factor replacement part or component of the device.

(c) Nor shall the motor vehicle or its engine be operated with the motor vehicle pollution control system or device removed or otherwise rendered inoperable.

(d) The provisions of the foregoing paragraphs under 4.10.01 shall not prohibit or prevent shop adjustments and/or replacements of equipment for maintenance or repair.

4.10.02 Visible Emission for Motor Vehicle

(a) No person shall cause or permit the emission of visible air contaminants from gasoline-powered motor vehicles for longer than 5 consecutive seconds after the engine has been brought up to operating temperature.

(b) No person shall cause or permit the emission of visible air contaminants from diesel-powered motor vehicles of a density equal to or greater than 20 percent opacity for longer than 5 consecutive seconds after the engine has been brought up to operating temperature.

(c) Commercial Vehicles, parked or left unattended for more than three (3) minutes in a business or residential area, must not be left with the engine running.

4.10.03 Determination of Violations.

(a) (Reserve for future system of inspections.)

APPENDIX A

MAJOR POLLUTANT SOURCES

CHEMICAL PROCESS INDUSTRIES

Adipic acid
Ammonia
Ammonium nitrate
Carbon black
Charcoal
Chlorine
Detergent and soap
Explosives (TNT and nitrocellulose)
Hydrofluoric acid
Nitric acid
Paint and varnish manufacturing
Phosphoric acid
Phthalic anhydride
Plastics manufacturing
Printing ink manufacturing
Sodium carbonate
Sulfuric acid
Synthetic fibers
Synthetic rubber
Terephthalic acid

FOOD AND AGRICULTURAL INDUSTRIES

Alfalfa dehydrating
Ammonium nitrate
Coffee roasting
Cotton ginning
Feed and grain
Fermentation processes
Fertilizers
Fish meal processing
Meat smoke houses
Starch manufacturing
Sugar cane processing

METALLURGICAL INDUSTRIES

Primary metals industries:
- Aluminum ore reduction
- Copper smelters
- Ferroalloy production
- Iron and steel mills
- Lead smelters
- Metallurgical coke manufacturing
- Zinc

Secondary metals industries:
- Aluminum operations
- Brass and bronze smelting
- Ferroalloys
- Gray iron foundries
- Lead smelting
- Magnesium smelting
- Steel foundries
- Zinc processes

MINERAL PRODUCTS INDUSTRIES

Asphalt roofing
Asphaltic concrete batching
Bricks and related clay refractories
Calcium refractories
Cement
Ceramic and clay processes
Clay and fly ash sintering
Coal cleaning
Concrete batching
Fiberglass manufacturing
Frit manufacturing
Glass manufacturing
Gypsum manufacturing
Lime manufacturing
Mineral wool manufacturing
Paperpulp manufacturing
Perlite manufacturing
Phosphate rock preparation
Rock, gravel, and sand quarrying and processing

PETROLEUM REFINING AND PETROCHEMICAL OPERATIONS

WOOD PROCESSING

PETROLEUM STORAGE (Storage tanks bulk terminals)

MISCELLANEOUS

Fossil fuel steam electric power plants
Municipal or equivalent incinerators
Open burning dumps

PREFACE

This PREFACE is intended to provide background information with reference to these REGULATIONS.

1. AIR POLLUTION CONTROL LAW OF VIRGINIA:

The Air Pollution Control Law of Virginia, enacted by the General Assembly of the Commonwealth of Virginia in 1966, and amended in 1968 and 1970, constitutes Title 10, Chapter 1.2 of the Code of Virginia (1950), as amended.

This law is administered by the State Air Pollution Control Board.

2. PROVISIONS OF THE VIRGINIA AIR POLLUTION CONTROL LAW PERTINENT TO THE ESTABLISHMENT AND IMPLEMENTATION OF REGULATIONS:

a. Public Policy:

It is declared to be the Public Policy of the Commonwealth to achieve and maintain such levels of air quality as will protect human health, welfare and safety and to the greatest degree practicable, prevent injury to plant and animal life and property, will foster the comfort and convenience of its people and their enjoyment of life and property, and will promote the economic and social development of the Commonwealth and facilitate the enjoyment of its attractions.

b. Definition of Air Pollution:

"Air Pollution" means the presence in the outdoor atmosphere of one or more substances which are or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interfere with the enjoyment by the people of life or property.

c. Powers and Duties of the Board:

The Board, at all times, shall have the power to develop a comprehensive program for the study, abatement and control of all sources of air pollution in the State; advise, consult and cooperate with agencies of the United States, and all agencies of the State, political subdivisions, private industry and any other affected groups in furtherance of the purpose of the law.

The Board, after having made an intensive and comprehensive study of air pollution in the various areas of the States, its causes, prevention, control and abatement, shall have the power to formulate, adopt and promote, amend and repeal rules and regulations (referred to herein as Regulations) abating, controlling, and prohibiting air pollution throughout the State or in such areas of the State as shall be affected thereby; provided that the provisions of the law with reference to public hearings, etc. are adhered to. The law further requires that the regulations shall not promote or encourage any substantial degradation of present air quality in any air basin or region which has an air quality superior to that stipulated in the regulations.

After the Board has adopted the regulations provided for in the Law, it shall have the power to: initiate and receive complaints as to air pollution; hold or cause to be held hearings and enter orders diminishing or abating the causes of air pollution and the enforcement of its regulations; institute legal proceedings, including suits for injunctions for the enforcement of penalties, all in accordance with the law.

The Board, in making regulations and in issuing orders is required to take into consideration all facts and circumstances bearing upon the reasonableness of the activity involved and the regulations proposed to control it, including:

(1) The character and degree of injury to, or interference with safety, health or the reasonable use of property which is caused or threatened to be caused;

(2) The social and economic value of the activity involved;

(3) The suitability or unsuitability of such activity to the area in which it is located; and

(4) The practicability, both scientific and economic, of reducing or eliminating the discharge resulting from such activity.

In all cases, the Board shall exercise a wide discretion in weighing the equities involved and the advantages and disadvantages to the residents of the area involved and to any lawful business, occupation or activity of any order or regulation.

3. FEDERAL CLEAN AIR ACT OF 1970:

Clean Air Act (42 U.S.C. 1857 et seq.) includes the Clean Air Act of 1963 (P.L. 88-206), and amendments made by the "Motor Vehicle Air Pollution Control Act"--P.L. 89-272 (October 20, 1965, the "Clean Air Act Amendments of 1966-- P.L. 89-675 (October 15, 1966), the Air Quality Act of 1967"--P.L. 90-148 (November 21, 1967),and the "Clean Air Amendments of 1970"--P.L. 91-604--(December 31, 1970).

This act is administered by the U. S. Environmental Protection Agency (EPA).

4. PROVISIONS OF FEDERAL CLEAN AIR ACT PERTINENT TO THE ESTABLISHMENT AND IMPLEMENTATION OF THESE REGULATIONS:

The requirements of this act are very comprehensive, but they may be very briefly summarized as follows:

(a) National Ambient Air Quality Standards:

Ambient Air Quality Standards established by EPA and applicable throughout the United States are contained in Section III of these regulations.

(b) Implementation Plans:

This section of the act requires that each State, after reasonable notice and public hearings, shall adopt and submit to the EPA Administrator for approval, a plan which provides for implementation, maintenance and enforcement of air quality standards in each air quality control regiôn within the State. This section further gives EPA the authority to prepare and publish regulations setting forth the implementation plan if the state fails to submit such a plan within the time prescribed or if the plan submitted is determined by EPA not to be in accordance with the requirements of the Clean Air Act.

(c) Standards of Performance for New or Modified Stationary Sources:

This provision of the act requires that EPA publish a list of categories of stationary sources and to promulgate regulations establishing Federal Standards of performance for new or modified sources within such categories. These new regulations when promulgated will be included in SectionV.

(d) National Emission Standards for Hazardous Air Pollutants:

The act requires that EPA publish a list which includes each hazardous air pollutant for which it intends to establish an emission standard, and to publish regulations establishing emissions standards for such pollutants.

5. ESTABLISHMENT OF REGULATIONS

(a) The procedures used in the establishment of Regulations is described in Section II, 2.01.

(b) It is the policy of the Board that Regulations adopted be realistic and workable.

6. APPLICATION OF REGULATIONS

It is the policy of the Board that:

(a) Application of Regulations and assignment of time schedules be reasonable.

(b) Where special regulations have been established by the Board for a Region or Regions, they will be applicable only in that or those Regions. State Regulations will be applicable in the remaining portions of the Commonwealth.

(c) Regulations be applied on an individual case basis to the extent necessary, as determined by the Board after considering all pertinent factors, based on meeting the following criteria:

(1) Maintenance of ambient air quality standards

(2) Prevention of public nuisance

(3) Prevention of substantial degradation of present air quality in any air basin or region which has an air quality superior to ambient air quality standards.

7. EFFECTIVE DATES OF REGULATIONS

It is anticipated that these Regulations will be modified and amended from time to time as a result of experience and available new information. Sections I,II,III,V, & VI and the Rules of Section IV will each become effective on the date given under its heading.

8. AUTHORITY FOR THESE REGULATIONS

The Secretary of the U. S. Health, Education and Welfare Department, under the provisions of the Air Quality Act of 1967, has designated the counties of Arlington, Fairfax, Loudoun, and Prince William and the independent cities of Alexandria, Fairfax, and Falls Church, as the Virginia portion of the National Capital Interstate Air Quality Control Region. The Administrator of the U. S. Environmental Protection Agency, under the provision of the Clean Air Act of 1970, confirmed this designation and the area was further designated as the Virginia Air Quality Control Region VII.

Under authority of Chapter 1.2 of Title 10, as amended, of the Code of Virginia of 1950, and pursuant to public hearing procedures required by law, these regulations have been adopted by the State Air Pollution Control Board for Region VII.

COMMONWEALTH OF VIRGINIA
VIRGINIA AIR POLLUTION CONTROL REGION VII
(NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION)

REGULATIONS FOR THE CONTROL AND
ABATEMENT OF AIR POLLUTION

TABLE OF CONTENTS

SECTION I

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

1.700 DEFINITIONS

1.700 Certain Terms Defined.

For the purpose of subsequent rules and regulations adopted or orders issued by the State Air Pollution Control Board under the provisions of Chapter 1.2, Title 10, Code of Virginia of 1950, as amended, the following additional words or terms shall have the meanings indicated:

AIR POLLUTION. Means the presence in the outdoor atmosphere of one or more substances or air contaminants which are or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interfere with the enjoyment by the people of life or property.

AIR POLLUTION CONTROL OFFICER. The agency or official of the local government designated by the governing body to enforce the local air pollution control ordinance within the local jurisdiction, or the official of the State Regional Office designated by the State Board to enforce Regional rules and regulations.

AIR QUALITY. Means the specific measurement in the ambient air of a particular air contaminant at any given time.

AIR TABLE. Shall mean a source consisting of a device using a gaseous separating medium for the primary purpose of improving the product quality.

AMBIENT AIR. Means the surrounding or outside air

PRIMARY AMBIENT AIR QUALITY STANDARD. A primary ambient air quality standard is that air quality which, allowing an adequate margin of safety, is requisite to protect the public health.

SECONDARY AMBIENT AIR QUALITY STANDARD. A secondary ambient air quality standard is that air quality which is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of air pollutants in the ambient air.

AREA SOURCE. Any small residential, governmental, institutional, commercial, or industrial fuel combustion operations; onsite waste disposal facility; motor vehicles, aircraft, vessels, or other transportation facilities; or other miscellaneous sources.

BOARD. Means the State Air Pollution Control Board, sometimes hereinafter referred to as "Board" or "State Board", or its duly authorized representative.

COMBUSTION INSTALLATION. A source consisting of any furnace, oven, kiln, incinerator, fuel,burning equipment, or any other stationary equipment in which solid, liquid, or gaseous materials are burned.

COMMENCING NEW SOURCE OR MODIFICATION. Shall mean any land clearance, excavation, or other substantial physical or financial commitment relating to the design criteria coverning preparation of a new site, or the beginning of a modification.

CONTAMINANT. Shall mean smoke, dust, soot, grime, carbon, or any other particulate matter, radioactive matter, noxious gas, acids, fumes, gases, odor, vapor, or any combination thereof.

CONTROL PROGRAM. Means control program submitted to the Board, voluntarily or upon request of the Board, by the owner of an existing and/or proposed new source, to establish pollution abatement goals and time schedules to achieve such goals, so as to ensure compliance by the owner with standards, policies and regulations adopted by the Board. In

BACHARACH SCALE. A graduated scale of shades of gray going from 0 through 10, with 0 being white and 10 being dense black, developed by the Bacharach Industrial Instrument Company and used to evaluate particulate matter in flue gas samples.

accordance with Section 10-17.21 of the Air Pollution Control Law of Virginia the control program will include such system and equipment information and projected operating performance as is required by the Board for evaluation of the probability of achieving goals of the control program.

DIRECTOR. Shall mean the Director or Executive Secretary of the State Air Pollution Control Board.

DUST. Solid particles projected into the air by natural forces, such as wind, volcanic eruption, or earthquake, and by mechanical or manmade processes such as crushing, grinding, milling, drilling, demolition, shoveling, conveying, screening, bagging, and sweeping.

EFFLUENT WATER SEPARATOR. Any source consisting of any tank, box, sump, or other container in which any volatile organic compound floating on or entrained or contained in water entering such tank, box, sump, or other container is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

EMERGENCY. Shall mean a sudden, unexpected and unforeseen condition of such public gravity and exigency as to require immediate action, or a condition which is predicted with reasonable certainty to require immediate action to carry out the purposes of this program.

EXISTING SOURCE. Shall mean any source which is in being on the effective date of these regulations or on which construction or modification has been commenced; except that any such existing source or any emission point from such existing source (where such source involves multiple emission points) which is modified after the effective date of these regulations shall be reclassified as a "new source".

FLY ASH. Particulate matter capable of being gas-borne or airborne and consisting of fused ash and partially burned or unburned fuel or other material from a combustion installation.

FOUNDRY CUPOLA. Shall mean a shaft type furnace used for melting of metals, consisting of, but not limited to, furnace proper, tuyeres, fans, or blowers, tapping spout, charging equipment, gas cleaning devices and other auxiliaries.

FOUNDRY OPEN HEARTH. Shall mean a furnace in which the melting and refining of metal is accomplished by the application of heat to a saucer type or shallow hearth in a closed chamber, consisting of, but not limited to, the furnace proper, checkers, flues, and stacks and other auxiliaries.

FUEL-BURNING EQUIPMENT. Shall mean a source consisting of any furnace, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

FUGITIVE DUST. Shall mean solid airborne particulate matter or dust emitted from any source other than a flue or stack.

FUMES. Minute particulate matter generated by the condensation of vapors from solid matter after volatilization from the molten state, or generated by sublimation, distillation, calcination or chemical reaction when these processes create airborne particles.

FURNACE. Shall mean an enclosed space provided for combustion.

GASOLINE. Shall mean any petroluem distillate having a Reid vapor pressure in the range of four (4) to fifteen (15) pounds at 100°F shall be considered as gasoline.

GASES. Formless fluids which, under standard conditions, occupy the space or enclosure and which can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature.

HAZARDOUS AIR CONTAMINANT. Means an air contaminant to which no ambient air quality standard is applicable and which may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.

HEATING VALUE. The heat released by combustion of one pound of fuel or other material measured in British Thermal Units (BTU) on an as received basis.

INCINERATOR. Shall mean any source consisting of a furnace and all appurtenances thereto designed for the destruction of refuse by burning. "Open Burning" is not considered incineration. For purposes of these rules, the destruction of any combustible liquid or gaseous material by burning in a flare or flare stack shall be considered incineration.

MANUFACTURING OPERATION. Any source consisting of any process or combination of physically connected dissimilar processes which is operated to effect physical and/or chemical changes in an article.

MATERIALS HANDLING EQUIPMENT. Any source consisting of any equipment used as a part of a process or combination of processes which does not effect a physical or chemical change in the material or in an article, such as, but not limited, to conveyors, elevators, feeders, or weighers.

MELT TIME. Shall mean the time in which the metal is melting and available at the spout or tap hole, excluding any time the equipment is idle, preheating or preparing for shutdown.

MIST. Shall mean a state of atmospheric obscurity produced by suspended liquid droplets.

MOBILE SOURCES. Means any vehicle, including, but not limited to any motor vehicle, truck, or other land craft, air craft, locomotive, bus or ship, rail vehicle, or water craft, which emits or may emit any air pollutant.

MODIFICATION. Shall mean any physical change in, or changein the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission or any air pollutant not previously emitted.

MOTOR VEHICLE. Any powered conveyance normally licensed by the Virginia Department of Motor Vehicles.

NEW SOURCE. Shall mean any source the construction or modification of which is commenced on or after the effective date of these regulations, and any source relocated from an approved site.

ODOR. The sensation resulting from stimulation of the human sense of smell.

OPACITY. The characteristic of a substance which renders it partially or wholly impervious to rays of light. Opacity as used herein generally refers to the obscuration of an observer's view.

OPEN BURNING. Shall mean the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the ambient air without passing through a stack, duct, or chimney.

OWNER. Means the State, a county, sanitary district, municipality, political subdivision, a public or private institution, corporation, association, firm or company organized or existing under the laws of this or any other state or country, lessee or person otherwise in possession of property, any person or individual, or group of persons or individuals, acting individually or as a group.

PARTICULATE MATTER. Shall mean any material, except water in uncombined form, that is or has been airborne and exists as a liquid or a solid at standard conditions.

PERSON. Shall mean any individual, corporation, cooperative, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision or agency thereof or any legal successor, representative, agent or agency of the foregoing.

PHYSICALLY CONNECTED. Any combination of processes connected by materials handling equipment and designed for simultaneous complementary operation.

POINT SOURCE. (1) Any stationary source causing emissions in excess of 100 tons per year of any pollutant for which there is a national standard in a region containing an area whose 1970 "urban place" population, as defined by the Bureau of Census, was equal to or greater than 1 million,

(2) Any stationary source causing emissions in excess of 25 tons per year of any pollutant for which there is a national standard in a region containing an area whose 1970 "urban place" population, as defined by the U.S. Bureau of the Census, was less than 1 million,

(3) Without regard to amount of emissions, stationary sources such as those listed in Appendix B.

PROCESS OPERATIONS. Means any source consisting of any method, form, action, operation, or treatment of manufacturing or processing, and shall include any storage or handling of materials or products before, during or after manufacturing or processing.

PROCESS UNIT. Means any step in a manufacturing operation which results in the emission of particulate matter to the atmosphere.

PROCESS WEIGHT. Means the total weight of all materials introduced into any source process operation which may cause any emissions of particulate matter. Process weight includes solid fuels charged, but does not include liquid and gaseous fuels charged or combustion air.

PROCESS WEIGHT RATE. Means a rate established as follows:

(a) For continuous or long-run steady-state source operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

(b) For cyclical or batch unit operations, or unit processes, the total weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period.

Where the nature of any process operation or the design of any equipment is such as to permit more than one interpretation of this definition, the interpretation which results in the minimum value for allowable emission shall apply.

PRODUCTION RATE. The weight of final product obtained per hour of operation. If the rate of product going to storage can vary the production rate shall be determined by calculation from the feed rates of raw material.

REFUSE. Includes garbage, rubbish and trade wastes;

(1) "Garbage" shall mean animal and vegetable matter such as that originating in houses, kitchens, restaurants, and hotels, produce markets, food service or processing establishments, greehouses, and hospitals, clinics or veterinary facilities.

(2) "Rubbish" shall mean solids not considered to be highly flammable or explosive such as, but not limited to, rags, old clothes, leather, rubber, carpets, wood, excelsior, paper, ashes, tree branches, yard trimmings, furniture, metal food containers, glass, crockery, masonry, and other similar materials.

(3) "Trade Wastes" shall mean all solid or liquid material resulting from construction, building operations, or the prosecution of any business, trade or industry such as, but not limited to, plastic products, chemicals, cinders and other forms of solid or liquid waste materials.

RINGELMANN CHART. A chart published as U.S. Bureau of Mines Information Circular 8333, dated May 1967.

SALVAGE OPERATIONS. Any source consisting of any business, trade or industry engaged in whole or in part in salvaging or reclaiming any product or material, such as, but not limited to, reprocessing of used motor oils, metals, chemicals, shipping containers, or drums, and specifically including automobile graveyards and junkyards as defined in Sec. 33-279.3 of the Code of Virginia of 1950, as amended.

SCREENING EQUIPMENT. Any equipment or device designed or used for the purpose of effecting particle size separations of materials.

SMOKE. Small gasborne particulate matter consisting predominantly by not exclusively of carbon, ash and other material in concentrations sufficient to form a visible plume.

SOILING INDEX. A measure of the soiling properties of suspended particles in air determined by drawing a measured volume of air through a known area of Whatman No. 4 filter paper for a measured period of time (normally two hours) expressed as COH's/1000 linear feet.

SOURCE. Any and all sources of emission of air contaminants, whether privately or publicly owned or operated, or person contributing to emission of air contaminants. Without limiting the generality of the foregoing, this term includes all types of business, commercial and industrial plants, works, shops and store, and heating and power plants or stations, buildings and other structures of all types.

STACK OR CHIMNEY. Shall mean any flue, conduit, or duct arranged to conduct emissions into the atmosphere.

STANDARD CONDITIONS. Shall mean a dry gas temperature of 70 degrees fahrenheit and a gas pressure of 14.7 pounds per square inch absolute.

STANDARD OF PERFORMANCE. Shall mean a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which the Board determines has been adequately demonstrated.

STATIONARY SOURCE. Shall mean all sources other than mobile sources.

SUBMERGED FILL PIPE. Any fill pipe the discharge opening of which is entirely submerged when the liquid level is 6 inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean that the fill pipe is adequately covered at all times during normal working of the tank.

THERMAL DRIER. Shall mean a device using fuel burning equipment for the primary purpose of reducing the moisture content of materials.

VOLATILE ORGANIC COMPOUNDS. Any compound, containing carbon and hydrogen or containing carbon and hydrogen in combination with any other element, which has a vapor pressure of 2.5 pounds per square inch absolute or greater under actual storage conditions.

Unless specifically defined in the Law or in the Rules and Regulations of the Board, the technical terms used by the Board have the meanings commonly ascribed to them by recognized authorities.

SECTION II

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

2.700 Procedures

2.701 Establishment of Regulations

Regulations for the control and abatement of air pollution are adopted, amended, or repealed only after:

(a) Thorough study of the need.

(b) Public Hearing

(c) Thorough study of comments made by the public.

(d) Adoption by the Board at a public meeting.

2.702 Effective Date of Regulations

No regulation, rule, amendment, or repeal will become effective until sixty days after adoption by the Board.

2.703 Enforcement of Regulations

(a) Whenever the Air Pollution Control Officer of any locality determines that there are reasonable grounds to believe that any owner has violated any provision of these Regional Regulations, he shall give notice of such alleged violation to the owner responsible therefor, as hereinafter provided. Such notice shall:

(1) Be put in writing.

(2) Include a statement of the reasons for its issuance.

(3) Order a reasonable time for the performance of any act it requires or for the discontinuance of the violation.

II.2 (a)

(4) Be delivered to the owner or his authorized agent or be served upon him in any manner allowed by law.

If the owner fails to comply with the order, the Air Pollution Control Officer shall institute such action as may be necessary to terminate the violation.

(b) Nothing in this section shall prevent the Air Pollution Control Officer from making efforts to obtain voluntary compliance through conference, warning, or other appropriate means.

2.704 Compliance Schedule

Except as otherwise specified, compliance with the provisions of these regulations shall be according to the following schedule.

(a) New Sources. All new point sources constructed after the effective date of these regulations shall comply as of going into operation.

(b) Existing Sources. All existing point sources and new point sources under construction, not in compliance as of the effective date of these regulations, shall be in compliance on June 30, 1972. If compliance is not possible by this date, the owner or person responsible for the operation of the installation within six months of the effective date of these regulations shall be submitted to the Board in a form and manner satisfactory to them a control plan and schedule to contain a date on or before which full compliance will be attained. If approved by the Board, such date will be the date on which the person shall comply. The Board may require persons submitting such a plan to submit periodic reports on progress in achieving compliance.

2.705 Action on Control Plans

(a) The Board shall act as early as practicable but within 90 days. The comments of the local jurisdiction concerned will be solicited and considered by the Board before action is taken.

(b) The owner shall be furnished copies of any objections to the control plan and may submit answers and comments, in duplicate, to the Board on such objections.

(c) The Board will consider the owner's answers and comments to any objections, and shall notify the owner in writing its reasons for conditional approval, or denial, of the control plan.

(d) If a control plan is denied or conditionally approved, an owner may, by filing a request within 30 days from the date he receives notice of denial or conditional approval, request a rehearing which shall be conducted as a formal hearing pursuant to Section 2.708 of these regulations, from which judicial review pursuant to Virginia Code Sec. 10-17.23:2 shall be available.

2.706 Variances

Pursuant to Sec. 10-17.18(c) of the Code of Virginia of 1950, as amended, the Board may in its discretion grant local variances to any rule or regulation adopted by the Board pursuant to Sec. 10-17.18(b) if it finds after a thorough investigation and hearing, after not less than 15 days prior notice, that local conditions warrant. This authority may be delegated by the Board to local jurisdictions which possess a legal and technical capability to effectively administer it.

2.707 Special Orders

The Board shall have the power to issue Special Orders pursuant to Sec. 10-17.18:1 of the Code of Virginia, as amended.

2.708 Hearings

(a) Hearings by the Board may take either of the following forms:

(1) The public hearing required before considering rules and regulations or before considering local variances in accordance with Sec. 10-17.18(b) and (c) of the Code of Virginia of 1950 as amended.

A public hearing may be held in connection with a regular or special meeting of the Board. The procedure for a public hearing shall conform to Sec. 9-6.6 except as modified by Sec. 10-17.18(b) and (c) of the Code of Virginia, as amended.

(2) The formal hearing for the determination of violations and the enforcement or review of its orders, rules and regulations in accordance with Sec. 10-17.18(d) of the Code of Virginia of 1950 as amended.

A formal hearing shall be conducted as part of the business of a regular or special meeting of the Board. The procedure for a formal hearing shall conform to Sec. 9-6.10 through 9-6.12 except as modified by Sec. lo-17.18(d) of the Code of Virginia as amended.

(b) Record of the Hearings by the Board may take any of the following forms:

(1) Oral statements or testimony at any hearing may be

stenographically or electronically recorded for transcription to written form.

(2) A copy of the transcript of public hearings, if available, will be provided within a reasonable time to any interested person upon written request and payment of the cost.

(3) Formal hearings will be recorded by a court reporter. Any person wishing to obtain a copy of the transcript may make arrangements directly with the court reporter to purchase copies.

2.709 Permits

(a) General Requirements

(1) Commencing on the effective date of these regulations, no owner shall cause or permit the commencement of construction of a new source or modification of any source without first obtaining from the Board a permit approving the location and basic pollution control design criteria of such source or the design of such modification and its operation.

(2) The Board will approve such construction or modification only if the applicant demonstrates to the satisfaction of the Board that the source can be expected to comply with applicable regulations.

(3) Local jurisdictions having a legal and technical capability to effectively administer this permit system may be granted authority by the Board to do so in accordance with procedures contained

herein and with such additional conditions as may be required by the Board.

(b) Applications

(1) Application for authority to construct or modify shall be made by the owner. If the applicant is a partnership or group other than a corporation, the application shall be made by an individual who is a member of the group. If the applicant is a corporation, the application shall be made by an officer of the corporation or his duly authorized representative. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor.

(2) A separate application is required for each source subject to rules and regulations. To aid in evaluating the source, additioanl information may be required by the Board.

(3) Each application shall be signed by the applicant. The signature of the applicant shall constitute an agreement that the applicant will assume responsibility for the construction, modification, or use of the source concerned in accordance with the rules and regulations and shall certify that the person signing is familiar with the information provided in it, and that to the best of his knowledge and belief such information is true, complete, and accurate.

(c) Information Required

(1) Each application for an authority to construct or modify shall include such information as may be re-

quired by the Board to analyze the effect of the proposed source on the ambient air quality of the area and the emission standards which are applicable. The information required would include not less than (but is not limited to) the following:

(i) siting information

(ii) general description of plant or modifications

(iii) complete information regarding proposed air pollution control facilities, and an inventory of type and quantity of pollutants to be emitted.

(d) Standards for Granting Authority to Construct or Modify. No authority to construct or modify and to operate will be granted unless the applicant shows to the satisfaction of the Board that:

(1) The source is designed and will be constructed or modified to operate without causing a violation of the applicable rules and regulations.

(2) The source is designed, built and equipped in accordance with established Federal Standards of Performance, or if none are applicable, with standards of performance established by the State Board.

(3) The source, as designed or modified, does not endanger maintenance or attainment of any applicable ambient air quality standard.

(4) The source, if required by the Board, shall be provided with:

(i) Sampling ports of a size, number and location as the Board may require,

(ii) Safe access to each port,

(iii) Instrumentation to monitor and record emission levels,

(iv) Any other sampling and testing facilities the Board may permit or require.

(5) If the air pollution control facilities do not perform in accordance with the agreed upon predicted performance, temporary operation and corrections will be in accordance with Sec. 2.709 (2) and (3).

(e) Action on Applications:

(1) The Board shall act as early as practicable but within 90 days. The comments of the local jurisdiction concerned will be solicited and considered by the Board before such action is taken.

(2) The owner shall be furnished copies of any objections to the application and may submit answers and comments, in duplicate, to the Board on such objections.

(3) The Board will consider the owner's answers and comments to any objections, and shall notify the owner in writing its reasons for conditional approval, or denial, of the application.

(4) If an application is denied or conditionally approved, an owner may, by filing a request within

30 days from the date he receives notice of denial or conditional approval, request a rehearing which shall be conducted as a formal hearing pursuant to Sec. 2.708(a) (2) of these regulations, from which judicial review pursuant to Virginia Code Ann. Sec. 10-17.2 shall be available.

(f) Performance Testing and Compliance.

(1) Within 60 days after placing a new or modified facility into operation, the owner shall schedule tests of the emissions in the manner acceptable to the Board. These tests may be witnessed by a representative of the Board.

(2) In case the performance does not meet the emission predicted and agreed upon, the owner may adjust and/or change the equipment as required and make additional tests witnessed by representatives of the Board, within a time period acceptable to the Board.

(3) In case the performance does not meet the emission agreed upon after a reasonable period of adjustment, the owner shall, upon instruction by the Board, immediately submit a control program in accordance with Sec. 2.705 of these regulations to achieve the agreed upon emission limitations.

(g) Exceptions.

An authority to construct and operate will not be required for:

(1) The installation or alteration of an air contaminant detector, air contaminant recorder, combustion controller, or combustion shut off controls.

(2) Air conditioning or ventilating systems not designed to remove air contaminants generated by or released from such equipment.

(3) Small Capacity fuel burning equipment, such as: process smoke house generators; devices that use gas as a fuel for space heating, air conditioning, or heating water; or heating water; or heating devices used in private dwelling with a BTU input of less than 1,000,000 BTU per hour.

(4) Internal combustion engines under 3000 H.P.

(5) Laboratory equipment used exclusively for chemical or physical analysis.

(6) Other sources of minor significance specified by the Board.

(h) Suspension or Revocation of Permit.

(1) The Board may, after a formal hearing pursuant to Sec. 2.708(2) of the regulations, suspend or revoke a permit for will ful or continued violation of regulations.

(2) Suspension or revocation of a permit to operate shall

2\. become effective 10 days after service of notice on the holder of the certificate.

(3) A permit to operate which has been revoked pursuant to these regulations shall be surrendered forthwith to the Board.

2.710 Registration

(a) On June 30, 1972, all persons owning and/or operating any existing point source shall have registered such source operations with the Board. The information required for registration shall be determined by the Board, and shall be provided in the manner specified by the Board.

(b) Persons owning and/or operating registered sources to be modified by changes which could significantly affect the emission characteristics of the source shall comply with Sec. 2.709.

2.711 Monitoring, Records, Reporting.

(a) The Board may require the owner or operator of any air contaminant source to: install, use, and maintain such monitoring equipment; sample such emission in accordance with approved methods; and maintain records and make periodic emission reports as required in Section (b).

(b) Records and reports as the Board shall prescribe on air contaminants or fuel shall be recorded, compiled, and submitted on forms furnished by the Board.

2.712 Sampling and Testing Methods.

(a) All tests shall be made and the results calculated in accordance with test procedures approved by the Board. All tests shall be made under the direction of persons qualified by training and/or experience.

(b) The Board may conduct tests of emissions of air contaminants from any source. Upon request of the Board the person responsible for the source to be tested shall provide necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

2.713 Malfunction of Equipment; Reporting.

(a) In case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Board at least twenty-four (24) hours prior to the planned shutdown. Such prior notice shall include, but is not limited to the following:

(1) Identification of the specific facility to be taken out of service as well as its location and permit number.

(2) The expected length of time that the air pollution control equipment will be out of service.

(3) The nature and quantity of emission of air contaminants likely to occur during the shutdown period.

(4) Measures such as the use of off-shift labor and equipment

that will be taken to minimize the length of the shut-down period.

(5) The reasons that it would be impossible or impractical to shut down the source operation during the maintenance period.

(b) In the event that any emission source, air pollution control equipment, or related facility breaks down in such a manner as to cause the emission of air contaminants in violation of this section the person responsible for such equipment shall immediately notify the Board by telephone of such failure or breakdown and provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. The Board shall be notified when the condition causing the failure or breakdown has been corrected and the equipment is again in operation.

2.714 Air Pollution Emergency Episodes

a. Under certain meteorological conditions, air pollutants may build up to levels that would cause imminent and substantial endangerment to the health of persons. To control and abate the build up of pollutants and to prevent an emergency episode the Director or his designated representative shall take such actions as may be required in accordance with appendix "A" after notification of appropriate governmental officials.

b. Conditions justifying the proclamation of air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the Director or his designated representative determines that accumulation of air pollutants in any place is attaining or has attained levels which could, if such levels are sustained, or exceeded, lead to a substantial threat to the health of persons.

c. Any person responsible for the operation of a source of air pollutants as set forth in appendix "B" shall prepare an emission reduction standby plan for reducing the emission of air pollutants during periods of an Air Pollution Alert, Air Pollution Warning, and Air Pollution Emergency. Standby Plans shall be designed to reduce or eliminate emissions of air pollutants in accordance with the objectives set forth in appendix "A", These standby plans shall be submitted to the Director or his designated representative within 30 days of the receipt of a request by the Director or his designated representative. Such standby plans shall be subject to the review and approval of the Director or his designated representative. If a standby plan does not effectively carry out the objectives as set forth in appendix "A", the Director or his designated representative may disapprove it, state his reasons for disapproval, and order the preparation of an amended standby plan.

d. The Director or his designated representative may order execution of any part of the source standby plan when the accumulation of pollutants in any place is attaining, or has attained levels which could, if such levels are sustained or exceeded, lead to a substantial threat to the health of persons.

2.715 Circumvention.

No owner shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which would otherwise violate these regulations (this section does not prohibit the construction of a stack or chimney).

2.716 Local Ordinances

(a) Ordinances

The governing body of any locality proposing to adopt an ordinance, or an amendment to an existing ordinance, relating to air pollution shall first obtain the approval of the State Board as to the provisions of such ordinance or amendment. The provisions of any such ordinance must be as strict as the State regulations. Approval of any local ordinance may be withdrawn if the Board determines that the local ordinance is not as strict as State regulations. Where an amendment to a State regulation causes a local ordinance to be less strict, a reasonable time will be allowed for the locality to amend its ordinance. A local governing body may grant a variance to any of its air pollution control ordinances providing a public hearing is held before doing so. At least 15 days prior notice will be given before each public hearing.

(b) Reports

Local ordinances will make provision for reporting monitoring data, the status of local abatement and control activities, the granting of variances, and any other required information to the State Air Pollution Control Board.

2.717 Relationship to Local Ordinances.

These Regional Rules are intended to reinforce local ordinances which have been adopted, or may in the future be adopted or amended, by each local government in accordance with Section 10-17.30 of the Code of Virginia of 1950, as amended, Any provisions of local ordinances which may be stricter than these Regional Rules adopted by the State Board shall take precedence over such Rules within the respective political subdivisions.

It is the intention of the State Board to coordinate activity among Air Pollution Control Officers of the several localities in the enforcement of these Regional Rules. The State Board will also provide technical and other assistance to local authorities in the devlelopment of air quality or emission standards, in the study of air pollution problems, and in the enforcement of local air pollution control ordinances and these Regional Rules.

The Board emphasized its intention to assist in the local enforcement of local air pollution control ordinances. It reserves the right, however, to hear appeals from any party aggrieved by any rule, regulation, order or requirement issued with respect to these Regional Rules, conduct investigations, and issue any appropriate orders.

2.718 Severability

If any provision of these regulations or the application thereof to any person or circumstances is held to be invalid, such invalidity shall not affect other provisions or application of any other part of these regulations which can be given effect without the invalid provisions or application, and to this end the provisions of these regulations and the various applications thereof are declared to be severable.

Section III

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

3.700 AIR QUALITY STANDARDS

3.701 General Provisions.

(a) Air quality standards are required to assure that ambient concentrations of air contaminants are consistent with established criteria and shall serve as the basis for effective and reasonable management of the air resources of the Commonwealth of Virginia.

(b) At such time as additional pertinent information becomes available with respect to applicable air quality criteria, such information shall be considered and the air quality standards revised accordingly.

(c) The absence of a specific air quality standard shall not preclude action by the Board to control contaminants to assure protection, safety, welfare, and comfort of the people of the Commonwealth of Virginia.

(d) The air quality standards established herein shall apply to all areas outside a source property line.

(e) Where applicable, all measurements of air quality shall be corrected to a reference temperature of 70° F and to a reference pressure of 14.7 pounds per square inch absolute.

3.702 Particulate Matter.

(a) Air quality standards are

(1) 60 micrograms per cubic meter - annual geometric mean.

(2) 150 micrograms per cubic meter - maximum 24 hr. concentration not to be exceeded more than once per year.

(b) Particulate matter shall be determined by the high volume method as described in Appendix B, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.703 Sulfur Oxides (Sulfur Dioxide)

(a) Air quality standards are

(1) 60 micrograms per cubic meter (0.02 ppm) - annual arithmetic mean.

(2) 260 micrograms per cubic meter (0.10 ppm) - maximum 24 hr. concentration not to be exceeded more than once per year.

(3) 1,300 micrograms per cubic meter (0.50 ppm) - maximum 3 hr. concentration not to be exceeded more than once per year.

(b) Sulfur dioxide shall be measured by the pararosaniline method as described in Appendix A, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.704 Carbon Monoxide.

(a) Air quality standards are:

(1) 10 milligrams per cubic meter (9 ppm) - maximum 8 hr. concentration not to be exceeded more than once per year.

(2) 40 milligrams per cubic meter (35 ppm) - maximum 1 hr. concentration not to be exceeded more than once per year.

(b) Carbon monoxide shall be measured by the nondispersive infrared spectrometry method, as described in Appendix C, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.705 Photochemical Oxidants.

(a) Air quality standard is

(1) 160 micrograms per cubic meter (0.08 ppm) - maximum 1 hr.

concentration not to be exceeded more than once per year.

(b) Photochemical oxidants shall be measured and corrected for interferences due to nitrogen oxides and sulfur dioxide by the method described in Appendix D, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.706 Hydrocarbons.

(a) Air quality standard for hydrocarbons is:

(1) 160 micrograms per cubic meter (0.24 ppm) - maximum 3 hr. concentration (6-9 am) not to be exceeded more than once per year.

(b) Hydrocarbons shall be measured and corrected for methane by the method described in Appendix E, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

(c) The hydrocarbon air quality standard is for use as a guide in determining hydrocarbon emission control required to achieve the photochemical oxidant standard.

3.707 Nitrogen Dioxide.

(a) Air quality standard is:

(1) 100 micrograms per cubic meter (0.05 ppm) - annual arithmetic mean.

(b) Nitrogen dioxide shall be measured by the method described in Appendix F, Part 410, Chapter IV, Title 42, Code of Federal Regulations, or by an equivalent method.

3.708 Dustfall.

(a) Geometric mean of monthly values for four consecutive months at any one location shall not exceed 15 tons per square mile per month (metric equivalent:0.525 milligrams per square centimeter

Section IV
(Rule 701)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.701.00 OPEN BURNING

4.701.01 Prohibition of Open Burning.

(a) No person or owner shall kindle or ignite, cause to be kindled or ignited or maintain any open fire in any public or private place outside any building except as provided in paragraph 4.701.02; however, such exceptions shall not allow the burning of rubber tires, asphaltic materials, used crankcase oil, inpregnated wood, or similar materials which produce dense smoke nor shall such exceptions permit any owner to conduct salvage operations by open burning.

(b) Open burning under the exceptions of paragraph 4.701.02 does not exempt or excuse a person from the consequences, damages or injuries which may result from such conduct, nor does it excuse or exempt any person from complying with all applicable laws, ordinances, regulations, and orders of the governmental entities having jurisdiction, even though the open burning is conducted in compliance with paragraph 4.701.02.

(c) All open burning permitted under paragraph 4.701.02, Exceptions, shall be immediately terminated upon the declaration by competent authority of an air pollution episode.

4.701.02 Exceptions

Exceptions to paragraph 4.701.01 are as follows:

IV.1.2

(a) Open fires may be set in performance of an official duty of any public health or safety officer, after notification of State and Local Air Pollution Control Agencies, if the fire is necessary for one or more of the following reasons or purposes:

(1) for the prevention of a fire hazard which cannot be abated by other means;

(2) for the instruction of public fire fighters under the supervision of a designated Fire Marshal;

(3) for the protection of public health.

(b) Fires may be used for cooking of food, provided no smoke violation or other nuisance is created.

(c) Open fires may be set for recreational purposes, such as camp fires, provided no smoke violation or nuisance is created.

(d) Salamanders or other devices may be used for heating by construction or other workers, provided no smoke violation or other nuisance is created.

(e) In those areas where provision for public collection of leaves is not made, the open burning of leaves is permitted.

(f) In those areas where regular refuse collection is not available, open burning of ordinary house hold trash by householders is permitted, provided that:

(1) garbage, dead animals and animal waste are not burned; and

(2) materials are not burned which create dense smoke (emissions of an opacity or darkness greater than

No. 2 on the Ringelmann Smoke Chart) or objectionable odors or any other emissions which may be injurious or noxious to people or property; and

(3) no nuisance is created.

(g) Open fires may be set for operation of craft exhibits, pageants of historical significance and for ceremonial occasions.

(h) Fires may be set in the course of agricultural operations in growing crops or raising fowl or animals provided no nuisance is created.

4.701.03 Variances

Beginning July 1, 1972, no open burning under the provisions of paragraphs 4.701.02 (e) and 4.701.02 (f) will be permitted except under a variance granted by appropriate local Air Pollution Control Boards or the State Air Pollution Control Board.

Section IV
(Rule 702)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.702.00 SMOKE OR OTHER VISIBLE EMISSIONS

4.702.01 Prohibition of Smoke or Other Visible Emissions

(a) No owner shall cause, suffer, allow or permit the discharge into the outdoor atmosphere from any single point of emission from a source any air pollutant which is

(1) darker in shade than smoke designated as No.1 on the Ringelmann Smoke Chart, or

(2) of such opacity as to obscure an observer's view to a degree greater than does smoke designated as No.1 on the Ringelmann Smoke Chart (when used as a measure of opacity).

4.702.02 Exceptions.

(a) If it can be demonstrated that emissions discharging from the single point of emission show that the emission is in compliance with applicable regulations on particulate emissions for the specific source in question, the Board may modify the requirements of this regulation.

(b) When starting a new fire or blowing tubes or cleaning a fire box, a person may discharge into the atmosphere from any single point of emission, emissions of a shade or density not darker than No.3 on the Ringelmann Smoke Chart or 60 percent opacity for brief periods.

(c) The limits of section 4.02.01 shall not apply when the opacity of the visible emission is due to the presence of uncombined water.

4.702.03 Traffic Hazard

No person shall discharge from any source whatsoever such quantities of air contaminants, umcombined water, or other materials which may cause a traffic hazard.

Section IV
(Rule 703)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.703.00 PARTICULATE EMISSION FROM FUEL BURNING EQUIPMENT

4.703.01 Emission Standards

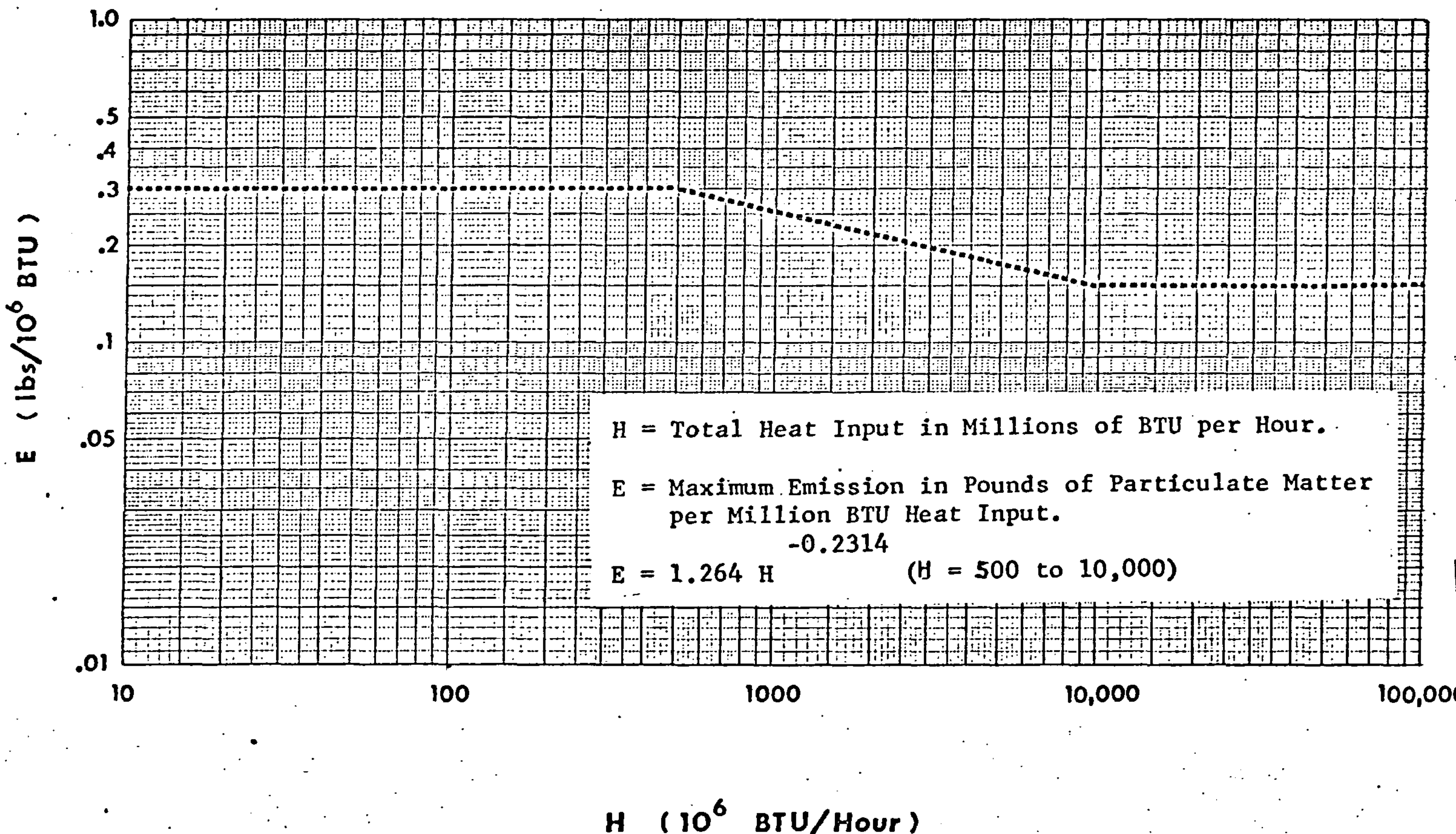
No owner shall cause or allow to be emitted into the outdoor atmosphere from any fuel burning equipment or premises, or to pass a convenient measuring point near the stack outlet, particulate matter in the flue gases to exceed the limits set by Figure 4.703.1. For those installations with heat input of up to 500 million BTU/hour, maximum allowable emissions are 0.3 pounds /million BTU. For those installations with heat input between 500 million BTU/hour and 10,000 million BTU/hour, maximum allowable emissions are calculated by the formula $E = 1.264\ H^{-0.2314}$ where H is the total heat input in millions pf BTU per hour and E is the maximum allowable emissions in pounds of particulate matter per million BTU heat input. For those installations with heat input of over 10,000 million BTU/hour, the maximum allowable emissions are 0.15 pounds per million BTU.

4.703.02 Bacharach Standard

No owner shall cause or allow to be emitted into the outdoor atmosphere from any fuel burning equipment or to pass a convenient measuring point near the breeching, smoke which exceeds Number 3 on the Bacharach Scale, or the equivalent.

FIGURE 4.703.1

Allowable Particulate Emissions from Fuel Burning Equipment



Section IV
(Rule 704)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.704.00 PARTICULATE MATTER

4.704.01 Restriction of emission of Particulate Matter.

(a) The maximum allowable emission of particulate matter from any source whatever except fuel-burning equipment and incinerators shall be determined from Figure 4.704.1. Where the process weight (moisture free basis) per hour falls between two values in the figure, the maximum weight discharged per hour shall be determined by linear interpolation. Where the process weight is in excess of 60,000 pounds per hour, there shall not be discharged in any one hour from any source whatsoever particulate matter in excess of 40 pounds per hour.

4.704.02 Control of Fugitive Particulate Matter.

No person shall cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but not limited to, the following.

(a) Use, where possible, water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

(b) Application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can create airborne dusts;

(c) Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations;

(d) Open equipment for conveying or transporting materials likely to become airborne shall be covered, or treated in an equally effective manner at all times when in motion.

(e) The paving of roadways and their maintenance in a clean condition.

(f) The prompt removal of earth or other material from paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water.

FIGURE 4.704.1

Process Wt/hr (lbs)	Maximum Weight Disch/hr (lbs)
50	0.24
100	0.46
150	0.66
200	0.85
250	1.03
300	1.20
350	1.35
400	1.50
450	1.63
500	1.77
550	1.85
600	2.01
650	2.12
700	2.24
750	2.34
800	2.43
850	2.53
900	2.62
950	2.72
1000	2.80
1100	2.97
1200	3.12
1300	3.26
1400	3.40
1500	3.54
1600	3.66
1700	3.79
1800	3.91
1900	4.03
2000	4.14
2100	4.24
2200	4.34
2300	4.44
2400	4.55
2500	4.64
2600	4.74
2700	4.84
2800	4.92
2900	5.02
3000	5.10
3100	5.18
3200	5.27
3300	5.35
3400	5.44
3500	5.52
3600	5.61
3700	5.69
3800	5.77
3900	5.85
4000	5.93
4100	6.01
4200	6.08
4300	6.15
4400	6.22
4500	6.30
4600	6.37
4700	6.45
4800	6.52
4900	6.60
5000	6.67
5500	7.03
6000	7.37
6500	7.71
7000	8.05
7500	8.39
8000	8.71
8500	9.03
9000	9.36
9500	9.67
10000	10.00
11000	10.63
12000	11.28
13000	11.89
14000	12.50
15000	13.13
16000	13.74
17000	14.36
18000	14.97
19000	15.53
20000	16.19
30000	22.22
40000	28.30
50000	34.30
60000 or more	40.00

Section IV
(Rule 705)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.705.00 GASEOUS CONTAMINANTS

4.705.01 Prohibition of Gaseous Contaminant Emissions.

(a) No owner shall allow the operation of combustion installation and process equipment so as to disperse into the outdoor atmosphere gaseous contaminant emissions in such quantities or concentrations as to injure human, plant or animal life, or cause a condition of air pollution.

4.705.02 Sulfur Containing Gases and Compounds.

(a) Control of the Emission of Sulfur Dioxide from Fuel Burning Installations.

(1) No person shall cause, suffer, allow, or permit sulfur dioxide caused by the combustion of fuel to be discharged from all combustion equipment at a given location in excess of the quantity shown by Curve A, Figure 4.705.1.

(2) If necessary to achieve and maintain the ambient air quality standards, the Board may require emission standards in accordance with Curve B, Figure 4.705.1.

(b) Ocean Going Vessels.

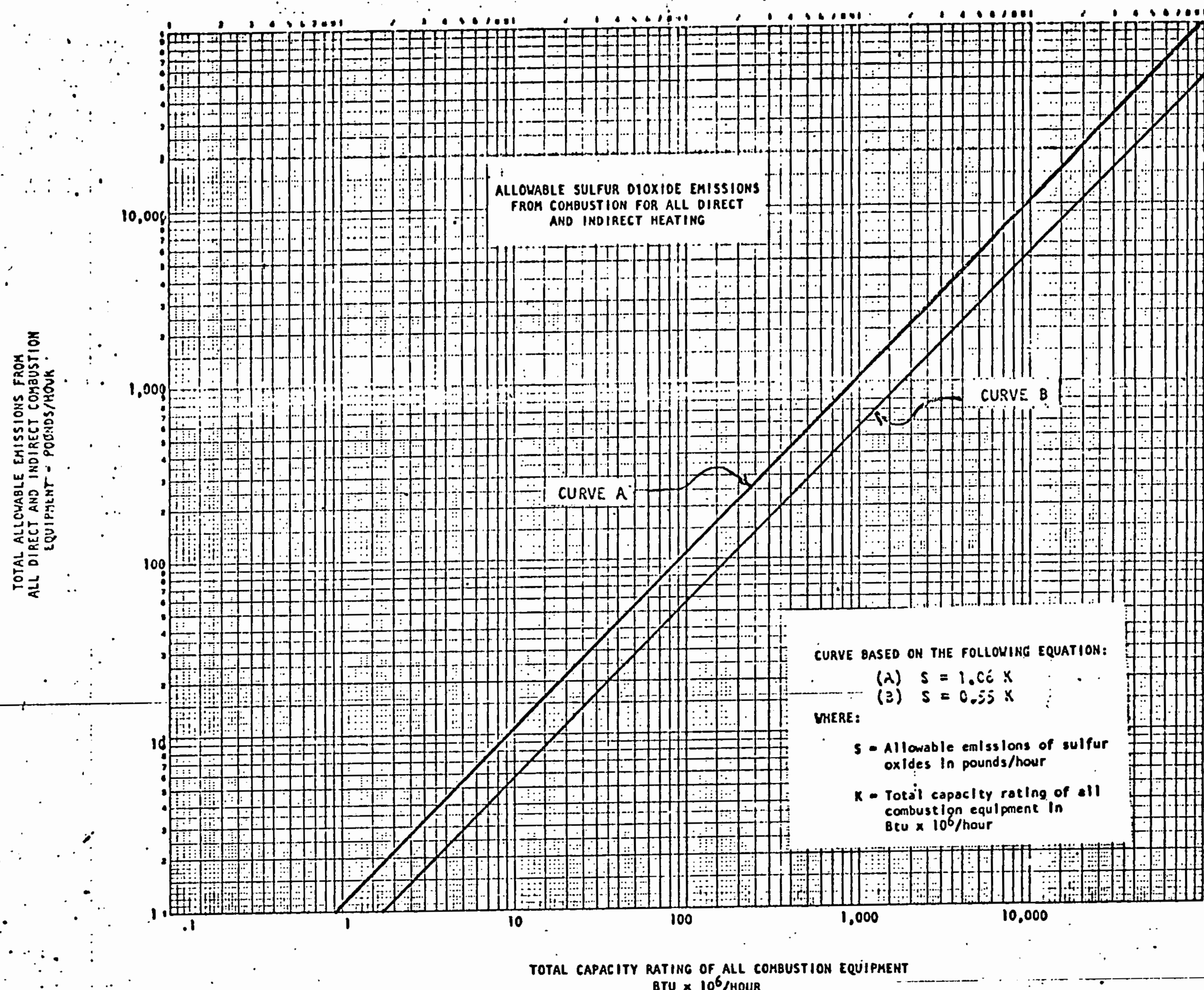
(1) (Reserve for future regulations)

4.705.03 Control of Hydrocarbon Emissions From Stationary Sources

(a) General Provision

(1) The application of this section shall apply only to those areas or locations where the photo-chemical oxidant levels are designated by the Board as being

FIGURE 4.705.1



excessive because of health effects or other reasons.

(b) Storage of Volatile Organic Materials

(1) No person shall place, store, or hold in any stationary tank reservoir or other container of more than 65,000 gallons capacity any volatile organic compounds unless such tank, reservoir, or other container is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the atmosphere or is designed, and equipped with one of the following vapor loss control devices:

(i) A floating roof, consisting of a pontoon type, double deck type roof or internal floating cover, which will rest on the surface of the liquid contents and be equipped with a closure seal or seals to close the space between the roof edge and tank wall. This control equipment shall not be permitted if the volatile organic compounds have a vapor pressure of 17.0 pounds per square inch absolute or greater at 100°F or 15 pounds Reid vapor pressure, whichever is limiting. All tank gauging or sampling devices shall be gas-tight except when tank gauging or sampling is taking place.

(ii) A vapor recovery system, consisting of a vapor gathering system capable of collecting the volatile organic compound vapors and gases discharged and a vapor disposal system capable of processing such volatile organic vapors and gases so as to prevent their emission to the atmosphere and with all tank gauging and sampling devices gas-tight except when gauging or sampling is taking place.

(iii) Other equipment or means of equal efficiency for purposes of air pollution control as may be approved by the Board.

(iv) No person shall place, store, or hold in any stationary storage vessel more than 250 gallons capacity any volatile organic compound unless such vessel is equipped to be filled through a submerged fill pipe or is a pressure tank as described in paragraph 4.705.03(b) (1) or is fitted with a vapor recovery system as described in Section 4.705.03(b)(1)(ii).

(c) Volatile Organic Materials Loading Facilities

(1) No person shall load any volatile organic compounds into any tank truck or trailer from any loading facility handling more than 50,000 gallons per day unless such loading facility is equipped with a vapor collection and disposal system or its equivalent, properly installed, in good working order, and in operation.

(2) No person shall load any volatile organic compounds into any tank truck or trailer from any loading facility handling more than 50,000 gallons/day of such compounds unless such loading facility is equipped with a loading arm with a vapor collection adaptor, pneumatic, hydraulic, or other mechanical means shall be provided to force a vapor-tight seal between the adaptor and the hatch. A means shall be provided to prevent liquid organic compounds drainage from the loading device when it is removed from the hatch of any tank, truck or trailer, or to accomplish complete drainage before such removal. when loading is effected through means other than hatches, all loading and vapor lines shall be equipped with fittings which make vapor-tight connections and which close automatically when disconnected.

(d) Volatile Organic Compound Water Separation

(1) No person shall use any compartment of any single or multiple compartment equipment designed to separate water from only volatile organic compounds which compartment received effluent water containing 200 gallons a day or more of any equipment processing, refining, treating, storing, or handling volatile organic compounds unless such compartment is equipped with one of the following vapor loss control devices, properly installed, in good working order, and in operation:

IV.5.6

(i) A container having all openings sealed and totally enclosing the liquid contents. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(ii) A container equipped with a floating roof, consisting of a pontoon type, double deck type roof, or internal floating cover, which will rest on the surface of the contents and be equipped with a closure seal or seals to close the space between the roof edge and container wall. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking palce.

(iii) A container equipped with a vapor recovery system consisting of a vapor gathering system capable of collecting the hydrocarbon vapors and gases discharged and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere and with all container gauging and sampling devices gas-tight except when gauging or sampling is taking place.

(iv) A container having other equipment of equal efficiency for purposes of air pollution control as may be approved by the Board.

(e) Pumps and Compressors

(1) All pumps and compressors handling volatile organic compounds shall have mechanical seals or other equipment of equal efficiency for purposes of air pollution control as may be approved by the Board.

(f) Waste Gas Disposal

(1) No person shall emit a waste gas stream from any plant producing ethylene for chemical feed stock or utilizing ethylene as a raw material into the atmosphere in excess of 40 pounds per day unless the waste gas stream is properly burned at 1300^{o} for 0.3 seconds or greater in a direct-flame afterburner or removed by other methods of comparable efficiency.

(2) No person shall emit continuously hydrocarbon gases to the atmosphere from a vapor blowdown system unless these gases are burned by smokeless flares, or an equally effective control device as approved by the Board. This rule is not intended to apply to accidental emergency, or other infrequent emissions of hydrocarbons, needed for safe operation of equipment and processes.

(g) Organic Solvents

(1) A person shall not discharge more than 15 pounds of organic materials in to the atmosphere in any one day

from any article, machine, equipment or other contrivance in which any organic solvent or any material containing organic solvent comes into contact with flame or is baked, heat-cured, or heat-polymerized, in the presence of oxygen unless such a discharge represents an overall recovery of 85% or greater.

(2) A person shall not discharge more than 40 pounds of organic material into the atmosphere in any one day from any article, machine, equipment, or other contrivance used under conditions other than described in paragraph 4.705.03(g)(1), for employing applying, evaporating or drying any photochemically reactive solvent, as defined in paragraph 4.705.03 (g)(11), or material containing such solvent, unless all organic materials discharged from such article, machine, equipment or other contrivance have been reduced by at least 85% overall.

(3) Any series of articles, machines, equipment or other contrivances designed for processing a continuously moving sheet, web, strip, or wire which is subjected to any combination of operations described in paragraph 4.705.03 (g)(1) or 4.705.03 (g)(2) involving any photochemically reactive solvent, as defined in paragraph 4.705.03 (g)(11) or material containing such solvent, shall be subject to compliance with paragraph 4.705.03

(g)(2). Where only non-photochemically reactive solvents are employed or applied, and where any portion or portions of said series of articles, machines, equipment, or other contrivances involves operations described in paragraph 4.705.03 (g)(1) said portions shall be collectively subject to compliance with Paragraph 4.705.03 (g)(1), provided, that the above limitations shall not apply to any complying industrial surface coating, which means any paint, lacquer, varnish, ink, adhesive, or other surface coating material, which emits to the atmosphere organic compounds which on condensation contain 20% by volume or less of photochemically reactive solvents; and provided further, that in determining percentage for water-based paints, the quantity of water shall be in the calculation of percentage.

(4) Emissions of organic materials to the atmosphere from the clean-up with photochemically reactive solvents, as defined in Paragraph 4.705.03 (g)(11) article, machine, equipment or other contrivance described in paragraph 4.705.03 (g)(1), 4.705.03 (g)(2), or 4.705.03 (g)(3), shall be included with the other emissions or organic materials from that article, machines, equipment, or other contrivances for determining compliance with this rules.

(5) Emissions of organic materials to the atmosphere as a result of spontaneously continuing drying of products for the first 12 hours after their removal from any article, machine, equipment, or other contrivance described in Paragraphs 4.705.03 (g)(1), 4.705.03 (g)(2), or 4.705.03 (g)(3), shall be included with other emissions of organic materials from that article, machine, equipment, or other contrivance, for determining compliance with this rule.

(6) Emissions of organic materials into the atmosphere required to be controlled by Paragraph 4.705.03 (g)(1), 4.705.03, ot 4.705.03(g)(3) shall be reduced by:

(a) Incineration, provided that 90 percent or more of the carbon in the organic material being incinerated is oxidized to carbon dioxide, or

(b) Absorption, or

(c) Processing in a manner determined by the Board to be not less effective than (a) or (b) above.

(7) A person incinerating, adsorbing, or otherwise processing organic materials pursuant to this rule shall provide, properly install, and maintain in calibration, in good working order and in operation, devices as specified in the authority to construct or the permit to operate, or as specified by the

Board, for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine the degree and effectiveness of air pollution control.

(8) Any person using organic solvents or any materials containing organic solvents shall supply the Board, upon request and in the manner and form prescribed by him, written evidence of the chemical composition, physical properties, and amount consumed for each organic solvent used.

(9) The provisions of this rule shall not apply to:

(a) The manufacture of organic solvents, or the transport or storage of organic solvents or materials containing organic solvents.

(b) The use of equipment for which other requirements are specified by 4.705.03 (a), 4.705.03 (b), or 4.705.03 (c) or which are exempt from air pollution control requirements by said rules.

(c) The spraying or other equipment of insecticides, pesticides, or herbicides.

(d) The employment, application, evaporation, or drying of saturated halogenated hydrocarbons, or perchlorethylene.

(10) For the purpose of this rule, organic solvents

include diluents and thinners and are defined as organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents.

(11) For the purpose of this rule, a photochemically reactive solvent is any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent:

(a) A combination of hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones having an olefinic or cyclo-olefinic type of unsaturation: 5 percent,

(b) A combination of aromatic hydrocarbons: 20 percent

(12) For the purpose of this rule, organic materials are defined as chemical compounds of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate.

(h) Architectural Coatings

(1) A person shall not sell or offer for sale for use in containers of onegallon capacity or larger, any architectural coating containing photochemically reactive solvent, as defined in 4.705.03 (g)(11).

(2) A person shall not employ, apply, evaporate, or dry any architectural coating, purchased in container of one galloncapacity or larger, containing photochemically reactive solvent, as defined in 4.705.03 (g)(11).

(3) A person shall not thin or dilute any architectural coating with a photochemically reactive solvent, as defined in 4.705.03 (g)(11).

(4) For the purpose of this rule, an architectural coating is defined as a coating used for residential or commercial buildings and their appurtenances; or industrial buildings.

(i) Disposal and Evaporation of Solvents

(1) A person shall not, during any one day, dispose of a total of more than 1 1/2 gallons of any such photochemically reactive solvent by any means which will permit the evaporation of such solvent intothe atmosphere.

Section IV
(Rule 706)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.706.00 ODOR

4.706.01 Prohibition of Objectionable Odor

No owner shall allow the emission into the outdoor atmosphere of any odor which is determined upon investigation by the Air Pollution Control Officer to be objectionable to the extent that it causes an unreasonable interference with the enjoyment by the people of life or property, in accordance with the provisions of State Rule 4.06.00.

Section IV
(Rule 707)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.707.00 INCINERATORS

4.707.01 Prohibition of Particulate Emission from Incinerators

No owner shall cause or allow to be emitted into the outdoor atmosphere from any existing incinerator or premises or to pass a convenient measuring point near the stack outlet particulate matter to exceed 0.20 grains/SCF adjusted to 12% Carbon Dioxide. Use of flue-fed incinerators (those which use the same flue for feeding the refuse and discharging the gases of combustion) as an incinerator is prohibited.

Section IV
(Rule 708)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.708.00 (Reserved)

Section IV
(Rule 709)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.709.00 (Reserved)

Section IV
(Rule 710)

Commonwealth of Virginia
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS

4.710.00 MOTOR VEHICLE EMISSIONS

4.710.01 Prohibition of Acts Affecting Emissions from Motor Vehicles.

(a) No person shall cause, suffer, allow, or permit the removal, disconnection or disabling of a crankcase emission control system or device, exhaust emission control system or device, fuel evaporative emission control system or device, or other air pollution control system or device which has been installed on a motor vehicle in accordance with federal laws and regulations while such motor vehicle is operating in the Commonwealth of Virginia.

(b) Nor shall any person defeat the design purpose of any such motor vehicle pollution control system or device by installing therein or thereto any part or component which is not a standard factory replacement part or component of the device;

(c) Nor shall the motor vehicle or its engine be operated with the motor vehicle pollution control system or device removed or otherwise rendered inoperable.

(d) The provisions of the foregoing paragraphs under 2.1 shall not prohibit or prevent shop adjustments and/or replacements of equipment for maintenance or repair.

4.710.02 Visible Emission for Motor Vehicle

(a) No person shall cause or permit the emission of visible air contaminants from gasoline-powered motor vehicles for longer than 5 consecutive seconds after the engine has been brought up to normal operating temperature.

(b) No person shall cause or permit the emission of visible air contaminants from diesel-powered motor vehicles of a density equal to or greater than 20 percent opacity for longer than 5 consecutive seconds after the engine has been brought up to normal operating temperature.

(c) Commercial Vehicles, parked or left unattended for more than three (3) minutes in a business or residential area, must not be left with the engine running.

4.710.03 Determination of Violations.

(a) (Reserve for future system of inspections.)

APPENDIX A

STATE REGION VII
VIRGINIA PORTION
NATIONAL CAPITAL INTERSTATE AIR QUALITY CONTROL REGION

AIR POLLUTION EMERGENCY EPISODE SYSTEM

I GENERAL REQUIREMENTS

A. An Air Pollution Emergency Episode System is to establish standards and procedures to be followed whenever pollution of the air has the potential of reaching an emergency condition if allowed to go unchecked.

B. Whenever the Director or his designated representative determines the accumulation of air pollution may attain, is attaining or has attained a level or levels considered injurious to human health, conditions of air pollution designated as Forecast, Alert, Warning and Emergency shall be declared. In making a determination, the criteria defined in Section II shall be used as guidance.

C. To assure compliance with this regulation, sources designated by the Director shall submit standby emission reduction plans in accordance with Section III. In accordance with such standby emission reduction plans, standby orders as specified in Section IV shall be implemented as a designated level is reached.

D. Nothing contained in this regulation shall be construed as allowing, permitting or maintaining an emission from any installation in the Region to be subjected to a lesser degree of control than may be required for existing or new regulations adopted by the Board or other appropriate authority.

II A. A condition justifying the proclamation of a Forecast, Alert, Warning or Emergency shall be deemed to exist whenever the Director or his designated representative determines that the accumulation of one or more air pollutants in any place, locality, county or other area in the

Region may attain, is attaining or has attained levels which could, if such levels are sustained or exceeded, lead to a threat to the health of the public. In making this determination the specified conditions in subsections II B, II C and II D shall be used as guidance.

B. Episode Criteria

1. Forecast Stage

An internal administrative watch shall be declared by the Regional Director of Region 7 whenever the national, local or state meteorologist issues a forecast indicating an atmospheric stagnation will cover any substantial portion of the Commonwealth of Virginia for an extended period. Such a weather forecast will indicate meteorological conditions which are expected to inhibit pollutant dispersion. The watch shall be in effect for those areas of the Region covered by the weather forecast and it shall continue throughout the atmospheric stagnation period.

Such weather forecasts indicating atmospheric stagnation will take the form of:

a) An Atmospheric Stagnation Advisory including any substantial part of the Commonwealth of Virginia issued by the National Meteorological Center (NMC).

b) A regional Air Stagnation Advisory including any substantial part of the Commonwealth of Virginia issued by the local meteorologist at the Enviromental Meteorological Support Unit (EMSU).

c) A forecast by the State meteorologist indicating localized meteorological conditions which inhibit dispersion for an extended period of time.

2. Alert Stage

An Alert shall be declared by the Director or his designated representative when any one of the following pollutant levels is reached at any monitoring site concurrent with:

a) Consultation with the national, local or state meteorologist which indicates that an atmospheric stagnation exists and/or

b) A determination by the Director or his designated representative that the pollutant level is representative of air quality in the Region and the concentrations of pollutants can be expected to remain at these levels for 12 hours. Consultation with the air pollution control agencies of the affected jurisdictions will be accomplished to help evaluate local situations.

Pollutant	Concentration	(One hour average)
Sulfur dioxide	0.15 ppm	(429 μg/m3)
Oxidants	0.10 ppm	(200 μg/m3)
Carbon monoxide	20. ppm	(23 mg/m3)
Particulates	2.5 COHS/1000 LF	
Nitrogen dioxide	0.6 ppm	(1130 μg/m3)
SO_2 and Particulate combined.	The product of SO_2 ppm, 24 hour average and COHs equal to 0.2 or the product of SO_2 and particulate concentration in ug/m3, 24 hour averages equals $65x10^3$.	

3. Warning Stage

A Warning shall be declared by the Director or his designated representative when any one of the following pollutant levels is reached at any monitoring site concurrent with:

a) Consultation with the national, local or state meteorologist which indicates that an atmospheric stagnation exists and/or

b) A determination by the Director of his designated representative that the pollutant level is representative of air quality in the Region and the concentrations of pollutants can be expected to remain at these levels for 12 hours. Consultation with the air pollution control agencies of the affected jurisdictions will be accomplished to help evaluate local situations.

Pollutant	Concentration		(One hour average)
Sulfur dioxide	0.3	ppm	(858 μg/m3)
Oxidants	0.15	ppm	(300 μg/m3)
Carbon monoxide	30.	ppm	(34 mg/m3)
Particulates	5.	COH/1000 LF	
Nitrogen dioxide	1.2	ppm	(2260 μg/m3)
SO_2 and Particulate combined.	The product of SO_2 ppm, 24 hour average and COHs equal to 1.0 or the product of SO_2 and particulate concentration in μg/m3, 24 hour averages equals 327×10^3.		

4. Emergency Stage

An Emergency shall be declared by the Governor of the Commonwealth of Virginia when any one of the following pollutant levels is reached at any monitoring site concurrent with:

a) Consultation with the national, local or state meteorologist which indicates that an atmospheric stagnation exists and/or

b) A determination by the Director or his designated representative that the pollutant level is representative of air quality in the Region and the concentrations of pollutants can be expected to remain at these levels for 12 hours. Consultation with the air pollution control agencies of the affected jurisdictions will be accomplished to help evaluate local situations.

Pollutant	Concentration		(One hour average)
Sulfur dioxide	0.7	ppm	(2002 µg/m3)
Oxidants	0.3	ppm	(600 µg/m3)
Carbon monoxide	50.	ppm	(5715 mg/m3)
Particulates	7.	COHS/1000 LF	
Nitrogen dioxide	1.6	ppm	(3000 µg/m3)
SO_2 and Particulate combined.	The product of SO_2 ppm, 24 hour average and COHs equal to 2.0 or the product of SO_2 and particulate concentration in µg/m3, 24 hour averages equals 650×10^3.		

5. Termination

Termination of all stages of the Air Pollution Emergency Episode System shall be called by the Director or his designated representative or the Governor of the Commonwealth of Virginia based on:

a) Consultation with the national, local or state meteorologist which indicates that the atmospheric conditions justify termination and/or

b) Appropriate reduction in pollutant levels. As the criteria for a given level are no longer being met, the next lower level will be assumed.

C. An episode condition has been reached if ambient air quality is measured to be in excess of the designated levels at any monitoring site in the Region except when elevated pollution levels exist in an area that may be reduced by controlling emissions from one or a few individual sources contributing to the condition. Such a localized condition shall be known as an incident, and the involved individual sources shall be subject to the same provisions as listed for the abatement of an episode.

D. The Alert, Warning, and Emergency stages may be activated on the basis of deteriorating air quality alone; i.e., an atmospheric stagnation forecast need not be in effect, subject to the determinations specified in subsections II B2b, II B3b and II B4b.

III Standby Emission Reduction Plans

A. Any person responsible for the operation of an installation specifically identified in Tables I, II and III of this section shall prepare standby emission reduction plans, consistent with good industrial practice and safe operating procedures, for reducing emissions creating air pollution during periods of Alért, Warning and Emergency. Standby emission. reduction plans shall be designed to reduce or eliminate emissions in accordance with the objectives set forth in Tables I, II and III as applicable.

B. Any person responsible for the operation of a source of emissions not specifically identified under subsection III A shall, when requested by the Director in writing, prepare standby emission reduction plans, consistent with good industrial practice and safe operating procedures, for reducing emissions creating air pollution during periods of Alert, Warning and Emergency. Standby emission reduction plans shall be designed to reduce or eliminate emissions in accordance with the objectives set forth in Tables I, II and III as applicable.

C. Standby emission reduction plans as required in subsections III A and III B shall be in writing and show the source of emissions, the approximate amount of reduction of emissions to be achieved, the time necessary to achieve the reduction after being notified to implement the plan, and a description of the manner in which the reduction will be achieved during an Alert, Warning and Emergency period in accordance with the objectives set forth in Table I, II, and III. Such plans shall be submitted in the form specified by the Director.

D. During a condition of Alert, Warning or Emergency, standby emission reduction plans as required by this section shall be made immediately available on the premises to any person authorized to enforce regulations.

promulgated under terms of the Air Pollution Control Law of Virginia.

E. Standby emission reduction plans as required by this section shall be submitted to Director upon request within 30 days of the receipt of such request; such standby emission reduction plans shall be subject to review and approval by the Director. If, in the opinion of the Director, such standby emission reduction plans do not carry out the objectives set forth in Tables I, II, and III, the Director may disapprove ~~of~~ said standby emission reduction plans, state the reason for disapproval and recommend specific amendments to the proposed standby emission reduction plans. The revised plan shall be re-submitted within a time period specified by the Director. Any person aggrieved by an order requiring the preparation of a revised plan shall be entitled to an appeal under the provisions of Title 10 of the Code of Virginia of 1950 as amended. If any person fails to submit a standby emission reduction plan within the time period specified, which in the opinion of the Director does not carry out the objectives set forth in Table I, II and III, the Director shall promulgate such standby emission reduction plan as will meet the objectives stated in Tables I, II and III herein. Such plan shall thereafter be the standby emission reduction plan which the person responsible shall put into effect upon the declaration by the Director or the Governor of an air pollution episode Alert, Warning or Emergency.

IV Control Requirements

A. When the Director declares an Air Pollution Alert, any person responsible for the operation of a source of air pollutants as set forth in Table I shall take all Air Pollution Alert actions as required for such source of air pollutants and shall put into effect the preplanned abatement strategy for an Air Pollution Alert.

B. When the Director declares an Air Pollution Warning, any person responsible for the operation of a source of air pollutants as set forth in Table II shall take all Air Pollution Warning actions as required for such source of air pollutants and shall put into effect the preplanned abatement strategy for an Air Pollution Warning.

C. When the Governor declares an Air Pollution Emergency, any person responsible for the operation of a source of air pollutant as described in Table III shall take all Air Pollution Emergency actions, as required for such source of air pollutants and shall put into effect the preplanned abatement strategy for an Air Pollution Emergency.

D. When the Director determines that a specified criteria level has been reached at one or more monitoring sites solely because of emissions from a limited number of sources, he shall notify such source(s) that the preplanned abatement strategies of Tables I, II and III of the standby plans are required, insofar as it applies to such source(s), and shall be put into effect until the criteria of the specified level are no longer met.

E. When the Director determines that a specific pollutant level caused the declaration of an Alert or Warning Stage and that curtailment of emissions from certain sources would have no effect on that pollutant level, he may exercise good judgment in determining which abatement strategies shall be put into effect.

V Participation of Local Air Pollution Control Offices

Local Air Pollution Control Officers shall develop local plans which will establish standard operating procedures and allocation of responsibilities to be placed in effect in the event of an air pollution emergency episode. A copy of such plans shall be furnished the Director and the Regional Office and changes to the plans shall be reported to the Director and the Regional Office as they occur.

TABLE I—ABATEMENT STRATEGIES EMISSION REDUCTION PLANS

ALERT LEVEL

Part A. General

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between 12 m. and 4 p.m.
3. Persons operating fuel-burning equipment which required boiler lancing or soot blowing shall perform such operations only between the hours of 12 m. and 4 p.m.
4. Persons operating motor vehicles should eliminate all unnecessary operations.

Part B. Source curtailment

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

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

TABLE II—EMISSION REDUCTION PLANS

WARNING LEVEL

Part A. General

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

Part B. Source curtailment

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

Source of air pollution	*Control action*
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content. b. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Maximum reduction by diverting electric power generation to facilities outside of Warning Area.
2. Oil and oil-fired process steam generating facilities.	a. Maximum reduction by utilization of fuels having the lowest available ash and sulfur content. b. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Making ready for use a plan of action to be taken if an emergency develops.
3. Manufacturing industries which require considerable lead time for shut-down including the following classifications. Petroleum Refining. Chemical Industries. Primary Metals Industries. Glass Industries. Paper and Allied Products.	a. Maximum reduction of air contaminants from manufacturing operations by, if necessary, assuming reasonable economic hardships by postponing production and allied operation. b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gases, vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.
4. Manufacturing industries require relatively short lead times for shut-down including the following classifications. Primary Metals Industries. Chemical Industries. Mineral Processing Industries. Grain Industry.	a. Elimination of air pollutants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment. b. Elimination of air pollutants from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

TABLE III—EMISSION REDUCTION PLANS

EMERGENCY LEVEL

Part A. General

1. There shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form.

2. The use of incinerators for the disposal of any form of solid or liquid waste shall be prohibited.

3. All places of employment described below shall immediately cease operations.

a. Mining and quarrying of nonmetallic minerals.

b. All construction work except that which must proceed to avoid emergent physical harm.

c. All manufacturing establishments except those required to have in force an air pollution emergency plan.

d. All wholesale trade establishments; i.e., places of business primarily engaged in selling merchandise to retailers, or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.

e. All offices of local, county and State government including authorities, joint meetings, and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county, or State government, authorities, joint meetings and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.

f. All retail trade establishments except pharmacies, surgical supply distributors, and stores primarily engaged in the sale of food.

g. Banks, credit agencies other than banks, securities and commodities brokers, dealers, exchanges and services; offices of insurance carriers, agents and brokers, real estate offices.

h. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments; photographic studios; beauty shops, barber shops, shoe repair shops.

i. Advertising offices; consumer credit reporting, adjustment and collection agencies; duplicating, addressing, blueprinting; photocopying, mailing, mailing list and stenographic services; equipment rental services, commercial testing laboratories.

j. Automobile repair, automobile services, garages.

k. Establishments rendering amusement and recreational services including motion picture theaters.

l. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.

4. All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air pollutants from their operation by ceasing, curtailing, or postponing operations which emit air pollutants to the extent possible without causing injury to persons or damage to equipment.

5. The use of motor vehicles is prohibited except in emergencies with the approval of local or State police.

Part B. Source curtailment

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

Source of air pollution	*Control action*
1. Coal or oil-fired electric power generating facilities.	a. Maximum reduction by utilization of fuels having lowest ash and sulfur content. b. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing. c. Maximum reduction by diverting electric power generation to facilities outside of Emergency Area.
2. Coal and oil-fired process steam generating facilities.	a. Maximum reduction by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage. b. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing. c. Taking the action called for in the emergency plan.
3. Manufacturing industries of the following classifications. Primary Metals Industries. Petroleum Refining. Chemical Industries. Mineral Processing Industries. Grain Industry. Paper and Allied Products.	a. Elimination of air pollutants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment. b. Elimination of air pollutants from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 m. to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

APPENDIX B

MAJOR POLLUTANT SOURCES

✓CHEMICAL PROCESS INDUSTRIES

Adipic acid
Ammonia
Ammonium nitrate
Carbon black
Charcoal
Chlorine
Detergent and soap
Explosives (TNT and nitrocellulose)
Hydrofluoric acid
Nitric acid
Paint and varnish manufacturing
Phosphoric acid
Phthalic anhydride
Plastics manufacturing
Printing ink manufacturing
Sodium carbonate
Sulfuric acid
Synthetic fibers
Synthetic rubber
Terephthalic acid

✓ FOOD AND AGRICULTURAL INDUSTRIES

Alfalfa dehydrating
Ammonium nitrate
Coffee roasting
Cotton ginning
Feed and grain
Fermentation processes
Fertilizers
Fish meal processing
Meat smoke houses
Starch manufacturing
Sugar cane processing

✓ METALLURGICAL INDUSTRIES

Primary metals industries:
- Aluminum ore reduction
- Copper Smelters
- Ferroalloy production
- Iron and steel mills
- Lead smelters
- Metallurgical coke manufacturing
- Zinc

Secondary metals industries:
- Aluminum operations
- Brass and bronze smelting
- Ferroalloys

Secondary metals industries (cont.)
- Gray iron foundries
- Lead smelting
- Magnesium smelting
- Steel foundries
- Zinc processes

✓ MINERAL PRODUCTS IDUSTRIES

Asphalt roofing
Asphaltic concrete batching
Bricks and related clay refractories
Calcium refractories
Cement
Ceramic and clay processes
Clay and fly ash sintering
Coal cleaning
Concrete batching
Fiberglass manufacturing
Frit manufacturing
Glass manufacturing
Gypsum manufacturing
Lime manufacturing
Mineral wool manufacturing
Paperboard manufacturing
Perlite manufacturing
Phosphate rock preparation
Rock, gravel, and sand quarrying and processing

✓ PETROLEUM REFINING AND PETROCHEMICAL OPERATIONS

WOOD PROCESSING

✓PETROLEUM STORAGE (Storage tanks bulk terminals)

MISCELLANEOUS

✓ Fossil fuel steam electric power-plants
Municipal or equivalent incinerators
Open burning dumps

REGION VI POLLUTION CONTROL STRATEGY, PARTICULATES

The Norfolk metropolitan area, with its industry and power stations, contains a high concentration of particulate producing sources along the estuaries of Hampton Roads, south of the city center. Particulate readings in the area far exceed short period National Air Quality Standards, and even exceed annual average standards by a significant amount. The excellent natural ventilation of the city, located on a flat coastal plain, is not enough to purify the air, so pollution control measures are definitely required.

Summary of Suspended Particulate Observations

There are a sufficient number of high volume samplers in the Norfolk area, along with a great variety of wind and weather conditions, to assume that a proportional reduction of all large emission source "across the board" would cause a similar proportional reduction in air quality readings, on an annual basis. The long term observation records of particulates are shown in the following table: (ug/M^3)

Location	Ann. Geo. Mean	Fall	Winter	Spring	Max. 24 hr.
Chesapeake-Adm Rd.	86	89	99	107	394
Chesapeake-Sewage Plt.	90	-	143	115	796
Newport News	60	91	63	75	489
Norfolk	(64)	51	63	79	201
Portsmouth	(57)	54	52	65	139

Meteorological Considerations

The seasonal prevailing wind and mixing depth changes of a typical coastal city such as Norfolk are broadly evident in the pollution tables. Winter north winds clear the city area, but produce maximum pollution of Chesapeake, south of the industrial area. Spring sea breeze inversions give the highest average pollution over the whole region. Autumn stagnant air appears to keep pollution close to its sources.

Control Strategy for Particulate Emissions

The approach is a straightforward application of the proportional reduction model suggested by EPA. Given a set of annual average air quality readings and a current emission inventory, the task is to reduce emissions by proposed regulations and to predict air quality, assuming long term weather repeatability and a given background pollution level.

All of the major emitters in Region 6, producing more than 25 tons of particulates per year were analyzed and listed to show on a pounds per hour basis:

- current process and combustion emissions.
- current percentage of control.
- Individual computation of emissions permitted by proposed Virginia regulations.
- projected emission growth to 1975 under the proposed regulations.

The following table is a summary of these calculations.

Summary: Particulates Region 6, Lbs/Hour Emissions

	Actual	Va. Regs.	1975 Strategy
Process Emissions	6,565	835	900
Power Plants	7,000	1,824	1,225
Lone Star, Coal (116,000 TPY)	1,000	143	150
Planters Peanuts, coal	44	43	50
Va. Chem. Inc., coal	26	38	50
Ft. Eustis (winter) coal	100	74	-
Incinerators	38	(38)	50
Transportation	167	(167)	225
Residential & Military Heating (Winter)	84	(84)	85
Lbs/Hour	14,830	3,250	2,735

The largest process particulate polluter is the Lone Star Cement plant, which alone produced 1330 lbs/hr on a 24 hour basis, plus 1000 lbs/hr from coal combustion. However, it is understood that most of this emission will be terminated before 1975.

Growth Factors 1970-1975, Region 6 Pollution Sources
Particulates

			5 Yrs.
*1.	Electric Power	compound: 9.25%/yr.	55.4
*2.	Transportation Fuel (autos, aircraft)	compound: 6.4%/yr.	36.3
3.	General Population (heating) (incineration)	1.7%/yr.	8.7
4.	Process Manufacturing Employment	1.8%/yr.	9.0
4A.	Chemical plant employment	3.0%/yr.	15%
5.	Military population (heating)	0	0

*National rate - Scientific American, September 1971

Required Pollution Reduction

In order to meet National AQ Standards in Region 6, a set of pollution control regulations has been drawn up by the Virginia APCB. Application of these regulations on a trial computation basis was performed by means of a proportional reduction model:

$$\frac{A-C}{A-B} \times 100 = \text{percent reduction required}$$

where A = current worst station annual geometric mean pollution, 90 $\mu g/M^3$

B = background pollution, estimated at 30 ug/M^3

C = National AQ Standards, Primary or Secondary.

Primary AQ Standards: $\frac{90 - 75}{90 - 30}$ X 100 = 25% reduction

Secondary AQ Standards: $\frac{90 - 60}{90 - 30}$ X 100 = 50% reduction

The computation of the air quality to be achieved by application of Va. regulations is: (from Summary Table, 1975 strategy)

$$\frac{2735 \text{ lbs/hr}}{14,830 \text{ lbs/hr.}} = 18.4\% \text{ of present level, or a}$$

reduction of 81.6%, which is more than adequate to achieve Secondary AQ Standards, including a five year growth rate.

Application to Region V, Richmond Area.

The pollution control strategy developed in Region VI was applied in an identical manner to Region V. The particulate loading in the Richmond, Petersburg, Hopewell area is appreciably lower than Region VI, but is still above National AQ Standards. In this region, the outstanding process polluter is an apparently uncontrolled brick plant just south of Richmond which emits 3000 lbs/hour.

The summary figures From "Summary of Particulates Emissions - Region V" Table are:

-	Present particulate load	11,430 lbs/hr.
-	Proposed Va. regulations	4,446 lbs/hr.
-	1975 Control Strategy	4,385 lbs/hr.

The proportional reduction model inputs are:

A = 85 ug/M^3 a.g.m. observed in downtown Richmond

B = 30 ug/M^3 a.g.m. estimated background

C = Primary and Secondary A Q Standards

Primary AQ: $\frac{85 - 75}{85 - 30}$ X 100 = 18% reduction

Secondary AQ: $\dfrac{85 - 60}{85 - 30} \times 100 = 45\%$ reduction

Estimated reduction by 1975 control strategy

$$\frac{4385 \text{ lbs/hr}}{11430 \text{ lbs/hr}} = 38.3\%$$ of present level, or a reduction of 61.7% which achieves desired AQ standards in 1975.

/

SUMMARY OF PARTICULATE EMISSIONS - REGION V

Source	Lbs/hr: Actual	Va. Regs.	1975 Strategy
Process, except brickworks	778	400	440
"GENSHALE" brickworks	3,000	48	50
Power Plants	4,723	1,892	1,450
DuPont coal	554	283	330
Hercules coal	206	123	145
Seth John Manville coal	17	35	35
Amer. Tobacco, coal (winter)	(82)	(90)	(90)
Fed. Pap Seabrd, coal	317	55	55
VCU, Va. Med. Coll, coal (winter)	(50)	(75)	(75)
Ptrsbrg. Hospital coal (winter)	(36)		
Ft. Lee coal (winter)	(47)	(45)	(45)
Industrial residual	200	200	220
Residential (winter)	(500)	(500)	(500)
Transport	500	500	700
Refuse	420	200	250
	11,430	4,446	4,385

REGION V POLLUTION CONTROL STRATEGY, SO_2

The Richmond-Hopewell-Petersburg area, although not highly industrialized, appears to be already approaching federal and proposed state air quality limits for sulfur oxide compounds. The present and increasing use of 2.5% sulfur residual oil in both the Richmond and Norfolk areas will very shortly push air quality readings above the Primary AQ Standards, especially during the winter heating season. Extensive use of 1% sulphur fuel in both regions appears to be required through 1975, or until nuclear power becomes available.

Sulphur oxides are probably the most pervasive of all air contaminants, and they present an unparalleled challenge to designers of pollution-control systems. Smelters, refineries, and many other industrial plants contribute a significant share of the SO_2 spewed into the air, but more than half of it--an astounding 20 million tons a year throughout the nation--is generated by coal- and oil-burning power plants. Unless it is brought under control, the emission of sulphur oxides will nearly quadruple by the end of this century, to an estimated national annual total of 125 million tons. Even though nuclear power plants, which generate no air pollution, are expected to be supplying more than 50 percent of this country's electricity by the year 2000, up dramatically from less than 2 percent today, the total output of electricity is expected to rise six or seven times above today's level. Which would leave us burning about three times the amount of fossil fuels consumed today--and generating more sulphur oxides.

Right now there is no economically viable technology that can effectively suppress sulphur oxide emissions. Scrubbing the oxides with limestone and trapping sulphuric acid mist in the stack are two methods now under investigation. But these and some of the other methods create new pollution and waste-disposal problems. For instance, mountains of calcium sulphate are generated in the limestone process; there is no market for it, and it can become a water pollutant. At an 800-megawatt coal-fired power plant, a limestone scrubbing system may cost $15 million to install. Some of the other control techniques, which can be twice as expensive, convert sulphur dioxide into sulphuric acid or elemental sulphur. But that is no panacea either. The sulphuric acid produced in this manner is often of poor quality, is difficult to store, and is hard to market. Right now, elemental sulphur recovered from SO_2 isn't exactly something the U. S. economy desperately needs--there are vast quantities of it already on the market and prices have been declining for some years. Any large-scale production of sulphur at pollution-control installations would only worsen the glut.

The most effective method of reducing emissions of sulphur oxides so far has been to shift to low-sulphur fuel--supplies of which are limited. Standard Oil (New Jersey), for one, has poured $200 million into construction of desulphurizing facilities in the Caribbean and expects to spend a lot more money in similar efforts to increase the supply. Persistent pressures by government authorities to reduce sulphur content will force more capital spending on desulphurizing plants. A new code in New York City, for instance, is expected to limit sulphur in fuel to 0.3 percent by the end of this year. Much of the fuel burned in New York today has a 1 percent sulphur content, while that burned in Virginia, except Region VII, is 2.5 percent sulphur.

Estimates of Sulfur Dioxide Burden

The observational evidence of SO_2 levels in Region V is so meagre that it was necessary to estimate the values from simple point source modelling techniques, and from statistical extrapolation techniques based on the available data. The "Annual arithmetic mean" of only nine samples in tenuous at best when considering the great dispersion of wind flows in the area, and the rather short half life of SO_2 (about 4 hours) in the atmosphere. However there is a good emission inventory in the region which shows about 110,000 tons per year, and rapidly climbing. The AAM is about 65 $\mu g/M^3$, just above the Secondary AQ Standard, but the statistical maximum 24 hour concentration is estimated to be 524 $\mu g/M^3$, far in excess of the Primary AQ Standard for that period.

Control Strategy for SO2 Reduction

The means and methods for reducing SO_2 emissions are extremely limited, since there are only two significant sources in the region, heavy fuel combustion and chemical process emissions. The process emissions, amounting to only 5% of the total can probably be controlled profitably. The following table indicates the magnitude of the fuel problem and projected change factors to 1975, assuming that stack SO_2 cannot be controlled by that time. However, fuel quality and/or type can be substituted as a strategy.

Source	Current TPY	1975 TPY	1975 Strategy
Power	77,120	109,000	40,000
Industry Fuel	20,365	22,000	14,000
Commercial	1,100	1,000	700
Area Sources	5,630	5,000	5,000
Process Emis.	5,850	6,000	2,000
	110,065	143,000	61,700

The only reasonable short term control strategy is to substitute 1% sulfur fuel oil, as has already been done at most of the large Federal heating installations in Northern Virginia. The growth factors are based on the table found in the section on particulates control.

Application of Control Strategy to Region VI

Observations of average SO_2 in the Norfolk/Hampton regions in the winter season reach levels more than 50% higher than the Richmond area.

Statistical estimates reached 800 $\mu g/M^3$ for 24 hour maxima. This is due to a great extent to the burning of 85,000,000 gallons of 2.4% sulfur fuel oil for heating the extensive military installations in the area. The only major fuel burning sources operating on a year around basis are the power plants, a cement factory, chemical plants, and an oil refinery.

The following table designates the results of proposed control strategy, emphasizing the strongly seasonal character of the SO_2 emissions. However, there was no process input or control information available, so only bracketed estimates could be made for assumed applications of proposed Va. regulations to sulfur compounds.

Source	Current TPY	1975 TPY	1975 Strategy
Power	61,630	96,200	48,000
Industry Fuel	10,340	12,000	5,500
Commercial/ Military	17,600	17,600	7,000
Refinery process	6,700	8,000	(2,000)
Other processing	900	1,000	(500)
Area sources	5,200	5,000	5,000
	112,370	129,800	68,000

If the military heating fuel pollution is restated as showing the heating season as an annual rate, the current SO_2 tons/year would be 50,000. Substitution of 1% sulphur fuel would reduce this rate to 20,000 tons/year. This seasonal effect at a Norfolk SO_2 sampling site can be seen in a first quarter mean PPM of 0.030, which dropped to 0.007 PPM in the second quarter of 1971.

Application of the proportional reduction model for 1975 control strategy to the two regions does not appear to be warranted because of the small number of observations and the relatively short half-life of SO_2 in the atmosphere. However, the State Capitol Region and the

Hampton Roads Region have been classified as Priority I Regions because of high readings from sulfation discs taken in the latter part of 1969 and the early part of 1970. In both regions single monthly measurements in excess of four milligrams per hundred centimeters per day have been recorded. In fact, this level has been recorded in several consecutive months. Sufficient continuous SO_2 monitoring data is not available at this time to confirm or deny the sulfation discs readings. The State Air Pollution Control Board in its rules and regulations for the control of gaseous emissions has the options of directing owners to go to a lower sulfur content fuel <u>when</u> the ambient air quality readings indicate that this is necessary. For the time being, the Priority I classification will stand and this will be reviewed in the light of subsequent analytical data to see if the State Capital Region and the Hampton Roads Region could be down graded to a lower priority on SO_2. The present regulations are flexible enough to permit the Board to go in either direction and as a consequence we feel that the Priority I classification is justified at this time.

Region V Pollution Control Strategy, CO, HC, TO_X, NO_X

The Richmond-Petersburg region traffic-generated air pollutants have been measured sufficiently, during the summer maximum period, to indicate that National AQ Standards are being approached, and occasionally exceeded in the case of NO_X and total oxidants. As in the Revion VII, where traffic is the major pollution factor, it has been observed that CO is not a problem, but that total oxidants reaching a peak level of 220 $\mu g/M^3$ will require HC control. The percent reduction required, according to Appendix J of the Federal Register, is approximately 25% in HC emissions to achieve 1975 TO_X standards.

Control Strategy for Hydrocarbon (HC) Emissions

In a medium-sized city such as Richmond, the control of HC emissions should be almost entirely possible by application of Virginia gas handling regulations and by the normal attrition of older non-controlled automobiles. This latter factor alone is predicted to reduce HC emission from automobiles by 25% by 1975. With these two factors taken into consideration, the use of traffic reduction techniques and HC control retrofit kits does not appear to be such a critical factor as in the Northern Virginia region. Traffic flow control by improved lane, parking, and signal controls, as well as increased use of buses, with restrictive parking in the city center is also recommended to prevent traffic increase.

Control Strategy for NO_X Emissions

From a small sample of nine observations, it appears that the Richmond area might be considered to be above the National AQ Standards for "average annual" NO_X: 168 $\mu g/M^3$ versus 100 $\mu g/M^3$.

In view of the possibility that the observations were of episodic character, and that EPA, in Federal Register 36-84, states that no adverse effects on public health or welfare have been associated with short-term NO_2 exposures, control strategy should not be definitized at this time until more bubbler data is available.

The emission inventory, extrapolated to 1975 and put into the proportional model, indicates that National AQ Standards cannot be achieved by 1975. It is recommended that the control strategy be postponed until 1977, as permitted by EPA.

Source	Actual TPY	1975 TPY With 50% Power Plant Control
Traffic	38,113	38,000 (App. I)
Industry	6,581	7,000
Power	27,897	14,000
Total	72,591	59,000

The reduction model requires a 40% reduction:

$$\frac{168 - 100}{168} \times 100 = 40\%$$

but the predicted reduction is only:

$$\frac{13,591}{72,591} = 19\%$$

thereby indicating a possible 21% over-abundance of nitrogen oxides in 1975.

Region VI Pollution Control Strategy, CO, HC, TO_X, NO_X

The Hampton Roads metropolitan area, in common with most medium-size cities in the hot weather belt of the country, has been observed to exceed National AQ Standards for traffic pollutants in the form of NO_X and total oxidants. The observed maximum TO_X of 206 $\mu g/M^3$ would require a reduction of HC emissions of about 20% to reduce peak hour TO_X pollution to acceptable levels. A rather small sample of CO air quality measurements presented a special problem in data analysis, and implications for a possible CO control strategy, which did not appear in the Richmond area nor even the heavily traveled Northern Virginia region.

Control Strategy for Traffic Emissions

HC emission control in Region VI should be similar to that of the Richmond area, where application of Virginia regulations to gas handling control, normal attrition of older automobiles, and application of traffic flow measures should meet TO_X air quality standards by 1975.

A short monitoring period of only three weeks of hourly CO observations in downtown Norfolk presented what appeared to be a special pollution problem, requiring some degree of area control. However, a detailed analysis of the original data sheets from the post office monitoring station revealed a questionable episode, which should not be considered as the basis for a control strategy for the whole region. The "episode" details may be surmised as follows:

- The day of July 12, 1971 (a Monday) showed <u>no</u> CO presence at all during the normal rush hour traffic. This indicated the passage of a clear air mass during the day.

- After 9:00 p.m., CO levels increased gradually to a maximum of 13 ppm by 2:00 a.m. and remained high until 6:00 a.m.
- During the morning rush hour, a surge of CO produced an hourly maximum of 28.5 ppm, which dropped off quickly to near zero by 9:00 a.m.
- The meteorological implication was a completely calm clear sky condition from 9:00 p.m. to 8:00 a.m., followed by strong heating and mixing upward of a shallow pool of dense CO trapped at street level between buildings around the recording unit.
- There were no other readings at any time during the three week period, even during rush hours, that produced comparable levels of CO. Other days showed reasonable rush hour maxima of CO.

A reasonable conclusion that can be reached is that the CO recorder, exposed close to the ground in a stable air mass, was contaminated by the normal overnight activity of scores of (mail) trucks serving the Post Office, and then by a surge of cars between 6:00 a.m. - 8:00 a.m.. Trucks passing thru the area may have parked or stopped at a traffic light near the sensor. In any case, the high reading was not representative of the region, nor the city, but probably less than a one block area.

Control Strategy for NO_x Emissions

The Norfolk/Hampton Roads region has a large enough sample of NO_x observations (47) to confirm that the area is far above the allowable AQ Standards, on an annual average basis. The maximum AAM of three stations is 234 $\mu g/M^3$ compared with the 100 $\mu g/M^3$ standard. Here, as in the Richmond area it does not appear possible to reduce NO_X to the standard levels by 1975, because of the high proportion of traffic emissions. Deferment of control strategy goals to 1977 is therefore recommended. The emission inventory and predictions which follow do not include the planned expansion of the Yorktown VEPCO plant, because it is very unlikely that at a distance of 30 miles it would contribute any significant amount to the Norfolk/Portsmouth NO_X sensors.

Source	Actual TPY	1975 TPY, With 50% Power Plant Control
Traffic(SMSA)	48,200	48,200 (App. "I")
Industry	2,600	1,700
Power(local)	13,200	6,600
Mile Heat	2,500	2,500
Total	66,500	59,000

The reduction model requires a 57% reduction:

$$\frac{234-100}{234} \times 100 = 57\%$$

but the predicted reduction is only:

$$\frac{7,500}{66,500} = 11\%$$

thereby permitting a possible 46% over-abundance of NO_X by 1975.

Region VII Pollution Control Strategy; CO, HC, NO_X, TO_X

The Northern Virginia portion of the National Capital Interstate AQCR, known as Region VII of the Virginia AQC Regions, is distinguished from most other AQCR's by its high density of traffic flow and low industrial pollution level. The Washington, D.C. implementation plan has stated that 95% by weight of the pollutant group CO, HC, NO_X burden is caused by automotive emissions. These kinds of pollutants are strongly time and weather dependent; the concentrations observed in Washington, D.C. are closely correlated with automobile counts provided the air is sufficiently stable. These characteristics would also be representative of the Northern Virginia region, so it is clear that any effective strategy must consider traffic pollution control, coordinated throughout the Virginia, District of Columbia, and Maryland metropolitan area. During the 1972-1975 period it is assumed that the METRO transportation system will not be a factor in traffic control strategy, but there are several possible strategies that in sum could smooth and reduce the flow of commuter traffic. It is estimated that only about 25% of the total work-trips in the NCI AQCR involve cars driving into Washington, so that the strategy should properly be considered on a regional basis.

Summary Of Automotive Pollutants In Northern Virginia

The individual pollutants arising from traffic flow have been analyzed in the Falls Church and Alexandria areas, and combined with the National Air Quality Standards (see "Region VII, Set 2 Pollutants" Table):

a) Carbon Monoxide, (CO). The one hour and eight hour maximum values are within primary and secondary AQ Standards, and should slowly diminish as older vehicles are phased out, as per Federal Register, Vol. 36, No. 158, Appendix I.

b) Nitrogen Oxides, (NO_X). The average annual values are within primary and secondary AQ Standards, and predicted to remain about the same until 1975.

c) Hydrocarbons, (HC), were not measured as such, but included in the end product of photo-chemical reactive products as "Total Oxidants", below.

d) Total Oxidants, (TO_X). This pollutant, measured on an hourly basis, does occasionally exceed primary AQ Standards by a substantial margin. The maximum readings in Northern Virginia have been found, according to Appendix J of the Federal Register, Vol. 36, No. 158, to indicate that a 30% reduction of total HC emissions is required to achieve Primary AQ Standards. Appendix I indicates that by 1975 there should be a 25% reduction of automotive HC emissions as older automobiles are phased out of circulation, therefore, additional control measures will be required to reduce both the stationary and mobile sources of HC emissions. Gasoline handling losses add a considerable amount to the HC burden, so must be greatly reduced along with the mobile sources.

Meteorological Considerations

The occasional events of excessive total oxidants in the Virginia portion of the NCI AQCR are caused by a unique set of meteorological conditions that cause a slow drift of pollutants towards the Falls Church receptor at a critical time of day. Recent TO_X episodes called by the Council of Governments have been associated with weak dry cold fronts that become stationary over Southern Virginia. This produces a weak east or southeast wind, under a temperature inversion. The mass of pollutants produced by the morning rush hour spreads slowly west and north, arriving over Falls Church just as the sun's radiation becomes strong enough to trigger the photo-chemical reaction in the 10:00 a.m. to noon period during the summer.

Traffic Pollution Control Strategy

Possibly, the best method to control traffic and its associated photo-chemical oxidant pollution, is to develop rapid rail transit, as has already been indicated by the successful PATCO line in Philadelphia. ("Fortune", July 1971) However, in the 1972 to 1975 interim, after which METRO should become effective, several steps can be taken to reduce the prodigious waste of space, time, and polluting gasoline caused by thousands of single-passenger commuting automobiles.

There are three broad approaches to controlling automotive emissions, none of which alone may be effective, but which by judicious mixture may coax, rather than force, the single driver from his polluting independence. These are: traffic flow control, reducing number of peak hour vehicles, and emission control devices.

a) Traffic Control: Assuming a given number of vehicles, some methods can be quickly put into general use, such as reversible traffic lanes, and severe restrictions on parking, standing, pickups and loading on main arteries. With more planning and expense, working hours can be spread over a two hour arrival and departure period, and computerized traffic signal control (e.g., San Jose, Calif. plan) installed. The benefits of smoother flowing traffic can be directly effective in that a 10 mph increase of average speed can reduce HC emissions by 20%.

b) Traffic Reduction: The "villain" of traffic pollution is the single driver who takes five empty seats into the urban area and parks them in 150 square feet of valuable space. Pending arrival of rapid transit, these traffic reduction methods can be promoted on a whole-region basis:

- Dedicated traffic lanes for well-advertised frequent bus service from suburban parking areas, with jitney bus assists if need be.
- Car-pooling incentives, such as preferential and/or lower priced parking spaces, and use of express bus lanes by a completely filled car.
- Computerized car-pool passenger information, as introduced by IBM in Honolulu. The Virginia based federal offices such as CIA, Pentagon, Crystal City, Arlington Hall, Cameron Station and Rosslyn provide a vast potential for this approach.

- Income tax rebate or reduction for moving expenses for people moving closer to their work location.
- Strict parking bans on all day street parking near work locations, should be the "stick" portion of the "carrot" incentives above.

c) Automotive Emission Control: The main portion of automotive emission control depends on the gradual phasing out of older polluting cars as new regulated cars come into circulation, and as smaller and/or lower-powered cars continue their successful invasion of the "Detroit Monster" market. However, this attrition process will take 10 years, which makes it necessary to consider interim control measures:

- Mandatory emissions inspection of pollution control devices, or exhaust emissions analysis, is unlikely to become feasible before 1975, according to consensus of government and industry participants at a recent conference in Washington (Nov. 11, "Six Cities Transportation Study"). The expense and/or potential gouging of the public, as well as the inadequate current technology for relating emission measurements to air quality, make this approach unnecessary and possibly futile before 1975.
- Inexpensive retrofit control kits on older cars can be mandated, and inspected merely for their presence and operation in routine annual safety inspections. These kits may reduce HC emissions by 20%.

- Alternate fuels do not promise a way out. Electricity requires high pollution combustion, and natural gas conversions cost $500 per vehicle. There is also an acute shortage of natural gas.

Gasoline Handling Control

The other large source of HC emissions, 10 times as large as dry cleaning, etc., is the storage and handling of gasoline. These losses by evaporation must be controlled to the limit of EPA and Virginia regulations, especially in view of the difficulty of obtaining mass cooperation of citizens in reducing traffic pollution. The relatively simple control measures (as practiced in the Los Angeles area) should show faster results than traffic control strategies. These measures include:

- A floating roof on storage tanks.
- A vapor recovery system and/or a permanently submerged fill pipe could reduce HC emissions 90% from tanks as large as forty thousand gallons or 40% from tanks as large as 250 gallons.
- Vapor-tight seals and vapor collection devices for loading facilities.
- Effective seals for all pumps and compressors handling volatile organic compounds.

Region VII, "Set 2" Pollutants

Type		Observed	Priority I	Standards	Reduction Required
CO, 1 Hour Max.		9.7	-	40	None
mg/M^3 8 Hour Max.		8.7	17	10	None
NO_2, Avg. An. Mean $\mu g/M^3$		73	1130(1 Hr.)	100	None
TO_X, 1 Hour Max.	Falls Church	233	200	160	30% (App. J)
$\mu g/M^3$	Alexandria	157	200	160	None

HC Emissions Region VII

	Actual	1975 (without controls)
Gas Handling	18,500 TPY	25,000 TPY
Solvents & Dry Cleaning	2,000 TPY	2,500 TPY
Auto Evaporation	16,000 TPY	54,000 (App. I, Fed. Register
Traffic Emission	56,000 TPY	
Refuse	800 TPY	500 (conversion to land-fill)
National Airport	14,200 TPY	15,000 (future traffic going to Dulles)
PEPCO Coal (Aldehydes)	160 TPY	250 "
	106,860 TPY	97,250 TPY

Must reduce current emissions by 30%, per App. J, Federal Register

Allowable HC emissions	75,000 TPY
Predicted HC emissions	97,250 TPY
*Reduction required	22,250 TPY

Control Strategies, before METRO operation

I Cut gas handling losses by 50%: Reduction 12,500 TPY

II Traffic Control Assumptions:(half of vehicle miles for work trips)

a) Try for 10% reduction in vehicle miles in rush hour(5% overall)

b) Get average speed up 10 mph for commuting cars to:

c) Reduce HC emissions by 20% for commuting cars(50% x 20% = 10% overall)

d) 54,000 TPY - 2,700 TPY (vehicle miles) - 5,400 TPY (better speed) = 46,000 TPY

Reduction 8,000 TPY

*TOTAL REDUCTION 20,500 TPY

e) Retrofit kits may fill the small remaining gap.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA, TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	374.	786.	149454.	20191.	18804.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	374.	786.	149454.	20191.	18804.
COMBUSTION OF FUELS					
INDUSTRY	10569.	277702.	405.	216.	4881.
STEAM-ELECTRIC	33966.	**40514*	1986.	~~[illegible]~~.993	14976.
RESIDENTIAL	5923.	1863.	7188.	1469.	925.
COMM AND INST.	37907.	149626.	99758.	30005.	59876.
SUB-TOTAL	88366.	******** 469705	109337.	~~31991.~~ 32683	80669.
REFUSE DISPOSAL					
INCINERATION	48.	475.	634.	475.	63.
OPEN BURNING	38.	618.	3265.	1146.	230.
SUB-TOTAL	86.	1094.	3899.	1621.	293.
PROCESS	439.	73996.	942.	176.	188.
EVAP LOSSES				17502.	
GRAND TOTAL	89265.	******** 545581	263632.	~~[illegible]~~ 72174	99954.

COMBUSTION OF FUELS IN STATIONARY SOURCES
IN THE STUDY AREA
(TONS/YEAR)

FUEL	USER CATEGORY	SOX	PART	CO	HC	NOX
COAL						
	INDUSTRIAL	9903.	277612.	404.	180.	4454.
	~~STEAM-ELECTRIC~~	33961.	**40514**	1986.	[illegible] 993	14965.
	RESIDENTIAL	5397.	1704.	7101.	1420.	710.
	COMM AND INST	37905.	149625.	99758.	30005.	59870.
	SUB-TOTAL	87165.	********** 469625	109249.	51465. 32597	79999.
FUEL OIL						
	INDUSTRIAL	666.	82.	1.	14.	330.
	STEAM-ELECTRIC	5.	1.	0.	1.	11.
	RESIDENTIAL	526.	146.	73.	44.	175.
	COMM AND INST	2.	1.	0.	0.	4.
	SUB-TOTAL	1200.	230.	74.	58.	522.
GAS						
	INDUSTRIAL	0.	10.	0.	22.	97.
	STEAM-ELECTRIC	0.	0.	0.	0.	0.
	RESIDENTIAL	0.	13.	13.	5.	50.
	COMM AND INST	0.	0.	0.	0.	2.
	SUB-TOTAL	1.	23.	14.	28.	149.
GRAND TOTAL		88366.	********** 469708	109337.	51551. 32683	80669.

TRANSPORTATION SOURCES
TON/YR

	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	374.	608.	146416.	19693.	13848.
DIESEL	0.	177.	3038.	498.	4956.
EVAP*				7392.	
SUB-TOTAL	374.	786.	149454.	27583.	18804.
RAILROADS	0.	0.	0.	0.	0.
VESSELS	0.	0.	0.	0.	0.
GRAND-TOTAL	374.	786.	149454.	20191.	18804.

*EVAP NOT INCLUDED IN GRAND TOTAL

PROCESS LOSSES
TONS/YEAR

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
COALMINNING	2	COALPROCESNG	0.	5365.	0.	0.	0.
COALCLEANING	2	CRISTIECOAL	0.	1701.	8.	68.	17.
COALCLEANING	4	MOSICLINCHFL	0.	1741.	0.	0.	0.
COALCLEANING	5	MOS2CLINCHFL	0.	1117.	0.	0.	0.
COALCLEANING	5	MOS3CLINCHFL	0.	533.	0.	0.	0.
COALMINNING	5	CLINCHFLDAGG	0.	9307.	0.	0.	0.
COALCLEANING	6	JEWELELVNPRP	0.	306.	0.	0.	0.
COALCLEANING	6	JEWELTWLVFRF	0.	109.	0.	0.	0.
LIMESTONE	5	CLINCHFQUARY	0.	526.	0.	0.	0.
CONCRETEPROD	13	HOCFOWDERSON	0.	613.	0.	0.	0.
WOODPRODUCTS	10	DIXONLUMBER	12.	121.	268.	30.	39.
WOODPRODUCTS	9	EMPIREMFGCOR	30.	30.	2.	2.	10.
CHEMICALS	3	FOOTEMINSUNB	0.	156.	0.	0.	0.
STONEWORKS	7	GENSHALERICH	0.	6205.	0.	0.	9.
CHEMICALS	8	GREYHOSIERY	0.	0.	0.	0.	0.
ASPHALTPLANT	9	HOLSTONRIVER	0.	1084.	0.	0.	0.
WOODPRODUCTS	2	JPHAMERLUMBR	0.	5.	650.	55.	5.
STONEWORKS	1	KYVASTONECO	0.	693.	0.	0.	0.
LIMESTONDUST	7	LIMESTONDUST	0.	0.	0.	0.	0.
WOODPRODUCTS	9	MOULDINGSINC	0.	0.	0.	0.	0.
COALMINNING	6	BLACKWATCHCL	365.	1000.	0.	0.	0.
LIMESTONE	7	BLUEGRASSLIM	0.	233.	0.	0.	0.
LIMESTONE	7	POUNDINGMILL	0.	613.	0.	0.	0.
CONCRETEPROD	8	BRISTOLCONCR	0.	5.	0.	0.	0.
WOODPRODUCTS	8	BRISTOLDOOR	1.	8.	1.	1.	3.
WOODPRODUCTS	9	BRUNSWICKMAR	6.	58.	4.	4.	19.
CHEMICALS	7	GENINSTRUMCF	0.	0.	0.	0.	2.
STONEWORKS	9	GENSHALEMARI	0.	0.	0.	0.	0.
LIMESTONDUST	5	JAMSRVFRVDT	0.	365.	0.	0.	0.
COALMINNING	1	LAURELEFCOAL	0.	0.	0.	0.	0.
METALMINNING	12	NEWJERSEYZIN	0.	16.	0.	0.	0.
STONEWORKS	13	NEWMANEFCS	0.	250.	0.	0.	0.
WOODPRODUCTS	8	OLDDOMINFLYW	0.	0.	0.	0.	0.
CHEMICALS	9	OLINCHEMICAL	0.	220.	0.	0.	0.
LIMESTONE	3	PENNDIXIE	0.	112.	0.	0.	0.
ASPHALTPLANT	5	POPECONSTCO	0.	9.	0.	0.	0.
ASPHALTPLANT	8	POPEPAVINGCO	0.	9.	0.	0.	0.
ASPHALTPLANT	8	RGPCPFECONST	0.	9.	0.	0.	0.
ASPHALTPLANT	5	RGPCPFECONST	0.	4.	0.	0.	0.
CONCRETEPROD	5	STPAULBLDPS	0.	4.	0.	0.	0.
COALMINNING	2	SUNRISECOAL	0.	4.	0.	0.	0.
LIGHTINDUSTY	7	TAZEWELLCLAY	0.	0.	0.	0.	0.
PLASTER PRO	9	USGYPSUMCO	0.	423.	0.	0.	0.
COALMINNING	6	V OCCALCOINC	0.	0.	0.	0.	0.
WOODPRODUCTS	10	VAUGHANBASSE	8.	75.	5.	5.	25.

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
WOODPRODUCTS	9	VAHIGHLNDFUR	0.	0.	0.	0.	0.
WOODPRODUCTS	8	VAWOODWORK	1.	16.	1.	1.	5.
STONEWORKS	8	VULCANMATRL	0.	1000.	0.	0.	0.
WOODPRODUCTS	10	WEBBFURN	4.	35.	2.	2.	12.
STONEWORKS	1	WOODWAYSTONE	0.	376.	0.	0.	0.
LIMESTONE	7	POUNDINGMILL	0.	821.	0.	0.	0.
ASPHALTPLANT	9	HOLSTONRGLAR	0.	5037.	0.	0.	0.
ASPHALTPLANT	5	ADAMSSTPAUL	0.	558.	0.	0.	0.
ASPHALTPLANT	7	ADAMSPNDGMIL	0.	250.	0.	0.	0.
ASPHALTPLANT	3	ADAMSCLINEHP	0.	489.	0.	0.	0.
ASPHALTPLANT	12	PENDLETONWYA	0.	1314.	0.	0.	0.
ASPHALTPLANT	12	PENDLETONWYB	0.	13432.	0.	0.	0.
ASPHALTPLANT	5	RGPOPEDICKEN	0.	6716.	0.	0.	0.
ASPHALTPLANT	8	FCFEDAVINGER	0.	4015.	0.	0.	0.
ASPHALTPLANT	5	ADAMSCSTPAUL	0.	6059.	0.	0.	0.
CARROLL	9	APALACHINMFG	0.	0.	0.	0.	0.
STONEWORKS	3	NATTUNNELSTO	0.	284.	0.	0.	0.
WOODPRODUCTS	10	SAWYERSFURN	1.	10.	1.	1.	3.
COALCLEANING	2	WESTMLNDCOAL	0.	338.	0.	0.	0.
WOODPRODUCTS	10	VAUGHANFURNT	11.	112.	0.	8.	38.
TOTAL			439.	73996.	942.	176.	188.

AIR POLLUTANT EMISSIONS FROM
SOLID WASTE DISPOSAL
TONS/YEAR

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0.	0.	0.	0.	0.
ON-SITE	48.	475.	634.	475.	63.
SUB-TOTAL	48.	475.	634.	475.	63.
OPEN BURNING					
ON-SITE	38.	618.	3265.	1146.	230.
DUMP	0.	0.	0.	0.	0.
SUB-TOTAL	38.	618.	3265.	1146.	230.
GRAND TOTAL	86.	1094.	3899.	1621.	293.

Region #1

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	8798.
2. INDUSTRIAL SOLVENT EVAP	465.
3. DRY CLEANING	846.
4. OTHER	0.
5. AUTO	7392.
TOTAL	17502.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN LEE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	19.	40.	7345.	1004.	967.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	19.	40.	7345.	1004.	967.
COMBUSTION OF FUELS					
INDUSTRY	1.	1.	0.	0.	3.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	376.	118.	454.	93.	57.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	377.	118.	454.	93.	60.
REFUSE DISPOSAL					
INCINERATION	3.	26.	35.	26.	3.
OPEN BURNING	2.	35.	185.	65.	13.
SUB/TOTAL	5.	61.	220.	92.	17.
PROCESS	0.	1070.	0.	0.	0.
EVAP LOSSES				873.	
GRAND TOTAL	401.	1285.	8019.	2062.	1044.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN WISE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	41.	85.	15521.	2121.	2044.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	41.	85.	15521.	2121.	2044.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	1554.	489.	2000.	402.	212.
COMM AND INST	0.	0.	1.	10.	3.
SUB-TOTAL	1555.	489.	2001.	412.	215.
REFUSE DISPOSAL					
INCINERATION	7.	66.	89.	66.	9.
OPEN BURNING	4.	57.	301.	106.	21.
SUB/TOTAL	10.	123.	390.	173.	30.
PROCESS	0.	7413.	658.	123.	22.
EVAP LOSSES				1843.	
GRAND TOTAL	1606.	8111.	18565.	4673.	2312.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SCOTT COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	26.	54.	10068.	1368.	1296.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	26.	54.	10068.	1368.	1296.
COMBUSTION OF FUELS					
INDUSTRY	1186.	884.	31.	5.	560.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	384.	120.	455.	93.	55.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	1571.	1004.	486.	103.	615.
REFUSE DISPOSAL					
INCINERATION	3.	32.	42.	32.	4.
OPEN BURNING	3.	55.	292.	103.	21.
SUB/TOTAL	7.	87.	335.	135.	25.
PROCESS	0.	1042.	0.	0.	0.
EVAP LOSSES				1146.	
GRAND TOTAL	1603.	2186.	10885.	2752.	1939.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN DICKENSON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	14.	30.	5373.	734.	708.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	14.	30.	5373.	734.	708.
COMBUSTION OF FUELS					
INDUSTRY	183.	181.	18.	8.	102.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	227.	72.	279.	57.	36.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	410.	253.	297.	65.	138.
REFUSE DISPOSAL					
INCINERATION	2.	21.	28.	21.	3.
OPEN BURNING	2.	34.	181.	64.	13.
SUB/TOTAL	4.	55.	209.	85.	16.
PROCESS	0.	1741.	0.	0.	0.
EVAP LOSSES				642.	
GRAND TOTAL	428.	2079.	5879.	1526.	861.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN RUSSELL COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	25.	52.	9365.	1281.	1234.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	25.	52.	9365.	1281.	1234.
COMBUSTION OF FUELS					
INDUSTRY	939.	1004.	22.	16.	534.
STEAM-ELEC	33966.	40514	1985.	~~[illegible]~~ 1993	14976.
RESIDENTIAL	300.	95.	358.	74.	52.
COMM AND INST	37905.	149625.	99750.	29925.	59851.
SUB-TOTAL	73110.	********	102126.	49875.	65413.
REFUSE DISPOSAL					
INCINERATION	2.	23.	31.	23.	3.
OPEN BURNING	3.	43.	224.	77.	16.
SUB/TOTAL	5.	66.	255.	101.	19.
PROCESS	0.	25197.	0.	0.	0.
EVAP LOSSES				1147.	
GRAND TOTAL	73139.	********** 216553	111750.	~~[illegible]~~. 33535	96666. 76666

SUMMARY OF AIR POLLUTANT EMISSIONS
IN BUCHANAN COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	27.	57.	10304.	1408.	1357.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	27.	57.	10304.	1408.	1357.
COMBUSTION OF FUELS					
INDUSTRY	251.	7.	22.	11.	165.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	493.	155.	613.	124.	71.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	744.	162.	635.	135.	236.
REFUSE DISPOSAL					
INCINERATION	5.	52.	69.	52.	7.
OPEN BURNING	4.	66.	352.	124.	25.
SUB/TOTAL	9.	118.	421.	176.	32.
PROCESS	365.	1415.	0.	0.	0.
EVAP LOSSES				1233.	
GRAND TOTAL	1145.	1752.	11360.	2952.	1625.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN TAZEWELL COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	34.	71.	12951.	1770.	1706.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	34.	71.	12951.	1770.	1706.
COMBUSTION OF FUELS					
INDUSTRY	176.	24.	10.	5.	44.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	526.	166.	619.	128.	90.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	702.	190.	630.	132.	134.
REFUSE DISPOSAL					
INCINERATION	4.	40.	53.	40.	5.
OPEN BURNING	4.	76.	389.	133.	27.
SUB/TOTAL	8.	115.	442.	173.	32.
PROCESS	0.	8223.	0.	0.	11.
EVAP LOSSES				1549.	
GRAND TOTAL	745.	8599.	14023.	3625.	1883.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN WASHINGTON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	77.	162.	33818.	4466.	3873.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	77.	162.	33818.	4466.	3873.
COMBUSTION OF FUELS					
INDUSTRY	56.	36.	25.	13.	73.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	612.	196.	715.	149.	121.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	668.	232.	741.	162.	194.
REFUSE DISPOSAL					
INCINERATION	8.	75.	101.	75.	10.
OPEN BURNING	4.	59.	314.	111.	22.
SUB/TOTAL	11.	134.	415.	186.	32.
PROCESS	2.	5063.	2.	2.	8.
EVAP LOSSES				3586.	
GRAND TOTAL	758.	5591.	34976.	8402.	4107.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SMYTH COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	33.	69.	14572.	1920.	1651.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	33.	69.	14572.	1920.	1651.
COMBUSTION OF FUELS					
INDUSTRY	7373.	274886.	257.	131.	3157.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	524.	164.	632.	129.	79.
COMM AND INST	1.	1.	6.	60.	17.
SUB-TOTAL	7897.	275050.	895.	320.	3253.
REFUSE DISPOSAL					
INCINERATION	3.	31.	41.	31.	4.
OPEN BURNING	3.	45.	237.	83.	17.
SUB/TOTAL	6.	76.	279.	114.	21.
PROCESS	36.	6853.	6.	6.	30.
EVAP LOSSES				1713.	
GRAND TOTAL	7972.	282048.	15752.	4073.	4954.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN GRAYSON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	17.	36.	6540.	894.	861.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	17.	36.	6540.	894.	861.
COMBUSTION OF FUELS					
INDUSTRY	260.	669.	9.	20.	200.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	233.	73.	252.	53.	47.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	492.	742.	261.	73.	246.
REFUSE DISPOSAL					
INCINERATION	4.	36.	47.	36.	5.
OPEN BURNING	3.	51.	269.	95.	19.
SUB/TOTAL	7.	86.	316.	130.	24.
PROCESS	35.	254.	276.	45.	117.
EVAP LOSSES				955.	
GRAND TOTAL	552.	1218.	7394.	2098.	1248.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN BLAND COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	9.	18.	3348.	458.	441.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	9.	18.	3348.	458.	441.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	1.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	84.	27.	102.	21.	14.
COMM AND INST	0.	0.	1.	10.	3.
SUB-TOTAL	84.	27.	103.	31.	18.
REFUSE DISPOSAL					
INCINERATION	1.	7.	10.	7.	1.
OPEN BURNING	1.	12.	61.	22.	4.
SUB/TOTAL	1.	19.	71.	29.	5.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				423.	
GRAND TOTAL	94.	64.	3522.	941.	464.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN WYTHE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	29.	60.	10979.	1501.	1446.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	29.	60.	10979.	1501.	1446.
COMBUSTION OF FUELS					
INDUSTRY	117.	8.	0.	3.	30.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	243.	76.	282.	58.	39.
COMM AND INST	1.	0.	0.	0.	2.
SUB-TOTAL	361.	84.	282.	61.	71.
REFUSE DISPOSAL					
INCINERATION	4.	36.	47.	36.	5.
OPEN BURNING	2.	45.	242.	85.	17.
SUB/TOTAL	6.	81.	289.	121.	22.
PROCESS	0.	14762.	0.	0.	0.
EVAP LOSSES				1291.	
GRAND TOTAL	396.	14988.	11550.	2974.	1539.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CARROLL COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	24.	51.	9266.	1266.	1220.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	24.	51.	9266.	1266.	1220.
COMBUSTION OF FUELS					
INDUSTRY	27.	3.	0.	1.	14.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	367.	114.	425.	88.	58.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	395.	117.	426.	88.	72.
REFUSE DISPOSAL					
INCINERATION	3.	31.	41.	31.	4.
OPEN BURNING	3.	41.	218.	77.	15.
SUB/TOTAL	6.	72.	259.	108.	19.
PROCESS	0.	864.	0.	0.	0.
EVAP LOSSES				1099.	
GRAND TOTAL	425.	1103.	9950.	2561.	1312.

AREA SOURCE EMISSIONS
TONS/DAY

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
1	1600.0	4000	41400	0.05	2.05	0.93	0.27	0.89	0.54	11.48	12.02	11.60	3.60	3.74	3.64	1.47	1.50	1.47
2	400.0	4700	41300	0.02	0.25	0.12	0.05	0.12	0.08	5.87	5.69	5.46	1.29	1.15	1.22	0.77	0.67	0.72
3	400.0	4900	41300	0.01	0.08	0.04	0.02	0.04	0.03	2.14	1.84	1.99	0.50	0.45	0.47	0.28	0.24	0.26
4	400.0	3500	41100	0.01	1.47	0.66	0.07	0.53	0.27	3.21	4.54	3.76	1.08	1.35	1.19	0.41	0.54	0.47
5	400.0	3700	41100	0.03	1.39	0.63	0.14	0.56	0.32	10.39	10.27	10.22	2.63	2.63	2.61	1.35	1.31	1.32
6	1600.0	4000	41000	0.15	3.43	69.11	0.56	1.56	267.46	47.36	43.02	222.59	11.58	10.82	64.44	6.18	5.58	112.45
7	400.0	4300	41100	0.06	1.80	2.90	0.26	0.79	8.69	17.60	16.57	22.43	4.72	4.56	6.26	2.28	2.16	5.49
8	400.0	4500	41100	0.03	0.66	0.31	0.11	0.30	0.20	10.16	9.09	9.58	2.42	2.24	2.32	1.33	1.19	1.25
9	400.0	4700	41100	0.03	0.61	0.29	0.10	0.28	0.18	9.21	8.27	8.69	2.27	2.10	2.17	1.20	1.08	1.14
10	400.0	4900	41100	0.02	0.29	0.14	0.06	0.14	0.10	5.81	5.12	5.45	1.49	1.36	1.42	0.76	0.67	0.71
11	400.0	5100	41100	0.00	0.08	0.04	0.02	0.04	0.03	1.44	1.28	1.35	0.38	0.35	0.36	0.19	0.17	0.18
12	100.0	3450	40950	0.00	0.86	0.38	0.03	0.30	0.15	0.25	1.33	0.73	0.32	0.54	0.42	0.03	0.14	0.08
13	100.0	3550	40950	0.02	0.98	0.40	0.07	0.33	0.18	6.74	6.64	6.63	1.55	1.54	1.53	0.88	0.84	0.86
14	400.0	3700	40900	0.05	2.51	3.21	0.19	0.95	8.72	15.67	16.05	21.14	3.87	3.99	5.53	2.05	2.02	5.29
15	400.0	4300	40900	0.02	0.65	9.65	0.09	0.28	37.07	7.55	6.96	31.81	2.01	1.91	9.33	0.98	0.91	15.70
16	400.0	4500	40900	0.01	0.68	0.31	0.07	0.27	0.16	2.69	3.07	2.83	1.05	1.13	1.08	0.35	0.39	0.36
17	400.0	4700	40900	0.04	0.53	0.26	0.12	0.27	0.19	13.02	11.27	12.11	3.01	2.69	2.84	1.70	1.47	1.59
18	400.0	4900	40900	0.04	0.49	0.24	0.14	0.27	0.20	14.31	12.28	13.26	3.34	2.97	3.15	1.87	1.61	1.74
19	400.0	5100	40900	0.03	0.40	0.19	0.11	0.22	0.16	11.22	9.64	10.41	2.64	2.35	2.49	1.47	1.26	1.36
20	100.0	3450	40850	0.02	1.85	0.83	0.10	0.67	0.35	6.54	7.74	7.00	1.82	2.08	1.92	0.85	0.95	0.88
21	100.0	3550	40850	0.01	0.66	0.30	0.05	0.25	0.14	4.00	4.12	4.01	0.99	1.02	0.99	0.52	0.52	0.51
22	1600.0	3200	40600	0.06	2.01	0.92	0.25	0.84	0.51	19.39	18.33	18.72	4.94	4.77	4.83	2.52	2.37	2.43

				SOX			PART			CO			HC			NOX		
GRID	AREA SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
23	1600.0	3600	40600	0.11	2.46	4.26	0.41	1.11	13.01	36.38	32.77	42.60	8.59	7.95	10.69	4.75	4.25	9.40
24	400.0	3900	40700	0.04	0.61	18.59	0.12	0.29	73.98	11.70	10.30	60.15	2.92	2.67	17.55	1.53	1.36	30.56
25	400.0	4100	40700	0.05	0.62	1.34	0.15	0.32	4.32	17.62	15.12	19.06	4.26	3.70	4.74	2.31	2.00	3.79
26	100.0	4250	40750	0.01	0.15	0.07	0.02	0.07	0.04	1.75	1.62	1.68	0.54	0.52	0.53	0.23	0.22	0.22
27	100.0	4350	40750	0.03	0.18	0.10	0.07	0.11	0.08	9.58	8.64	8.80	1.98	1.69	1.83	1.26	1.06	1.16
28	100.0	4450	40750	0.03	0.21	0.11	0.08	0.12	0.09	11.54	9.67	10.59	2.31	1.97	2.14	1.52	1.27	1.39
29	6.0	4512	40787	0.00	0.04	0.02	0.00	0.02	0.01	0.13	0.16	0.15	0.05	0.06	0.06	0.01	0.02	0.01
30	6.0	4537	40787	0.00	0.04	0.02	0.00	0.02	0.01	0.63	0.57	0.60	0.13	0.12	0.13	0.05	0.05	0.05
31	6.0	4562	40787	0.00	0.04	0.02	0.01	0.02	0.01	0.88	0.78	0.83	0.17	0.16	0.16	0.07	0.07	0.07
32	6.0	4587	40787	0.00	0.04	0.02	0.01	0.02	0.01	1.25	1.08	1.17	0.23	0.20	0.22	0.10	0.09	0.10
33	1600.0	4800	40600	0.08	2.18	1.01	0.34	0.98	0.63	19.71	18.63	19.03	5.87	5.72	5.79	2.56	2.47	2.62
34	1600.0	5200	40600	0.10	2.33	1.08	0.37	1.04	0.67	30.69	27.85	29.12	7.73	7.24	7.46	4.00	3.65	3.83
35	6.0	4512	40762	0.00	0.05	0.02	0.01	0.02	0.02	2.25	1.90	2.07	0.38	0.33	0.36	0.15	0.16	0.17
36	6.0	4537	40762	0.02	0.86	0.40	0.07	0.33	0.15	5.93	5.91	5.86	1.57	1.62	1.58	0.49	0.53	0.51
37	6.0	4562	40762	0.00	0.04	0.02	0.00	0.02	0.01	0.38	0.37	0.37	0.09	0.09	0.09	0.03	0.03	0.03
38	6.0	4587	40762	0.00	0.04	0.02	0.00	0.02	0.01	0.26	0.26	0.26	0.07	0.08	0.07	0.02	0.02	0.02
39	25.0	4525	40725	0.01	0.05	0.03	0.02	[illegible]	0.02	3.63	3.02	3.32	0.60	0.51	0.55	0.30	0.25	0.28
40	25.0	4575	40725	0.00	0.04	0.02	0.01	[illegible]	[illegible]	[illegible]	1.18	1.28	0.25	0.22	0.23	0.11	0.10	0.11
41	400.0	2700	40600	0.01	0.43	0.19	0.05	0.17	0.10	2.92	2.92	2.89	0.82	0.83	0.82	0.38	0.37	0.37
42	400.0	2900	40600	0.01	0.38	0.17	0.04	0.15	0.09	2.99	2.92	2.93	0.80	0.79	0.79	0.39	0.38	0.38
43	100.0	4250	40650	0.02	0.57	0.26	0.07	0.35	0.15	3.69	3.70	3.66	1.52	1.53	1.52	0.48	0.50	0.48
44	100.0	4350	40650	0.00	0.15	0.07	0.02	0.06	0.04	1.14	1.11	1.11	0.43	0.42	0.42	0.15	0.15	0.15
45	100.0	4450	40650	0.00	0.18	0.08	0.01	0.07	0.04	0.28	0.45	0.35	0.19	0.22	0.20	0.03	0.06	0.04

				SOX			PART			CO			HC			NOX		
GRID	AREA SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
46	100.0	4550	40650	0.00	0.17	0.08	0.02	0.07	0.04	0.90	0.94	0.91	0.31	0.32	0.31	0.12	0.12	0.12
47	100.0	3850	40550	0.01	0.16	0.08	0.04	0.08	0.06	4.58	3.94	4.25	1.00	0.89	0.94	0.51	0.44	0.48
48	25.0	3925	40575	0.00	0.04	0.02	0.00	0.02	0.01	0.26	0.26	0.26	0.09	0.09	0.09	0.02	0.02	0.02
49	25.0	3975	40575	0.00	0.04	0.02	[illegible]	0.02	0.01	0.14	0.15	0.14	0.07	0.08	0.08	0.01	0.02	0.01
50	400.0	4100	40500	0.05	0.33	0.17	0.12	[illegible]	0.15	16.12	13.54	14.81	3.46	2.98	3.22	2.12	1.79	1.95
51	400.0	4300	40500	0.03	0.26	0.13	0.07	0.14	0.10	8.68	7.39	8.02	1.99	1.75	1.87	1.14	0.98	1.06
52	400.0	4500	40500	0.01	0.32	0.14	0.04	0.14	0.09	1.60	1.72	1.64	0.67	0.70	0.68	0.21	0.23	0.24
53	6.0	3912	40537	0.00	0.04	0.02	0.01	[illegible]	0.01	0.63	0.56	0.60	0.15	0.14	0.15	0.05	0.05	0.05
54	6.0	3937	40537	0.00	0.04	0.02	0.01	0.02	0.01	1.76	1.48	1.62	0.33	0.29	0.31	0.15	0.13	0.14
55	6.0	3962	40537	0.01	0.04	0.02	0.02	0.02	0.02	5.25	4.34	4.79	0.87	0.73	0.80	0.43	0.36	0.40
56	6.0	3987	40537	0.01	0.04	0.02	0.02	[illegible]	0.02	3.50	2.91	3.20	0.60	0.51	0.55	0.29	0.24	0.27
57	6.0	3912	40512	0.01	0.37	0.17	0.06	0.17	0.10	6.09	5.43	5.74	1.48	1.40	1.44	0.50	0.48	0.49
58	6.0	3937	40512	0.03	0.70	0.33	0.12	0.32	0.21	16.54	14.35	15.40	3.57	3.27	3.41	1.37	1.25	1.30
59	6.0	3962	40512	0.00	0.03	0.02	0.01	0.02	0.01	1.76	1.48	1.61	0.32	0.28	0.30	0.15	0.12	0.13
60	6.0	3987	40512	0.00	0.03	0.01	[illegible]	0.01	0.01	0.13	0.15	0.14	0.07	0.07	0.07	0.01	0.02	0.01
TOTAL				1.43	37.91	121.42	5.31	16.41	420.12	460.74	423.52	712.75	113.89	107.90	192.38	57.49	52.91	219.05

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ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

HC = HORIZONTAL VC = VERTICAL -COORDINATE

POINT SOURCE EMISSIONS BY PLANT
TONS PER DAY

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
BLACKWATCHCL GRID 1 HC 4023 VC 41301															
TYPE 5	1.00	1.00	1.00	2.74	2.74	2.74	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1.00	1.00	1.00	2.74	2.74	2.74	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0
JEWELTWLVPRP GRID 1 HC 4234 VC 41207															
TYPE 4	0.31	0.31	0.31	0.01	0.01	0.01	0.03	0.03	0.03	0.01	0.01	0.01	0.21	0.21	0.21
TYPE 5	0.0	0.0	0.0	0.30	0.30	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.03	0.01	0.01	0.01	0.21	0.21	0.21
V OCCALCOINC GRID 1 HC 3930 VC 41280															
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POUNDINGMILL GRID 2 HC 4705 VC 41215															
TYPE 5	0.0	0.0	0.0	2.25	2.25	2.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	2.25	2.25	2.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIMESTONDUST GRID 2 HC 4705 VC 41215															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.00	0.00	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
MCS1CLINCHFL GRID 5 HC 3643 VC 41079															
TYPE 4	0.47	0.47	0.47	0.48	0.48	0.48	0.04	0.04	0.04	0.02	0.02	0.02	0.27	0.27	0.27
TYPE 5	0.0	0.0	0.0	4.77	4.77	4.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.47	0.47	0.47	5.25	5.25	5.25	0.04	0.04	0.04	0.02	0.02	0.02	0.27	0.27	0.27
STPAULBLDRS GRID 6 HC 3842 VC 40818															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.01	0.01	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
JAMSRVRHVDT GRID 6 HC 4170 VC 40980															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
BLUEGRASSLIM GRID 6 HC 4199 VC 40919															
TYPE 4	0.0	0.0	0.08	0.0	0.0	0.02	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	0.64	0.64	0.64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.08	0.64	0.64	0.65	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.01
MCS2CLINCHFL GRID 6 HC 3947 VC 40937															
TYPE 4	0.31	0.31	0.31	0.16	0.16	0.16	0.03	0.03	0.03	0.02	0.02	0.02	0.25	0.25	0.25
TYPE 5	0.0	0.0	0.0	3.06	3.06	3.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	.31	0.31	0.31	3.22	3.22	3.22	0.03	.03	0.03	0.02	0.02	0.02	0.25	0.25	[illegible]

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
MOS3CLINCHFL GRID 6 HC 3548 VC 40905															
TYPE 4	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07
TYPE 5	0.0	0.0	0.0	1.46	1.46	1.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.08	0.08	0.08	1.54	1.54	1.54	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07
CLINCHFLDAGG GRID 6 HC 3547 VC 40904															
TYPE 4	1.50	1.50	1.50	2.45	2.45	2.45	0.05	0.05	0.05	0.01	0.01	0.01	0.89	0.89	0.89
TYPE 5	0.0	0.0	0.0	25.50	25.50	25.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1.50	1.50	1.50	27.95	27.95	27.95	0.05	0.05	0.05	0.01	0.01	0.01	0.89	0.89	0.89
APPCCCCLINCH GRID 6 HC 3936 VC 40880															
TYPE 4	113.22	75.48	46.53	******	******	******	6.62	4.41	2.72	66.20	44.13	27.21	16.59	11.06	6.82
TYPE 4	113.22	75.48	46.53	******	******	******	6.62	4.41	2.72	66.20	44.13	27.21	16.59	11.06	6.82
TOTAL	226.44	150.96	93.06	******	******	******	13.24	8.83	5.44	132.40	88.27	54.41	33.18	22.12	13.63
CLINCHFLDCEN GRID 6 HC 3823 VC 40981															
TYPE 4	0.0	0.0	0.03	0.0	0.0	0.01	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.01
TOTAL	0.0	0.0	0.03	0.0	0.0	0.01	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.01
CLINCHFQUARY GRID 6 HC 3827 VC 40826															
TYPE 5	0.0	0.0	0.0	1.44	1.44	1.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	1.44	1.44	1.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
JUVENVOCINST GRID 6 HC 4130 VC 40970															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
RGPOPECONST GRID 6 HC 4185 VC 40990															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.02	0.02	0.03	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
RUSSELLMFGCO GRID 6 HC 4052 VC 40846															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 9	0.0	0.0	0.0	0.01	0.01	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
ADAMSCSTPAUL GRID 6 HC 3828 VC 40827															
TYPE 4	0.0	0.0	0.56	0.0	0.0	0.03	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.10
TYPE 5	0.0	0.0	0.0	16.60	16.60	16.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.56	16.60	16.60	16.63	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.10
POUNDINGMILL GRID 7 HC 4373 VC 41027															
TYPE 5	0.0	0.0	0.0	1.68	1.68	1.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	1.68	1.68	1.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
JEWELELVNPRP GRID 7 HC 4290 VC 41226															
TYPE 4	0.37	0.37	0.37	C.C1	C.01	C.01	C.C3	0.C3	C.C3	C.C2	0.02	0.02	0.25	0.25	C.25
TYPE 5	C.C	0.C	C.C	C.84	C.84	C.84	0.0	0.0	0.0	0.0	0.0	0.0	C.0	C.C	C.C
TOTAL	C.37	0.37	0.37	0.85	C.85	C.85	0.C3	0.C3	0.C3	C.02	0.02	C.02	0.25	0.25	0.25
GENSHALERICH GRID 7 HC 4281 VC 41352															
TYPE 4	C.04	0.04	0.08	0.01	C.01	C.02	0.C1	0.C1	0.01	C.CC	0.C0	0.CC	C.00	0.00	0.01
TYPE 8	C.00	0.00	0.CC	C.CC	C.CC	C.CC	C.CC	0.C0	0.0	0.00	0.00	0.00	0.00	0.00	C.00
TYPE 5	C.C	C.C	0.0	17.00	17.00	17.00	0.C	0.0	0.0	0.0	C.0	C.0	C.C2	C.C2	C.C2
TCTAL	0.04	0.04	0.08	17.01	17.C1	17.C2	C.C1	C.C1	C.01	C.00	C.00	0.00	0.03	0.03	0.03
ADAMSFNDGMIL GRID 7 HC 4373 VC 41032															
TYPE 4	0.00	0.00	C.CC	0.00	C.00	C.0C	C.CC	0.00	C.00	C.C0	0.00	0.00	0.00	0.00	C.00
TYPE 5	C.C	C.C	C.C	C.96	C.96	0.96	0.0	0.0	0.0	0.0	0.0	0.0	C.0	C.C	C.C
TCTAL	C.00	0.00	0.00	C.96	C.96	0.96	0.C0	0.C0	C.CC	C.C0	0.00	C.00	C.00	0.00	0.00
GENINSTRUMCP GRID 8 HC 4450 VC 41010															
TYPE 4	C.10	0.10	0.32	0.01	C.C1	C.C3	C.CC	C.CC	C.C0	0.0	C.C0	C.CC	C.03	0.03	0.10
TYPE 5	C.C	0.0	C.C	C.0	C.0	0.0	C.C	C.C	C.0	0.	0.0	0.0	C.CC	C.C3	C.C0
TOTAL	C.1C	0.1C	C.32	0.01	0.01	0.03	0.00	0.CC	0.CC	0.0	0.00	0.CC	C.C3	C.C3	C.10
TAZEWELLCLAY GRID 8 HC 4450 VC 41010															
TYPE 5	C.C	0.0	C.C	0.00	0.00	0.00	0.0	0.0	0.0	C.0	0.0	C.0	C.C	C.C	C.C
TCTAL	.0	0.0	0.0	0.00	C.CC	C.CC	0.C	C	C.0	C.0	0.0	0.0	0.0	0.0	C.0

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
COLEMANALTIZ GRID 8 HC 4507 VC 41176															
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.0	0.0	0.0	0.01	0.01	0.01	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
SWVACOMMCOLL GRID 10 HC 4905 VC 41080															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
BLANDCORRECF GRID 10 HC 4900 VC 41060															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03	0.0	0.0	0.01
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03	0.0	0.0	0.01
ROANOKEMILLS GRID 10 HC 4865 VC 41115															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
SUNRISECCAL GRID 12 HC 3442 VC 40968															
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WESTMLNDCOAL GRID 12 HC 3410 VC 40930															
TYPE 5	0.0	0.0	0.0	0.92	0.92	0.92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.92	0.92	0.92	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	[illegible]

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
COALPROCESNG GRID 13 HC 3505 VC 40996															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	14.70	14.70	14.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	14.70	14.70	14.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CRISTIECOAL GRID 13 HC 3567 VC 40913															
TYPE 5	0.0	0.0	0.0	4.66	4.66	4.66	0.02	0.02	0.02	0.19	0.19	0.19	0.05	0.05	0.05
TOTAL	0.0	0.0	0.0	4.66	4.66	4.66	0.02	0.02	0.02	0.19	0.19	0.19	0.05	0.05	0.05
CLINCHVALCOL GRID 14 HC 3610 VC 40930															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03	0.0	0.0	0.01
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03	0.0	0.0	0.01
CLINCHEMICAL GRID 15 HC 4315 VC 40825															
TYPE 4	19.18	19.18	19.18	12.98	12.98	12.98	0.46	0.46	0.46	0.14	0.14	0.14	8.35	8.35	8.35
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.60	0.60	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
TOTAL	19.18	19.18	19.18	13.58	13.58	13.58	0.46	0.46	0.46	0.14	0.14	0.14	8.35	8.35	8.35
ATKINSPLYWOD GRID 17 HC 4621 VC 40802															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 9	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
GENSHALEMARI GRID 17 HC 4666 VC 40817															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
TYPE 5	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
MOULDINGSINC GRID 17 HC 4615 VC 4[illegible]80															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TYPE 9	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.62	0.62	0.62	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.62	0.62	0.00	0.00	0.01
VAHIGHLNDFUR GRID 17 HC 4621 VC 408[illegible]1															
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMSCREWTEXTR GRID 18 HC 4937 VC 40884															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
PENDLETONWYE GRID 18 HC 4978 VC 40878															
TYPE 4	0.21	0.21	0.21	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
TYPE 5	0.0	0.0	0.0	36.80	36.80	36.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTA	0.21	0.21	0.21	36.81	36.81	36.81	[illegible]	0.00	0.00	0.00	0.00	0.00	0.04	0.04	[illegible]4

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
PENDLETCNWYA GRID 18 HC 4978 VC 40878															
TYPE 4	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	3.60	3.60	3.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.04	0.04	0.04	3.60	3.60	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TEMPLCNSPNNG GRID 18 HC 4920 VC 40890															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WYTHVLLCOLLG GRID 18 HC 4926 VC 40860															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
JPHAMERLUMBR GRID 20 HC 3450 VC 40871															
TYPE 5	0.00	0.00	0.00	0.01	0.01	0.01	1.78	1.78	1.78	0.15	0.15	0.15	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.01	0.01	0.01	1.78	1.78	1.78	0.15	0.15	0.15	0.01	0.01	0.01
LAURELBRCCAL GRID 22 HC 3310 VC 40800															
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HO[illegible] AYSTONE GRID 22 HC 3226 VC 40668															
TYPE 5	0.0	0.0	0.0	1.03	1.03	1.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
FCCTEMINSUNB GRID 23 HC 3424 VC 40661															
TYPE 4	3.16	3.16	3.23	2.37	2.37	2.42	0.08	0.08	0.08	0.02	C.02	0.03	1.5C	1.50	1.53
TYPE 5	C.CC	0.00	0.00	0.00	C.CC	C.00	0.00	0.00	C.CC	C.CC	C.CC	0.00	C.CC	C.00	0.00
TYPE 5	0.0	0.0	0.0	C.43	C.43	C.43	C.	0.0	0.0	0.0	0.C	0.0	C.0	0.0	C.0
TOTAL	3.16	3.16	3.23	2.80	2.80	2.85	0.08	0.08	0.09	0.03	C.03	0.03	1.5C	1.50	1.53
NATTUNNELSTO GRID 23 HC 3425 VC 40619															
TYPE 5	C.C	C.0	C.0	0.78	0.78	0.78	0.0	0.0	0.0	C.C	C.C	0.0	C.C	C.C	C.0
TCTAL	0.0	0.0	0.C	C.78	C.78	C.78	C.	0.C	0.C	C.C	0.0	0.0	0.0	0.0	C.0
PENNDIXIE GRID 23 HC 3444 VC 40563															
TYPE 5	0.0	0.0	0.0	C.31	C.31	C.31	C.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	C.C	0.0	C.C	0.31	0.31	0.31	0.0	0.0	0.0	0.0	C.0	0.0	C.C	C.C	C.0
ADAMSCLINEHP GRID 23 HC 3427 VC 4066.															
TYPE 4	C.C	0.0	C.02	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.C	0.00	C.0	C.C	C.0J
TYPE 5	0.0	0.0	0.0	1.34	1.34	1.34	0.	0.C	C.C	C.0	0.0	0.0	0.0	0.0	0.0
TOTAL	C.C	0.0	0.02	1.34	1.34	1.34	0.0	0.00	0.00	0.0	0.0	0.00	0.0	C.C	C.00
BRISTCLCCCF GRID 24 HC 3940 VC 40500															
TYPE 5	0.CC	0.00	0.00	C.02	C.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	C.C1	C.C1	C.C1
TOTAL	0.C0	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	C.CC	0.00	C.00	C.C1	0.01	0.01

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
PCPECCNSTCC GRID 24 HC 3901 VC 4[illegible]779															
TYPE 4	0.0	0.0	0.00	0.0	0.0	[illegible]	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.02	0.02	[illegible]	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
ADAMSSTPAUL GRID 24 HC 3939 VC [illegible]															
TYPE 4	0.0	0.0	0.04	0.0	[illegible]	[illegible]	[illegible]	0.0	0.00	0.0	[illegible]	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	1.53	1.53	1.53	[illegible]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.04	1.53	1.53	1.53	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
USGYPSUMCO GRID 26 HC 4294 VC [illegible]															
TYPE 4	0.62	0.62	0.62	0.38	0.38	0.38	0.23	0.23	0.23	0.07	0.07	0.07	0.14	0.14	0.14
TYPE 5	0.0	0.0	0.0	1.16	1.16	1.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.62	0.62	0.62	1.54	1.54	1.54	0.23	0.23	0.23	0.07	0.07	0.07	0.14	0.14	0.14
SUPREMEMILLS GRID 27 HC 4391 VC 4073[illegible]															
TYPE 4	0.0	0.0	0.02	0.0	0.0	0.01	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03
TOTAL	0.0	0.0	0.02	0.0	[illegible]	[illegible]	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03
RGPOPEDICKEN GRID 29 HC 3915 VC 4078[illegible]															
TYPE 4	0.0	0.0	0.05	0.0	[illegible]	[illegible]	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.09
TYPE 5	0.0	0.0	0.0	18.40	18.40	18.40	[illegible]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTA	0.0	0.0	0.05	18.40	18.40	18.42	0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	09

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
HOLSTONRGUAR GRID 30 HC 4545 VC 40778															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	13.80	13.80	13.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	13.80	13.80	13.80	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
ANVILBRAND GRID 33 HC 4858 VC 40527															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACKDIAMOND GRID 33 HC 4932 VC 40513															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.37	0.37	0.37	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.37	0.37	0.37	0.0	0.0	0.01
BRECKSPHANES GRID 33 HC 5078 VC 40585															
TYPE 4	0.01	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.07
TOTAL	0.01	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.07
BRUNSWICKCO GRID 33 HC 4648 VC 40695															
TYPE 4	0.0	0.0	0.01	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03
TYPE 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
GRAYSONGMTCO GRID 33 HC 4872 VC 40528															
TYPE 4	0.05	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.05	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
ELLEMONTKNIT GRID 34 HC 5069 VC 40572															
TYPE 4	0.22	0.22	0.25	0.85	0.85	0.94	0.01	0.01	0.02	0.01	0.01	0.01	0.11	0.11	0.12
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.27	0.27	0.27	0.0	0.0	0.0
TOTAL	0.22	0.22	0.25	0.85	0.85	0.94	0.01	0.01	0.02	0.28	0.28	0.28	0.11	0.11	0.12
BURLINGHOUSE GRID 34 HC 5071 VC 40571															
TYPE 4	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
HECROWDERSON GRID 34 HC 5217 VC 40677															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	1.68	1.68	1.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	1.68	1.68	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DIXONLUMBER GRID 34 HC 5055 VC 40559															
TYPE 5	0.03	0.03	0.03	0.33	0.33	0.33	0.73	0.73	0.73	0.08	0.08	0.08	0.11	0.11	0.11
TOTAL	0.03	0.03	0.03	0.33	0.33	0.33	0.73	0.73	0.73	0.08	0.08	0.08	0.11	0.11	0.11

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
GALAXCHAIRCO GRID 34 HC 5075 VC 40584															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
NEWJERSEYZIN GRID 34 HC 5072 VC 40779															
TYPE 4	0.0	0.0	0.06	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.02
TYPE 5	0.0	0.0	0.0	0.04	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.06	0.04	0.04	0.05	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.02
NEWMANBROS GRID 34 HC 5240 VC 40730															
TYPE 5	0.0	0.0	0.0	0.69	0.69	0.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.69	0.69	0.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAWYERSFURN GRID 34 HC 5083 VC 40586															
TYPE 5	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
VAUGHANBASSE GRID 34 HC 5071 VC 40571															
TYPE 4	0.06	0.06	0.12	0.20	0.20	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.05
TYPE 5	0.02	0.02	0.02	0.20	0.20	0.20	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.07	0.07
TOTAL	0.08	0.08	0.15	0.40	0.40	0.60	0.02	0.02	0.02	0.01	0.01	0.01	0.09	0.09	0.12

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
VAUGHANFURNT GRID 34 HC 5060 VC 40570															
TYPE 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TYPE 5	0.03	0.03	0.03	0.31	0.31	0.31	0.00	0.00	0.00	0.02	0.02	0.02	0.10	0.10	0.10
TOTAL	0.03	0.03	0.03	0.31	0.31	0.31	0.00	0.00	0.00	0.02	0.02	0.02	0.10	0.10	0.10
WASHMILLS GRID 34 HC 5021 VC 40631															
TYPE 4	0.13	0.13	0.17	0.36	0.36	0.46	[illegible]	0.00	0.01	[illegible]	0.00	0.00	0.08	0.08	0.10
TYPE 9	0.00	0.00	0.00	0.06	0.06	0.06	0.29	0.29	0.29	0.10	0.10	0.10	0.02	0.02	0.02
TOTAL	0.14	0.14	0.17	0.42	0.42	0.51	0.30	0.30	0.30	0.11	0.11	0.11	0.10	0.10	0.12
WEBBFURN GRID 34 HC 5071 VC 40571															
TYPE 5	0.01	0.01	0.01	0.10	0.10	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.03
TOTAL	0.01	0.01	0.01	0.10	0.10	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.03
LEESCARPETS GRID 34 HC 5242 VC 40687															
TYPE 4	0.01	0.01	0.08	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
TOTAL	0.01	0.01	0.08	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
EMPIREMFGCCR GRID 36 HC 4545 VC 40755															
TYPE 9	0.0	0.0	0.0	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.08	0.08	0.08	0.08	0.08	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
TOTAL	0.08	0.08	0.08	0.08	0.08	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.03

	SCX S	SCX W	SCX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NCX S	NCX W	NCX A
HCLSTONRIVER GRID 36 HC 4543 VC 40768															
TYPE 4	C.CC	0.00	0.00	0.00	0.00	C.CC	C.CC	C.CC	C.CC	C.00	C.00	C.CO	C.01	0.01	0.01
TYPE 5	C.0	0.0	C.C	2.97	2.97	2.97	C.C	C.C	0.0	0.0	0.0	0.0	C.0	C.0	C.C
TCTAL	C.CC	C.CC	C.00	2.97	2.97	2.97	0.CC	0.00	C.CO	C.CC	C.CC	C.00	C.C1	C.C1	C.C1
MARICNHWDWOB GRID 36 HC 4528 VC 40760															
TYPE 4	0.0	0.0	C.C1	C.0	0.0	0.00	0.0	0.C	0.C0	C.0	C.0	C.CC	C.0	0.0	C.CC
TCTAL	0.0	0.0	C.01	C.C	C.0	C.00	C.C	C.C	0.C0	C.0	0.0	0.00	0.0	0.0	C.CC
MARICNHWDWCA GRID 36 HC 4539 VC 40763															
TYPE 4	0.0	0.0	C.CC	C.C	C.0	C.0C	C.C	0.0	0.00	0.0	0.0	C.00	0.0	0.0	C.00
TCTAL	C.C	C.C	C.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	C.0	0.00	C.C	C.C	C.00
SWVASTATEHOS GRID 37 HC 4553 VC 40761															
TYPE 4	C.C	C.C	C.CC	0.0	0.0	0.00	0.0	0.0	C.02	0.0	C.0	C.16	C.0	C.C	C.05
TCTAL	0.0	0.0	0.CC	C.C	C.C	C.CC	C.C	0.C	C.02	C.0	0.0	C.16	0.0	0.0	C.05
APALACHINMFG GRID 37 HC 4551 VC 40765															
TYPE 5	0.0	0.0	C.C	0.CC	C.CC	C.CC	C.C	C.C	C.0	C.C	0.0	0.0	0.0	0.0	C.C
TCTAL	C.0	0.0	0.0	C.CC	C.CC	C.CC	0.0	0.0	0.0	0.0	0.0	C.0	C.C	C.C	C.0
ERUNSWICKMAR GRID 39 HC 4540 VC 40770															
TYPE	C.27	C.27	C.29	702.74	702.74	739.73	0.01	0.01	0.01	0.13	0.13	C.14	C.C3	C.C3	[illegible]
TYPE 5	C.02	0.02	0.02	0.16	0.16	0.16	C.C1	0.01	C.01	C.C1	C.CI	C.C1	C.C5	0.05	[illegible]

	SOX			EAST			CO			HC			NOX		
TOTAL	0.29	0.29	0.30	702.90	702.90	739.88	0.02	0.02	0.02	0.14	0.14	0.15	0.09	0.09	0.09
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
KYVASTCNECO GRID 41 HC 2717 VC 40565															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	1.90	1.90	1.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	1.90	1.90	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
RGPCPECCAST GRID 43 HC 4259 VC 40614															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.01	0.01	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00
BRISTCLCCNCR GRID 50 HC 3948 VC 40508															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AMCYAHIMIDDM GRID 51 HC 4293 VC 40537															
TYPE 4	0.02	0.02	0.02	0.04	0.04	0.05	0.04	0.04	0.05	0.01	0.01	0.02	0.02	0.02	0.03
TOTAL	0.02	0.02	0.02	0.04	0.04	0.05	0.04	0.04	0.05	0.01	0.01	0.02	0.02	0.02	0.03
COLUMBUSMCKI GRID 51 HC 4275 VC 40551															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TYPE 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
KERNBAKERY GRID 54 HC 3949 VC 40534															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
BRISTEELERIS GRID 58 HC 3941 VC 40512															
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TOTAL	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
VULCAHMATRL GRID 58 HC 3940 VC 40500															
TYPE 5	0.0	0.0	0.0	2.74	2.74	2.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	2.74	2.74	2.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VALLEYDALE GRID 58 HC 3946 VC 40531															
TYPE 4	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03
TOTAL	0.0	0.0	0.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.03
GREYHOSIERY GRID 58 HC 3947 VC 40505															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
CLDDCMINFLYW GRID 58 HC 3937 VC 40505															
TYPE	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A

POPEPAVINGCO GRID 59 HC 3971 VC 40509

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
TYPE 4	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01
TYPE 5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.00	0.02	0.02	0.03	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.01

VAWOODWORK GRID 59 HC 3953 VC 40511

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
TYPE 4	0.06	0.06	0.08	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.00	0.00	0.00	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.07	0.07	0.08	0.06	0.06	0.06	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02

POPEPAVINGBR GRID 60 HC 3977 VC 40507

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
TYPE 4	0.0	0.0	0.03	0.0	0.0	0.01	[illegible]	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.06
TYPE 5	0.0	0.0	0.0	11.00	11.00	11.00	[illegible]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.03	11.00	11.00	11.01	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.06

****

ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

TYPE = SECONDARY CATEGORY

1=AIRPORT 2=RAILROADS 3=VESSELS 4=FUEL COMBUSTION 5=PROCESS LOSSES

6=SOLVENT EVAPORATION 7=MUNICIPAL INCINERATION 8=ON-SITE INCINERATION 9=DUMP

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA

Region II

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	683.3	1428.6	318644.7	38368.4	33142.6
OTHER	0	0	0	0	0
SUB-TOTALS	683.3	1428.6	318644.7	38368.4	33142.6
COMBUSTION OF FUELS					
INDUSTRY	54709.2	40897.9	1015.4	474.8	20061.3
STEAM-ELEC	18021.6	134319.3	488.0	155.1	8948.7
RESIDENTIAL	7243.2	3111.0	12455.9	2841.4	908.9
COMM & INST	801.0	273.3	165.3	58.0	158.3
OTHER	0	0	0	0	0
SUB-TOTAL	80775.0	178601.5	14124.6	3529.3	30077.2
REFUSE DISPOSAL					
INCINERATION	166.9	1570.7	2227.6	1670.8	222.7
OPEN BURNING	67.9	1084.9	5663.5	2034.0	406.8
SUB-TOTAL	234.8	2655.6	7891.1	3704.8	629.5
PROCESS	34782.9	123906.1	1510.7	1305.3	7625.3
EVAP LOSSES				33971.6	
GRAND TOTAL	116476.0	306591.8	342171.1	80879.4	71474.6

TRANSPORTATION SOURCES
TONS/YEAR

Region 2

CATEGORY	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	683.1	1428.4	318644.8	38368.6	33142.4
DIESEL	4248.4	1888.2	27850.8	5192.5	40124.0
EVAP*				8777.1*	
SUB-TOTAL	4931.5	3316.6	346495.6	52338.2	73266.4
RAILROADS	0	0	0	0	0
VESSELS	0	0	0	0	0
GRAND TOTAL	4931.5	3316.6	346495.6	43561.1	73266.4

*EVAP NOT INCLUDED IN GRAND TOTAL

AIR POLLUTANT EMISSIONS FROM
SOLID WASTE DISPOSAL
TONS/YEAR

REGION 2

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0	0	0	0	0
ON-SITE	111.6	1786.0	9488.4	3348.8	669.8
SUB-TOTAL	111.6	1786.0	9488.4	3348.8	669.8
OPEN BURNING					
ON-SITE	7.1	114.2	606.5	214.1	42.8
DUMP	80.8	1293.2	6870.0	2424.7	484.9
SUB-TOTAL	87.9	1407.4	7476.5	2638.8	527.7
GRAND TOTAL	199.5	3293.4	16964.9	5987.6	1197.5

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES Region 2

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	15715.1
2. INDUSTRIAL SOLVENT EVAP.	17400.3
3. DRY CLEANING	786.2
4. OTHER	0.0
5. AUTO	8777.1
TOTAL	42678.7

PROCESS LOSSES
TONS/YEAR

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
METALWORKS	15	ABEXCORPORAT	0.	230.	0.	0.	0.
CHEMICALS	7	ALLIEDCHEMIC	0.	0.	0.	0.	0.
STONEWORKS	3	ARARATRACKPR	0.	555.	0.	0.	0.
FURNITURE	9	BASICWITZCOR	24.	240.	1.	1.	80.
WOODPRODCTTD	9	BLUERIDGEVEN	1.	15.	1.	1.	5.
WOODPRODCTTD	13	BRIDGEWATERF	1.	15.	1.	1.	5.
STONEWORKS	5	WWBOXLEY&CO2	0.	2497.	0.	0.	0.
CHEMICALS	7	HOCANFIELDCO	0.	0.	0.	0.	0.
CHEMICALS	1	CELANESEFIBR	0.	65.	0.	0.	0.
STONEWORKS	16	CHEMSTONECOR	0.	14782.	0.	0.	0.
FURNITURE	2	COLEFURNICOR	85.	854.	57.	57.	285.
METALWORKS	15	CROWNCORKSEA	0.	1471.	0.	0.	0.
CHEMICALS	9	EIDUPONTWAYN	5.	902.	154.	51.	13.
CHEMICALS	17	EMCCORPAMERI	30003.	0.	0.	0.	0.
LIMESTONE	1	FOOTEMINCORP	0.	25002.	0.	0.	0.
LIMESTONE	13	FRAIZERQUARR	0.	5.	0.	0.	
LIMESTONE	15	WSFREYCOINC	0.	35.	0.	0.	0.
LIGHTINDUSTY	9	GEWAYNESBORO	0.	0.	0.	0.	3.
CHEMICALS	7	HERCULESINCO	0.	2.	0.	0.	0.
TEXTILES	9	CROMSHENANCO	6.	57.	172.	57.	14.
LIGHTINDUSTY	5	GENELCTSALEM	0.	0.	0.	3.	0.
CHEMICALS	17	INDCHEMICALB	1559.	0.	0.	0.	0.
CHEMICALS	2	INDCHEMICALA	61.	5.	0.	0.	0.
LIGHTINDUSTY	2	INLMOTORDKCO	0.	12.	0.	8.	0.
LIGHTINDUSTY	5	ITTELTUBDIVR	0.	0.	0.	0.	0.
LIMESTONE	8	JARIVLIMESTN	0.	1095.	0.	0.	0.
TEXTILES	12	LEESCARPETS	0.	38.	0.	0.	0.
LIMESTONE	8	LIBERTYLIME	0.	1263.	0.	0.	0.
BRICKMANUFAC	12	LOCHERBRICKC	0.	7300.	0.	0.	0.
STONEWORKS	12	LONEJALIMECO	0.	2971.	0.	0.	0.
CEMENT	8	LONESTARCECO	0.	1752.	0.	0.	0.
STONEWORKS	9	LUCKQUARYAUG	0.	832.	0.	0.	0.
METALFOUNDRY	3	LYNCHFOUNDRY	0.	1281.	0.	0.	0.
STONEWORKS	3	MARGARETCUPP	0.	5.	0.	0.	0.
LIMESTONE	1	NATGYPCOMP	0.	23214.	0.	0.	0.
BRICKMANUFAC	5	OLDVABRICKCO	0.	9052.	0.	0.	0.
CHEMICALS	15	OSULLIVANCO	0.	0.	0.	0.	0.

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
STONEWORKS	15	STUARTMPERRY	0.	1.	0.	0.	0.
FURNITURE	2	PULFURNDUBLN	3.	32.	2.	2.	11.
FURNITURE	2	PULFURNPULSK	12.	115.	8.	8.	39.
STONEWORKS	2	RADSTCORPPLI	0.	639.	0.	0.	0.
CHEMICALS	3	HERCULESRADE	1062.	1799.	0.	0.	6533.
CHEMICALS	9	REYMETALSCO	0.	26.	0.	0.	0.
CEMENT	17	RIVERTONCORP	0.	0.	0.	0.	0.
METALWORKS	5	ROANELECSTEL	0.	2880.	0.	0.	0.
STONEWORKS	5	ROCKQUARRCOF	0.	28.	0.	0.	0.
METALWORKS	7	JBSALCODGICO	0.	1.	0.	0.	0.
WOODPRODCTTD	18	SMLPCKAGECOB	1.	5.	0.	0.	2.
WOODPRODCTTD	18	SMLPCKAGECOA	0.	0.	0.	0.	0.
CHEMICALS	13	SOSTACOOPFER	0.	0.	0.	0.	0.
FURNITURE	5	SINGRJHNCPDV	21.	208.	14.	14.	69.
TEXTILES	5	SINGERCOFURN	1.	14.	1.	1.	5.
PRINTING	5	TIMESWORLDCP	0.	0.	0.	0.	0.
STONEWORKS	9	VULCANMTLSCO	0.	118.	0.	0.	0.
METALWORKS	13	WALKERMFGCO	0.	0.	0.	0.	0.
METALFOUNDRY	5	WALKERMCHFDY	0.	121.	0.	0.	0.
BRICKMANUFAC	5	WEBSTRBRICKA	0.	355.	0.	0.	0.
BRICKMANUFAC	5	WEBSTRBRICKB	0.	11.	0.	0.	0.
PAPERMILLS	7	WESTVACOCORP	1924.	1847.	1099.	1099.	551.
METALFOUNDRY	5	WHITEFOUNDRY	0.	0.	0.	0.	0.
ASPHALTPLATS	14	ADAMSCONSTRH	0.	1201.	0.	0.	0.
ASPHALTPLATS	5	ADAMSCONSTRA	0.	288.	0.	0.	0.
ASPHALTPLATS	3	ADAMSCONSTRB	0.	1679.	0.	0.	0.
ASPHALTPLATS	12	ADAMSCONSTRC	0.	3457.	0.	0.	0.
ASPHALTPLATS	12	ADAMSCONSTRD	0.	3551.	0.	0.	0.
ASPHALTPLATS	3	ADAMSCONSTRE	0.	1442.	0.	0.	0.
ASPHALTPLATS	7	ADAMSCONSTRF	0.	1442.	0.	0.	0.
ASPHALTPLATS	8	ADAMSCONSTRG	0.	960.	0.	0.	0.
ASPHALTPLATS	16	MOOREBROSCO	0.	131.	0.	0.	0.
ASPHALTPLATS	13	MALAYMANSONS	0.	3457.	0.	0.	0.
ASPHALTPLATS	9	WTWELLSOOINC	0.	642.	0.	0.	0.
ASPHALTPLATS	5	VAASPHALTPVA	0.	839.	0.	0.	0.
ASPHALTPLATS	17	VAASPHALTPVB	0.	839.	0.	0.	0.
ASPHALTPLATS	17	VAASPHALTPVC	0.	839.	0.	0.	0.
ASPHALTPLATS	5	SRDRAPER	0.	3022.	0.	0.	0.
ASPHALTPLATS	9	VALLEYPAVING	0.	181.	0.	0.	0.
ASPHALTPLATS	8	LONEJACKLIME	0.	3453.	0.	0.	0.
ASPHALTPLATS	5	JOHNAHALL&CO	0.	872.	0.	0.	0.
CHEMICALS	2	HERCULESHWSE	0.	0.	0.	0.	0.
TOTAL			34759.	132048.	1511.	1305.	[illegible]

POINT SOUR· EMISSIONS BY DAY
TO: /YR

›LANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
ITTELTVBDIVR	ROANOKE	HC	5924	VC41340	LIGHT INDUSTRY	0
PROCESS		0	0.4	0	0	0
FUEL		0	0.12	0	0.26	1.24
TOTAL		0	0.52	0	0.26	1.24
ID LEE COMPINC	ROCKINGHAM	HC6920	0	VC42760	TEXTILES	0
FUEL		0.02	0.03	0.00	0.02	0.1
TOTAL		0.02	0.03	0	0.02	0.1
›EES CARPETS	ROCKBRIDGE	HC6377	0	VC41658	TEXTILES	0
PROCESS		0	37.96	0	0	0
FUEL		500.56	420.78	10.51	3.34	192.51
REFUSE		0.09	1.50	7.99	2.82	0.56
TOTAL		500.65	422.28	18.50	6.16	193.07
·IBERTY LIME	BOTETOURT	HC6225	0	VC41617	LIMESTONE	0
PROCESS		0	1262.90	0	0	0
FUEL		2.50	1.06	0.01	0.21	4.58
TOTAL		2.50	1263.96	0.01	0.21	4.58
JEFFERSONMIL	PULASKI	HC5206	0	VC41018	TEXTILES	0
FUEL		1.39	0.87	0.01	0.76	5.58
TOTAL		1.39	0.87	0.01	0.76	5.58
·UCKQUARYAUG	AUGUSTA	HC6670	0	VC42320	STONEWORKS	0
PROCESS		0	832.20	0	0	0
TOTAL		0	832.20	0	0	0
·YNCHFOUNDRY	MONTGOMERY	HC5545	0	VC41196	STONEWORKS	0
PROCESS		0	1281.15	0	0	0
FUEL		0.34	0.37	0.01	0.53	2.99
TOTAL		0.34	1281.52	0.01	0.53	2.99
MARGARETCUPP	MONTGOMERY	HC5545	0	VC41196	STONEWORKS	0
PROCESS		0	5.48	0	0	0
TOTAL		0	5.48	0	0	0

'ARIVLIMESTN	BOTETOURT	HC6168	0	VC41523	LIMESTONE	0
PROCESS		0	1095.00	0	0	0
FUEL		2.13	0.90	0.81	0.18	3.90
TOTAL		2.13	1095.90	0.81	0.18	3.90
LOCHERBRICKC	ROCKBRIDGE	HC6350	0	VC41650	BRICKMANUFAC	0
PROCESS		0	1300.00	0	0	0
FUEL		1.15	0.49	0.01	0.10	2.11
TOTAL		1.15	1300.49	0.01	0.10	2.11
.ONEJALIMECO	ROCKBRIDGE	HC6370	0	VC41684	STONEWORKS	0
PROCESS		0	2971.10	0	0	0
TOTAL		0	2971.10	0	0	0
.ONESTARCECO	BOTETOURT	HC5890	0	VC41475	CEMENT	0
PROCESS		0	1752.10	0	0	0
FUEL		1169.64	980.50	24.51	7.74	443.59
REFUSE		0.01	0.12	0.64	0.23	0.05
TOTAL		1169.65	2732.72	25.15	7.97	443.64
)LDVABRICKCO	ROANOKE	HC5800	0	VC41254	BRICKMANUFAC	0
PROCESS		0	9052.00	0	0	0
FUEL		4.20	3.64	0.07	4.55	27.52
TOTAL		4.20	9055.64	0.07	4.55	27.52
OSVLLIVANCO	FREDRICK	HC7438	0	VC43387	CHEMICALS	0
PROCESS		0	0.37	0	0	0
SOLVENT		0	0	0	0.37	0
FUEL		1.46	1.90	0.04	3.00	16.28
TOTAL		1.46	2.27	0.04	3.37	16.28
STUARTMPERRY	FREDRICK	HC7450	0	VC43400	STONEWORKS	0
PROCESS		0	0.73	0	0	0
FUEL		3.55	1.50	0.02	0.30	6.50
TOTAL		3.55	2.23	0.02	0.30	6.50
POSIDIVLISYI	MONTGOMERY	HC5515	0	VC41213	0	0
FUEL		0.02	00.02	0.00	0.02	0.13
TOTAL		0.02	00.02	0.00	0.02	0.13

ENROSEMFGCO	ROANOKE	HC5950	0	VC41260	TEXTILES	0
FUEL		0.64	0.27	0	0.05	1.17
TOTAL		0.64	0.27	0	0.05	1.17
MERCKCHEMDIV	ROCKINGHAM	HC7051	0	VC42510	CHEMICALS	0
SOLVENT		0	0	0	140.16	0
FUEL		1093.39	920.38	23.01	6.98	415.63
REFUSE		1.98	31.75	168.68	59.54	11.91
TOTAL		1095.37	952.13	191.67	206.68	427.54
IATFRUITPROT	FREDRICK	HC 6920	0	VC 42780	FOODINDUSTRY	0
PROCESS		46.12	2.70	0.02	0.35	7.64
TOTAL		46.12	2.70	0.02	0.35	7.64
NATGYPCOMP	GILES	HC 5290	0	VC 41350	LIMESTONE	0
PROCESS		0	23214.00	0	0	0
FUEL		2376.78	2000.75	50.01	15.15	903.25
TOTAL		2376.78	25214.75	50.01	15.15	903.25
MLPCKAGECOB	CLARK	HC 7627	0	VC 43374	WOODPRODCTTP	0
PROCESS		0.73	271.93	0.37	0.37	1.83
TOTAL		0.73	271.93	0.37	0.37	1.83
SMLPCKAGECOA	CLARK	HC 7615	0	VC 43377	WOODPRODCTTP	0
PROCESS		0	0.37	0	0	0
TOTAL		0	0.37	0	0	0
SOSTACOOPFER	ROCKINGHAM	HC 6862	0	VC 42590	CHEMICALS	0
PROCESS		0	.37	0	0	0
TOTAL		0	0.37	0	0	0
WESTERNSTHOS	AUGUSTA	HC 6795	0	VC 42236	HOSPITAL	0
FUEL		169.24	141.66	3.54	4.37	79.16
TOTAL		169.24	141.66	3.54	4.37	79.16
ULFURNDUBLY	PULASKI	HC 5274	0	VC 41040	FURNITURE	0
PROCESS		3.29	31.76	2.19	2.19	10.59
TOTAL		3.29	31.76	2.19	2.19	10.59
ULFURNPULSK	PULASKI	HC 5199	0	VC 41000	FURNITURE	0
PROCESS		11.68	115.34	7.67	7.67	38.69
TOTAL		11.68	115.34	7.67	7.67	38.69

RADSTCORPPLI	PULASKI	HC 5376	0	VC 41032	STONEWORKS	0
RPOCESS		0	638.75	0	0	0
REFUSE		0.00	0.02	0.13	0.05	0.01
TOTAL		0.00	638.77	0.13	0.05	0.01
SINGERCOFURN	ROANOKE	HC 5952	0	VC 41268	TEXTILES	0
PROCESS		1.46	13.87	1.10	1.10	404.42
FUEL		1.67	0.75	0.01	0.15	3.25
TOTAL		3.13	14.62	1.11	1.25	407.67
ROCKQUARRCOR	ROANOKE	HC 5933	0	VC 41189	STONEWORKS	0
PROCESS		0	28.47	0	0	0
TOTAL		0	28.47	0	0	0
ROIRONBRDGRK	ROANOKE	HC 5940	0	VC 41237	METALWORKS	0
FUEL		0.07	0.08	0.00	0.11	0.61
TOTAL		0.07	0.08	0.00	0.11	0.61
JBSALCODGICO	ALLEGHANY	HC 5879	0	VC 41829	METALWORKS	0
PROCESS		0	0.73	0	0	0
FUEL		0.20	0.22	0.00	0.32	1.78
SOLVENT		0	0	0	2.56	0
TOTAL		0.20	0.95	0.00	2.88	1.78
JSCHOENEMANT	FREDRICK	HC 7436	0	VC 43357	TEXTILES	0
FUEL		11.19	0.72	0.01	0.23	2.52
TOTAL		11.19	0.72	0.01	0.23	2.52
SINGRJHNCPDV	ROANOKE	HC 5951	0	VC 41270	FURNITURE	0
PROCESS		20.81	208.05	13.87	13.87	69.35
FUEL		16.10	0.97	0.01	0.18	2.95
TOTAL		36.91	209.02	13.88	14.05	72.30
REYMETALS CO	AUGUSTA	HC 6901	0	VC 42362	CHEMICALS	0
PROCESS		0	25.55	0	0	0
FUEL		413.25	344.07	8.56	3.47	170.96
SOLVENT		0	0	0	43.80	0
TOTAL		413.25	369.62	8.56	47.27	170.96

RIVERTONCORP	WARREN	HC 7437	0	VC 43144	CEMENT	0
PROCESS		0	0.37	0	0	0
FUEL		2280.11	1920.05	48.00	14.41	864.19
REFUSE		0.01	0.08	0.43	0.15	0.03
TOTAL		2280.12	1920.50	48.43	14.56	864.22
ROANELECSTEL	ROANOKE	HC 5890	0	VC 41250	METALWORKS	0
PROCESS		0	2879.85	0	0	0
FUEL		9.59	4.08	0.06	0.87	17.83
TOTAL		9.59	2883.93	0.06	0.87	17.83
ROANOKEMILLA	ROANOKE	HC 5926	0	VC 41248	TEXTILES	0
FUEL		73.61	4.85	0.05	1.76	17.89
TOTAL		73.61	4.85	0.05	1.76	17.89
ROANOKEMILB	ROANOKE	HC 5930	0	VC 42150	TEXTILES	0
FUEL		0.32	0.14	0.00	0.03	0.59
TOTAL		0.32	0.14	0.00	0.03	0.59
ROANOKE MILC	ROANOKE	HC 5859	0	VC 41270	TEXTILES	0
FUEL		3.80	0.32	0.00	0.20	1.51
TOTAL		3.80	0.32	0.00	0.20	1.51
ROCCOFRMFOOD	SHENANDOAH	HC 7070	0	VC 43060	FOODINDUSTRY	0
FUEL		5.58	2.65	0.04	1.13	13.34
REFUSE		0.02	0.31	1.66	0.59	0.12
TOTAL		5.60	2.96	1.70	1.72	13.46
ROCKHMPOULTRY	ROCKINGHAM	HC 6936	0	VC 42781	FOODINDUSTRY	0
FUEL		0.03	0.75	0.02	1.66	7.89
REFUSE		0.00	0.01	0.04	0.02	0.00
TOTAL		0.03	0.76	0.06	1.68	7.89
REEVESBRVULP	ROCKBRIDGE	HC 6454	0	VC 41756	CHEMICALS	0
FUEL		1.49	1.72	0.03	2.58	14.35
SOLVENT		0	0	0	2872.58	0
TOTAL		1.49	1.72	0.03	2875.13	14.35

DABSLANCOMCL	ALLEGHANY	HC 6031	0	VC 41855	INSTITUTION	0
FUEL		0.21	0.09	0.00	0.02	0.39
REFUSE		0.01	0.10	0.51	0.18	0.04
TOTAL		0.22	0.19	0.51	0.20	0.43
BLUERIDGECOM	AUGUSTA	HC 6806	0	VC 42396	INSTITUTION	I
FUEL		0.36	0.15	0.00	0.03	0.65
TOTAL		0.36	0.15	0.00	0.03	0.65
.DEAIRFXCOMC	WARREN	HC 7358	0	VC 43235	INSTITUTION	0
FUEL		0.00	0.06	0.00	0.14	0.67
REFUSE		0.00	0.04	0.21	0.08	0.02
TOTAL		0.00	0.10	0.21	0.22	0.69
NATBDGBOYCMP	ROCKINGHAM	HC 6318	0	VC 41605	INSTITUTION	0
FUEL		1.42	0.60	0.01	0.12	2.60
TOTAL		1.42	0.60	0.01	0.12	2.60
VAMILITARYIN	ROCKBRIDGE	HC 6379	0	VC 41836	INSTITUTION	0
FUEL		6.54	1.31	0.03	2.09	10.83
TOTAL		6.54	1.31	0.03	2.09	10.83
THIOKOLCHEML	AUGUSTA	HC 6852	0	VC 42138	TEXTILES	0
FUEL		0.02	0.65	0.01	1.44	6.84
TOTAL		0.02	0.65	0.01	1.44	6.84
TIMESWORLDCP	ROANOKE	HC 5914	0	VC 41247	PRINTING	0
PROCESS		0	0.37	0	0	0
FUEL		0.03	0.86	0.02	1.90	9.03
TOTAL		0.03	.23	0.02	1.90	9.03
UNIONCBDLNDE	ROANOKE	HC 5950	0	VC 41255	LIGHTINDUSTRY	0
FUEL		0.16	0.07	0.00	0.01	0.29
TOTAL		0.16	0.07	0.00	0.01	0.29
VAFERTCHEMCO	SHENANDOAH	HC 7058	0	VC 42926	CHEMICALS	0
FUEL		0.53	0.23	0.00	0.05	0.98
REFUSE		0.01	0.20	1.06	0.38	0.08
TOTAL		0.54	0.43	1.06	0.43	1.06

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA

Region 3

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	604.7	1264.5	282082.1	33966.0	29339.5
OTHER	0	0	0	0	0
SUB-TOTALS	604.7	1264.5	282082.1	33966.0	29339.5
COMBUSTION OF FUELS					
INDUSTRY	19550.0	13333.4	328.3	228.9	7330.5
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	7591.5	3250.9	12706.4	2914.6	1000.4
COMM & INST	.9	.4	0	.1	1.8
OTHER	0	0	0	0	0
SUB-TOTAL	27142.4	16584.7	13034.7	3143.6	8332.7
REFUSE DISPOSAL					
INCINERATION	56.0	557.9	19282.1	557.8	74.5
OPEN BURNING	38.8	620.9	3298.5	1164.2	233.1
SUB-TOTAL	94.8	1178.8	22580.6	1722.0	307.6
PROCESS	331.5	39382.8	456.7	242.4	1106.4
EVAP LOSSES				20817.7	
GRAND TOTAL	28173.4	58410.8	318154.1	59891.7	39086.2

TRANSPORTATION SOURCES
TONS/YEAR

CATEGORY	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	564.2	1179.8	263182.6	31690.3	27373.8
DIESEL	2624.8	1166.6	17207.2	3208.1	24790.0
EVAP*				9646.3*	
SUB-TOTAL	3189.0	2346.4	280389.8	44544.7	52163.8
RAILROADS	0	0	0	0	0
VESSELS	0	0	0	0	0
GRAND TOTAL	3189.0	2346.4	280389.8	34898.4	52163.8

*EVAP NOT INCLUDED IN GRAND TOTAL

AIR POLLUTANT EMISSIONS FROM
SOLID WASTE DISPOSAL
TONS/YEAR

REGION 3

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0	0	0	0	0
ON-SITE	79.2	792.3	1056.4	792.3	105.6
SUB-TOTAL	79.2	792.3	1056.4	792.3	105.6
OPEN BURNING					
ON-SITE	34.2	547.8	2910.3	1027.6	205.4
DUMP	8.4	134.8	716.0	252.7	50.5
SUB-TOTAL	42.6	682.6	3626.3	1280.3	255.9
GRAND TOTAL	121.8	1474.9	4682.7	2072.6	361.5

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES Region 3

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	12796.3
2. INDUSTRIAL SOLVENT EVAP.	6464.9
3. DRY CLEANING	1092.1
4. OTHER	0.0
5. AUTO	9646.6
TOTAL	29999.9

POINT SOURCE EMISSIONS BY DAY

TONS PER DAY

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
ALLEN MORRISN	LYNCHBURG	HC 6622	VC 41386	LIGHT INDUSTRY		
FUEL		7.67	1.01	.02	1.30	7.16
PROCESS		0	.73	0	0	0
SOLVENT EVAP		0	0	0	82.86	0
REFUSE		.00	.06	.34	.12	.02
TOTAL		7.67	8.37	.36	84.28	7.18
AMFURNTUREMV	HENRY	HC 6000	VC 40604	WOOD PRODUCT TP		
FUEL		142.30	101.38	2.51	.93	48.90
PROCESS		42.34	423.40	175.20	75.19	137.61
SOLVENT EVAP		0	0	0	405.88	0
TOTAL		184.64	524.78	177.71	482.00	186.61
ALTAVISTA MEG	CAMPBELL	HC 6519	VC 41081	CLOTH MILLS		
FUEL		1.57	.09	.00	.01	.26
TOTAL		1.57	.09	.00	.01	.26
AMHERST MEG CO	APPOMATTOX	HC 6950	VC 41380	CLOTH MILLS		
FUEL		1.57	..09	.00	.01	.26
TOTAL		1.57	.09	.00	.01	.26
APPOMTXGRMNT	APPOMATTOX	HC 6955	VC 41360	CLOTH MILLS		
FUEL		37.30	2.20	.02	.28	6.18
TOTAL		37.30	2.20	.02	.28	6.18
BEDFORD MFGCO	APPOMATTOX	HC 6950	VC 41380	CLOTH MILLS		
FUEL		1.96	.12	.00	.02	.33
TOTAL		1.96	.12	.00	.02	.33
BUCKNGHMMFG	BUCKINGHAM	HC 7210	VC 41570	CLOTH MILLS		
FUEL		1.37	.08	.00	.01	.23
TOTAL		1.37	.08	.00	.01	.23

HILL CITY MFG	APPOMATTOX	HC 6810	VC 41330	CLOTHMILLS		
FUEL		.00	.02	.00	.04	.19
TOTAL		.00	.02	.00	.04	.19
APPOMATOXLIM	APPOMATTOX	HC 6860	VC 41500	LIMESTONE		
FUEL		.79	.05	.00	.01	.13
PROCESS		0	44.90	0	0	0
TOTAL		.79	44.95	.00	.01	.13
BASSETTFURNE	HENRY	HC 5900	VC 40685	WOOD PRODUCT TP		
FUEL		71.25	60.00	1.50	.45	27.00
PROCESS		5.84	58.77	4.02	4.02	19.35
SOLVENT EVAP		0	0	0	1419.85	0
TOTAL		77.09	118.77	5.52	1424.32	46.35
BASSETTFURN M	HENRY	HC 6000	VC 40600	WOOD PRODUCT TP		
FUEL		118.75	100.00	2.[illegible]0	.75	45.00
PROCESS		7.67	74.83	5.11	5.11	24.82
SOLVENT EVAP		0	0	0	1054.85	0
TOTAL		126.42	174.83	7.61	1060.71	69.82
BASSETTMFGB	HENRY	HC 5900	VC 40685	WOOD PRODUCT TP		
FUEL		71.25	60.00	1.5	.45	27.00
PROCESS		9.13	90.16	5.84	5.84	29.93
SOLVENT EVAP		0	0	0	2003.85	0
TOTAL		80.38	150.16	7.34	2010.14	56.93
BASSETT TABLE	HENRY	HC 5900	VC 40685	WOOD PRODUCT TP		
FUEL		71.25	60.00	1.50	.45	27.00
PROCESS		7.67	75.19	5.11	5.11	25.19
SOLVENT EVAP		0	0	0	1324.95	0
TOTAL		78.92	135.19	6.61	1330.51	52.19
BASSETTFIBBD	HENRY	HC 5900	VC 40685	WOOD PRODCTTP		
FUEL		.37	.02	.50	.01	1.10
PROCESS		0	5.23	0	0	0
TOTAL		.37	5.25	.50	.01	1.10
BASSETTVENER	NOTTOWAY	HC 7480	VC 41210	WOOD PRODCTTP		
FUEL		16.88	.99	.01	.13	2.8
PROCESS		163.89	163[illegible]5	109.50	109.50	543[illegible]
TOTAL		180.77	163[illegible]4	109.51	109.63	546.[illegible]

BELDINGCRTFG	BEDFORD	HC 6325	VC 41361	CLOTH MILLS		
FUEL		.01	.24	.01	.54	2.57
TOTAL		.01	.24	.01	.54	2.57
BLUERDGETALC	HENRY	HC 5899	VC 40759	WOOD PRODCTTP		
FUEL		9.81	.58	.01	.08	1.63
PROCESS		0	1.10	0	0	0
SOLVENT		0	0	0	397.85	0
REFUSE		.01	.22	1.15	.41	.08
TOTAL		9.82	1.90	1.16	398.34	1.71
BOISECDCDTPD	PITTSYLVANIA	HC 6372	VC 40455	WOOD PRODCTTP		
FUEL		23.75	20.00	.50	.15	9.00
PROCESS		2.92	27.74	1.83	1.83	9.13
REFUSE		.26	4.21	22.36	7.89	1.58
TOTAL		26.93	51.95	24.69	9.87	19.71
BOXLEY CRSTLB	CAMPBELL	HC 6599	VC 41301	STONE WORKS		
PROCESS		0	1664.40	0	0	0
TOTAL		0	1664.40	0	0	0
BOXLEY CRSTFD	HENRY	HC 5947	VC 40596	STONE WORKS		
PROCESS		0	1138.80	0	0	0
TOTAL		0	1138.80	0	0	0
BRICKTILE LAW	BRUNSWICK	HC 7800	VC 40718	BRICK MANUFAC		
FUEL		.00	.02	.00	.04	.19
PROCESS		0	1379.7	0	0	24.46
TOTAL		0	1379.72	0	.04	24.65
BUFFALOWDPOT	BUCKINGHAM	HC 7266	VC 41605	WODD PRODCTTP		
PROCESS		1.83	18.62	1.10	1.10	6.21
TOTAL		1.83	18.62	1.10	1.10	6.21
BURLINGTON HEX	HALIFAX	HC 7200	VC 40710	CLOTH MILL		
FUEL		49.86	41.0	1.01	.5	22.32
TOTAL		49.86	41.0	1.01	.5	22.32

BURLNGTONDKB	CHARLOTTE	HC 7140	VC 40980	CLOTH MILL		
FUEL		6.04	2.55	.03	.51	11.05
REFUSE		6.04	2.55	.03	.51	11.05
TOTAL		12.08	5.10	.06	1.02	22.10
BURLINGTONCLV	MECKLENBURG	HC 7210	VC 40540	CLOTH MILL		
FUEL		811.55	671.75	16.66	7.3	347.9
TOTAL		811.55	671.75	16.66	7.3	347.9
BURLINGTON BRN	CAMPBELLL	HC 6825	VC 41021	CLOTH MILL		
FUEL		338.11	285.44	7.10	9.49	168.95
TOTAL		338.11	285.44	7.10	9.49	168.95
BURLINGTONSH	MECKLENBURG	HC 7550	VC 40680	CLOTH MILLS		
FUEL		7.54	3.19	.04	.64	13.81
TOTAL		7.54	3.19	.04	.64	13.81
JONBILMFGCOI	MECKLENBURG	HC 7268	VC 40754	CLOTH MILL		
FUEL		157.01	9.50	.09	1.86	29.14
PROCESS		0	.37	0	0	0
TOTAL		157.01	9.87	.09	1.86	29.14
HOOKERFURNCO	HENRY	HC 6022	VC 40612	WOOD PRODUCTS		
FUEL		27.78	20.86	.52	2.05	18.03
PROCESS		11.32	112.42	.37	7.67	37.60
SOLV EVAP					379.97	
TOTAL		38.10	133.28	.89	389.69	45.63
HENRYCOPLYWD	HENRY	HC 6024	VC 40498	WOOD PRODUCTS		
FUEL		25.71	20.12	.5	.17	9.33
PROCESS		4.38	52.56	2.92	365.00	1.46
REFUSE		.04	.60	3.19	1.13	.23
TOTAL		30.13	73.28	6.61	366.30	11.02
HALEFAXCOTNML	HALIFAX	HC 6860	VC 40634	CLOTH MILL		
FUEL		47.50	40.00	1.00	.3	18.0
TOTAL		47.50	40.00	1.00	.3	18.0
GUYERROBERTS						
FUEL		23.75	20.00	.5	.15	9.0
PROCESS		3.65	3.65	3.65	3.65	3.65
TOTAL		27.40	.65	4.15	3.80	165

CHAPSTICKCO	LYNCHBURG	HC 6646	VC 41407	CHEMICALS		
FUEL		1.96	.12	.00	.02	.33
TOTAL		1.96	.12	.00	.02	.33
BUTLERLUMBLW	BRUNSWICK	HC 7818	VC 40740	WOOD PRODUCTS		
PROCESS		2.19	22.63	1.46	1.46	1.67
TOTAL		2.19	22.63	1.46	1.46	1.67
BUTLERLUMBCC	MECKLENBURG	HC 7260	VC 40765	WOOD PRODUCTS		
PROCESS		2.19	22.63	1.46	1.46	7.67
TOTAL		2.19	22.63	1.46	1.46	7.67
SPAULDNGLBKV	CHARLOTTE	HC 7230	VC 41020	WOOD PRODUCTS		
PROCESS		.37	1.10	.37	.37	.37
TOTAL		.37	1.10	.37	.37	.37
STANDGARMENT	MECKLENBURG	HC 7629	VC 40734	CLOTH MILLS		
FUEL		.00	.01	.00	.02	.10
TOTAL		.00	.01	.00	.02	.10
JPSTEVENS CO	FRANKLIN	HC 5880	VC 40865	CLOTH MILLS		
REFUSE		.00	.01	.02	.00	.00
TOTAL		.00	.01	.02	.00	.00
JPSTEVENS CRM	FRANKLIN	HC 5984	VC 40950	CLOTH MILLS		
FUEL		23.75	20.00	.50	.15	9.00
REFUSE		.08	.38	.81	.16	.16
TOTAL		23.83	20.38	1.31	.31	9.16
JPSTEVENSCSB	HALIFAX	HC 6870	VC 40630	CLOTH MILLS		
FUEL		23.75	20.00	.50	.15	9.00
REFUSE		.35	1.61	3.45	.69	.69
TOTAL		24.10	21.61	3.95	.84	9.69
GLAMORBANPFC	LYNCHBURG	HC 6645	VC 41430	IRON FOUNDRY		
FUEL		488.78	309.73	7.61	7.64	177.74
PROCESS		0	1200.85	0	0	0
TOTAL		488.78	1510.58	7.61	7.64	177.74

GRAVELYFURNT	HENRY	HC 6019	VC 40495	WOOD PRODUCTS		
FUEL		23.75	20.00	.5	.15	9.0
PROCESS		1.46	14.24	1.10	1.10	4.75
SOLV EVAP		0	0	0	.73	0
REFUSE		.04	.60	3.19	1.13	.23
TOTAL		25.34	34.84	4.79	2.17	13.98
GDYEARTIRERB						
FUEL		.29	8.64	.19	19.20	91.20
TOTAL		.29	8.64	.19	19.20	91.20
DUPONTMRTNVL	HENRY	HC 5990	VC 40580	CHEMICALS		
FUEL		3343.5	2190.03	47.40	137.76	3432.29
PROCESS		0	200.02	0	0	0
SOLVENT		0	0	0	.73	0
REFUSE		.21	.98	2.10	.42	.42
TOTAL		3343.71	2391.03	49.50	138.91	3432.71
DIBRELBROSIN	PITTSYLVANIA	HC 6493	VC 40512	LIGHT INDUSTRY		
FUEL		.91	.92	.02	1.28	7.33
TOTAL		.91	.92	.02	1.28	7.33
DAYSTROMFURN	HALIFAX	HC 6853	VC 40678	METAL WORKS		
FUEL		43.22	6.90	.12	9.40	51.36
TOTAL		43.22	6.90	.12	9.40	51.36
DANRIVER INCS	PITTSYLVANIA	HC 6409	VC 40482	CLOTH MILL		
FUEL		1126.39	950.54	23.73	29.27	529.79
TOTAL		1126.39	950.54	23.73	29.27	529.79
DANRIVER INCR	PITTSYLVANIA	HC 6438	VC 40508	CLOTH MILL		
FUEL		.55	.46	.01	.00	.21
TOTAL		.55	.46	.01	.00	.21
COOPER LUMBER	FRANKLIN	HC 5986	VC 40984	WOOD PRODUCTS		
PROCESS		0	.37	0	0	0
SOLV EVAP		0	0	0	.37	0
TOTAL		0	.37	0	.37	0
FRNKCHERVAN	BEDFORD	HC 6327	VC 41333	WOOD PRODUCTS		
PROCESS		2.56	6.21	1.83	1.83	8.40
TOTAL		2.56	.21	1.83	1.83	.40

GELYNCHBURG	LYNCHBURG	HC6616	VC41361	LIGHT INDUSTRY		
FUEL		.05	1.46	.03	3.24	15.39
PROCESS		.37	.37	.37	.37	.37
SOLVENT		0	0	0	1.83	0
REFUSE		.00	.01	.03	.01	.01
TOTAL		.42	1.84	.43	5.45	15.77
FIELDCRESTML	HENRY	HC5947	VC40622	CLOTH MILL		
FUEL		389.23	209.86	5.10	4.82	125.38
PROCESS		0	36.50	0	0	0
SOLVENT		0	0	0	5.11	0
REFUSE		.62	2.90	6.22	1.24	1.24
TOTAL		389.85	249.26	11.32	11.17	126.62
HKPORTER LYBG	LUNCHBURG	HC6643	VC41387	LIGHT INDUSTRY		
FUEL		.01	.37	.01	.82	3.90
PROCESS		0	6.21	0	0	0
SOLVENT EVAP		0	0	0	32.12	0
TOTAL		.01	6.58	.01	32.94	3.90
ROCKYDALESTN	CAMPBELL	HC6840	VC41510	LIMESTONE		
PROCESS		0	1387.00	0	0	0
TOTAL		0	1387.00	0	0	0
ROYSTER CO	LYNCHBURG	HC6640	VC41384	CHEMICALS		
REFUSE		.01	.08	.43	.15	.03
TOTAL		.01	.08	.43	.15	.03
RUBATEX--A	BEDFORD	HC6322	VC41328	CHEMICALS		
FUEL		290.45	17.02	.15	2.22	48.10
TOTAL		290.45	17.02	.15	2.22	48.10
RUBATEX--B	BEDFORD	HC6327	VC41334	CHEMICALS		
FUEL		1.42	.60	.01	.12	2.60
SOLVENT EVAP		0	0	0	148.92	0
TOTAL		1.42	.60	.01	149.04	2.60
VACRAFTS INC	CHARLOTTE	HC7236	VC41027	CLOTH MILLS		
FUEL		73.79	4.32	.04	.56	12.22
TOTAL		73.79	4.32	.04	.56	12.22

VASLITE CORP	PITTSYLVANIA	HC6191	VC40446	BRICK MANUFAC.		
FUEL		.39	11.64	.26	25.86	122.84
PROCESS		0	719.05	0	0	0
TOTAL		.39	730.69	.26	25.86	122.84
VULMATERLSSB	HALIFAX	HC6910	VC40650	STONE WORKS		
PROCESS		0	348.94	0	0	0
TOTAL		0	348.94	0	0	0
VULMATERLSLV	BRUNSWICK	HC7931	VC40700	STONE WORKS		
PROCESS		0	329.23	0	0	0
TOTAL		0	329.23	0	0	0
WESTHOUSE ELC	HALIFAX	HC6796	VC40585	LIGHT INDUSTRY		
FUEL		.00	.01	.00	.02	.10
SOLVENT EVP		0	0	0	31.45	0
REFUSE		18.56	297.00	1577.81	556.88	111.38
TOTAL		18.56	297.01	1577.81	588.35	111.48
SALEKNITNGMV	HENRY	HC6006	VC40617	CLOTH MILLS		
FUEL		119.19	100.21	2.50	.83	46.00
TOTAL		119.19	100.21	2.50	.83	46.00
SMITHDOUGLAS	PITTSYLVANIA	HC6460	VC40521	CHEMICALS		
FUEL		.01	.21	.00	.46	2.19
PROCESS		0	2.56	0	0	.37
TOTAL		.01	2.77	.00	.46	2.56
SOUTHRN MATLS	BRUNSWICK	HC7879	VC40927	STONE WORKS		
PROCESS		0	1365.10	0	0	0
TOTAL		0	1365.10	0	0	0
SOUTH COT CO	HENRY	HC6023	VC40550	WOOD PRODCTTP		
FUEL		.12	.50	.01	1.03	5.04
TOTAL		.12	.50	.01	1.03	5.04
SPAULNGBLC	MECKLENBURG	HC7260	VC40750	WOOD PRODCTTP		
PROCESS		.37	1.46	.37	.37	.37
TOTAL		.37	1.46	.37	.37	.37

KENLEA	LUNENBURG	HC7538	VC40949	WOOD PRODCTTP		
FUEL		9.28	3.92	.05	.78	17.00
PROCESS		0	207.69	0	0	0
SOLVENT EVAP		0	0	0	87.24	0
TOTAL		9.28	211.61	.05	88.02	17.00
KLOPMANMILLS	PITTSYLVANIA	HC6501	VC41065	CLOTH MILLS		
FUEL		953.13	725.76	18.05	6.17	340.35
SOLVENT EVAP		0	0	0	37.23	0
REFUSE		.11	.53	1.13	.23	.23
TOTAL		953.24	726.29	19.18	41.63	340.58
KYANITEMINGA	BUCKINGHAM	HC7240	VC41508	CHEMICALS		
FUEL		26.63	11.25	.15	2.25	48.75
PROCESS		0	14.97	0	0	0
TOTAL		26.63	26.22	.15	2.25	48.75
LACROSSPRTWR	MECKLENBURG	HC7600	VC40650	CLOTH MILLS		
FUEL		.39	.17	.00	.03	.72
REFUSE		.04	.60	3.19	1.13	.23
TOTAL		.43	.77	3.19	1.16	.95
THOMARTPAUGA	PITTSYLVANIA	HC6433	VC40689	ASPHALT PLANT		
FUEL		135.61	7.95	.07	1.04	22.46
PROCESS		0	1248.30	0	0	0
TOTAL		135.61	1256.25	.07	1.04	22.46
WILMSONSPRSTN	CHARLOTTE	HC6903	VC41032	ASPHALT PLANT		
FUEL		139.34	8.17	.07	1.07	23.08
PROCESS		0	886.95	0	0	0
TOTAL		139.34	895.12	.07	1.07	23.08
BBCCKWLCOXPO	CAMPBELL	HC6716	VC41423	ATOMIC FACILITY		
FUEL		.00	.03	.00	.06	.29
SOLVENT EVAP		0	0	0	.37	0
TOTAL		.00	.03	.00	.43	.29
BBCCKWLCOXNU	CAMPBELL	HC6716	VC41423	BOILER SHOP		
FUEL		.03	.86	.02	1.90	9.03
PROCESS		0	274.85	0	0	9.49
TOTAL		.03	5.71	.02	1.90	18.52

ADAMSCONSTCA	NOTTOWAY	HC7480	VC41205	ASPHALT PLANT		
FUEL		160.53	9.41	.08	1.23	26.59
PROCESS		0	811.76	0	0	0
TOTAL		160.53	821.17	.08	1.23	26.59
THMARTPAUNGD	HENRY	HC5983	VC40663	ASPHALT PLANT		
FUEL		97.93	5.74	.05	.75	16.22
PROCESS		0	770.15	0	0	0
TOTAL		97.93	775.89	.05	.75	16.22
THMARTPAUNGC	BRUNSWICK	HC7755	VC40812	ASPHALT PLANT		
FUEL		12.27	5.18	.07	1.04	22.46
PROCESS		0	1248.30	0	0	0
TOTAL		12.27	1253.48	.07	1.04	22.46
THMARTPAUNGB	HALIFAX	HC6900	VC40660	ASPHALT PLANT		
FUEL		117.75	6.90	.06	.90	19.50
PROCESS		0	934.40	0	0	0
TOTAL		117.75	941.30	.06	.90	19.50
LEEHYPAVNGCO	BRUNSWICK	HC7885	VC40928	ASPHALT PLANT		
FUEL		113.04	6.62	.06	.86	18.72
PROCESS		0	576.70	0	0	0
TOTAL		113.04	583.32	.06	.86	18.72
COJEFASPPAV	HENRY	HC5927	VC40664	ASPHALT PLANT		
FUEL		7.26	.43	.00	.06	1.20
PROCESS		0	287.99	0	0	0
TOTAL		7.26	288.42	.00	.06	1.20
ASPHTPDCTINC	CAMPBELL	HC6740	VC41401	ASPHALT PLANT		
FUEL		188.40	11.04	.10	1.44	31.20
PROCESS		0	1200.85	0	0	0
TOTAL		188.40	1211.89	.10	1.44	31.20
ADAMSCONSTCB	NOTTOWAY	HC7512	VC41205	ASPHALT PLANT		
FUEL		282.60	16.56	.14	2.16	46.80
PROCESS		0	8431.50	0	0	0
TOTAL		282.60	8448.06	.14	2.16	46.80

ARVBUCKSLATE	BUCKINGHAM	HC7350	VC41750	CLOTH MILL		
PROCESS		0	58.04	0	0	0
TOTAL		0	58.04	0	0	0
LAWHORNEBROS	CAMPBELL	HC6616	VC41305	ASPHALT PLANT		
FUEL		1130.40	66.24	.58	8.64	187.2
PROCESS		0	959.95	0	0	0
TOTAL		1130.40	1026.19	.58	8.64	187.2
IMPLTNSNSINC	LYNCHBURG	HC6556	VC41254	ASPHALT PLANT		
FUEL		75.36	4.42	.04	.58	12.48
PROCESS		0	959.95	0	0	0
TOTAL		75.36	964.37	.04	.58	12.48
SHORTPAVINGCO	BRUNSWICK	HC7885	VC40717	ASPHALT PLANT		
FUEL		113.04	6.62	.06	.86	18.72
PROCESS		0	4051.50	0	0	0
TOTAL		113.04	4058.12	.06	.86	18.72
OWENILLINOS	BEDFORD	HC6451	VC41552	WOODPRODCTTP		
FUEL		2241.25	2140.00	53.50	16.05	963.00
PROCESS		715.40	1879.75	0	0	0
TOTAL		2956.65	4019.75	53.50	16.05	963.00
PAKTRON	LYNCHBURG	HC6578	VC41381	LIGHT INDUSTRY		
PROCESS		0	0	0	3.65	0
TOTAL		0	0	0	3.65	0
PANNILLKNTMV	HENRY	HC6000	VC40600	CLOTH MILLS		
FUEL		71.25	60.00	1.50	.45	27.00
TOTAL		71.25	60.00	1.50	.45	27.00
PERKINSONFM	PITTSYLVANIA	HC6429	VC40484	IRON FOUNDRY		
FUEL		.00	.14	.00	.30	1.43
TOTAL		.00	.14	.00	.30	1.43

HKPORTERDANV	PITTSYLVANIA	HC6443	VC40563	METAL WORK		
FUEL		.01	.27	.01	.60	2.85
PROCESS		.37	.37	.37	.37	.37
TOTAL		.38	.64	.38	.97	3.22
UNITDELASTST	PATRICK	HC5650	VC40550	CHEMICALS		
FUEL		122.66	7.19	.06	.94	20.31
PROCESS		0	.37	0	0	0
REFUSE		.53	2.49	5.34	1.07	1.07
TOTAL		123.19	10.05	5.40	2.01	21.38
UNITDELASTWW	PATRICK	HC5657	VC40698	CHEMICALS		
FUEL		135.81	7.96	.07	1.04	22.49
PROCESS		0	.37	0	0	0
REFUSE		.07	.34	.74	.15	.15
TOTAL		135.88	8.67	.81	1.19	22.64
VSPLYWDCHAMP	HALIFAX	HC6912	VC40644	WOOD PRODCTTP		
FUEL		46.92	2.76	.02	.36	7.80
PROCESS		24.46	243.46	16.43	16.43	81.03
REFUSE		2.25	36.00	191.25	67.50	67.50
TOTAL		73.63	282.22	207.70	84.29	156.23
VACAVENEERCO	PITTSYLVANIA	HC6373	VC40457	WOOD PRODCTTP		
FUEL		.75	.41	.01	.26	2.32
PROCESS		3.65	37.60	2.56	2.56	12.41
TOTAL		4.40	38.01	2.57	2.82	14.73
LACYMFGCO	HENRY	HC6008	VC40596	CLOTH MILLS		
FUEL		.32	.14	.00	.03	.59
TOTAL		.32	.14	.00	.03	.59
LAKESLEEPWR	MECKLENBURG	HC7338	VC40607	CLOTH MILLS		
FUEL		.23	.10	.00	.02	.42
REFUSE		.00	.01	.04	.02	.00
TOTAL		.23	.11	.04	.04	.42

LANECOMPANY	CAMPBELL	HC6525	VC41082	WOODPRODCTTP		
FUEL		261.25	220.00	5.5	1.65	99.0
PROCESS		19.35	364.27	12.78	12.78	64.24
SOLVENT EVAP		0	0	0	83.22	0
REFUSE		1.33	21.22	112.71	39.78	7.96
TOTAL		281.93	805.49	130.99	136.43	172.10
LIMITORQUECO	LYNCHBURG	HC6630	VC41400	METAL WORK		
FUEL		.13	.13	.00	.19	1.08
TOTAL		.13	.13	.00	.19	1.08
LUCKQUARYBKV	NOTTOWAY	HC7480	VC41200	STONE WORKS		
PROCESS		0	1109.60	0	0	0
TOTAL		0	1109.60	0	0	0
LYBGFNDYCO	LYNCHBURG	HC6654	VC41414	IRON FOUNDRY		
FUEL		1.09	.57	.01	.33	3.12
PROCESS		0	525.60	0	0	0
TOTAL		1.09	526.17	.01	.33	3.12
LYBGHOSIERYM	LYNCHBURG	HC6623	VC41395	CLOTH MILLS		
FUEL		.36	.15	.00	.03	.65
TOTAL		.36	.15	.00	.03	.65
MEADCORP	LYNCHBURG	HC6659	VC41408	WOOD PRODCTTP		
FUEL		2617.35	2202.05	55.03	16.91	998.87
PROCESS		16.43	185.42	106.22	.37	68.62
TOTAL		2633.78	3387.47	161.25	16.28	1066.49
MOOREBEDFORD	BEDFORD	HC6325	VC41332	WOOD PRODUCTTP		
PROCESS		0	.37	0	0	0
TOTAL		0	.37	0	0	0
MWDISTRBUTOR	FRANKLIN	HC5986	VC40954	WOOD PRODCTTP		
FUEL		23.75	20.00	.50	.15	9.00
PROCESS		0	.37	0	0	0
TOTAL		23.75	20.37	.50	.15	9.00

WHITTLEPLYWD	PITTSYLVANIA	HC6390	VC40760	WOOD PRODCTTP		
FUEL		.00	.11	.00	.24	1.14
PROCESS		.37	3.65	.37	.37	.37
TOTAL		.37	3.76	.37	.61	1.51

SUMMARY OF AIR POLLUTANT EMISSIONS
IN APPOMATTOX COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	15.7	32.9	7337.9	883.6	763.2
OTHER	0	0	0	0	0
SUB-TOTALS	15.7	32.9	7337.9	883.6	763.2
COMBUSTION OF FUELS					
INDUSTRY	3.8	1.6	0	.4	7.1
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	298.4	126.3	545.6	122.3	24.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	302.2	127.9	545.6	122.7	32.0
REFUSE DISPOSAL					
INCINERATION	.7	6.4	8.5	6.4	.9
OPEN BURNING	.6	10.3	54.4	19.2	3.8
SUB-TOTAL	1.3	16.7	62.9	25.8	4.7
PROCESS	0	448.9	0	0	0
EVAP LOSSES				352.6	
GRAND TOTAL	319.2	626.4	7946.4	1384.7	799.9

SUMMARY OF AIR POLLUTANT EMISSIONS
IN BEDFORD COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	39.7	83.0	18519.6	2229.9	1926.2
OTHER	0	0	0	0	0
SUB-TOTALS	39.7	83.0	18519.6	2229.9	1926.2
COMBUSTION OF FUELS					
INDUSTRY	2833.1	2157.8	53.7	18.9	1016.3
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	630.1	267.7	1112.9	251.7	64.2
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	3463.2	2425.5	1166.6	270.6	1080.5
REFUSE DISPOSAL					
INCINERATION	1.1	10.7	14.3	10.7	1.4
OPEN BURNING	1.4	22.9	121.9	43.1	8.6
SUB-TOTAL	2.5	33.6	136.2	53.8	10.0
PROCESS	2.5	6.6	1.8	1.8	8.4
EVAP LOSSES				911.6	
GRAND TOTAL	3507.9	2548.7	19824.2	3467.7	3025.1

IN CAMPBELL COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	43.4	90.8	20266.7	2440.3	2107.9
OTHER	0	0	0	0	0
SUB-TOTALS	43.4	90.8	20266.7	2440.3	2107.9
COMBUSTION OF FUELS					
INDUSTRY	945.5	561.9	13.3	23.2	495.9
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	268.2	118.9	304.1	78.5	78.5
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	1213.7	680.8	317.4	101.7	574.4
REFUSE DISPOSAL					
INCINERATION	2.9	28.7	38.3	28.7	3.8
OPEN BURNING	4.2	67.3	357.6	126.2	25.2
SUB-TOTAL	7.1	96.0	395.9	154.9	29.0
PROCESS	19.3	5851.3	12.8	0	73.7
EVAP LOSSES				1005.9	
GRAND TOTAL	1283.5	6718.9	20992.8	3702.8	2785.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN FRANKLIN COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	40.1	84.0	18741.9	2256.7	1949.3
OTHER	0	0	0	0	0
SUB-TOTALS	40.1	84.0	18741.9	2256.7	1949.3
COMBUSTION OF FUELS					
INDUSTRY	71.3	60.0	1.5	.5	27.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	482.5	205.8	822.6	187.7	58.1
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	553.8	265.8	824.1	188.2	85.1
REFUSE DISPOSAL					
INCINERATION	2.9	29.2	38.9	29.2	3.9
OPEN BURNING	2.6	41.6	220.8	77.9	15.9
SUB-TOTAL	5.5	70.8	259.7	107.1	19.8
PROCESS	.4	.7	.4	.4	.4
EVAP LOSSES				903.8	
GRAND TOTAL	599.8	421.3	19826.1	3456.15	2054.6

SUMMARY OF AIR POLLUTANT EMISSIONS IN AMHERST COUNTY

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SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	24.4	50.9	11372.2	1369.4	1182.8
OTHER	0	0	0	0	0
SUB-TOTALS	24.4	50.9	11372.2	1369.4	1182.8
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	203.4	88.5	288.8	69.3	41.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	203.4	88.5	288.8	69.3	41.9
REFUSE DISPOSAL					
INCINERATION	1.8	17.6	23.4	17.5	2.3
OPEN BURNING	1.8	28.1	149.3	52.7	10.5
SUB-TOTAL	3.6	45.7	172.7	70.2	12.8
PROCESS	0	0	0	0	0
EVAP LOSSES				568.1	
GRAND TOTAL	231.4	185.1	11833.7	2077.0	1237.5

SUMMARY OF AIR POLLUTANT EMISSIONS IN HENRY COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	74.6	156.1	34815.5	4192.2	3621.2
OTHER	0	0	0	0	0
SUB-TOTALS	74.6	156.1	34815.5	4192.2	3621.2
COMBUSTION OF FUELS					
INDUSTRY	10415.9	7470.5	185.1	75.3	3659.6
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	433.7	189.5	583.9	142.5	99.0
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	10849.6	7660.0	769.0	217.8	3758.6
REFUSE DISPOSAL					
INCINERATION	3.2	31.6	42.1	31.6	4.2
OPEN BURNING	3.2	51.1	271.7	95.9	19.2
SUB-TOTAL	6.4	82.7	313.8	127.5	23.4
PROCESS	89.8	3337.9	199.7	99.6	260.7
EVAP LOSSES				8336.6	
GRAND TOTAL	11020.4	11236.6	36098.0	12973.7	4042.7

SUMMARY OF AIR POLLUTANT EMISSIONS IN PATRICK COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	16.3	34.0	7592.1	914.2	789.7
OTHER	0	0	0	0	0
SUB-TOTALS	16.3	34.0	7592.1	914.2	789.7
COMBUSTION OF FUELS					
INDUSTRY	258.5	15.1	.1	1.9	42.8
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	324.2	138.1	558.3	127.1	37.3
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	582.7	153.2	558.4	129.0	80.1
REFUSE DISPOSAL					
INCINERATION	3.1	31.3	41.7	31.3	4.2
OPEN BURNING	1.3	21.6	114.6	40.4	8.1
SUB-TOTAL	4.4	52.9	156.3	71.7	12.3
PROCESS	0	.4	0	0	0
EVAP LOSSES				375.1	
GRAND TOTAL	603.4	240.5	8306.8	1490.0	882.1

SUMMARY OF AIR POLLUTANT EMISSIONS IN PITTSYLVANIA COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	88.4	184.8	41232.3	4964.9	4288.6
OTHER	0	0	0	0	0
SUB-TOTALS	88.4	184.8	41232.2	4964.9	4288.6
COMBUSTION OF FUELS					
INDUSTRY	2657.7	2174.1	54.1	72.1	1254.2
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	803.7	344.2	1324.6	304.9	110.5
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	3461.4	2518.3	1378.7	377.0	1364.7
REFUSE DISPOSAL					
INCINERATION	14.1	140.7	187.6	146.7	18.8
OPEN BURNING	7.3	116.1	616.9	217.7	43.6
SUB-TOTAL	21.4	256.8	804.5	358.4	62.4
PROCESS	7.3	3258.4	5.1	5.5	22.6
EVAP LOSSES				2118.3	
GRAND TOTAL	3578.5	6218.3	43420.5	7824.1	5738.3

SUMMARY OF AIR POLLUTANT EMISSIONS
IN BRUNSWICK COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	27.0	56.5	12611.1	1518.5	1311.7
OTHER	0	0	0	0	0
SUB-TOTALS	27.0	56.5	12611.1	1518.5	1311.7
COMBUSTION OF FUELS					
INDUSTRY	156.1	16.6	.2	2.8	60.1
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	596.3	251.6	1113.3	248.3	42.7
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	752.4	268.2	1113.5	251.1	102.8
REFUSE DISPOSAL					
INCINERATION	2.1	21.2	28.2	21.2	2.8
OPEN BURNING	1.1	16.9	90.2	31.8	6.4
SUB-TOTAL	3.2	38.1	118.4	53.0	9.2
PROCESS	2.2	10338.3	1.5	1.5	32.1
EVAP LOSSES				604.6	
GRAND TOTAL	784.8	10701.1	13844.5	2427.2	1455.8

SUMMARY OF AIR POLLUTANT EMISSIONS IN HALIFAX COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	40.2	84.0	18741.9	2256.8	1949.4
OTHER	0	0	0	0	0
SUB-TOTALS	40.2	84.0	18741.9	2256.8	1949.4
COMBUSTION OF FUELS					
INDUSTRY	290.2	113.9	2.6	2.9	91.2
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	489.5	209.1	824.3	188.7	62.1
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	779.7	323.0	826.9	191.6	153.3
REFUSE DISPOSAL					
INCINERATION	3.7	36.5	48.7	36.5	4.9
OPEN BURNING	3.9	62.1	329.6	116.3	23.3
SUB-TOTAL	7.6	98.6	378.3	152.8	28.2
PROCESS	24.5	1526.8	16.4	16.4	81.1
EVAP LOSSES				924.3	
GRAND TOTAL	852.0	2032.4	19963.5	3541.9	2212.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN MECKLENBURG COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	39.0	81.6	18201.9	2191.7	1893.2
OTHER	0	0	0	0	0
SUB-TOTALS	39.0	81.6	18201.9	2191.7	1893.2
COMBUSTION OF FUELS					
INDUSTRY	1189.3	689.5	16.8	9.9	392.1
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	573.8	244.6	985.8	224.5	66.8
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	1763.1	934.1	1002.6	234.4	458.9
REFUSE DISPOSAL					
INCINERATION	3.8	38.4	51.3	38.4	5.1
OPEN BURNING	3.2	51.4	273.2	96.4	19.3
SUB-TOTAL	7.0	89.8	324.5	134.8	24.4
PROCESS	2.6	24.1	1.8	1.8	8.0
EVAP LOSSES				885.1	
GRAND TOTAL	1811.7	1129.6	19530.8	3447.8	2384.5

SUMMARY OF AIR POLLUTANT EMISSIONS
IN AMELIA COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	12.5	26.1	5813.2	699.9	604.6
OTHER	0	0	0	0	0
SUB-TOTALS	12.5	26.1	5813.2	699.9	604.6
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	1069.2	450.9	2003.5	446.4	74.3
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	1069.2	450.9	2003.5	446.4	74.3
REFUSE DISPOSAL					
INCINERATION	1.3	12.5	16.7	12.5	1.7
OPEN BURNING	.7	10.7	56.8	20.1	4.0
SUB-TOTAL	2.0	23.2	73.5	32.6	5.7
PROCESS	0	0	0	0	0
EVAP LOSSES				279.0	
GRAND TOTAL	1083.7	500.2	7890.2	1457.9	684.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN BUCKINGHAM COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	16.7	34.9	7782.7	937.1	809.5
OTHER	0	0	0	0	0
SUB-TOTALS	16.7	34.9	7782.7	937.1	809.5
COMBUSTION OF FUELS					
INDUSTRY	26.7	11.3	.2	2.3	48.9
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	168.4	72.0	280.6	64.4	22.2
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	195.1	83.3	280.8	66.7	71.1
REFUSE DISPOSAL					
INCINERATION	1.4	13.7	18.2	13.7	1.8
OPEN BURNING	1.1	18.3	96.9	34.2	6.8
SUB-TOTAL	2.5	32.0	115.1	47.9	8.6
PROCESS	1.8	91.6	1.1	1.1	6.2
EVAP LOSSES				374.2	
GRAND TOTAL	216.1	241.8	8179.7	1427.0	895.4

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CHARLOTTE COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	18.1	37.9	8449.8	1017.5	878.9
OTHER	0	0	0	0	0
SUB-TOTALS	18.1	37.9	8449.8	1017.5	878.9
COMBUSTION OF FUELS					
INDUSTRY	153.1	13.5	.1	2.1	45.3
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	240.1	102.2	418.0	94.9	26.3
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	393.2	115.7	418.1	97.0	72.6
REFUSE DISPOSAL					
INCINERATION	1.6	16.3	21.7	16.3	2.2
OPEN BURNING	.8	13.1	69.4	24.5	4.9
SUB-TOTAL	2.4	29.4	91.1	40.8	7.1
PROCESS	.4	888.0	.4	.4	.4
EVAP LOSSES				406.7	
GRAND TOTAL	414.1	1071.0	8959.4	1562.4	959.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CUMBERLAND COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	8.4	17.5	3907.2	470.5	406.4
OTHER	0	0	0	0	0
SUB-TOTALS	8.4	17.5	3907.2	470.5	406.4
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	145.1	61.7	255.2	57.8	15.1
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	145.1	61.7	255.2	57.8	15.1
REFUSE DISPOSAL					
INCINERATION	.6	6.2	8.2	6.2	.8
OPEN BURNING	.6	8.8	46.7	16.5	3.3
SUB-TOTAL	1.2	15.0	54.9	22.7	4.1
PROCESS	0	0	0	0	0
EVAP LOSSES				189.7	
GRAND TOTAL	154.7	94.2	4217.3	740.7	425.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN LUNENBERG COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	10.1	21.1	4701.4	566.1	488.9
OTHER	0	0	0	0	0
SUB-TOTALS	10.1	21.1	4701.4	566.1	488.9
COMBUSTION OF FUELS					
INDUSTRY	9.3	3.9	.1	.8	17.1
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	246.9	105.2	426.5	96.9	28.1
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	256.2	109.1	426.6	97.7	45.2
REFUSE DISPOSAL					
INCINERATION	1.6	15.7	20.9	15.7	2.1
OPEN BURNING	1.3	20.9	111.4	39.3	7.9
SUB-TOTAL	2.9	36.6	132.3	55.0	10.0
PROCESS	0	207.7	0	0	0
EVAP LOSSES				323.9	
GRAND TOTAL	269.2	374.5	5260.3	1042.7	544.1

SUMMARY OF AIR POLLUTANT EMISSIONS
IN NOTTOWAY COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	17.7	37.0	8259.2	994.5	859.0
OTHER	0	0	0	0	0
SUB-TOTALS	17.7	37.0	8259.2	994.5	859.0
COMBUSTION OF FUELS					
INDUSTRY	444.7	26.6	.2	3.5	76.2
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	217.3	93.3	351.4	81.3	31.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	662.0	119.9	351.6	84.8	108.1
REFUSE DISPOSAL					
INCINERATION	1.9	19.1	25.5	19.1	2.6
OPEN BURNING	.9	15.4	81.6	28.8	5.6
SUB-TOTAL	2.8	34.5	107.1	47.9	8.2
PROCESS	163.9	10522.6	109.5	109.5	543.9
EVAP LOSSES				403.1	
GRAND TOTAL	846.4	10714.0	8827.4	1639.8	1519.2

SUMMARY OF AIR POLLUTANT EMISSIONS IN PRINCE EDWARD COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	.8	37.3	8322.7	1002.2	865.6
OTHER		0	0	0	0
[illegible]	[illegible]	37.3	8322.7	1002.2	865.6
COMBUSTION [illegible]					
INDUSTRY		0	0	0	0
STE[illegible]-ELEC		0	0	0	0
RESIDENTIAL	[illegible].1	87.8	337.4	77.[illegible]	28.3
COM[illegible]	0	0	0	[illegible]	0
			[illegible]	[illegible]	0
SU[illegible]				[illegible].7	28.3
REFUSE DISPOSAL					
INC[illegible]	2.8	28.3	37.7	28.3	3.8
[illegible]	[illegible].6	25.2	133.9	47.3	9.5
SUB-TOTAL	[illegible].4	53.5	171.6	75.6	13.3
PROCESS	0	0	0	0	0
EVAP LOSSES				406.4	
GR[illegible] TOTAL	227.3	178.6	8831.7	[illegible]561.9	907.2

SUMMARY OF AIR POLLUTANT EMISSIONS
IN LYNCHBURG COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	54.5	113.9	25412.8	3060.0	2643.2
OTHER	0	0	0	0	0
SUB-TOTALS	54.5	113.9	25412.8	3060.0	2643.2
COMBUSTION OF FUELS					
INDUSTRY	94.8	17.1	.3	12.3	95.7
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	195.6	93.5	169.6	49.7	88.2
COMM & INST	.8	.4	0	.1	1.8
OTHER	0	0	0	0	0
SUB-TOTAL	291.2	111.0	169.9	62.1	185.7
REFUSE DISPOSAL					
INCINERATION	5.4	53.8	71.8	53.8	7.2
OPEN BURNING	1.2	19.1	101.6	35.9	7.2
SUB-TOTAL	6.6	72.9	173.4	89.7	14.4
PROCESS	16.8	2879.5	106.2	4.4	68.9
EVAP LOSSES				1448.1	
GRAND TOTAL	369.1	3177.3	25862.3	4664.3	2912.2

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	573.7	1199.3	267328.5	32226.0	27836.2
OTHER	0	0	0	0	0
SUB-TOTALS	573.7	1199.3	267328.5	32226.0	27836.2
COMBUSTION OF FUELS					
INDUSTRY	13379.3	1123.6	115.2	119.3	2444.5
STEAM-ELEC	21335.9	10407.2	547.0	275.3	4140.2
RESIDENTIAL	5912.6	2648.1	3423.0	1638.6	1928.3
COMM & INST	433.0	127.9	75.1	27.9	85.5
OTHER	0	0	0	0	0
SUB-TOTAL	41060.8	14306.8	4060.3	2061.1	8598.5
REFUSE DISPOSAL					
INCINERATION	57.8	578.8	771.5	583.9	76.8
OPEN BURNING	56.6	732.6	2814.3	1156.7	209.5
SUB-TOTAL	114.4	1311.4	3585.8	1740.6	286.3
PROCESS	11902.3	55314.3	150.3	1397.3	749.2
EVAP LOSSES				22474.4	
GRAND TOTAL	53651.2	72131.8	275124.9	59899.4	37470.2

AIR POLLUTANT EMISSIONS FROM SOLID WASTE DISPOSAL
TONS/YEAR

Region 4

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0	0	0	0	0
ON-SITE	74.9	749.4	999.2	749.4	99.9
SUB-TOTAL	74.9	749.4	999.2	749.4	99.9
OPEN BURNING					
ON-SITE	40.2	642.6	3413.7	1204.8	241.0
DUMP	6.3	100.6	534.8	188.5	37.7
SUB-TOTAL	46.5	743.2	3948.5	1393.3	278.7
GRAND TOTAL	121.4	1492.6	4947.7	2142.7	378.6

TRANSPORTATION SOURCES
TONS/YEAR

Region 4

CATEGORY	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	573.7	1199.7	267628.6	32225.6	27836.2
DIESEL	3159.4	1404.2	20711.5	3861.5	29838.5
EVAP*				9152.3	
SUB-TOTAL	3733.1	2603.9	288340.1	35239.4	57674.7
RAILROADS	0	0	0	0	0
VESSELS	0	0	0	0	0
GRAND TOTAL	3733.1	2603.9	288340.1	36087.1	57674.7

*EVAP NOT INCLUDED IN GRAND TOTAL

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES

	TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1.	GASOLINE STORAGE AND HANDLING	12140.6
2.	INDUSTRIAL SOLVENT EVAP.	67.2
3.	DRY CLEANING	1114.3
4.	OTHER	0.0
5.	AUTO	9152.3
	TOTAL	22474.4

POINT SOURCE EMISSIONS BY DAY
TONS PER YEAR

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
ACMEVISRECOR	ALBEMARLE	0	HC1764	VC42160	LIGHT INDUSTRY	0
PROCESS		0	39.79	0	0	0
FUEL		0.03	0.08	0.00	0.16	0.81
REFUSE		0.02	0.30	1.62	0.57	0.11
TOTAL		0.05	40.17	1.62	0.73	0.92
ARCPRODCHEMC	ALBEMARLE	0	HC1904	VC42140	METALWORK	0
PROCESS		0	0.37	0	0.37	0
FUEL		0.16	0.07	0.00	0.01	0.29
TOTAL		0.16	0.44	0.00	0.38	0.29
LANCEVELERIN	ACCOMAC	HC	4327	VC41635	ASPHALT PLANT	0
PROCESS		0	5767.00	0	0	0
FUEL		125.80	7.37	0.06	0.96	20.83
TOTAL		125.80	5774.37	0.06	0.96	20.83
LEEHYPAVINGC	CULPEPER	HC2455	VC42584	0	ASPHALT PLANT	0
PROCESS		0	4307.00	0	0	0
FUEL		7.67	3.24	0.04	0.65	14.04
TOTAL		7.67	4310.24	0.04	0.65	14.04
SANDERSQUARY	FAUQUIER	HC2615	VC42836		ASPHALT PLANT	0
PROCESS		0	164.25	0	0	0
FUEL		2.53	0.21	0.00	0.03	0.72
TOTAL		2.53	164.46	0.00	0.03	0.72
SLWILIAMSONC	ALBEMARLE	HC1949	VC42104	0	ASPHALT PLANT	0
PROCESS		0	4891.00	0	0	0
FUEL		11.59	4.90	0.07	0.98	21.22
TOTAL		11.59	4895.90	0.07	0.98	21.22
JPWALTERSNSO	CULPEPER	HC2468	VC42588	0	ASPHALT PLANT	0
PROCESS		0	85.78	0	0	0
FUEL		0.27	0.11	0.00	0.02	0.49
TOTAL		0.27	85.89	0.00	0.02	0.49

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
WMBGMILLWORK	CAROLINE	HC2923	VC41928	0	WOOD PRODCT TP	0
PROCESS		18.25	210.61	14.24	14.24	70.08
TOTAL		18.25	210.61	14.24	14.24	70.08
FMCCORPAMUCS	SPOTSYLVANIA	HC2856	VC42396	0	CHEMICALS	0
PROCESS		9088.50	120.09	0	1149.75	0
FUEL		6876.99	402.98	3.50	52.56	1138.87
REFUSE		0.26	4.08	21.68	7.65	1.53
TOTAL		15965.75	527.15	25.18	1209.96	115.40
FOREIGNDOMWD	CAROLINE	HC2945	VC42115	0	WOOD PRODCT TP	0
PROCESS		70.08	700.80	46.72	46.72	233.97
TOTAL		70.08	700.80	46.72	46.72	233.97
HAMMACKLUMBR	RICHMOND CNTY	HC3570	VC41940	0	WOOD PRODCT TP	0
PROCESS		123.01	1230.05	81.76	81.76	408.80
TOTAL		123.01	1230.05	81.76	81.76	408.80
GEELECTRICCO	ALBEMARLE	HC1940	VC42130	0	LIGHT INDUSTRY	0
PROCESS		0	0.73	0	97.09	0
FUEL		0.60	0.26	0.00	0.05	1.11
SOLVENT					0.37	
TOTAL		0.60	0.99	0.00	97.51	1.11
SPERRYMARNSY	ALBEMARLE	HC1914	VC42140	0	LIGHT INDUSTRY	0
FUEL		0.09	0.13	0.00	0.21	1.11
SOLVENT		0	0	0	0.37	0
REFUSE		0.01	0.13	0.68	0.24	0.05
TOTAL		0.10	0.26	0.68	0.82	1.16
HOLLYFARMPLT	ACCOMACK	HC4525	VC41932	0	FOOD INDUSTRY	0
FUEL		197.23	11.56	0.10	1.51	32.66
REFUSE		0.47	7.56	40.16	14.18	2.84
TOTAL		197.70	19.12	40.26	15.69	35.50
HUMPHREYRRWY	LANCASTER	HC3730	VC41688	0	LIGHT INDUSTRY	0
REFUSE		0.00	0.04	0.21	0.08	0.02
TOTAL		0.00	0.04	0.21	0.08	0.02

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
SAMFINLEYINC	SPOTSYLVANIA	HC2890	VC42360	0	ASPHALT PLANT	0
PROCESS		0	2879.85	0	0	0
FUEL		5.11	2.16	0.03	0.43	9.36
TOTAL		5.11	2882.01	0.03	0.43	9.36
MVTEMPLETONS	NELSON	HC1435	VC41749	0	ASPHALT PLANT	0
PROCESS		0	2591.50	0	0	0
FUEL		33.95	1.99	0.02	0.26	5.62
TOTAL		33.95	2593.49	0.02	0.26	5.62
VAHWYDEPT	RICHMOND COUNTY	HC3494	VC41943	0	ASPHALT PLANT	0
PROCESS		0	0.73	0	0	0
FUEL		0.09	0.04	0.00	0.01	0.16
TOTAL		0.09	0.77	0.00	0.01	0.16
PCGODLOENSON	SPOTSYLVANIA	HC2862	VC42409	0	ASPHALT PLANT	0
PROCESS		0	0.37	0	0	0
FUEL		21.59	1.27	0.01	0.17	3.58
TOTAL		21.59	1.64	0.01	0.17	3.58
GAMARBLECO	NELSON	HC1742	VC41850	0	STONE WORK	0
PROCESS		0	2.92	0	0	0
FUEL		2.73	1.16	0.02	0.23	5.01
TOTAL		2.73	4.08	0.02	0.23	5.01
BASET VENERCO	SPOTSYLVANIA	HC2887	VC42348	0	WOOD PRODCTTP	0
PROCESS		0	0.37	0	0	0
FUEL		0.00	0.01	0.00	0.02	0.10
TOTAL		0.00	0.38	0.00	0.02	0.10
BAYSHORECONC	NORTHAMPTON	HC4097	VC41247	0	CONCRETE PROD	0
PROCESS		0	7.67	0	0	0
FUEL		4.33	1.83	0.02	0.37	7.93
REFUSE		0.01	0.19	1.02	0.36	0.07
TOTAL		4.34	9.69	1.04	0.73	8.00

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
UNIVVACHAUIL	ALBEMARLE	HC1920	VC42125	0	INSTITUTION	0
FUEL		358.27	264.92	6.57	6.83	146.57
TOTAL		358.27	264.92	6.57	6.83	146.57
VA ELASTIC	ESSEX	HC3350	VC41980	0	TEXTILES	0
FUEL		3.23	1.37	0.02	0.27	5.92
REFUSE		0.09	1.40	7.44	2.63	0.53
TOTAL		3.32	2.77	7.46	2.90	6.45
BINGHAMNTAYL	CULPEPER	HC2391	VC42624	0	IRON WORKS	0
PROCESS		0	22.63	0	0	0
FUEL		23.75	20.00	0.50	0.15	9.00
TOTAL		23.75	42.63	0.50	0.15	9.00
BLUEBELLINC	MADISON	HC2070	VC42513	0	TEXTILES	0
FUEL		4.51	0.26	0.00	0.03	0.75
REFUSE		0.00	0.01	0.04	0.02	0.00
TOTAL		4.51	0.27	0.04	0.05	0.75
WLCARPENTERC	MADISON	HC2103	VC42542	0	WOOD PRODCTTP	0
PROCESS		0.73	7.67	0.73	0.73	2.56
FUEL		23.75	20.00	0.50	0.15	9.00
REFUSE		0.25	4.00	21.25	7.50	1.50
TOTAL		24.73	31.67	22.48	8.38	13.06
CHESCORPOFVA	KING WILLIAM	HC3403	VC41564		PAPER PRODUCTS	
PROCESS		2591.50	2850.65	0	0	0
FUEL		5773.92	561.64	8.80	43.75	1016.99
TOTAL		8365.42	3412.29	8.80	43.75	1016.99
LACLARKENSON	SPOTSYLVANIA	HC2869	VC42352	0	WOOD PROD TP	0
PROCESS		1.10	12.05	0.73	0.73	4.02
FUEL		23.75	20.00	0.50	0.15	9.00
TOTAL		24.85	32.05	1.23	0.88	13.02
CLAROSTATVAI	ORANGE	HC2207	VC42366	0	WOOD PRODCT TP	0
FUEL		7.85	0.46	0.00	0.06	1.30
TOTAL		7.85	0.46	0.00	0.06	1.30

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
EACLORESONSI	MADISON	HC2075	VC42543	0	WOOD PRODCT TP	0
PROCESS		0.37	0.37	0.37	0.37	0.37
TOTAL		0.37	0.37	0.37	0.37	0.37
CLPEPERSTNCP	CULPEPER	HC2451	VC42585	0	STONE WORKS	0
PROCESS		0	1408.90	0	0	0
TOTAL		0	1408.90	0	0	0
CLPEPERSTNFD	SPOTSYLVANIA	HC2815	VC42445	0	STONEWORK	0
PROCESS		0	346.75	0	0	0
TOTAL		0	346.75	0	0	0
FLINTHILLSTN	RAPPAHANNOCK	HC2527	VC42944	0	STONEWORK	0
PROCESS		0	277.40	0	0	0
TOTAL		0	277.40	0	0	0
ECONOMYCSTST	ALBEMARLE	HC1879	VC42260	0	STONE QUARRY	0
PROCESS		0	0.37	0	0	0
TOTAL		0	0.37	0	0	0
LANCE ELLER	ACCOMACK	HC4326	VC41644	0	ASPHALT PLANT	0
PROCESS		0	2.19	0	0	0
FUEL		29.08	1.93	0.02	0.27	5.85
TOTAL		29.08	4.12	0.02	0.27	5.85
VA METALPRDCT	ORANGE	HC2269	VC43352	0	METAL WORK	0
FUEL		4.44	1.90	0.03	0.44	8.41
REFUSE		0.03	0.50	2.68	0.95	0.19
TOTAL		4.47	2.40	2.71	1.39	8.60
BLUERIDGESAN	ALBEMARLE	HC1950	VC42096	0	INSTITUTION	0
FUEL		47.10	21.37	0.51	0.33	12.87
REFUSE		0.08	1.21	6.42	2.27	0.45
TOTAL		47.18	22.58	6.93	2.60	13.32
WEBSTERBRICK	ORANGE	HC2172	VC42314	0	BRICK MANUE	0
PROCESS		0	20476.50	0	0	0
FUEL		24.67	5.53	0.10	9.29	47.29
TOTAL		24.67	20482.03	0.10	9.29	47.29

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
MARYWASHCOLL	SPOTSYLVANIA	HC2840	VC42410	0	INSTITUTION	0
FUEL		0.00	0.01	0.00	0.02	0.10
REFUSE		0.11	1.80	9.56	3.38	0.68
TOTAL		0.11	1.81	9.56	3.40	0.78
STRMBRGCRLSN	ALBEMARLE	HC1933	VC42164	0	LIGHT INDUSTRY	0
SOLVENT		0	0	0	0.37	0
TOTAL		0	0	0	0.37	0
VIRGINIALOG	KING WILLIAM	HC3399	VC41564	0	WOODPRODCTTC	0
PROCESS		2.19	20.44	1.46	1.46	6.94
FUEL		38.27	2.24	0.02	0.29	6.34
TOTAL		40.46	22.68	1.48	1.75	13.28
SUPERSTNRVNN	ALBEMARLE	HC1956	VC42215	0	STONEWORK	0
PROCESS		0	8322.00	0	0	0
REFUSE		0.00	0.04	0.21	0.08	0.02
TOTAL		0.00	8322.04	0.21	0.08	0.02
SUPERSTNRDHL	ALBEMARLE	HC1831	VC42040	0	STONEWORK	0
PROCESS		0	1927.20	0	0	0
REFUSE		0.00	0.07	0.38	0.14	0.03
TOTAL		0.00	1927.27	0.38	0.14	0.03
TELEDYNEAVNS	ALBEMARLE	HC1930	VC42120	0	LIGHT INDUSTRY	0
SOLVENT		0	0	0	0.37	0
FUEL		3.00	0.20	0.00	0.03	0.59
TOTAL		3.00	0.20	0.00	0.40	0.59
TASALUDALUMB	ALBEMARLE	HC1604	VC42075	0	WOODPRODCTTC	0
PROCESS		0	0.37	0	0	0
TOTAL		0	0.37	0	0	0
VABLINDWRKSP	ALBEMARLE	HC1950	VC42100	0	INSTITUTIONAL	0
FUEL		0.00	0.03	0.00	0.06	0.29
TOTAL		0.00	0.03	0.00	0.06	0.29
RAPPACOMMCOL	RICHMOND CNTY	HC3450	VC42020	0	INSTITUTIONAL	0
FUEL		0.07	0.03	0.00	0.01	0.13
TOTAL		0.07	0.03	0.00	0.01	0.13

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
KELLER IND	CAROLINE	HC2919	VC42095		METAL.WORK	0
PROCESS		0	30.30	0	0	0
FUEL		11.38	0.68	0.01	0.11	1.98
REFUSE		0.01	0:11	0.60	0.21	0.04
TOTAL		11.39	31.09	0.61	0.32	2.02
KELLERMFGCO	CULPEPER	HC2392	VC42603	0	WOOD PRODCT TD	0
PROCESS		4.38	44.90	2.92	2.92	14.97
TOTAL		4.38	44.90	2.92	2.92	14.97
UNIVVAEASTSH	ACCOMACK	HC4576	VC41987	0	INSTITUTION	0
FUEL		2.41	1.02	0.01	0.20	4.42
TOTAL		2.41	1.02	0.01	0.20	4.42
LANEPENNCARV	FAUQUIER	HC2581	VC42767	0	METAL WORK	0
REFUSE		0.00	0.01	0.04	0.02	0.00
TOTAL		0.00	0.01	0.04	0.02	0.00
LOUISATLWLDG	LOUISA	HC2402	VC42119	0	METAL WORK	0
PROCESS		0	0.37	0	0	0
TOTAL		0	0.37	0	0	0
FRANKIXSONVA	ALBEMARLE	HC1930	VC42130	0	TEXTILES	0
FUEL		23.76	20.17	0.50	0.53	10.81
TOTAL		23.76	20.17	0.50	0.53	10.81
VAINSTMARSCI	GLOUCESTER	HC3667	VC41234	0	INSTITUTION	0
FUEL		0.87	0.37	0.00	0.07	1.59
TOTAL		0.87	0.37	0.00	0.07	1.59
LEWISBROSLUM	ACCOMAC	HC4410	VC41750	0	WOOD PRODCTTC	0
FUEL		9.81	0.58	0.01	0.08	1.63
TOTAL		9.81	0.58	0.01	0.08	1.63
LOUISAMFCCO	LOUISA	HC2360	VC42130	0	TEXTILES	0
FUEL		0.67	0.29	0.00	0.06	1.24
TOTAL		0.67	0.29	0.00	0.06	1.24

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
LUCKQUARYCLV	ALBEMARLE	HC2010	VC42110	0	STONE QUARRY	0
PROCESS		0	1387.00	0	0	0
TOTAL		0	1387.00	0	0	0
MCDONALDPLLT	LOUISA	HC2356	VC42110	0	WOOD PRODCTTD	0
REFUSE		1.13	18.00	95.63	33.75	6.75
TOTAL		1.13	18.00	95.63	33.75	6.75
MDSONWDPRSRV	MADISON	HC2155	VC42510	0	WOOD PRODCTTC	0
PROCESS		2.19	22.63	1.46	1.46	7.67
FUEL		0.71	0.30	0.00	0.06	1.30
TOTAL		2.90	22.93	1.46	1.52	8.97
MNTCLLODAIRY	ALBEMARLE	HC1930	VC42128	0	FOOD INDUSTRY	0
REFUSE		0.06	1.00	5.31	1.88	0.38
TOTAL		0.06	1.00	5.31	1.88	0.38
MORTONFZFOOD	ALBEMARLE	HC1763	VC42158	0	FOOD INDUSTRY	0
FUEL		3.28	3.26	0.06	4.49	25.93
REFUSE		0.78	12.40	65.88	23.25	4.65
TOTAL		4.06	15.66	65.94	27.74	30.58
NONECKLUMBER	RICHMOND CNTY	HC3470	VC42000	0	WOOD PRODCTTC	0
REFUSE		0.49	7.80	41.44	14.63	2.93
TOTAL		0.49	7.80	41.44	14.63	2.93
SANDERQUARRY	FAUQUIER	HC2109	VC42834	0	STONE QUARRY	0
PROCESS		0	930.75	0	0	0
FUEL		8.42	0.63	0.01	0.09	2.02
TOTAL		8.42	931.38	0.01	0.09	2.02
SCOVILLACCON	WESTMORELAND	HC3437	VC42170	0	CHEMICALS	0
SOLVENT		0	0	0	43.80	0
FUEL		44.94	2.63	0.02	0.34	7.44
TOTAL		44.94	2.63	0.02	44.14	7.44
STFFRDPALLET	STAFFORD	HC2791	VC42544	0	WOODPRODCTTC	0
PROCESS		0	25.19	0		0
TOTAL		0	25.19	0		0

PLANT NAME	JURISDICTION	SOX	PART	CO	HC	NOX
VATRUCKEASTS	ACCOMACK	HC4260	VC41580	0	INSTITUTIONAL	0
FUEL		0.21	0.09	0.00	0.02	0.39
REFUSE		0.00	0.06	0.30	0.11	0.02
TOTAL		0.21	0.15	0.30	0.13	0.41
DEPTCONSERVA	ALBEMARLE	HC1920	VC42130	0	INSTITUTIONAL	0
FUEL		0.23	0.10	0.00	0.02	0.42
TOTAL		0.23	0.10	0.00	0.02	0.42
VEPCOBREMOBL	FLUVANNA	HC2129	VC41756	0	POWER PLT	0
FUEL		10405.89	26258.90	273.51	83.87	8241.30
TOTAL		10405.89	26258.90	273.51	83.87	8241.30

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CULPEPPER COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	20.1	42.0	9370.9	1128.4	974.7
OTHER	0	0	0	0	0
SUB-TOTALS	20.1	42.0	9370.9	1128.4	974.7
COMBUSTION OF FUELS					
INDUSTRY	55.4	43.4	1.0	1.0	32.5
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	48.6	24.4	61.8	16.0	21.0
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	104.0	67.8	62.8	17.0	53.5
REFUSE DISPOSAL					
INCINERATION	1.8	17.8	23.7	17.8	2.4
OPEN BURNING	1.2	18.9	100.9	35.6	7.1
SUB-TOTAL	3.0	36.7	124.6	53.4	9.5
PROCESS	4.4	5869.2	2.9	2.9	14.9
EVAP LOSSES				511.0	
GRAND TOTAL	131.5	6751.4	9561.2	1712.7	1052.6

SUMMARY OF AIR POLLUTANT EMISSIONS IN FAUQUIER COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	46.4	96.9	21,632.6	2604.8	2250.0
OTHER	0	0	0	0	0
SUB-TOTALS	46.4	96.9	21,632.6	2604.8	2250.0
COMBUSTION OF FUELS					
INDUSTRY	4.8	.55	0	.09	2.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	109.5	50.5	127.6	33.1	36.8
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	114.3	51.1	127.6	33.2	38.8
REFUSE DISPOSAL					
INCINERATION	3.5	35.1	46.8	35.1	4.7
OPEN BURNING	2.6	26.3	35.0	26.3	3.5
SUB-TOTAL	6.1	61.4	81.8	61.4	8.2
PROCESS	0	1095.0	0	0	0
EVAP LOSSES				1143.9	
GRAND TOTAL	166.8	1304.4	21,842.0	3843.3	2297.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN MADISON COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	12.8	26.8	5972.0	719.1	621.1
OTHER	0	0	0	0	0
SUB- TOTALS	12.8	26.8	5972.0	719.1	621.1
COMBUSTION OF FUELS					
INDUSTRY	28.9	20.6	.5	.3	11.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	32.3	14.7	25.3	7.5	13.0
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	61.2	35.3	25.8	7.8	24.0
REFUSE DISPOSAL					
INCINERATION	1.4	14.4	19.2	14.4	1.9
OPEN BURNING	1.7	17.3	23.0	17.3	2.3
SUB-TOTAL	3.1	31.7	42.2	21.7	4.2
PROCESS	3.3	30.6	2.5	2.5	10.6
EVAP LOSSES				318.6	
GRAND TOTAL	80.4	124.4	6042.5	1079.7	659.9

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ORANGE COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	18.3	38.3	8545.1	1028.9	888.8
OTHER	0	0	0	0	0
SUB-TOTALS	18.3	38.3	8545.1	1628.9	888.8
COMBUSTION OF FUELS					
INDUSTRY	37.0	7.9	.1	9.8	57.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	75.4	33.5	82.6	21.6	22.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	112.4	41.4	82.7	31.4	79.9
REFUSE DISPOSAL					
INCINERATION	2.3	22.8	30.3	22.8	3.0
OPEN BURNING	3.2	32.3	43.1	32.3	4.3
SUB-TOTAL	5.5	55.1	73.4	55.1	7.3
PROCESS	0	20,476.5	0	0	0
EVAP LOSSES				458.4	
GRAND TOTAL	136.2	20,611.3	8,701.2	1573.8	976.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN RAPPAHANOCK COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	9.1	19.1	4256.6	512.6	442.7
OTHER	0	0	0	0	0
SUB-TOTALS	9.1	19.1	4256.6	512.6	442.7
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESDIENTIAL	32.1	14.1	46.8	10.1	8.0
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	32.1	14.1	46.8	10.1	8.0
REFUSE DISPOSAL					
INCINERATION	.5	5.1	6.8	5.1	.7
OPEN BURNING	1.2	11.9	15.9	11.9	1.6
SUB-TOTAL	1.7	17.0	22.7	17.0	2.3
PROCESS	0	277.4	0	0	0
EVAP LOSSES				224.8	
GRAND TOTAL	42.9	327.6	4320.1	764.5	453.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ALBEMARLE COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	60.6	126.7	28271.7	3404.2	2940.6
OTHER	0	0	0	0	0
SUB-TOTALS	60.6	126.7	28271.7	3404.2	2940.6
COMBUSTION OF FUELS					
INDUSTRY	42.7	28.9	.6	6.1	60.5
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	234.3	103.1	340.7	81.5	49.9
COMM & INST	405.4	118.3	70.1	26.1	75.7
OTHER	0	0	0	0	0
SUB-TOTAL	682.4	250.3	411.4	113.7	186.1
REFUSE DISPOSAL					
INCINERATION	11.9	118.8	158.3	118.8	15.8
OPEN BURNING	8.3	82.9	110.5	82.9	11.1
SUB-TOTAL	20.2	200.7	268.8	201.7	26.9
PROCESS	0	16529.0	0	97.1	0
EVAP LOSSES				1623.5	
GRAND TOTAL	763.2	17,107.7	28,952.9	5440.2	3153.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN FLUVANNA COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	8.0	16.8	3748.4	451.4	389.9
OTHER	0	0	0	0	0
SUB-TOTALS	8.0	16.8	3748.4	451.4	389.9
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	21335.9	10407.2	547.0	275.3	4140.6
RESIDENTIAL	38.5	17.0	45.3	11.6	10.8
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	21374.4	10424.2	592.3	286.9	4151.4
REFUSE DISPOSAL					
INCINERATION	.9	9.9	13.3	9.9	1.3
OPEN BURNING	1.7	17.5	23.3	17.5	2.3
SUB-TOTAL	2.6	27.4	36.6	27.4	3.6
PROCESS	0	0	0	0	0
EVAP LOSSES				241.6	
GRAND TOTAL	21,385.0	10,468.4	4,377.3	1,007.3	4,544.9

SUMMARY OF AIR POLLUTANT EMISSIONS
IN GREEN COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	8.7	18.2	4066.0	489.6	422.9
OTHER	0	0	0	0	0
SUB-TOTALS	8.7	18.2	4066.0	489.6	422.9
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	17.2	7.9	19.3	5.1	6.2
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	17.2	7.9	19.3	5.1	6.2
REFUSE DISPOSAL					
INCINERATION	.7	6.9	9.2	6.9	.9
OPEN BURNING	1.2	12.1	16.1	12.1	1.6
SUB-TOTAL	1.9	19.0	25.3	19.0	2.5
PROCESS	0	0	0	0	0
EVAP LOSSES				215.3	
GRAND TOTAL	27.8	45.1	4110.6	729.0	431.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN LOUISA COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	19.7	41.2	9180.4	1105.4	954.8
OTHER	0	0	0	0	0
SUB-TOTALS	19.7	41.2	9180.4	1105.4	954.8
COMBUSTION OF FUELS					
INDUSTRY	7.5	.4	0	.1	1.2
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	57.7	26.0	52.5	14.7	20.8
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	65.2	26.4	52.5	14.8	22.0
REFUSE DISPOSAL					
INCINERATION	2.3	22.8	30.4	22.8	3.0
OPEN BURNING	4.4	44.2	58.9	44.2	5.9
SUB-TOTAL	6.7	67.0	89.3	67.0	8.9
PROCESS	0	3.7	0	0	0
EVAP LOSSES				491.7	
GRAND TOTAL	91.6	138.3	9322.2	1678.9	985.7

SUMMARY OF AIR POLLUTANT EMISSIONS IN NELSON COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	17.4	36.4	8132.1	979.2	845.8
OTHER	0	0	0	0	0
SUB-TOTALS	17.4	36.4	8132.1	979.2	845.8
COMBUSTION OF FUELS					
INDUSTRY	36.7	3.1	0	.5	10.6
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	80.2	34.9	112.3	27.1	16.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	116.9	38.0	112.3	27.6	27.5
REFUSE DISPOSAL					
INCINERATION	1.9	18.7	24.9	18.7	2.5
OPEN BURNING	2.6	26.2	34.9	26.2	3.5
SUB-TOTAL	4.5	44.9	59.8	44.9	6.0
PROCESS	0	2594.4	0	0	0
EVAP LOSSES				432.2	
GRAND TOTAL	138.8	2713.7	8304.2	1483.9	879.3

SUMMARY OF AIR POLLUTANT EMISSIONS IN CAROLINE COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	51.8	108.2	24142.2	2907.0	2511.0
OTHER	0	0	0	0	0
SUB-TOTALS	51.8	108.2	24142.2	2907.0	2511.0
COMBUSTION OF FUELS					
INDUSTRY	11.4	1	0	.1	2.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	45.3	20.6	34.9	10.5	18.4
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	56.7	20.7	34.9	10.6	20.4
REFUSE DISPOSAL					
INCINERATION	2.3	22.8	30.4	22.8	3.0
OPEN BURNING	1.5	24.5	130.0	45.9	9.2
SUB-TOTAL	3.8	47.3	160.4	68.7	12.2
PROCESS	88.33	941.3	60.9	61.0	304.0
EVAP LOSSES				1246.8	
GRAND TOTAL	200.6	1117.5	24398.4	4294.1	2847.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN KING GEORGE COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	15.5	32.3	7210.9	868.3	750.0
OTHER	0	0	0	0	0
SUB-TOTALS	15.5	32.3	7210.9	868.3	750.0
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	249.3	105.0	472.3	104.9	15.7
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	249.3	105.1	472.3	104.9	15.7
REFUSE DISPOSAL					
INCINERATION	1.1	10.7	14.3	10.7	1.4
OPEN BURNING	.9	14.3	76.0	26.9	5.4
SUB-TOTAL	2.0	25.0	90.3	47.6	6.8
PROCESS	0	0	0	0	0
EVAP LOSSES				380.0	
GRAND TOTAL	266.8	162.4	7773.5	1400.8	772.5

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SPOTSYLVANIA COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	48.6	101.7	22680.9	2731.1	2359.1
OTHER	0	0	0	0	0
SUB-TOTALS	48.6	101.7	22680.9	2731.1	2359.1
COMBUSTION OF FUELS					
INDUSTRY	6927.7	426.6	4.0	53.5	1162.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	723.7	337.4	297.4	123.8	373.4
COMM & INST	23.8	8.0	5.0	1.5	3.0
OTHER	0	0	0	0	0
SUB-TOTAL	7675.2	772.0	306.4	178.8	1538.4
REFUSE DISPOSAL					
INCINERATION	5.3	53.1	70.8	58.1	7.1
OPEN BURNING	3.5	56.1	297.8	105.1	21.0
SUB-TOTAL	8.8	109.2	368.6	163.2	28.1
PROCESS	9089.6	3359.5	.7	1150.5	4.0
EVAP LOSSES				541.3	
GRAND TOTAL	16822.2	4342.4	23356.6	4764.9	3929.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STAFFORD COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	56.0	117.2	26143.4	3148.0	2719.2
OTHER	0	0	0	0	0
SUB-TOTALS	56.0	117.2	26143.4	3148.0	2719.2
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	331.8	152.9	199.4	67.4	152.3
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	331.8	152.9	199.4	67.4	152.3
REFUSE DISPOSAL					
INCINERATION	3.9	38.6	51.5	38.6	5.1
OPEN BURNING	2.1	33.0	175.4	61.9	12.4
SUB-TOTAL	6.0	71.6	226.9	100.5	17.5
PROCESS	0	25.2	0	0	0
EVAP LOSSES				546.0	
GRAND TOTAL	393.8	366.9	26569.7	3861.9	2889.0

SUMMARY OF AIR POLLUTANT EMISSIONS IN LANCASTER COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	11.4	23.8	5304.9	638.8	551.8
OTHER	0	0	0	0	0
SUB-TOTALS	11.4	23.8	5304.9	638.8	551.8
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	135.4	63.6	31.8	19.1	76.3
COMM & INST	.14	.1	0	0	.26
OTHER	0	0	0	0	0
SUB-TOTAL	135.5	63.7	31.8	19.1	76.56
REFUSE DISPOSAL					
INCINERATION	1.2	11.8	15.7	11.8	1.6
OPEN BURNING	1.4	22.1	117.2	41.4	8.3
SUB-TOTAL	2.6	33.9	132.9	53.2	9.9
PROCESS	0	0	0	0	0
EVAP LOSSES				285.8	
GRAND TOTAL	149.5	121.4	5469.6	996.9	638.26

SUMMARY OF AIR POLLUTANT EMISSIONS IN NORTHUMBERLAND COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	12.1	25.2	5622.6	677.0	584.8
OTHER	0	0	0	0	0
SUB-TOTALS	12.1	25.2	5622.6	677.0	584.8
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	214.2	99.0	104.6	39.3	104.3
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	214.2	99.0	104.6	39.3	104.3
REFUSE DISPOSAL					
INCINERATION	1.2	12.0	16.0	12.0	1.6
OPEN BURNING	1.4	22.5	119.4	42.1	8.4
SUB-TOTAL	2.6	34.5	135.4	54.1	10.0
PROCESS	0	0	0	0	0
EVAP LOSSES				301.9	
GRAND TOTAL	228.9	158.7	5862.6	1072.3	699.1

SUMMARY OF AIR POLLUTANT EMISSIONS IN RICHMOND COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	11.3	23.6	5273.2	635.0	548.5
OTHER	0	0	0	0	0
SUB-TOTALS	11.3	23.6	5273.2	635.0	548.5
COMBUSTION OF FUELS					
INDUSTRY	.1	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESDIENTIAL	70.4	32.3	41.2	14.1	32.2
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	70.4	32.3	41.2	14.1	32.2
REFUSE DISPOSAL					
INCINERATION	1.6	16.0	21.3	16.0	2.1
OPEN BURNING	1.0	16.3	86.5	30.5	6.1
SUB-TOTAL	2.6	32.3	107.8	46.5	8.2
PROCESS	123.0	1230.8	81.8	81.8	408.8
EVAP LOSSES				277.8	
GRAND TOTAL	207.3	1319.0	5504.0	1055.2	997.7

SUMMARY OF AIR POLLUTANT EMISSIONS
IN WESTMORLAND COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	13.5	28.2	6289.7	757.4	654.2
OTHER	0	0	0	0	0
SUB-TOTALS	13.5	28.2	6289.7	757.4	654.2
COMBUSTION OF FUELS					
INDUSTRY	44.9	2.6	0	.3	7.4
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	228.4	97.0	406.3	91.7	22.4
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	273.3	99.6	406.3	92.0	29.8
REFUSE DISPOSAL					
INCINERATION	1.6	16.7	22.2	16.7	2.2
OPEN BURNING	1.9	31.2	165.5	58.4	11.7
SUB-TOTAL	3.5	47.9	187.7	75.1	13.9
PROCESS	0	0	0	0	0
EVAP LOSSES				779.6	
GRAND TOTAL	290.3	175.7	6883.7	1704.1	697.9

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ESSEX COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	14.1	29.5	6275.6	791.8	683.9
OTHER	0	0	0	0	0
SUB-TOTALS	14.1	29.5	6275.6	791.8	683.9
COMBUSTION OF FUELS					
INDUSTRY	3.2	1.4	0	.3	5.9
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	663.9	301.4	508.5	153.0	267.7
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	667.1	302.8	508.5	153.3	273.6
REFUSE DISPOSAL					
INCINERATION	1.1	10.7	14.2	10.7	1.4
OPEN BURNING	1.1	17.5	92.8	32.8	6.6
SUB-TOTAL	2.2	28.2	107.0	43.5	8.0
PROCESS	0	0	0	0	0
EVAP LOSSES				346.0	
GRAND TOTAL	683.4	360.5	6891.1	1234.6	965.5

SUMMARY OF AIR POLLUTANT EMISSIONS
IN GLOUCESTER COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	19.2	40.2	8958.0	1078.7	931.7
OTHER	0	0	0	0	0
SUB-TOTALS	19.2	40.2	8958.0	1078.7	931.7
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	215.6	99.5	117.6	41.7	101.8
COMM & INST	.9	.4	0	.1	1.6
OTHER	0	0	0	0	0
SUB-TOTAL	216.5	99.9	117.6	41.8	103.4
REFUSE DISPOSAL					
INCINERATION	1.8	18.2	24.3	18.25	2.43
OPEN BURNING	2.1	34.1	181.4	64.0	12.8
SUB-TOTAL	3.9	52.3	205.7	82.25	15.23
PROCESS	0	0	0	0	0
EVAP LOSSES				480.7	
GRAND TOTAL	239.6	192.4	9281.3	1683.4	1050.33

SUMMARY OF AIR POLLUTANT EMISSIONS
IN KING AND QUEEN COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	8.9	18.7	4161.3	501.1	432.8
OTHER	0	0	0	0	0
SUB-TOTALS	8.9	18.7	4161.3	501.1	432.8
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	50.0	23.5	11.7	7.0	28.2
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	50.0	23.5	11.7	7.0	28.2
REFUSE DISPOSAL					
INCINERATION	.7	7.2	9.6	7.2	.96
OPEN BURNING	.8	13.5	71.7	25.3	5.1
SUB-TOTAL	1.5	20.7	81.3	32.5	6.06
PROCESS	0	0	0	0	0
EVAP LOSSES				220.8	
GRAND TOTAL	60.4	62.9	4254.3	761.4	467.06

SUMMARY OF AIR POLLUTANT EMISSIONS
IN MATHEWS COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	7.8	16.4	3653.1	439.9	380.0
OTHER	0	0	0	0	0
SUB-TOTALS	7.8	16.4	3653.1	439.9	380.0
COMBUSTION OF FUELS					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	152.2	70.1	87.4	30.2	70.6
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	152.2	70.1	87.4	30.2	70.6
REFUSE DISPOSAL					
INCINERATION	1.3	13.3	17.8	13.4	1.8
OPEN BURNING	1.0	16.6	88.5	31.2	6.2
SUB-TOTAL	2.3	29.9	106.3	44.6	8.0
PROCESS	0	0	0	0	0
EVAP LOSSES				198.6	
GRAND TOTAL	162.3	116.4	36724.7	713.3	458.6

SUMMARY OF AIR POLLUTANT EMISSIONS
IN MIDDLESEX COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	11.3	23.6	5273.2	635.0	548.5
OTHER	0	0	0	0	0
SUB-TOTALS	11.3	23.6	5273.2	635.0	548.5
COMBUSTION OF FUESL					
INDUSTRY	0	0	0	0	0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	97.0	45.4	28.5	14.6	52.9
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	97.0	45.4	28.5	14.6	52.9
REFUSE DISPOSAL					
INCINERATION	.8	8.2	10.9	8.2	1.1
OPEN BURNING	1.0	15.3	81.5	28.8	5.8
SUB-TOTAL	1.8	23.5	92.4	37.0	6.9
PROCESS	0	0	0	0	0
EVAP LOSSES				278.9	
GRAND TOTAL	110.1	92.5	5394.1	965.5	608.3

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ACCOMACK COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	41.7	87.1	19440.8	2340.9	2022.0
OTHER	0	0	0	0	0
SUB-TOTALS	41.7	87.1	19440.8	2340.9	2022.0
COMBUSTION OF FUELS					
INDUSTRY	361.9	21.4	0.2	2.8	61.0
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	1225.4	530.4	1835.0	433.8	224.7
COMM & INST	2.6	1.1	0	.2	4.8
OTHER	0	0	0	0	0
SUB-TOTAL	1589.9	552.9	1835.2	436.8	290.5
REFUSE DISPOSAL					
INCINERATION	3.8	38.3	51.1	38.3	5.1
OPEN BURNING	4.5	71.8	381.2	134.5	26.9
SUB-TOTAL	8.3	110.1	432.3	172.8	32.0
PROCESS	0	2.9	0	0	0
EVAP LOSSES				1039.9	
GRAND TOTAL	1639.9	753.0	4208.3	3990.4	2344.5

SUMMARY OF AIR POLLUTANT EMISSIONS
IN NORTHAMPTON COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	19.8	41.4	9243.9	1113.1	961.5
OTHER	0	0	0	0	0
SUB-TOTALS	19.8	41.4	9243.9	1113.1	961.5
COMBUSTION OF FUELS					
INDUSTRY	4.3	1.8	0	.4	7.9
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	627.1	273.1	910.9	217.5	125.0
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	631.4	274.9	910.9	217.9	133.9
REFUSE DISPOSAL					
INCINERATION	1.9	18.8	25.1	18.8	2.5
OPEN BURNING	2.2	35.4	187.9	66.3	13.3
SUB-TOTAL	4.1	54.2	213.0	85.1	15.8
PROCESS	0	7.7	0	0	0
EVAP LOSSES				496.0	
GRAND TOTAL	655.3	378.2	10367.8	1912.1	1111.2

SUMMARY OF AIR POLLUTANT EMISSIONS
IN KING WILLIAM COUNTY

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	9.6	20.1	4479.0	539.3	465.9
OTHER	0	0	0	0	0
SUB-TOTALS	9.6	20.1	4479.0	539.3	465.9
COMBUSTION OF FUELS					
INDUSTRY	5812.8	563.9	8.8	44.0	1023.3
STEAM-ELEC	0	0	0	0	0
RESIDENTIAL	157.1	70.8	152.0	41.7	55.1
COMM & INST	0	0	0	0	0
OTHER	0	0	0	0	0
SUB-TOTAL	5969.9	634.7	160.8	85.7	1078.4
REFUSE DISPOSAL					
INCINERATION	1.0	10.1	13.4	10.1	1.3
OPEN BURNING	1.2	18.8	99.9	35.3	7.1
SUB-TOTAL	2.2	28.9	113.3	45.4	8.4
PROCESS	2593.7	2871.1	1.5	1.5	6.9
EVAP LOSSES				240.9	
GRAND TOTAL	8573.2	3554.8	4754.6	912.8	1559.6

REGION 5

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA, TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX	
TRANSPORTATION						
ROAD VEHICLES	2162.	2135.	368268.	49595.	38113.	
OTHER	673.	523.	1660.	1384.	870.	
SUB-TOTAL	2835.	2658.	369928. 46%	50979.	38983.	
COMBUSTION OF FUELS						
INDUSTRY	20366.	28556.	479.	305.	6581.	
STEAM-ELECTRIC	70% 77121.	70% 114034.	726.	927.	27897. 36%	
RESIDENTIAL	2777.	937.	1663.	460.	1240.	
COMM AND INST.	1041.	295.	109.	43.	418.	
SUB-TOTAL	101304.	143822.	2976.	1735.	36137.	
REFUSE DISPOSAL						
INCINERATION	163.	1630.	2172.	1629.	217.	
OPEN BURNING	39.	625.	3318.	1171.	234.	
SUB-TOTAL	202.	2255.	5491.	2801.	452.	
PROCESS	5853.	14546.	4029.	1946.	155.	
EVAP LOSSES				26682.		
GRAND TOTAL	110195.	163280.	382423.	84142.	75727.	TOTAL 815767

COMBUSTION OF FUELS IN STATIONERY SOURCES
IN THE STUDY AREA
(TONS/YEAR)

FUEL	USER CATEGORY	SOX	PART	CO	HC	NOX
COAL						
	INDUSTRIAL	8663.	27704.	471.	170.	3783.
	STEAM-ELECTRIC	27360.	112896.	720.	216.	12960.
	RESIDENTIAL	970.	306.	1276.	255.	128.
	COMM AND INST	693.	251.	103.	34.	244.
FUEL OIL						
	INDUSTRIAL	11702.	842.	8.	113.	2702.
	STEAM-ELECTRIC	49761.	1138.	6.	711.	14937.
	RESIDENTIAL	1803.	501.	250.	150.	601.
	COMM AND INST	348.	39.	0.	6.	154.
GAS						
	INDUSTRIAL	0.	10.	0.	22.	97.
	STEAM-ELECTRIC	0.	0.	0.	0.	0.
	RESIDENTIAL	4.	130.	136.	55.	512.
	COMM AND INST	0.	5.	6.	2.	21.
GRAND TOTAL		101304.	143822.	2976.	1735.	36137.

TRANSPORTATION SOURCES
TON/YR

	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	872.	1417.	358932.	47734.	28338.
DIESEL	1290.	718.	9336.	1861.	9776.
EVAP*				17221.	
SUB-TOTAL	2162.	2135.	368268.	66816.	38113.
AIRCRAFT					
JET	51.	250.	552.	848.	143.
PISTON	11.	7.	444.	54.	1.
TURBOPROP	5.	32.	11.	16.	26.
SUB-TOTAL	67.	290.	1007.	917.	171.
RAILROADS	606.	233.	653.	466.	699.
VESSELS	0.	0.	0.	0.	0.
GRAND-TOTAL	2835.	2658.	369928.	50979.	38983.

*EVAP NOT INCLUDED IN GRANDTOTAL

NUMBER OF FLIGHTS/YEAR*100

STATE CAP. REGION

TYPE ENGINE	1	2	3	4
BYRDRICHMOND				
TURBOJET		171.		4.
TURBOFAN				
MEDIUM-RANGE		33.	29.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	0.	53.		0.
PISTON				
LIGHT	36.	24.		
TRANSPORT		3.		5.

The column header "NUMBER OF ENGINES" spans columns 1–4.

PROCESS LOSSES
TONS/YR

SIC CODE	SOX	PART	CO	HC	NOX
PAINT VARNSH	0.	3.	0.	0.	0.
PAINT VARNSH	0.	1.	0.	0.	0.
TEXTILES	0.	8.	0.	0.	0.
SYNT FIBERS	4051.	56.	0.	250.	0.
WOOD WASTE	0.	223.	16.	16.	81.
WOOD WASTE	0.	151.	11.	11.	55.
NONFERR METL	0.	0.	0.	0.	0.
IRON FOUNDRY	0.	10.	84.	0.	0.
IRON FOUNDRY	0.	69.	668.	0.	0.
FERTILIZER	0.	8.	0.	0.	0.
PAINT VARNSH	0.	30.	0.	0.	0.
ASPHALT BATC	0.	53.	0.	0.	0.
STONE PROC	0.	44.	0.	0.	0.
STONE PROC	0.	55.	0.	0.	0.
STONE PROC	0.	69.	0.	0.	0.
FOOD PKGNG	0.	11.	59.	21.	4.
WOOD PROC	0.	36.	237.	20.	2.
WOOD PROC	0.	1.	5.	0.	0.
WOOD PROC	0.	0.	1.	0.	0.
STONE PROC	0.	12884.	0.	0.	0.
IRON FOUNDRY	0.	1.	15.	0.	0.
CHEMICALS	1580.	1.	0.	0.	0.
STONE PROC	0.	70.	0.	0.	0.
WOOD PROC	0.	0.	12.	0.	0.
CHEMICALS	219.	87.	0.	1486.	0.
SYNT FIBERS	0.	3.	3.	1.	0.
WOOD WASTE	0.	1.	0.	0.	0.
NONFERR METL	0.	91.	792.	0.	0.
WOOD PROC	1.	109.	712.	60.	5.
IRON FOUNDRY	0.	51.	434.	0.	0.
WOOD PROC	1.	147.	956.	81.	7.
STONE PROC	0.	99.	0.	0.	0.
WOOD PROC	0.	8.	23.	0.	0.
PAPER MILL	0.	164.	0.	0.	0.
TOTAL	5853.	14546.	4029.	1946.	155.

AIR POLLUTANT EMISSIONS FROM
SOLID-WASTE DISPOSAL
TONS/YR

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0.	0.	0.	0.	0.
ON-SITE	163.	1630.	2172.	1629.	217.
SUB-TOTAL	163.	1630.	2172.	1629.	217.
OPEN BURNING					
ON-SITE	19.	308.	1635.	577.	115.
DUMP	20.	317.	1684.	594.	119.
SUB-TOTAL	39.	625.	3318.	1171.	234.
GRAND TOTAL	202.	2255.	5491.	2801.	452.

HC EMISSIONS FROM EVAPORATIVE LOSSES

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	4026.
2. INDUSTRIAL SOLVENT EVAP	3855.
3. DRY CLEANING	1382.
4. OTHER	0.
5. AUTO	17221.
TOTAL	26482.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN RICHMOND CITY ~~COUNTY~~
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	352.	348.	70058.	9116.	6211.
OTHER	214.	182.	231.	165.	247.
SUB-TOTAL	566.	530.	70289.	9280.	6458.
COMBUSTION OF FUELS					
INDUSTRY	8110.	21911.	328.	140.	3426.
STEAM-ELEC	2318.	9565.	61.	18.	1098.
RESIDENTIAL	1494.	548.	1114.	291.	787.
COMM AND INST	412.	112.	67.	22.	102.
SUB-TOTAL	12334.	32135.	1570.	471.	5413.
REFUSE DISPOSAL					
INCINERATION	103.	1025.	1367.	1025.	137.
OPEN BURNING	0.	0.	0.	0.	0.
SUB/TOTAL	103.	1025.	1367.	1025.	137.
PROCESS	4051.	13498.	785.	278.	137.
EVAP LOSSES				8435.	
GRAND TOTAL	17054.	47088.	74010.	19489.	12144.

47088
74010
19489
12144
169,185 - Total

Population 219,958

Ton/1000 Pop = .77

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CHARLES CITY COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	55.	54.	8514.	1174.	969.
OTHER	5.	2.	6.	4.	6.
SUB-TOTAL	60.	56.	8520.	1178.	975.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	22.	6.	6.	2.	7.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	22.	6.	6.	2.	7.
REFUSE DISPOSAL					
INCINERATION	1.	8.	11.	8.	1.
OPEN BURNING	0.	4.	24.	8.	2.
SUB/TOTAL	1.	13.	35.	17.	3.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				475.	
GRAND TOTAL	83.	75.	8561.	1672.	985.

Total Pol 11376

Population 5492

Pol/pop 2.07

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CHESTERFIELD COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	447.	442.	73995.	10045.	7890.
OTHER	79.	30.	85.	61.	91.
SUB-TOTAL	526.	472.	74080.	10106.	7981.
COMBUSTION OF FUELS					
INDUSTRY	639.	46.	0.	6.	145.
STEAM-ELEC	74803.	104469.	665.	909.	26799.
RESIDENTIAL	331.	98.	162.	46.	102.
COMM AND INST	137.	33.	23.	7.	27.
SUB-TOTAL	75910.	104646.	850.	968.	27072.
REFUSE DISPOSAL					
INCINERATION	15.	153.	204.	153.	20.
OPEN BURNING	10.	161.	855.	302.	60.
SUB/TOTAL	25.	314.	1060.	455.	81.
PROCESS	1580.	2.	15.	0.	0.
EVAP LOSSES				4333.	
GRAND TOTAL	78042.	105435.	76004.	15862.	35134.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN DINWIDDIE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	169.	167.	26252.	3619.	2988.
OTHER	21.	8.	23.	16.	24.
SUB-TOTAL	191.	176.	26275.	3635.	3012.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	0.	0.	0.	0.	0.
COMM AND INST	188.	64.	11.	6.	83.
SUB-TOTAL	188.	64.	11.	6.	83.
REFUSE DISPOSAL					
INCINERATION	3.	34.	46.	34.	5.
OPEN BURNING	1.	18.	97.	34.	7.
SUB/TOTAL	5.	53.	143.	69.	11.
PROCESS	2.	326.	1668.	141.	13.
EVAP LOSSES				1540.	
GRAND TOTAL	385.	618.	28097.	5390.	3119.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN GOOCHLAND COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	47.	46.	7274.	1003.	828.
OTHER	8.	3.	9.	6.	10.
SUB-TOTAL	55.	50.	7283.	1009.	838.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	51.	15.	25.	7.	14.
COMM AND INST	76.	0.	4.	2.	30.
SUB-TOTAL	127.	15.	29.	9.	44.
REFUSE DISPOSAL					
INCINERATION	1.	14.	18.	14.	2.
OPEN BURNING	0.	7.	39.	14.	3.
SUB/TOTAL	2.	21.	57.	28.	5.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				472.	
GRAND TOTAL	184.	85.	7370.	1518.	886.

Total Pol 10 043

PoP 9206

Pol/PoP 1.09

SUMMARY OF AIR POLLUTANT EMISSIONS
IN GREENSVILLE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	99.	98.	15366.	2118.	1749.
OTHER	13.	5.	14.	10.	15.
SUB-TOTAL	112.	103.	15379.	2128.	1764.
COMBUSTION OF FUELS					
INDUSTRY	103.	7.	0.	1.	23.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	38.	11.	5.	3.	13.
COMM AND INST	C.	0.	0.	0.	0.
SUB-TOTAL	141.	18.	5.	4.	36.
REFUSE DISPOSAL					
INCINERATION	2.	20.	27.	20.	3.
OPEN BURNING	1.	11.	58.	20.	4.
SUB/TOTAL	3.	31.	85.	41.	7.
PROCESS	C.	158.	457.	0.	0.
EVAP LOSSES				928.	
GRAND TOTAL	256.	310.	15927.	3101.	1806.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN HANOVER COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	160.	158.	24776.	3416.	2820.
OTHER	32.	12.	34.	25.	37.
SUB-TOTAL	192.	170.	24810.	3440.	2857.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	163.	47.	68.	21.	46.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	163.	47.	68.	21.	46.
REFUSE DISPOSAL					
INCINERATION	0.	0.	0.	0.	0.
OPEN BURNING	0.	0.	0.	0.	0.
SUB/TOTAL	0.	0.	0.	0.	0.
PROCESS	0.	205.	237.	20.	2.
EVAP LOSSES				1647.	
GRAND TOTAL	355.	422.	25115.	5127.	2905.

Total Pollutants 33924

Population 27550

Pol/Pop 1.23

SUMMARY OF AIR POLLUTANT EMISSIONS
IN HENRICO COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	186.	184.	34214.	4525.	3287.
OTHER	200.	341.	1150.	1020.	324.
SUB-TOTAL	386.	525.	35364.	5544.	3611.
COMBUSTION OF FUELS					
INDUSTRY	44.	5.	0.	1.	20.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	574.	182.	233.	76.	242.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	618.	188.	233.	77.	263.
REFUSE DISPOSAL					
INCINERATION	21.	211.	282.	211.	28.
OPEN BURNING	7.	113.	599.	211.	42.
SUB/TOTAL	28.	324.	880.	423.	70.
PROCESS	0.	11.	59.	21.	4.
EVAP LOSSES				2407.	
GRAND TOTAL	1033.	1047.	36537.	8472.	3948.

Total Pol 51037

Population 117,337

Pol/Pop .43

SUMMARY OF AIR POLLUTANT EMISSIONS
IN NEW KENT COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	147.	146.	22824.	3146.	2598.
OTHER	4.	2.	5.	3.	5.
SUB-TOTAL	152.	147.	22829.	3150.	2603.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	15.	4.	5.	2.	5.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	15.	4.	5.	2.	5.
REFUSE DISPOSAL					
INCINERATION	1.	7.	10.	7.	1.
OPEN BURNING	0.	4.	21.	7.	1.
SUB/TOTAL	1.	11.	30.	15.	2.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				1285.	
GRAND TOTAL	168.	163.	22864.	4451.	2610.

Total Pol 30256

Population 4504

Pol/Pop 6.72

SUMMARY OF AIR POLLUTANT EMISSIONS
IN POWHATAN COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	46.	46.	7159.	987.	815.
OTHER	6.	2.	7.	5.	7.
SUB-TOTAL	53.	48.	7166.	992.	822.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	23.	7.	11.	3.	6.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	23.	7.	11.	3.	6.
REFUSE DISPOSAL					
INCINERATION	1.	11.	14.	11.	1.
OPEN BURNING	0.	6.	30.	11.	2.
SUB/TOTAL	1.	16.	44.	21.	4.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				431.	
GRAND TOTAL	77.	71.	7220.	1447.	832.

Total Pol 9647
Pop 6747

Pol/Pop — 1.43

SUMMARY OF AIR POLLUTANT EMISSIONS
IN PRINCE GEO COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	316.	312.	56803.	7548.	5565.
OTHER	76.	29.	82.	58.	88.
SUB-TOTAL	392.	341.	56885.	7606.	5653.
COMBUSTION OF FUELS					
INDUSTRY	11089.	6506.	130.	144.	2799.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	4.	1.	2.	1.	2.
COMM AND INST	227.	86.	5.	5.	176.
SUB-TOTAL	11320.	6593.	136.	149.	2978.
REFUSE DISPOSAL					
INCINERATION	12.	122.	162.	121.	16.
OPEN BURNING	18.	288.	1529.	540.	108.
SUB/TOTAL	30.	410.	1691.	661.	124.
PROCESS	219.	346.	807.	1486.	0.
EVAP LOSSES				3448.	
GRAND TOTAL	11961.	7690.	59519.	13351.	8755.

Total Pol 101,276

Total Pop 20270

Pol/Pop 5.00

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SURRY COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	43.	42.	6636.	915.	755.
OTHER	5.	2.	5.	4.	6.
SUB-TOTAL	48.	44.	6641.	919.	761.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	34.	10.	16.	5.	9.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	34.	10.	16.	5.	9.
REFUSE DISPOSAL					
INCINERATION	1.	8.	11.	8.	1.
OPEN BURNING	0.	4.	23.	8.	2.
SUB/TOTAL	1.	12.	34.	16.	3.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				386.	
GRAND TOTAL	83.	66.	6691.	1325.	773.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SUSSEX COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	93.	92.	14396.	1985.	1638.
OTHER	10.	4.	10.	7.	11.
SUB-TOTAL	103.	95.	14407.	1992.	1650.
COMBUSTION OF FUELS					
INDUSTRY	381.	80.	20.	14.	168.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	28.	8.	14.	4.	7.
COMM AND INST	C.	0.	0.	C.	0.
SUB-TOTAL	409.	88.	34.	18.	175.
REFUSE DISPOSAL					
INCINERATION	2.	16.	21.	16.	2.
OPEN BURNING	1.	8.	44.	16.	3.
SUB/TOTAL	2.	24.	65.	31.	5.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				895.	
GRAND TOTAL	513.	208.	14506.	2936.	1830.

AREA SOURCE EMISSIONS
TONS/DAY

				SOX			PART			CO			HC			NOX		
GRID	AREA	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
1	38.6	2350	41950	0.04	0.07	0.05	0.04	0.05	0.04	5.26	4.33	4.79	1.04	0.86	0.95	0.60	0.50	0.55
2	154.4	2700	42000	0.35	0.44	0.38	0.33	0.32	0.32	51.32	42.06	46.68	9.88	8.13	9.00	5.86	4.84	5.34
3	38.6	2850	41950	0.01	0.03	0.02	0.01	0.01	0.01	1.37	1.13	1.25	0.28	0.24	0.26	0.16	0.14	0.15
4	154.4	2300	41800	0.03	0.15	0.08	0.05	0.08	0.06	3.33	2.80	3.06	0.76	0.66	0.71	0.39	0.35	0.37
5	154.4	2500	41800	0.11	0.21	0.15	0.11	0.13	0.12	14.70	12.09	13.39	2.90	2.42	2.66	1.68	1.41	1.54
6	38.6	2650	41850	0.05	0.10	0.07	0.05	0.05	0.05	6.84	5.62	6.23	1.35	1.12	1.24	0.78	0.66	0.72
7	38.6	2750	41850	0.01	0.15	0.07	0.01	0.04	0.02	0.01	0.07	0.04	0.14	0.16	0.15	0.01	0.05	0.03
8	38.6	2850	41850	0.01	0.06	0.03	0.00	0.02	0.01	0.00	0.03	0.01	0.05	0.06	0.06	0.01	0.02	0.01
9	38.6	2950	41850	0.01	0.03	0.02	0.01	0.01	0.01	1.46	1.20	1.33	0.29	0.25	0.27	0.17	0.14	0.15
10	38.6	2650	41750	0.11	0.46	0.25	0.15	0.26	0.19	9.13	7.67	8.38	2.08	1.82	1.94	1.07	1.03	1.04
11	38.6	2750	41750	0.12	0.89	0.43	0.22	0.46	0.32	2.20	2.22	2.18	1.15	1.20	1.16	0.32	0.60	0.43
12	38.6	2850	41750	0.08	0.43	0.22	0.11	0.22	0.15	4.87	4.18	4.51	1.27	1.15	1.21	0.59	0.63	0.60
13	38.6	2950	41750	0.03	0.09	0.05	0.03	0.04	0.03	4.25	3.50	3.87	0.86	0.73	0.79	0.49	0.42	0.45
14	38.6	3050	41750	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.02	0.00	0.01	0.00
15	154.4	2300	41600	0.07	0.11	0.09	0.08	0.08	0.08	8.84	7.27	8.06	1.76	1.47	1.61	1.01	0.85	0.93
16	154.4	2500	41600	0.09	0.23	0.15	0.12	0.15	0.13	10.63	8.79	9.71	2.22	1.88	2.05	1.22	1.05	1.13
17	38.6	2650	41650	0.07	0.30	0.16	0.10	0.17	0.13	5.72	4.82	5.26	1.32	1.16	1.24	0.67	0.64	0.65
18	9.7	2725	41675	0.09	0.57	0.29	0.16	0.31	0.22	4.54	3.98	4.24	1.31	1.23	1.26	0.56	0.67	0.60
19	9.7	2775	41675	0.09	0.37	0.20	0.13	0.21	0.16	7.51	6.30	6.90	1.70	1.48	1.59	0.88	0.85	0.86
20	9.7	2825	41675	0.12	0.25	0.17	0.14	0.17	0.15	15.39	12.67	14.02	3.05	2.55	2.80	1.77	1.51	1.63
21	9.7	2875	41675	0.03	0.25	0.12	0.06	0.13	0.09	0.76	0.74	0.75	0.35	0.36	0.36	0.11	0.18	0.14
22	9.7	2725	41625	0.05	0.18	0.10	0.07	0.10	0.08	4.74	3.96	4.34	1.06	0.92	0.99	0.55	0.50	0.52
23	2.4	2762	41612	0.04	0.07	0.05	0.05	0.05	0.05	7.57	6.22	6.89	1.34	1.11	1.23	0.71	0.60	0.65

24	2.4	2788	41612	0.19	0.15	0.17	0.19	0.15	0.17	35.41	28.97	32.19	6.16	5.04	5.60	3.31	2.71	3.01
25	2.4	2812	41612	0.06	0.14	0.10	0.08	0.11	0.09	10.08	8.32	9.19	1.83	1.53	1.67	0.95	0.82	0.88
26	2.4	2838	41612	0.06	0.23	0.13	0.10	0.16	0.13	8.72	7.28	7.99	1.66	1.42	1.53	0.83	0.77	0.79
27	2.4	2862	41612	0.02	0.09	0.05	0.03	0.05	0.04	1.26	1.08	1.17	0.29	0.26	0.28	0.13	0.14	0.13
28	2.4	2888	41612	0.01	0.07	0.04	0.02	0.04	0.03	1.28	1.08	1.18	0.28	0.25	0.26	0.13	0.13	0.13
29	2.4	2762	41638	0.06	0.29	0.16	0.11	0.19	0.14	7.05	5.96	6.49	1.45	1.27	1.35	0.68	0.67	0.67
30	2.4	2788	41638	0.13	0.54	0.30	0.23	0.37	0.28	16.22	13.63	14.90	3.16	2.74	2.94	1.55	1.49	1.51
31	2.4	2812	41638	0.11	0.56	0.30	0.21	0.37	0.28	12.47	10.58	11.50	2.53	2.23	2.37	1.21	1.22	1.20
32	2.4	2838	41638	0.11	0.44	0.25	0.18	0.29	0.23	14.05	11.78	12.90	2.71	2.34	2.52	1.34	1.28	1.30
33	2.4	2862	41638	0.09	0.67	0.33	0.22	0.43	0.31	5.12	4.69	4.87	1.35	1.31	1.32	0.53	0.74	0.61
34	2.4	2888	41638	0.03	0.08	0.05	0.04	0.05	0.04	3.54	2.93	3.24	0.73	0.61	0.67	0.41	0.36	0.38
35	38.6	2950	41650	0.12	0.71	0.37	0.16	0.33	0.23	8.21	7.02	7.59	2.14	1.94	2.03	0.99	1.04	1.00
36	38.6	3050	41650	0.07	0.12	0.09	0.07	0.07	0.07	9.83	8.07	8.95	1.93	1.60	1.76	1.12	0.94	1.03
37	38.6	2650	41550	0.13	0.25	0.18	0.15	0.17	0.16	17.37	14.30	15.83	3.46	2.88	3.17	1.99	1.67	1.83
38	38.6	2750	41550	0.20	0.88	0.48	0.32	0.52	0.40	20.65	17.39	18.99	4.37	3.84	4.10	2.00	1.91	1.94
39	2.4	2812	41588	0.20	1.47	0.74	0.49	0.94	0.68	14.66	13.07	13.79	3.44	3.26	3.33	1.33	1.76	1.50
40	2.4	2838	41588	0.29	1.65	0.86	0.60	1.08	0.80	36.66	31.16	33.83	6.84	6.08	6.44	2.76	2.98	2.82
41	2.4	2862	41588	0.12	0.95	0.47	0.30	0.59	0.42	7.54	6.85	7.14	1.82	1.78	1.79	0.62	0.94	0.75
42	2.4	2888	41588	0.03	0.10	0.06	0.04	0.07	0.05	3.69	3.07	3.38	0.71	0.61	0.66	0.35	0.33	0.34
43	2.4	2812	41562	0.07	0.56	0.28	0.18	0.35	0.25	3.16	2.99	3.05	0.96	0.96	0.95	0.34	0.53	0.42
44	2.4	2838	41562	0.12	0.58	0.32	0.23	0.39	0.29	18.61	15.62	17.08	3.29	2.85	3.06	1.38	1.37	1.36
45	2.4	2862	41562	0.25	1.38	0.72	0.51	0.90	0.67	32.53	27.57	29.98	6.00	5.31	5.64	2.44	2.60	2.47
46	2.4	2888	41562	0.02	0.15	0.08	0.05	0.09	0.07	2.07	1.79	1.92	0.46	0.42	0.44	0.20	0.23	0.21
47	2.4	2812	41538	0.10	0.43	0.24	0.17	0.28	0.21	11.85	9.97	10.89	2.36	2.05	2.20	1.14	1.10	1.10
48	2.4	2838	41538	0.09	0.58	0.30	0.20	0.37	0.27	7.42	6.49	6.92	1.68	1.55	1.61	0.74	0.86	0.78
49	2.4	2862	41538	0.05	0.11	0.07	0.06	0.08	0.07	7.08	5.86	6.46	1.29	1.08	1.19	0.67	0.59	0.62
50	2.4	2888	41538	0.03	0.13	0.07	0.05	0.09	0.07	2.88	2.45	2.66	0.59	0.52	0.55	0.28	0.29	0.28
51	2.4	2812	41512	0.02	0.04	0.03	0.02	0.03	0.03	2.94	2.42	2.68	0.58	0.48	0.53	0.34	0.28	0.31

52	2.4	2838	41512	0.06	0.30	0.16	0.12	0.20	0.15	5.74	4.90	5.30	1.29	1.15	1.21	0.67	0.67	0.66
53	2.4	2862	41512	0.03	0.03	0.03	0.03	0.03	0.03	4.12	3.38	3.75	0.79	0.65	0.72	0.47	0.39	0.43
54	2.4	2888	41512	0.01	0.01	0.01	0.01	0.01	0.01	0.77	0.63	0.70	0.15	0.12	0.14	0.09	0.07	0.08
55	38.6	2950	41550	0.09	0.30	0.18	0.13	0.18	0.15	10.14	8.42	9.27	2.13	1.81	1.97	1.18	1.06	1.11
56	38.6	3050	41550	0.02	0.09	0.05	0.03	0.05	0.04	1.95	1.63	1.79	0.46	0.40	0.43	0.23	0.22	0.22
57	154.4	3200	41600	0.18	0.19	0.18	0.18	0.16	0.17	26.64	21.82	24.23	5.18	4.27	4.72	3.04	2.50	2.77
58	154.4	3400	41600	0.09	0.11	0.10	0.10	0.09	0.09	13.41	10.99	12.20	2.62	2.17	2.39	1.53	1.27	1.40
59	154.4	2500	41400	0.17	0.15	0.16	0.17	0.14	0.15	26.05	21.32	23.69	4.94	4.05	4.50	2.97	2.43	2.70
60	154.4	2700	41200	0.10	0.32	0.19	0.14	0.19	0.16	11.27	9.37	10.31	2.42	2.07	2.25	1.30	1.14	1.22
61	9.7	2825	41475	0.10	0.20	0.14	0.12	0.14	0.13	12.89	10.64	11.76	2.55	2.13	2.34	1.48	1.26	1.36
62	9.7	2875	41475	0.05	0.07	0.06	0.05	0.05	0.05	7.44	6.10	6.77	1.44	1.19	1.31	0.85	0.70	0.78
63	9.7	2825	41425	0.02	0.04	0.03	0.02	0.03	0.02	2.27	1.87	2.07	0.46	0.38	0.42	0.26	0.22	0.24
64	9.7	2875	41425	0.06	0.09	0.07	0.06	0.07	0.07	8.03	6.60	7.31	1.58	1.31	1.44	0.92	0.77	0.84
65	38.6	2950	41450	0.02	0.12	0.06	0.03	0.06	0.04	0.33	0.33	0.32	0.17	0.18	0.17	0.05	0.08	0.06
66	38.6	3050	41450	0.02	0.05	0.03	0.02	0.03	0.03	2.28	1.89	2.08	0.47	0.39	0.43	0.26	0.23	0.24
67	38.6	2850	41350	0.27	0.35	0.30	0.28	0.28	0.28	39.13	32.09	35.61	7.56	6.23	6.90	4.46	3.69	4.08
68	9.7	2925	41375	0.01	0.05	0.03	0.01	0.03	0.02	0.04	0.06	0.05	0.06	0.07	0.07	0.01	0.02	0.01
69	9.7	2975	41375	0.02	0.05	0.03	0.02	0.03	0.02	1.67	1.39	1.52	0.36	0.31	0.33	0.19	0.17	0.18
70	9.7	2925	41325	0.04	0.03	0.03	0.03	0.03	0.03	5.45	4.46	4.96	1.03	0.84	0.94	0.62	0.51	0.56
71	9.7	2975	41325	0.13	0.15	0.12	0.17	0.16	0.16	17.81	14.62	16.21	3.51	2.93	3.22	1.87	1.55	1.70
72	38.6	3050	41350	0.03	0.04	0.04	0.03	0.03	0.03	4.77	3.91	4.34	0.92	0.75	0.84	0.54	0.45	0.50
73	154.4	3200	41400	0.05	0.17	0.10	0.07	0.10	0.08	4.55	3.78	4.16	1.04	0.90	0.97	0.53	0.48	0.50
74	154.4	3400	41400	0.18	0.16	0.17	0.18	0.15	0.17	28.19	23.07	25.63	5.37	4.40	4.89	3.21	2.63	2.92
75	154.4	2500	41200	0.04	0.03	0.03	0.05	0.04	0.04	4.53	3.71	4.12	0.92	0.77	0.85	0.52	0.43	0.47
76	154.4	2700	41275	0.20	0.20	0.19	0.22	0.20	0.21	28.02	22.96	25.49	5.48	4.52	5.00	3.20	2.63	2.92
77	9.7	2825	41275	0.01	0.03	0.02	0.02	0.02	0.02	1.95	1.60	1.78	0.39	0.32	0.35	0.22	0.19	0.20
78	9.7	2875	41275	0.26	0.68	0.43	0.35	0.45	0.39	35.48	29.34	32.39	6.89	5.85	6.36	3.37	2.92	3.13
79	9.7	2925	41275	0.06	0.06	0.06	0.07	0.06	0.07	9.14	7.49	8.31	1.78	1.47	1.63	1.04	0.86	0.95

80	9.7	2975	41275	0.09	0.12	0.09	0.14	0.14	0.14	9.49	7.82	8.65	2.12	1.81	1.96	1.10	0.93	1.01
81	9.7	2825	41225	0.04	0.03	0.03	0.04	0.04	0.04	4.46	3.66	4.06	0.91	0.76	0.84	0.51	0.42	0.47
82	2.4	2862	41238	0.17	0.16	0.16	0.19	0.17	0.18	37.89	31.03	34.46	6.10	5.03	5.57	2.73	2.25	2.48
83	2.4	2888	41238	0.09	0.10	0.08	0.11	0.11	0.11	15.37	12.61	13.99	2.72	2.26	2.49	1.29	1.07	1.17
84	2.4	2862	41212	0.10	0.10	0.09	0.12	0.11	0.11	16.68	13.68	15.17	2.93	2.44	2.68	1.39	1.16	1.27
85	2.4	2888	41212	0.13	0.13	0.12	0.15	0.14	0.14	17.45	14.31	15.88	3.47	2.88	3.17	2.00	1.65	1.82
86	9.7	2925	41225	0.13	0.14	0.12	0.17	0.16	0.16	14.77	12.13	13.44	3.08	2.59	2.83	1.70	1.42	1.55
87	9.7	2975	41225	0.05	0.04	0.04	0.05	0.05	0.05	6.20	5.08	5.64	1.23	1.02	1.12	0.71	0.58	0.65
88	38.6	3050	41250	0.02	0.03	0.02	0.03	0.04	0.03	0.53	0.45	0.49	0.22	0.21	0.21	0.07	0.07	0.06
89	38.6	2850	41150	0.17	0.15	0.15	0.19	0.16	0.18	23.43	19.19	21.31	4.59	3.79	4.19	2.68	2.20	2.44
90	38.6	2950	41150	0.05	0.06	0.05	0.07	0.07	0.07	6.21	5.10	5.65	1.30	1.09	1.19	0.72	0.60	0.65
91	38.6	3050	41150	0.04	0.04	0.03	0.04	0.04	0.04	5.00	4.10	4.55	0.99	0.82	0.91	0.57	0.47	0.52
92	154.4	3200	41200	0.04	0.07	0.05	0.06	0.06	0.06	5.07	4.18	4.62	1.07	0.90	0.98	0.58	0.49	0.54
93	154.4	3400	41200	0.05	0.08	0.06	0.05	0.06	0.05	7.48	6.14	6.81	1.44	1.19	1.32	0.85	0.71	0.78
94	154.4	2500	41000	0.08	0.07	0.07	0.09	0.08	0.08	10.98	9.00	9.99	2.17	1.79	1.98	1.26	1.03	1.14
95	154.4	2700	41000	0.11	0.10	0.10	0.13	0.12	0.13	14.68	12.03	13.36	2.95	2.44	2.70	1.68	1.38	1.53
96	154.4	2900	41000	0.18	0.18	0.17	0.20	0.18	0.18	25.98	21.28	23.63	5.07	4.18	4.62	2.97	2.44	2.70
97	154.4	3100	41000	0.08	0.14	0.10	0.10	0.11	0.10	9.83	8.10	8.96	2.06	1.73	1.89	1.13	0.95	1.04
98	154.4	3300	41000	0.09	0.18	0.13	0.11	0.12	0.11	12.64	10.41	11.52	2.52	2.10	2.31	1.45	1.21	1.33
99	38.6	3450	41050	0.01	0.07	0.03	0.01	0.03	0.02	0.03	0.06	0.05	0.05	0.06	0.06	0.01	0.02	0.01
100	154.4	2700	40800	0.11	0.15	0.13	0.13	0.12	0.12	15.79	12.94	14.37	3.11	2.58	2.85	1.80	1.50	1.65
101	154.4	2900	40800	0.10	0.13	0.11	0.11	0.11	0.11	14.54	11.93	13.23	2.88	2.38	2.63	1.66	1.37	1.52
102	154.4	3100	40800	0.03	0.04	0.03	0.03	0.03	0.03	3.59	2.95	3.27	0.73	0.61	0.67	0.41	0.34	0.38
103	38.6	2650	40650	0.06	0.07	0.06	0.06	0.06	0.06	8.73	7.15	7.94	1.69	1.40	1.54	1.00	0.82	0.91
104	38.6	2750	40650	0.11	0.20	0.14	0.13	0.14	0.13	13.18	10.82	12.00	2.70	2.26	2.48	1.51	1.28	1.39
105	38.6	2850	40650	0.02	0.02	0.02	0.02	0.02	0.02	3.33	2.72	3.02	0.63	0.51	0.57	0.38	0.31	0.34
106	38.6	2650	40550	0.07	0.08	0.07	0.07	0.07	0.07	10.32	8.45	9.38	1.99	1.64	1.82	1.18	0.97	1.07
107	38.6	2750	40550	0.01	0.03	0.02	0.02	0.02	0.02	1.52	1.25	1.39	0.33	0.28	0.30	0.18	0.15	0.16

108	38.6	2850	40550	0.00	0.03	0.01	0.01	0.01	0.01	0.02	0.03	0.02	0.05	0.05	0.05	0.01	0.01	0.01
TOTAL				8.92	25.61	15.70	12.43	17.21	14.30	1122.05	931.05	1025.63	223.27	189.61	206.19	117.98	104.71	110.67

POINT SOURCE EMISSIONS BY PLANT

TONS PER DAY

	SOX S	SOX W	SOX A	PART. S	PART. W	PART. A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
GENCRUSHSTON GRID 2 HC 2799 VC 41946															
5	0.0	0.0	0.0	0.12	0.12	0.12	0.0	C.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.12	0.12	0.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FRNKTFLIPPCS GRID 3 HC 2831 VC 41921															
5	0.00	0.00	0.00	0.10	0.1C	0.10	0.65	0.65	0.65	0.05	0.05	0.05	0.00	0.00	0.00
TOTAL	0.00	C.00	0.00	0.10	0.10	0.10	0.65	0.65	0.65	0.05	0.05	0.05	0.00	0.00	0.00
WCMENS FARM GRID 5 HC 2450 VC 41732															
4	C.0	C.50	0.21	0.0	0.0	0.0	0.0	0.03	0.01	0.0	0.01	0.C1	0.0	0.20	0.08
TOTAL	0.0	0.50	0.21	0.0	0.0	0.0	0.0	C.03	0.01	0.0	0.01	0.01	0.0	0.20	0.08
RCKVILSTCNCA GRID 10 HC 2673 VC 41779															
5	0.0	0.0	0.0	0.15	0.15	0.15	0.0	C.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.15	C.15	0.15	0.0	C.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VULMATLRCYSQ GRID 11 HC 2682 VC 41784															
5	0.0	0.0	0.0	0.19	0.19	0.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C.0
TOTAL	0.0	C.0	0.0	0.19	0.19	0.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HCLYFRMSPOUL GRID 11 HC 2751 VC 41749															

4	0.0	0.23	0.09	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.12	0.05
5	0.00	0.00	0.00	0.03	0.03	0.03	0.16	0.16	0.16	0.06	0.06	0.06	0.01	0.01	0.01
TOTAL	0.00	0.23	0.10	0.03	0.06	0.04	0.16	0.16	0.16	0.06	0.06	0.06	0.01	0.13	0.06

RUFFIN+PAYNE GRID 33 HC 2872 VC 41622

4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

JECRASSCOKBT GRID 31 HC 2814 VC 41608

4	0.0	0.14	0.06	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
TOTAL	0.0	0.14	0.06	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01

ATLANVARPANT GRID 31 HC 2823 VC 41611

4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19	0.19	0.19	0.0	0.0	0.0
5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.00	0.00	0.00

ALCATRAZCORP GRID 31 HC 2818 VC 41614

4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	0.21	0.21	0.0	0.0	0.0
5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.21	0.21	0.21	0.00	0.00	0.00

MORGANBAG GRID 31 HC 2814 VC 41610

4	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTAL	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RICHMDFCNDRY			GRID 31		HC 2824		VC 41601								
4	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.06	0.06	0.06
5	0.0	0.0	0.0	0.19	0.19	0.19	1.83	1.83	1.83	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.01	0.01	0.01	0.20	0.20	0.20	1.83	1.83	1.83	0.01	0.01	0.01	0.06	0.06	0.06
RICHMDGUANO			GRID 44		HC 2844		VC 41574								
5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
DMV			GRID 39		HC 2821		VC 41595								
4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.01
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.01
EXPORTLEAFTB			GRID 40		HC 2827		VC 41594								
4	0.0	0.68	0.28	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.15	0.06
TOTAL	0.0	0.68	0.28	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.15	0.06
RICHMDNWSPPR			GRID 40		HC 2845		VC 41577								
4	0.0	0.28	0.12	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.03
TOTAL	0.0	0.28	0.12	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.03
SAMSON PAINT			GRID 40		HC 2841		VC 41581								
4	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00

6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.00	1.00	0.0	0.0	0.0
5	0.0	0.0	0.0	0.08	0.08	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.02	0.01	0.08	0.08	0.08	0.0	0.00	0.00	1.00	1.00	1.00	0.0	0.01	0.00
VCUACADEMIC	GRID	40	HC	2825	VC	41585									
4	0.0	0.30	0.12	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.14	0.06
TOTAL	0.0	0.30	0.12	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.14	0.06
VCUHEALTHSCI	GRID	40	HC	2825	VC	41585									
4	0.0	1.08	0.45	0.0	0.26	0.11	0.0	0.21	0.09	0.0	0.07	0.03	0.0	0.25	0.10
TOTAL	0.0	1.08	0.45	0.0	0.26	0.11	0.0	0.21	0.09	0.0	0.07	0.03	0.0	0.25	0.10
ITTCONTINBAK	GRID	41	HC	2838	VC	41578									
4	0.13	0.13	0.13	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
TOTAL	0.13	0.13	0.13	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
CIRCLEWOODWK	GRID	42	HC	2877	VC	41595									
5	0.0	0.0	0.0	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.0	0.0	0.0
ALBEPAPERYBG	GRID	44	HC	2841	VC	41568									
4	0.0	1.26	0.52	0.0	0.09	0.04	0.0	0.00	0.00	0.0	0.01	0.01	0.0	0.29	0.12
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.45	1.45	1.45	0.0	0.0	0.0
TOTAL	0.0	1.26	0.52	0.0	0.09	0.04	0.0	0.00	0.00	1.45	1.46	1.46	0.0	0.29	0.12

BIGGSANTIQUE	GRID	44	HC	2835	VC	41588									
4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.01	0.01
CRAWFORDMFGC	GRID	44	HC	2847	VC	41557									
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.02	0.02	0.02	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
FEDPAPSOTHRN	GRID	44	HC	2848	VC	41559									
4	1.91	1.91	1.91	0.09	0.09	0.09	0.00	0.00	0.00	0.01	0.01	0.01	0.29	0.29	0.29
TOTAL	1.91	1.91	1.91	0.09	0.09	0.09	0.00	0.00	0.00	0.01	0.01	0.01	0.29	0.29	0.29
MILLER MFG	GRID	44	HC	2845	VC	41553									
5	0.0	0.0	0.0	0.41	0.41	0.41	0.03	0.03	0.03	0.03	0.03	0.03	0.15	0.15	0.15
TOTAL	0.0	0.0	0.0	0.41	0.41	0.41	0.03	0.03	0.03	0.03	0.03	0.03	0.15	0.15	0.15
MILHISERBAG	GRID	46	HC	2877	VC	41550									
4	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHILIPMORRIS	GRID	44	HC	2844	VC	41553									
4	0.0	1.41	0.59	0.0	0.10	0.04	0.0	0.00	0.00	0.0	0.01	0.01	0.0	0.32	0.13
TOTAL	0.0	1.41	0.59	0.0	0.10	0.04	0.0	0.00	0.00	0.0	0.01	0.01	0.0	0.32	0.13

RICHMCGUANO	GRID	44	HC	2844	VC	41574									
4	0.00	0.00	0.00	0.00	0.C0	0.00	0.00	C.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.00	0.0C	0.C0	0.02	0.02	0.02	0.0C	C.00	0.00	0.00	0.00	0.0C	0.01	0.C1	C.01
VEPCOTWELFTH	GRID	44	HC	2845	VC	41565									
4	7.73	7.73	6.35	31.88	31.88	26.20	0.20	0.20	0.17	0.06	0.06	0.05	3.66	3.66	3.01
TOTAL	7.73	7.73	6.35	31.88	31.88	26.20	0.20	C.20	0.17	0.06	0.06	0.05	3.66	3.66	3.01
AMERTOBRICVA	GRID	45	HC	2858	VC	41565									
4	0.0	3.10	1.28	0.0	0.98	0.41	0.0	C.94	0.39	0.0	0.28	0.12	0.0	0.62	0.26
TOTAL	0.0	3.10	1.28	0.0	0.98	0.41	0.0	C.94	0.39	0.0	0.28	0.12	0.0	0.62	0.26
CRAWFORDMFGC	GRID	44	HC	2847	VC	41557									
4	0.02	C.02	0.02	0.00	0.00	0.0C	0.00	C.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.02	0.C2	0.02	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.C0	0.01	0.01	0.C1
EASTERNSLEEP	GRID	45	HC	2850	VC	41569									
4	0.0	0.09	0.C4	0.0	0.02	0.01	0.0	0.0C	0.0C	0.0	0.00	0.00	0.0	0.C9	0.04
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0C	C.C0	0.C0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.09	0.04	0.0	0.C2	0.01	0.00	C.00	0.00	0.0	0.00	0.00	0.0	0.09	0.04
IDEALFISHFLT	GRIC	45	HC	2857	VC	41565									
4	0.01	0.01	C.01	0.0C	0.C0	0.00	0.00	C.00	0.00	0.00	0.00	0.0C	0.00	0.00	0.00
5	0.0	C.0	0.0	0.0C	0.00	0.00	0.0	C.0	0.0	0.0	0.0	0.C	0.0	0.C	0.C

TOTAL	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LARUSNBROS GRID 45 HC 2858 VC 41563															
4	0.0	0.01	0.01	0.0	0.03	0.01	0.0	0.03	0.01	0.0	0.01	0.00	0.0	0.02	0.01
TOTAL	0.0	0.01	0.01	0.0	0.03	0.01	0.0	0.03	0.01	0.0	0.01	0.00	0.0	0.02	0.01
M+BHEADWEAR GRID 45 HC 2859 VC 41562															
4	0.0	0.04	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.04	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
REYNLCNORSOU GRID 45 HC 2843 VC 41556															
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.64	4.64	4.64	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.64	4.64	4.64	0.0	0.0	0.0
MEDCOLLVIRGA GRID 45 HC 2852 VC 41572															
4	0.0	1.34	0.56	0.0	0.43	0.18	0.0	0.21	0.09	0.0	0.06	0.03	0.0	0.21	0.09
TOTAL	0.0	1.34	0.56	0.0	0.43	0.18	0.0	0.21	0.09	0.0	0.06	0.03	0.0	0.21	0.09
MILHISERBAG GRID 46 HC 2877 VC 41550															
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREATANPTEAC GRID 48 HC 2836 VC 41526															
4	0.10	0.10	0.10	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
TOTAL	0.10	0.10	0.10	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02

DAVIDMLEA+CO	GRID	48	HC	2834	VC	41532									
4	0.17	0.17	C.17	0.01	C.01	0.C1	0.0C	C.0C	C.00	0.00	0.00	0.00	0.04	0.04	C.04
5	C.C	0.C	0.0	0.61	0.61	0.61	0.C4	C.04	0.04	0.C4	0.04	0.04	0.22	0.22	0.22
TOTAL	0.17	C.17	C.17	0.62	0.62	0.62	0.05	C.05	0.05	0.05	0.05	0.C5	0.26	0.26	C.26
FEDPAPSEABRD	GRID	49	HC	2852	VC	41543									
4	1.64	1.64	1.64	3.80	3.80	3.80	0.10	C.10	0.1C	0.05	0.05	C.05	0.72	0.72	C.72
TOTAL	1.64	1.64	1.64	3.80	3.80	3.80	0.1C	C.10	0.10	0.05	0.05	0.05	0.72	0.72	0.72
CKFOUNDRY	GRID	49	HC	2852	VC	41540									
4	0.00	0.00	0.00	0.00	0.C0	0.00	0.00	0.0C	0.00	0.0C	0.00	0.00	0.00	0.00	0.C0
5	0.0	0.0	0.0	0.03	C.C3	0.03	0.23	0.23	0.23	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.03	0.03	0.03	0.23	0.23	0.23	0.0C	0.00	0.0C	0.00	0.00	0.00
DIXIECONTANE	GRID	52	HC	2837	VC	41521									
4	C.04	0.04	0.04	0.00	0.00	0.00	0.C0	0.00	0.00	0.00	0.00	0.00	0.01	0.01	C.01
TOTAL	0.04	0.04	0.04	0.0C	0.00	0.00	0.00	C.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
DUPONTSPRUAN	GRID	61	HC	2846	VC	41473									
4	14.84	14.84	14.84	55.44	55.44	55.44	0.39	0.39	0.39	0.12	0.12	0.12	6.96	6.96	6.96
TCTAL	25.94	25.94	25.94	55.59	55.59	55.59	0.39	C.39	0.39	3.87	3.87	3.87	6.96	6.S6	6.S6
GENSHALEPRCD	GRID	52	HC	2842	VC	41514									
4	0.01	0.01	0.01	0.C1	C.01	0.01	0.00	C.00	0.00	0.01	0.01	0.01	0.08	C.08	0.08

5	0.0	0.0	0.0	35.30	35.30	35.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.01	0.01	0.01	35.31	35.31	35.31	0.00	0.00	0.00	0.01	0.01	0.01	0.08	0.08	0.08
WESTVACO	GRID 52	HC 2838	VC 41516												
4	0.08	0.28	0.16	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.04
TOTAL	0.08	0.28	0.16	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.04
TIDWTRSTGRAV	GRID 53	HC 2852	VC 41519												
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.0	0.0	0.0	0.14	0.14	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BYRDRICHMOND	GRID 55	HC 2947	VC 41535												
1	0.10	0.10	0.10	0.54	0.54	0.54	1.18	1.18	1.18	1.28	1.28	1.28	0.25	0.25	0.25
1	0.04	0.04	0.04	0.15	0.15	0.15	0.34	0.34	0.34	1.05	1.05	1.05	0.15	0.15	0.15
1	0.01	0.01	0.01	0.09	0.09	0.09	0.03	0.03	0.03	0.04	0.04	0.04	0.07	0.07	0.07
1	0.03	0.03	0.03	0.02	0.02	0.02	1.22	1.22	1.22	0.15	0.15	0.15	0.00	0.00	0.00
TOTAL	0.18	0.18	0.18	0.79	0.79	0.79	2.76	2.76	2.76	2.51	2.51	2.51	0.47	0.47	0.47
BOISECASCADE	GRID 55	HC 2929	VC 41529												
4	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
DUPONTSPRUAN	GRID 61	HC 2846	VC 41473												
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.07	3.07	3.07	0.0	0.0	0.0
5	11.10	11.10	11.10	0.15	0.15	0.15	0.0	0.0	0.0	0.68	0.68	0.68	0.0	0.0	0.0

TOTAL	25.94	25.94	25.94	55.59	55.59	55.59	0.39	0.39	0.39	3.87	3.87	3.87	6.96	6.96	6.96
BELLWOOD GRID 63 HC 2840 VC 41440															
4	0.0	0.90	0.37	0.0	0.22	0.09	0.0	0.15	0.06	0.0	0.05	0.02	0.0	0.18	0.07
8	0.01	0.01	0.01	0.07	0.07	0.07	0.10	0.10	0.10	0.07	0.07	0.07	0.01	0.01	0.01
TOTAL	0.01	0.91	0.38	0.07	0.29	0.16	0.10	0.25	0.16	0.07	0.12	0.10	0.01	0.19	0.08
DUPONTJIMRVR GRID 64 HC 2867 VC 41487															
5	4.33	4.33	4.33	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.33	4.33	4.33	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REYNLDBELLWD GRID 64 HC 2865 VC 41406															
4	0.08	0.08	0.08	0.02	0.02	0.02	0.00	0.00	0.00	0.02	0.02	0.02	0.14	0.14	0.14
TOTAL	0.08	0.08	0.08	0.02	0.02	0.02	0.00	0.00	0.00	0.02	0.02	0.02	0.14	0.14	0.14
STNDADPAPER GRID 64 HC 2865 VC 41422															
4	0.07	0.25	0.15	0.03	0.11	0.06	0.00	0.00	0.00	0.01	0.02	0.01	0.15	0.50	0.30
TOTAL	0.07	0.25	0.15	0.03	0.11	0.06	0.00	0.00	0.00	0.01	0.02	0.01	0.15	0.50	0.30
ABC FOUNDRY GRID 67 HC 2875 VC 41366															
5	0.0	0.0	0.0	0.00	0.00	0.00	0.04	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.04	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.0
VEPCOCHESTER GRID 67 HC 2890 VC 41397															
4	249.34	249.34	204.94	348.23	348.23	286.22	2.22	2.22	1.82	3.03	3.03	2.49	89.33	89.33	73.42

TCTAL	249.34	249.34	204.94	348.23	348.23	286.22	2.22	2.22	1.82	3.03	3.03	2.49	89.33	89.33	73.42
AMERTCBHANMR	GRID 69	HC 2941	VC 41350												
4	0.0	4.22	1.75	0.0	0.31	0.13	0.0	C.00	0.00	0.0	0.04	0.C2	C.0	0.96	C.40
TCTAL	0.0	4.22	1.75	0.0	0.31	0.13	0.0	C.00	0.00	0.0	0.04	0.02	0.0	0.96	0.40
CCNTINENTCAN	GRID 71	HC 2991	VC 41307												
4	15.90	15.9C	15.90	1.15	1.15	1.15	0.01	C.01	0.01	0.15	0.15	0.15	3.60	3.60	3.60
5	0.C	0.0	C.0	0.45	0.45	0.45	0.0	C.0	0.0	0.0	0.0	0.0	0.0	C.0	0.0
TOTAL	15.90	15.90	15.90	1.60	1.60	1.60	C.01	C.01	0.01	C.15	0.15	0.15	3.60	3.60	3.60
FIRESYNTHFIB	GRID 71	HC 2972	VC 41300												
4	2.61	2.61	2.61	0.13	0.13	0.13	0.00	C.00	0.00	0.02	0.02	0.02	0.39	0.39	0.39
5	0.0	0.C	0.0	0.01	0.C1	0.C1	0.01	0.01	0.01	0.00	0.00	0.00	0.0	C.0	0.0
TOTAL	2.61	2.61	2.61	0.13	0.13	0.13	0.01	C.01	0.C1	C.02	C.C2	0.02	0.39	0.39	0.39
ALIDCHEMPLAS	GRID 71	HC 2979	VC 41303												
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	C.01
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.0C	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
SCUTHPTLDALE	GRID 76	HC 2771	VC 41198												
5	0.0	0.0	0.0	0.19	0.19	0.19	0.0	C.0	0.0	0.0	0.0	0.0	0.0	0.0	C.0
TOTAL	0.0	0.C	0.0	0.19	C.19	0.19	0.C	0.0	0.0	0.0	C.0	0.0	0.0	0.0	0.0
ROYWDAVIS	GRID 76	HC 2708	VC 41207												

5	0.00	0.00	0.00	0.30	0.30	0.30	1.95	1.95	1.95	0.16	0.16	0.16	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.30	0.30	0.30	1.95	1.95	1.95	0.16	0.16	0.16	0.01	0.01	0.01
COLHGHT DUMP	GRID	78	HC	2882	VC	41260									
9	0.02	0.02	0.02	0.26	0.26	0.26	1.37	1.37	1.37	0.48	0.48	0.48	0.10	0.10	0.10
TOTAL	0.02	0.02	0.02	0.26	0.26	0.26	1.37	1.37	1.37	0.48	0.48	0.48	0.10	0.10	0.10
HERCULES	GRID	80	HC	2980	VC	41290									
4	11.57	11.57	11.57	16.49	16.49	16.49	0.28	0.28	0.28	0.20	0.20	0.20	3.49	3.49	3.49
5	0.60	0.60	0.60	0.24	0.24	0.24	0.0	0.0	0.0	4.07	4.07	4.07	0.0	0.0	0.0
TOTAL	12.17	12.17	12.17	16.73	16.73	16.73	0.28	0.28	0.28	4.27	4.27	4.27	3.49	3.49	3.49
CNTRLHOSPTAL	GRID	81	HC	2825	VC	41210									
4	0.0	1.24	0.52	0.0	0.43	0.18	0.0	0.07	0.03	0.0	0.04	0.02	0.0	0.55	0.23
TOTAL	0.0	1.24	0.52	0.0	0.43	0.18	0.0	0.07	0.03	0.0	0.04	0.02	0.0	0.55	0.23
PETERSBRGDMP	GRID	82	HC	2881	VC	41232									
9	0.04	0.04	0.04	0.61	0.61	0.61	3.25	3.25	3.25	1.15	1.15	1.15	0.23	0.23	0.23
TOTAL	0.04	0.04	0.04	0.61	0.61	0.61	3.25	3.25	3.25	1.15	1.15	1.15	0.23	0.23	0.23
SEWARDLUGGAG	GRID	84	HC	2860	VC	41222									
4	0.0	0.07	0.03	0.0	0.04	0.01	0.0	0.16	0.07	0.0	0.04	0.01	0.0	0.01	0.00
5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
TOTAL	0.0	0.07	0.03	0.00	0.04	0.02	0.0	0.16	0.07	0.0	0.04	0.01	0.00	0.01	0.00

BROWNWILLTOB GRID 84 HC 2862 VC 41222

4	0.0	0.63	0.26	0.0	0.10	0.04	0.0	0.00	0.00	0.0	0.03	0.01	0.0	0.35	0.14
TOTAL	0.0	0.63	0.26	0.0	0.10	0.04	0.0	0.00	0.00	0.0	0.03	0.01	0.0	0.35	0.14

FORT LEE GRID 86 HC 2928 VC 41234

4	0.0	1.45	0.60	0.0	0.56	0.23	0.0	0.03	0.01	0.0	0.03	0.01	0.0	1.14	0.47
8	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.74	0.74	0.74	0.0	0.0	0.0
TOTAL	0.0	1.45	0.60	0.00	0.57	0.24	0.0	0.03	0.01	0.74	0.78	0.76	0 00	1.14	0.47

EJWILLIAMSNS GRID 87 HC 2970 VC 41214

5	0.0	0.0	0.0	0.00	0.00	0.00	0.03	0.03	0.03	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.03	0.03	0.03	0.0	0.0	0.0	0.0	0.0	0.0

RICHARDBLAND GRID 89 HC 2872 VC 41148

4	0.0	0.05	0.02	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
TOTAL	0.0	0.05	0.02	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01

BRENCOINC GRID 90 HC 2910 VC 41190

4	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.25	0.25	0.25	2.17	2.17	2.17	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.01	0.01	0.01	0.25	0.25	0.25	2.17	2.17	2.17	0.00	0.00	0.00	0.02	0.02	0.02

MASONITECORP GRID 97 HC 3141 VC 41098

4	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.05	0.05	0.05
5	0.00	0.00	0.00	0.40	0.40	0.40	2.62	2.62	2.62	0.22	0.22	0.22	0.02	0.02	0.02
TOTAL	0.01	0.01	0.01	0.41	0.41	0.41	2.62	2.62	2.62	0.23	0.23	0.23	0.07	0.07	0.07
SOUTHJOHNMAN	GRID 100		HC 2785		VC 40774										
4	0.73	1.48	1.04	0.15	0.30	0.21	0.04	0.08	0.05	0.02	0.04	0.03	0.29	0.58	0.41
5	0.0	0.0	0.0	0.02	0.02	0.02	0.06	0.06	0.06	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.73	1.48	1.04	0.17	0.33	0.23	0.10	0.14	0.12	0.02	0.04	0.03	0.29	0.58	0.41
BELDHAUSFABV	GRID 104		HC 2718		VC 40643										
4	0.0	0.16	0.07	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
TOTAL	0.0	0.16	0.07	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
EMPORIAFOUND	GRID 104		HC 2736		VC 40630										
5	0.0	0.0	0.0	0.14	0.14	0.14	1.19	1.19	1.19	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.14	0.14	0.14	1.19	1.19	1.19	0.0	0.0	0.0	0.0	0.0	0.0
VACYEFINISHG	GRID 104		HC 2712		VC 40649										
4	0.0	0.53	0.22	0.0	0.04	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.12	0.05
TOTAL	0.0	0.53	0.22	0.0	0.04	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.12	0.05
TREGOSTONECP	GRID 106		HC 2694		VC 40542										
5	0.0	0.0	0.0	0.27	0.27	0.27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.27	0.27	0.27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA, TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	1146.	2396.	534329.	64345.	55581.
OTHER	992.	5566.	64350.	15367.	3589.
SUB-TOTAL	2138.	7962.	598679.	79711.	59170.
COMBUSTION OF FUELS					
INDUSTRY	4650.	838.	5685.	1792.	102256.
STEAM-ELECTRIC	63023.	6876.	406.	758.	20450.
RESIDENTIAL	3012.	960.	1929.	502.	1066.
COMM AND INST.	15132.	1343.	198.	209.	3780.
SUB-TOTAL	85817.	10017.	8222.	3261.	127552.
REFUSE DISPOSAL					
INCINERATION	267.	2565.	1471.	1122.	484.
OPEN BURNING	35.	523.	2793.	1026.	200.
SUB-TOTAL	301.	3088.	4264.	2149.	684.
PROCESS	1375.	33093.	439.	1390.	2666.
EVAP LOSSES				28026.	
GRAND TOTAL	89631.	54160.	611605.	114538.	190073.

COMBUSTION OF FUELS IN STATIONARY SOURCES
IN THE STUDY AREA
(TONS/YEAR)

FUEL	USER CATEGORY	SOX	PART	CO	HC	NOX
COAL						
	INDUSTRIAL	1011.	577.	5686.	1715.	101275.
	STEAM-ELECTRIC	13518.	5872.	401.	120.	7209.
	RESIDENTIAL	1214.	384.	1598.	320.	160.
	COMM AND INST	752.	222.	180.	54.	108.
	SUB-TOTAL	16496.	7055.	7865.	2209.	108752.
FUEL OIL						
	INDUSTRIAL	3638.	241.	2.	33.	787.
	STEAM-ELECTRIC	49504.	999.	5.	624.	13107.
	RESIDENTIAL	1795.	499.	249.	159.	598.
	COMM AND INST	14380.	1113.	10.	152.	3642.
	SUB-TOTAL	69318.	2852.	267.	958.	18135.
GAS						
	INDUSTRIAL	1.	20.	0.	44.	194.
	STEAM-ELECTRIC	0.	5.	0.	14.	134.
	RESIDENTIAL	2.	78.	82.	33.	308.
	COMM AND INST	0.	8.	8.	3.	30.
	SUB-TOTAL	4.	111.	91.	94.	666.
GRAND TOTAL		85817.	10017.	8222.	3261.	127553.

TRANSPORTATION SOURCES
TON/YR

	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	1146.	1862.	525193.	62846.	40676.
DIESEL	0.	534.	9136.	1499.	14905.
EVAP*				18333.	
SUB-TOTAL	1146.	2396.	534329.	82678.	55581.
AIRCRAFT					
JET	233.	835.	1902.	5710.	806.
PISTON	578.	999.	60503.	7877.	97.
TURBOPROP	181.	1086.	362.	543.	955.
SUB-TOTAL	992.	2919.	62767.	14130.	1858.
RAILROADS	0.	0.	0.	0.	0.
VESSELS	0.	2647.	1583.	1237.	1781.
GRAND-TOTAL	2138.	7962.	598679.	79711.	59170.

*EVAP NOT INCLUDED IN GRAND TOTAL

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	4606.
2. INDUSTRIAL SOLVENT EVAP	2917.
3. DRY CLEANING	2172.
4. OTHER	0.
5. AUTO	18332.
TOTAL	28027.

NUMBER OF FLIGHTS/YEAR*100

TYPE ENGINE	NUMBER OF ENGINES 1	2	3	4
NORFOLKREGNL				
TURBOJET		45.		0.
TURBOFAN				
MEDIUM-RANGE		15.	147.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	0.	41.		0.
PISTON				
LIGHT	276.	184.		
TRANSPORT		34.		80.
PATRICKHENRY				
TURBOJET		3.		0.
TURBOFAN				
MEDIUM-RANGE		0.	499.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	0.	26.		0.
PISTON				
LIGHT	520.	347.		
TRANSPORT		66.		152.
FT EUSTIS AP				
TURBOJET		0.		0.
TURBOFAN				
MEDIUM-RANGE		0.	0.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	867.	867.		0.
PISTON				
LIGHT	0.	0.		
TRANSPORT		0.		698.

NUMBER OF FLIGHTS/YEAR*1[illegible]

TYPE ENGINE	NUMBER OF ENGINES 1	2	3	4
LANGLEY NASA				
TURBOJET		0.		0.
TURBOFAN				
MEDIUM-RANGE		133.	0.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	0.	0.		221.
PISTON				
LIGHT	0.	0.		
TRANSPORT		0.		0.

AIR POLLUTANT EMISSIONS FROM
SOLID WASTE DISPOSAL
TONS/YEAR

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	168.	1567.	112.	168.	224.
ON-SITE	99.	998.	1359.	954.	261.
SUB-TOTAL	267.	2565.	1471.	1122.	484.
OPEN BURNING					
ON-SITE	33.	523.	2777.	98[illegible].	196.
DUMP	2.	0.	16.	46.	4.
SUB-TOTAL	35.	523.	2793.	1026.	200.
GRAND TOTAL	301.	3088.	4264.	2149.	684.

PROCESS LOSSES
TONS/YEAR

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
ASPHALTPLANT	6	ASPHALTROADS	0.	1748.	0.	0.	0.
ASPHALTPLANT	8	AMESANNWEBCO	0.	1825.	0.	0.	0.
ASPHALTPLANT	3	SHORTPAVING	0.	4343.	0.	0.	0.
ASPHALTPLANT	5	BASICCONSTRU	0.	3457.	0.	0.	0.
ASPHALTPLANT	11	PORTSMOTHPAV	0.	2471.	0.	0.	0.
ASPHALTPLANT	6	FINLEYPAVING	0.	3639.	0.	0.	0.
ASPHALTPLANT	6	CONTPAVING	0.	832.	0.	0.	0.
ASPHALTPLANT	1	BIRSCHASPHAL	0.	2077.	0.	0.	0.
ASPHALTPLANT	9	BASICCONSTRU	0.	82.	0.	0.	0.
ASPHALTPLANT	10	CLYDEWELSASP	0.	51.	0.	0.	0.
ASPHALTPLANT	9	EWMILERCONTR	0.	183.	0.	0.	0.
ASPHALTPLANT	8	BIRSCHCONCOM	0.	2190.	0.	0.	0.
LIGHTMANUFAC	11	ATCREASCTING	288.	52.	193.	193.	949.
ASPHALTPLANT	4	CLYDEPCYAL	0.	624.	0.	0.	0.
LIGHTMANUFAC	7	INTERCOASTAL	0.	325.	0.	0.	5.
WOODWASTEBOL	11	NORVENERMILS	49.	401.	33.	40.	128.
CEMENTMANUFC	7	LONESTARCEM	0.	5621.	0.	0.	0.
STONEWORK	9	MICACOFCANAC	0.	4.	0.	0.	0.
SHIPBUILDING	8	NORFOLKSHIP	0.	405.	0.	0.	405.
LIGHTMANUFAC	8	OWENPATTERN	0.	0.	0.	0.	0.
ASPHALTPLANT	10	PENASPHALTRA	0.	58.	0.	0.	0.
ASPHALTPLANT	10	MAICADEVELCA	0.	4.	0.	0.	0.
FOODINDUSTRY	1	PLANTERSPEAN	0.	45.	135.	45.	11.
LIGHTMANUFAC	11	COLUMBIAYACH	0.	2.	0.	0.	0.
TEXTILES	8	DIXIENFOCO	0.	4.	5.	4.	0.
WOODPRODCTTP	7	SOUTHLANDCOR	0.	250.	0.	0.	0.
TEXTILES	4	SYNTHETEX	0.	0.	2.	1.	0.
CHEMICALS	11	STARBAND	0.	0.	0.	0.	0.
FERTILIZER	7	SOUTHERNSTAT	0.	65.	0.	0.	0.
WOODWASTEBOL	4	SHELDONLUCOM	78.	704.	52.	52.	261.
WOODPRODCTTP	1	WHSHEFIELDLV	4.	44.	3.	3.	16.
FERTILIZER	7	WEAVERFERTIL	0.	332.	0.	0.	584.
WOODWASTEBOL	4	SHELDONWOOD	0.	1.	0.	0.	1.
WOODPRODCTTP	1	KIRKLUMBERCO	1.	8.	1.	1.	4.
WOODWASTEBOL	11	GAPACIFICPAP	21.	182.	14.	18.	79.
IRONFOUNDRY	8	RICHARDFOUND	0.	200.	0.	0.	0.
LIGHTMANUFAC	8	COLONIALBLOC	0.	2.	0.	0.	0.
AUTOMANUFACT	8	FORDMOTORCO	0.	8.	0.	1033.	0.
FERTILIZER	1	SWIFTAGCHEMB	0.	5.	0.	0.	51.
FERTILIZER	7	SWIFTAGCHEMA	441.	529.	0.	0.	0.
LIGHTMANUFAC	3	MAICADEVELCP	0.	10.	0.	0.	0.
FERTILIZER	7	ROYSTERCOMPB	540.	219.	0.	0.	140.
TOTAL			1375.	33093.	439.	1390.	2666.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN NANSEMOND COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	48.	101.	19489.	2419.	2340.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	48.	101.	19489.	2419.	2340.
COMBUSTION OF FUELS					
INDUSTRY	967.	214.	76.	35.	1198.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	202.	59.	106.	29.	58.
COMM AND INST	95.	7.	0.	1.	22.
SUB-TOTAL	1264.	280.	182.	65.	1278.
REFUSE DISPOSAL					
INCINERATION	10.	95.	127.	92.	14.
OPEN BURNING	5.	79.	422.	150.	30.
SUB/TOTAL	15.	174.	548.	241.	44.
PROCESS	5.	2178.	139.	49.	123.
EVAP LOSSES				1132.	
GRAND TOTAL	1332.	2733.	20359.	3906.	3785.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ISLEOFWIGHT COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	20.	41.	6799.	875.	952.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	20.	41.	6799.	875.	952.
COMBUSTION OF FUELS					
INDUSTRY	0.	0.	0.	0.	0.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	72.	21.	27.	9.	22.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	73.	21.	27.	9.	22.
REFUSE DISPOSAL					
INCINERATION	5.	48.	65.	48.	6.
OPEN BURNING	3.	54.	285.	101.	20.
SUB/TOTAL	8.	102.	350.	149.	27.
PROCESS	0.	0.	0.	0.	0.
EVAP LOSSES				429.	
GRAND TOTAL	100.	164.	7176.	1462.	1001.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN SOUTHAMPTON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	26.	54.	8555.	1116.	1259.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	26.	54.	8555.	1116.	1259.
COMBUSTION OF FUELS					
INDUSTRY	81.	5.	2.	1.	42.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	78.	22.	33.	10.	22.
COMM AND INST	74.	20.	15.	5.	9.
SUB-TOTAL	233.	47.	50.	16.	73.
REFUSE DISPOSAL					
INCINERATION	6.	59.	78.	59.	8.
OPEN BURNING	3.	54.	285.	101.	20.
SUB/TOTAL	9.	112.	363.	159.	28.
PROCESS	0.	4444.	0.	0.	0.
EVAP LOSSES				597.	
GRAND TOTAL	268.	4657.	8968.	1888.	1361.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN JAMESCITY COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	27.	57.	12081.	1468.	1312.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	27.	57.	12081.	1468.	1312.
COMBUSTION OF FUELS					
INDUSTRY	1918.	111.	1.	14.	348.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	53.	16.	19.	6.	19.
COMM AND INST	585.	80.	45.	16.	94.
SUB-TOTAL	2556.	207.	65.	37.	461.
REFUSE DISPOSAL					
INCINERATION	7.	71.	95.	71.	9.
OPEN BURNING	6.	66.	366.	166.	28.
SUB/TOTAL	13.	137.	461.	237.	38.
PROCESS	78.	1330.	55.	53.	261.
EVAP LOSSES				1200.	
GRAND TOTAL	2674.	1731.	12662.	2995.	2072.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN YORK COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	31.	63.	12880.	1582.	1453.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	31.	63.	12880.	1582.	1453.
COMBUSTION OF FUELS					
INDUSTRY	59.	3.	0.	0.	11.
STEAM-ELEC	11864.	5389.	338.	116.	6239.
RESIDENTIAL	309.	95.	319.	68.	56.
COMM AND INST	494.	68.	25.	13.	150.
SUB-TOTAL	12726.	5555.	682.	198.	6455.
REFUSE DISPOSAL					
INCINERATION	9.	90.	120.	90.	12.
OPEN BURNING	5.	84.	447.	158.	32.
SUB/TOTAL	14.	174.	567.	248.	44.
PROCESS	0.	3457.	0.	0.	0.
EVAP LOSSES				677.	
GRAND TOTAL	12771.	9248.	14129.	2705.	7951.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN VIRGINIABEACH COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	195.	409.	88005.	10674.	9487.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	195.	409.	88005.	10674.	9487.
COMBUSTION OF FUELS					
INDUSTRY	164.	13.	0.	2.	48.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	524.	151.	128.	53.	182.
COMM AND INST	907.	77.	1.	11.	264.
SUB-TOTAL	1595.	241.	129.	66.	494.
REFUSE DISPOSAL					
INCINERATION	6.	60.	80.	60.	8.
OPEN BURNING	1.	21.	114.	40.	8.
SUB-TOTAL	7.	82.	194.	100.	16.
PROCESS	0.	6220.	0.	0.	0.
EVAP LOSSES				4256.	
GRAND TOTAL	1797.	6952.	88329.	15097.	9997.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN CHESAPEAKE COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	228.	478.	108461.	13013.	11080.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	228.	478.	108461.	13013.	11080.
COMBUSTION OF FUELS					
INDUSTRY	653.	371.	5592.	1722.	100362.
STEAM-ELEC	49489.	996.	5.	623.	13072.
RESIDENTIAL	341.	106.	214.	55.	111.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	50483.	1473.	5811.	2400.	113546.
REFUSE DISPOSAL					
INCINERATION	9.	90.	120.	90.	12.
OPEN BURNING	2.	32.	171.	64.	12.
SUB/TOTAL	11.	122.	291.	154.	24.
PROCESS	942.	7341.	0.	0.	729.
EVAP LOSSES				6560.	
GRAND TOTAL	51664.	9413.	114563.	22127.	125380.

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SUMMARY OF AIR POLLUTANT EMISSIONS
IN NORFOLK COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	291.	607.	152334.	17935.	14082.
OTHER	163.	2989.	8341.	3333.	2003.
SUB-TOTAL	454.	3596.	160675.	21267.	16085.
COMBUSTION OF FUELS					
INDUSTRY	498.	55.	15.	11.	148.
STEAM-ELEC	1670.	491.	63.	19.	1139.
RESIDENTIAL	637.	196.	575.	128.	145.
COMM AND INST	6243.	466.	9.	62.	1461.
SUB-TOTAL	9048.	1208.	662.	222.	2894.
REFUSE DISPOSAL					
INCINERATION	95.	915.	329.	224.	255.
OPEN BURNING	2.	26.	141.	50.	10.
SUB/TOTAL	97.	941.	470.	274.	265.
PROCESS	0.	4634.	5.	1037.	406.
EVAP LOSSES				6453.	
GRAND TOTAL	9598.	10380.	161812.	29252.	19649.

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SUMMARY OF AIR POLLUTANT EMISSIONS
IN NEWPORTNEWS COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	139.	290.	54271.	6786.	6730.
OTHER	758.	2218.	55708.	11237.	1271.
SUB-TOTAL	896.	2508.	109979.	18022.	8002.
COMBUSTION OF FUELS					
INDUSTRY	112.	11.	0.	2.	39.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	339.	119.	213.	59.	166.
COMM AND INST	689.	146.	90.	33.	200.
SUB-TOTAL	1141.	275.	304.	94.	405.
REFUSE DISPOSAL					
INCINERATION	53.	490.	35.	53.	70.
OPEN BURNING	0.	0.	0.	0.	0.
SUB/TOTAL	53.	490.	35.	53.	70.
PROCESS	0.	268.	0.	0.	0.
EVAP LOSSES				3291.	
GRAND TOTAL	2089.	3542.	110317.	21460.	8477.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN HAMPTON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	68.	142.	32582.	3901.	3292.
OTHER	71.	358.	301.	798.	314.
SUB-TOTAL	139.	500.	32884.	4698.	3606.
COMBUSTION OF FUELS					
INDUSTRY	9.	3.	0.	1.	13.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	270.	100.	190.	51.	149.
COMM AND INST	2321.	203.	2.	29.	706.
SUB-TOTAL	2600.	305.	192.	81.	868.
REFUSE DISPOSAL					
INCINERATION	24.	242.	323.	242.	32.
OPEN BURNING	5.	86.	458.	162.	32.
SUB/TOTAL	30.	328.	781.	404.	65.
PROCESS	0.	113.	0.	0.	0.
EVAP LOSSES				1603.	
GRAND TOTAL	2768.	1247.	33656.	6787.	4539.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN PORTSMOUTH COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	74.	155.	38870.	4576.	3593.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	74.	155.	38870.	4576.	3593.
COMBUSTION OF FUELS					
INDUSTRY	190.	53.	3.	3.	48.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	187.	75.	106.	33.	136.
COMM AND INST	3724.	277.	10.	38.	874.
SUB-TOTAL	4101.	405.	119.	74.	1057.
REFUSE DISPOSAL					
INCINERATION	43.	405.	99.	93.	57.
OPEN BURNING	1.	20.	104.	37.	7.
SUB/TOTAL	44.	425.	202.	129.	65.
PROCESS	350.	3109.	241.	251.	1147.
EVAP LOSSES				1827.	
GRAND TOTAL	4569.	4093.	39432.	6858.	5862.

AREA SCURCE EMISSICNS
TONS/DAY

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
1	100.0	3350	41450	0.02	0.04	0.02	0.05	0.06	0.05	4.95	4.07	4.51	0.93	0.78	0.85	0.72	0.60	0.66
2	100.0	3450	41450	0.00	0.04	0.01	0.03	0.04	0.03	0.29	0.27	0.28	0.11	0.11	0.11	0.04	0.04	0.04
3	100.0	3350	41350	0.01	0.05	0.02	0.04	0.06	0.05	0.54	0.48	0.51	0.18	0.17	0.17	0.07	0.08	0.07
4	100.0	3450	41350	0.05	0.37	0.15	0.16	0.25	0.19	12.53	10.62	11.52	2.41	2.08	2.23	1.83	1.56	1.68
5	100.0	3551	41350	0.01	0.40	0.13	0.08	[illegible]	0.11	0.31	0.70	0.43	0.20	0.28	0.23	0.03	0.10	0.05
6	100.0	3350	41250	0.00	0.04	0.01	0.03	0.04	0.03	0.74	0.63	0.68	0.17	0.16	0.16	0.07	0.07	0.07
7	25.0	3425	41275	0.00	0.01	0.01	0.01	0.01	0.01	0.14	0.13	0.13	0.04	0.04	0.04	0.01	0.02	0.01
8	6.0	3462	41287	0.00	0.05	0.02	0.02	0.03	0.02	1.76	1.50	1.62	0.20	0.25	0.27	0.16	0.14	0.15
9	6.0	3487	41287	0.00	0.05	0.02	0.01	0.03	0.02	1.00	0.87	0.92	0.16	0.15	0.16	0.09	0.08	0.09
10	25.0	3525	41275	0.03	0.23	0.09	0.10	0.15	0.11	14.04	11.72	12.84	2.17	1.84	2.00	1.30	1.10	1.19
11	25.0	3575	41275	0.01	0.10	0.04	0.04	0.06	0.04	5.23	4.38	4.79	0.81	0.69	0.75	0.48	0.41	0.44
12	6.0	3462	41262	0.00	0.04	0.02	0.03	0.04	0.04	0.64	0.56	0.60	0.16	0.15	0.15	0.06	0.06	0.06
13	6.0	3497	41262	0.02	0.10	0.05	0.10	0.12	0.11	7.56	6.25	6.90	1.27	1.08	1.17	0.70	0.60	0.64
14	25.0	3425	41225	0.00	0.02	0.01	0.02	0.02	0.02	1.66	1.37	1.51	0.27	0.23	0.25	0.15	0.13	0.14
15	6.0	3462	41237	0.01	0.03	0.01	0.03	0.03	0.03	2.32	1.91	2.11	0.38	0.32	0.35	0.21	0.18	0.20
16	6.0	3487	41237	0.01	0.04	0.02	0.03	0.04	0.04	2.66	2.20	2.43	0.44	0.38	0.41	0.25	0.21	0.23
17	25.0	3525	41225	0.01	0.11	0.05	0.05	0.07	0.06	6.43	5.38	5.89	1.00	0.85	0.92	0.59	0.51	0.55
18	25.0	3575	41225	0.01	0.17	0.06	0.03	0.05	0.05	1.60	1.48	1.51	0.32	0.31	0.31	0.15	0.16	0.15
19	25.0	3625	41225	0.01	0.13	0.05	0.03	0.07	0.04	2.88	2.50	2.66	0.47	0.42	0.44	0.26	0.24	0.25
20	6.0	3462	41212	0.00	0.00	[illegible]	0.00	0.00	0.00	0.23	0.19	0.21	0.04	0.03	0.04	0.02	0.02	0.02
21	6.0	3487	41212	0.00	0.01	0.00	0.01	0.01	0.01	0.87	0.72	0.79	0.14	0.11	0.12	0.08	0.07	0.07
22	100.0	3550	41150	0.02	0.54	0.18	0.05	0.23	0.11	4.21	3.78	3.94	1.20	1.15	1.16	0.62	0.75	0.64

				SOX			PART			CO			HC			NOX		
GRID	AREA SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
23	100.0	3650	41150	66.01	66.51	65.27	30.19	30.32	29.82	33.26	28.03	30.54	6.53	5.61	6.04	39.27	38.58	38.42
24	100.0	3750	41150	0.01	0.39	0.13	0.08	0.19	0.12	2.59	2.54	2.50	0.59	0.60	0.58	0.37	0.37	0.36
25	25.0	3525	41175	0.00	0.01	0.00	0.00	0.01	0.01	0.23	0.19	0.21	0.04	0.04	0.04	0.02	0.02	0.02
26	25.0	3575	41075	0.00	0.11	0.04	0.00	0.04	0.01	0.22	0.24	0.22	0.12	0.13	0.12	0.02	0.07	0.04
27	100.0	3650	41050	0.17	0.91	0.40	0.36	0.55	0.41	55.57	45.96	50.68	10.38	8.72	9.53	7.95	6.83	7.33
28	100.0	3750	41050	0.11	0.94	0.37	0.41	0.66	0.48	29.66	25.08	27.24	5.86	5.09	5.44	4.25	3.79	3.97
29	100.0	3850	41050	0.02	0.50	0.17	0.17	0.33	0.22	0.95	1.23	1.02	0.54	0.62	0.56	0.12	0.31	0.18
30	25.0	3525	41025	0.00	0.02	0.01	0.01	0.01	0.01	0.78	0.65	0.71	0.13	0.11	0.12	0.07	0.06	0.07
31	400.0	3300	40900	0.02	0.12	0.05	0.08	0.10	0.09	5.64	4.68	5.15	1.11	0.94	1.02	0.82	0.72	0.76
32	400.0	3500	40900	0.04	0.32	0.13	0.19	0.26	0.21	9.85	8.24	9.03	2.02	1.75	1.88	1.43	1.27	1.34
33	6.0	3687	40987	0.02	0.16	0.06	0.03	0.07	0.04	7.65	6.35	6.98	1.24	1.06	1.15	0.71	0.64	0.66
34	25.0	3725	40975	0.12	0.71	0.30	0.28	0.45	0.33	56.18	46.38	51.21	8.83	7.42	8.11	5.20	4.54	4.82
35	6.0	3762	40987	0.02	0.08	0.04	0.06	0.08	0.07	8.9[illegible]	7.34	8.11	1.39	1.16	1.27	0.82	0.71	0.76
36	6.0	3787	40987	0.02	0.22	0.08	0.11	0.17	0.13	6.87	5.80	6.31	1.21	1.07	1.13	0.64	0.63	0.61
37	6.0	3812	40987	0.08	0.28	0.14	0.23	0.28	0.24	37.81	31.12	34.44	5.81	4.83	5.31	3.50	2.97	3.21
38	6.0	3837	40987	0.01	0.22	0.08	0.08	0.16	0.11	0.31	0.43	0.34	0.25	0.29	0.26	0.03	0.14	0.06
39	6.0	3762	40962	0.02	0.19	0.07	0.09	0.15	0.11	4.48	3.82	4.13	0.84	0.76	0.79	0.42	0.43	0.41
40	6.0	3787	40962	0.02	0.36	0.13	0.15	0.27	0.18	2.27	2.16	2.17	0.67	0.68	0.66	0.21	0.36	0.25
41	6.0	3812	40962	0.01	0.08	0.03	0.04	0.06	0.04	1.47	1.27	1.36	0.29	0.27	0.28	0.14	0.15	0.14
42	6.0	3837	40962	0.00	0.08	0.03	0.03	0.06	0.04	0.07	0.12	0.08	0.08	0.09	0.08	0.01	0.04	0.02
43	25.0	3625	40962	0.00	0.02	0.01	0.01	0.02	0.01	1.21	1.30	1.10	0.19	0.16	0.18	0.11	0.10	0.10
44	6.0	3712	40937	0.02	0.25	0.09	0.03	0.10	0.05	7.65	6.40	7.00	1.31	1.15	1.22	0.71	0.68	0.68
45	6.0	3737	40937	0.02	0.25	0.09	0.04	0.11	0.06	8.51	7.11	7.79	1.44	1.25	1.34	0.79	0.75	0.75

				SOX			PART			CO			HC			NOX		
GRID	AREA SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
46	6.0	3762	40937	0.01	0.04	0.02	0.03	0.04	0.03	6.70	5.51	6.10	1.03	0.85	0.94	0.62	0.53	0.57
47	6.0	3662	40912	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.45	0.50	0.08	0.07	0.08	0.05	0.04	0.05
48	6.0	3737	40912	0.00	0.08	0.03	0.03	0.05	0.02	0.11	0.22	0.14	0.20	0.22	0.20	0.01	0.11	0.05
49	6.0	3812	40912	0.00	0.02	0.01	0.03	0.03	0.03	0.13	0.12	0.12	0.05	0.05	0.05	0.03	0.03	0.03
50	6.0	3862	40912	0.01	0.04	0.02	0.07	0.07	0.07	7.25	5.96	6.60	1.11	0.92	1.02	0.69	0.58	0.63
51	6.0	3862	40912	0.03	0.08	0.04	0.14	0.15	0.14	12.88	10.61	11.74	2.00	1.67	1.83	1.24	1.04	1.14
52	6.0	3887	40912	0.00	0.04	0.01	0.05	0.06	0.06	0.57	0.51	0.53	0.14	0.13	0.13	0.08	0.08	0.08
53	100.0	3650	40850	0.02	0.16	0.06	0.07	0.11	0.08	3.88	3.28	3.57	0.80	0.70	0.75	0.69	0.73	0.68
54	6.0	3812	40887	0.01	0.08	0.03	0.12	0.14	0.12	5.35	4.45	4.89	0.89	0.77	0.83	0.55	0.48	0.51
55	6.0	3837	40887	0.02	0.27	0.10	0.39	0.46	0.41	10.80	9.10	9.91	1.97	1.73	1.84	1.20	1.08	1.13
56	6.0	3862	40887	0.02	0.12	0.05	0.19	0.21	0.20	11.95	9.89	10.90	1.92	1.62	1.77	1.19	1.01	1.10
57	6.0	3887	40887	0.03	0.31	0.12	0.46	0.54	0.48	14.17	11.91	12.99	2.52	2.21	2.35	1.55	1.38	1.45
58	6.0	3912	40887	0.02	0.12	0.05	0.18	0.20	0.18	8.72	7.24	7.96	1.44	1.23	1.33	0.89	0.77	0.82
59	6.0	3937	40887	0.00	0.04	0.01	0.05	0.06	0.06	0.79	0.68	0.73	0.17	0.15	0.16	0.10	0.10	0.10
60	25.0	3975	40875	0.01	0.26	0.09	0.03	0.10	0.05	4.02	3.35	3.68	0.78	0.70	0.74	0.37	0.39	0.37
61	25.0	4025	40875	0.03	0.15	0.07	0.06	0.09	0.07	13.38	10.98	12.17	2.08	1.73	1.90	1.24	1.06	1.14
62	25.0	4075	40875	0.01	0.13	0.05	0.03	0.06	0.04	5.73	4.72	5.22	0.93	0.79	0.86	0.53	0.47	0.49
63	6.0	3812	40862	0.00	0.04	0.02	0.06	0.07	0.06	1.65	1.39	1.52	0.30	0.26	0.28	0.18	0.17	0.17
64	6.0	3837	40862	0.04	0.36	0.14	0.53	0.62	0.56	17.34	14.55	15.89	3.06	2.66	2.85	1.88	1.67	1.76
65	6.0	3862	40862	0.07	0.28	0.13	0.45	0.49	0.46	33.51	27.66	30.55	5.29	4.44	4.86	3.28	2.77	3.02
66	6.0	3887	40862	0.06	0.30	0.13	0.47	0.52	0.48	30.84	25.50	28.13	4.93	4.16	4.54	3.06	2.60	2.82
67	6.0	3912	40862	0.02	0.24	0.09	0.34	0.40	0.36	8.93	7.54	8.20	1.64	1.45	1.54	1.00	0.91	0.95
68	6.0	3937	40862	0.02	0.13	0.06	0.18	0.21	0.19	11.73	9.70	10.70	1.89	1.59	1.74	1.16	0.99	1.07

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
69	6.0	4112	40862	0.00	0.07	0.02	0.00	0.02	0.01	0.22	0.20	0.21	0.08	0.08	0.08	0.02	0.04	0.03
70	25.0	3725	40825	0.01	0.08	0.03	0.04	0.05	0.04	5.44	4.79	5.05	0.86	0.81	0.82	0.56	5.80	2.21
71	6.0	3762	40837	0.00	0.05	0.02	0.01	0.02	0.01	0.55	1.19	0.74	0.13	0.34	0.19	0.05	12.92	4.14
72	6.0	3787	40837	0.00	0.03	0.01	0.00	0.01	0.01	0.11	0.53	0.24	0.05	0.17	0.09	0.01	7.61	2.43
73	6.0	3812	40837	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.09	0.10	0.02	0.01	0.01	0.01	0.01	0.01
74	6.0	3837	40837	0.03	0.21	0.09	0.32	0.36	0.33	15.15	12.60	13.84	2.51	2.15	2.32	1.55	1.34	1.44
75	6.0	3862	40837	0.04	0.21	0.09	0.33	0.37	0.34	21.82	18.04	19.91	3.49	2.94	3.21	2.16	1.84	1.99
76	6.0	3897	40837	0.08	0.33	0.15	0.52	0.58	0.53	[illegible]	33.02	36.47	6.31	5.29	5.79	3.91	3.30	3.60
77	25.0	3925	40825	0.19	0.62	0.32	0.88	0.96	0.89	95.83	78.82	87.26	14.80	12.31	13.54	9.15	7.66	8.39
78	25.0	3975	40825	0.07	0.49	0.20	0.15	0.25	0.18	32.17	26.43	29.28	5.09	4.27	4.67	2.98	2.58	2.75
79	25.0	4025	40825	0.01	0.22	0.08	0.02	0.08	0.04	2.29	1.93	2.10	0.50	0.46	0.47	0.21	0.25	0.22
80	25.0	4075	40825	0.01	0.18	0.07	0.03	0.08	0.05	5.84	4.82	5.32	0.99	0.85	0.92	0.54	0.50	0.51
81	6.0	4112	40837	0.01	0.07	0.03	0.03	0.04	0.03	5.83	4.78	5.30	0.91	0.76	0.83	0.54	0.46	0.50
82	6.0	3762	40812	0.01	0.06	0.03	0.03	0.04	0.03	6.05	5.69	5.73	0.95	1.00	0.93	0.56	13.34	4.60
83	6.0	3787	40812	0.01	0.06	0.02	0.02	0.03	0.02	2.28	2.74	2.35	0.40	0.60	0.45	0.21	15.38	5.02
84	6.0	3812	40812	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	6.0	3837	40812	0.04	0.43	0.16	0.63	0.73	0.66	19.44	16.33	17.82	3.46	3.02	3.23	2.12	1.89	1.99
86	6.0	3862	40812	0.05	0.43	0.17	0.64	0.74	0.67	26.55	22.13	24.28	4.49	3.86	4.16	2.77	2.41	2.58
87	6.0	3887	40812	0.04	0.27	0.11	0.41	0.46	0.42	20.48	17.01	18.70	3.37	2.88	3.12	2.09	1.80	1.93
88	6.0	4112	40812	0.02	0.23	0.08	0.04	0.10	0.06	8.32	6.87	7.59	1.39	1.19	1.28	0.77	0.70	0.72
89	400.0	2900	40700	0.02	0.07	0.04	0.06	0.07	0.07	6.04	4.99	5.51	1.14	0.96	1.05	0.88	0.76	0.82
90	400.0	3100	40700	0.02	0.13	0.05	0.08	0.11	0.09	4.97	4.15	4.55	1.00	0.86	0.93	0.72	0.66	0.68
91	400.0	3300	40700	0.04	0.33	0.13	0.19	0.27	0.21	8.25	6.96	7.58	1.78	1.56	1.66	1.18	1.12	1.13

	AREA			SOX			PART			CO			HC			NOX		
GRID	SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
92	100.0	3450	40750	0.02	0.10	0.04	0.06	0.08	0.07	4.25	3.53	3.88	0.83	0.71	0.77	0.64	0.57	0.60
93	100.0	3550	40750	0.03	0.19	0.08	0.09	0.13	0.10	7.13	5.96	6.53	1.39	1.19	1.29	1.22	1.22	1.19
94	100.0	3657	40750	0.01	0.20	0.07	0.06	0.11	0.08	2.65	2.26	2.41	0.59	0.54	0.56	0.58	0.72	0.61
95	25.0	3725	40775	0.02	0.11	0.05	0.06	0.08	0.06	11.89	11.05	11.23	1.86	1.93	1.82	1.11	23.81	8.29
96	25.0	3762	40787	0.02	0.07	0.03	0.04	0.05	0.04	7.56	7.15	7.18	1.18	1.27	1.17	0.70	17.25	5.94
97	6.0	3787	40787	0.02	0.09	0.04	0.04	0.06	0.05	8.21	7.40	7.68	1.30	1.28	1.25	0.76	12.05	4.32
98	6.0	3812	40787	0.03	0.15	0.07	0.07	0.11	0.08	12.97	10.70	11.82	2.06	1.73	1.89	1.20	1.07	1.12
99	6.0	3837	40787	0.05	0.22	0.10	0.22	0.27	0.23	25.64	21.13	23.36	4.02	3.36	3.68	2.44	2.09	2.25
100	6.0	3862	40787	9.29	9.77	9.32	2.42	3.56	3.43	6.08	5.55	5.73	1.66	1.61	1.62	7.25	7.27	7.16
101	6.0	3887	40787	0.05	0.29	0.12	0.45	0.51	0.46	22.93	19.78	20.98	3.78	3.22	3.49	2.34	2.01	2.16
102	25.0	3925	40775	0.05	0.46	0.18	0.34	0.45	0.38	21.00	18.54	19.53	3.57	3.40	3.42	2.09	21.28	8.12
103	25.0	3975	40775	0.07	0.63	0.25	0.16	0.30	0.20	19.90	16.43	18.14	3.98	3.39	3.68	2.93	2.59	2.72
104	25.0	4025	40775	0.12	0.32	0.18	0.25	0.27	0.25	37.58	30.81	34.19	6.89	5.69	6.29	5.53	4.60	5.05
105	25.0	4075	40775	0.09	0.33	0.16	0.19	0.23	0.20	43.89	35.98	39.93	6.70	5.54	6.11	4.06	3.41	3.72
106	25.0	4125	40775	0.04	0.58	0.21	0.10	0.24	0.14	17.63	14.57	16.08	3.02	2.60	2.80	1.63	1.52	1.54
107	6.0	3762	40762	0.01	0.08	0.03	0.03	0.05	0.04	5.41	4.47	4.93	0.87	0.74	0.81	0.50	0.46	0.47
108	6.0	3787	40762	0.03	0.15	0.07	0.07	0.11	0.08	14.48	11.92	13.19	2.27	1.90	2.08	1.34	1.18	1.25
109	6.0	3812	40762	0.06	0.32	0.14	0.14	0.23	0.16	25.95	21.40	23.65	4.12	3.47	3.79	2.40	2.15	2.25
110	6.0	3837	40762	0.03	0.35	0.13	0.08	0.20	0.12	9.16	7.69	8.39	1.69	1.50	1.59	0.85	0.92	0.85
111	6.0	3862	40762	0.05	0.51	0.19	0.48	0.60	0.51	21.85	21.63	21.07	3.85	4.35	3.90	2.24	61.98	21.15
112	6.0	3887	40762	0.02	0.23	0.08	0.12	0.19	0.14	5.92	7.84	6.34	1.16	1.88	1.36	0.60	51.27	16.68
113	25.0	3725	40725	0.04	0.08	0.05	0.08	0.08	0.08	18.55	16.07	17.15	2.81	2.57	2.64	1.71	16.82	6.46
114	6.0	3762	40737	0.02	0.07	0.03	0.05	0.06	0.05	9.61	8.06	8.80	1.48	1.28	1.37	0.89	3.84	1.80

	AREA			SOX			PART			CO			HC			NOX		
GRID	SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
115	6.0	3787	40737	0.02	0.09	0.04	0.04	0.07	0.05	8.32	6.86	7.58	1.32	1.11	1.21	0.77	0.68	0.72
116	6.0	3812	40737	0.01	0.22	0.08	0.04	0.12	0.07	3.62	3.09	3.34	0.75	0.69	0.71	0.34	0.42	0.35
117	6.0	3837	40737	0.02	0.13	0.05	0.05	0.09	0.06	9.84	8.14	8.98	1.57	1.33	1.45	0.91	1.23	0.98
118	6.0	3862	40737	0.03	0.34	0.13	0.10	0.18	0.12	15.17	17.46	15.40	2.58	3.68	2.86	1.40	88.60	29.06
119	6.0	3887	40737	0.15	0.33	0.20	0.33	0.34	0.32	77.65	66.85	71.64	11.73	10.63	11.00	7.18	63.36	24.79
120	25.0	3925	40725	0.07	0.25	0.12	0.15	0.18	0.15	32.91	28.41	30.39	5.05	4.61	4.75	3.04	27.83	10.82
121	25.0	3975	40725	0.02	0.18	0.07	0.04	0.08	0.05	4.22	3.49	3.85	0.88	0.76	0.81	0.62	0.56	0.58
122	25.0	4025	40725	0.02	0.07	0.03	0.03	0.05	0.04	4.81	3.95	4.38	0.91	0.76	0.83	0.71	0.60	0.65
123	25.0	4075	40725	0.01	0.10	0.04	0.03	0.05	0.04	3.80	3.13	3.46	0.75	0.63	0.69	0.56	0.49	0.52
124	25.0	4125	40725	0.01	0.09	0.04	0.03	0.05	0.03	5.29	4.35	4.82	0.85	0.71	0.78	0.49	0.43	0.45
125	6.0	3762	40712	0.03	0.12	0.06	0.06	0.09	0.07	12.85	11.29	11.93	2.01	1.89	1.91	1.19	13.84	5.17
126	6.0	3787	40712	0.02	0.07	0.03	0.04	0.05	0.04	8.64	7.81	8.09	1.34	1.33	1.29	0.80	13.49	4.81
127	6.0	3812	40712	0.03	0.07	0.04	0.06	0.06	0.06	14.32	12.21	12.98	2.13	1.97	2.01	1.30	13.89	5.26
128	6.0	3837	40712	274.96	275.04	271.22	5.59	5.61	5.52	10.94	10.42	10.41	5.17	5.31	5.12	73.63	98.77	80.59
129	6.0	3862	40712	0.04	0.20	0.09	0.11	0.14	0.11	21.71	20.50	20.60	3.40	3.63	3.36	2.01	48.99	16.87
130	6.0	3887	40712	0.05	0.07	0.06	0.11	0.10	0.10	27.27	22.80	24.95	4.07	3.48	3.75	2.52	10.42	4.95
131	100.0	3450	40650	0.01	0.10	0.04	0.03	0.06	0.04	1.10	0.97	1.03	0.26	0.24	0.25	0.25	0.32	0.27
132	25.0	3525	40675	0.01	0.03	0.01	0.02	0.03	0.02	3.58	2.95	3.26	0.55	0.46	0.50	0.36	0.33	0.34
133	25.0	3575	40675	0.05	0.37	0.15	0.16	0.24	0.19	19.58	16.26	17.89	3.13	2.66	2.89	2.17	2.22	2.13
134	100.0	3650	40650	0.03	0.16	0.07	0.09	0.11	0.09	6.68	5.98	6.37	1.33	1.21	1.25	1.14	5.63	2.53
135	100.0	3750	40650	0.03	0.12	0.06	0.06	0.08	0.07	8.15	8.27	7.92	1.56	1.78	1.58	1.20	28.76	9.92
136	100.0	3850	40650	0.14	0.56	0.27	0.32	0.40	0.34	42.00	41.70	40.52	8.00	8.82	8.01	6.18	132.04	45.96
137	100.0	3950	40650	0.03	0.26	0.10	0.07	0.13	0.09	7.77	9.03	7.91	1.62	2.16	1.75	1.14	47.00	15.67

				SOX			PART			CO			HC			NOX		
GRID	AREA SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
138	100.0	4150	40650	0.01	0.11	0.04	0.03	0.05	0.03	3.46	3.07	3.23	0.70	0.66	0.66	0.51	4.18	1.66
139	100.0	4150	40650	0.00	0.10	0.03	0.01	0.03	0.02	0.55	0.48	0.51	0.17	0.16	0.16	0.08	0.10	0.08
140	25.0	3525	40625	0.00	0.03	0.01	0.01	0.02	0.01	0.78	0.65	0.71	0.13	0.12	0.12	0.10	0.12	0.10
141	25.0	3575	40625	0.01	0.07	0.03	0.03	0.05	0.03	3.18	2.65	2.91	0.52	0.44	0.48	0.36	0.39	0.36
142	400.0	2900	40500	0.01	0.06	0.02	0.03	0.04	0.03	0.89	0.77	0.83	0.21	0.20	0.20	0.13	0.14	0.13
143	400.0	3100	40500	0.01	0.10	0.04	0.06	0.08	0.07	3.31	2.77	3.03	0.68	0.59	0.63	0.48	0.45	0.45
144	400.0	3300	40500	0.03	0.29	0.11	0.13	0.20	0.15	4.80	4.13	4.44	1.09	0.99	1.03	0.86	1.00	0.88
145	400.0	3500	40500	0.03	0.32	0.12	0.11	0.19	0.14	5.14	4.43	4.75	1.12	1.01	1.06	1.08	1.29	1.12
146	400.0	3700	40500	0.01	0.15	0.05	0.05	0.10	0.06	1.61	3.12	2.04	0.47	0.95	0.62	0.35	30.27	9.85
147	400.0	3900	40500	0.00	0.12	0.04	0.03	0.09	0.05	0.28	4.87	1.73	0.36	1.73	0.79	0.04	80.46	25.59
148	400.0	4100	40500	0.00	0.01	0.00	0.01	0.02	0.01	0.22	0.21	0.21	0.14	0.14	0.14	0.03	0.07	0.04
TOTAL				354.16	378.74	357.06	56.68	63.34	58.03	1627.97	1399.61	1502.02	280.56	253.88	263.77	289.05	1131.09	549.59

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ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

HC = HORIZONTAL VC = VERTICAL -COORDINATE

POINT SOURCE EMISSIONS BY PLANT
TONS PER DAY

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
BASICCONSTRU GRID 4 HC 3449 VC 41337															
TYPE 4	0.0	0.51	0.16	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.09	0.03
TYPE 5	0.0	0.0	0.0	9.47	9.47	9.47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.51	0.16	9.47	9.50	9.48	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.09	0.03
CLYDEROYAL GRID 4 HC 3441 VC 41345															
TYPE 4	0.0	0.21	0.02	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 5	0.0	0.0	0.0	1.71	1.71	1.71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.21	0.02	1.71	1.71	1.71	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
SYNTHETEX GRID 4 HC 3408 VC 41382															
TYPE 4	0.00	0.07	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.00	0.07	0.02	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.02	0.01
SHELDONLUCCM GRID 4 HC 3411 VC 41382															
TYPE 5	0.21	0.21	0.21	1.93	1.93	1.93	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71
TOTAL	0.21	0.21	0.21	1.93	1.93	1.93	0.14	0.14	0.14	0.14	0.14	0.14	0.71	0.71	0.71
SHELDONWOOD GRID 4 HC 3400 VC 41384															
TYPE 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
DAILYPRESS GRID 34 HC 3759 VC 40975															
TYPE 4	0.0	1.92	0.61	0.0	0.50	0.16	0.0	0.39	0.12	0.0	0.12	0.04	0.0	0.23	0.07
TOTAL	0.0	1.92	0.61	0.0	0.51	0.16	0.0	0.39	0.12	0.0	0.12	0.04	0.0	0.24	0.07
NAVALSUPPLYB GRID 11 HC 3588 VC 41280															
TYPE 4	0.0	0.56	0.18	0.0	0.18	0.06	0.0	0.13	0.04	0.0	0.04	0.01	0.0	0.21	0.07
TOTAL	0.0	0.56	0.18	0.0	0.18	0.06	0.0	0.13	0.04	0.0	0.04	0.01	0.0	0.21	0.07
COLLGEWMMARY GRID 13 HC 3485 VC 41260															
TYPE 4	0.0	3.12	0.99	0.0	0.18	0.06	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.56	0.18
TOTAL	0.0	3.12	0.99	0.0	0.18	0.06	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.56	0.18
JAMESTNFOUND GRID 14 HC 3408 VC 41210															
TYPE 4	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.00
TOTAL	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.00
NAVALWEAPONS GRID 19 HC 3630 VC 41220															
TYPE 4	0.0	3.70	1.18	0.0	0.40	0.13	0.0	0.09	0.03	0.0	0.07	0.02	0.0	1.08	0.34
TOTAL	0.0	3.70	1.18	0.0	0.40	0.13	0.0	0.09	0.03	0.0	0.07	0.02	0.0	1.08	0.34
DOWBADISCHE GRID 22 HC 3575 VC 41174															
TYPE 4	4.86	6.01	5.23	0.28	0.35	0.30	0.06	0.09	0.06	0.04	0.05	0.04	0.88	1.09	0.95
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.04	0.04	0.04	0.11	0.11	0.11	0.01	0.01	0.01
TYPE 6	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	1.67	1.67	1.67	0.0	0.0	0.0

TOTAL	4.87	6.52	5.23	0.28	0.35	0.30	0.04	0.04	0.04	1.82	1.83	1.82	0.89	1.10	0.96

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
FTEUSTIS GRID 22 HC 3600 VC 41140															
TYPE 4	0.0	5.93	1.88	0.0	1.25	0.47	0.0	0.78	0.25	0.0	0.28	0.09	0.0	1.69	0.54
TOTAL	0.0	5.93	1.88	0.0	1.25	0.40	0.0	0.78	0.25	0.0	0.28	0.09	0.0	1.69	0.54
FT EUSTIS AP GRID 22 HC 3600 VC 41140															
TYPE 1	0.36	0.36	0.36	2.14	2.14	2.14	0.71	0.71	0.71	1.07	1.07	1.07	1.78	1.78	1.78
TYPE 1	0.76	0.76	0.76	1.91	1.91	1.91	115.89	115.89	115.89	15.30	15.30	15.30	0.15	0.15	0.15
TOTAL	1.12	1.12	1.12	4.05	4.05	4.05	116.60	116.60	116.60	16.37	16.37	16.37	1.93	1.93	1.93
NEWPORTINCIN GRID 27 HC 3668 VC 41072															
TYPE 7	0.14	0.14	0.14	1.34	1.34	1.34	0.10	0.10	0.10	0.14	0.14	0.14	0.19	0.19	0.19
TOTAL	0.14	0.14	0.14	1.34	1.34	1.34	0.10	0.10	0.10	0.14	0.14	0.14	0.19	0.19	0.19
VAASSCRECHCA GRID 27 HC 3682 VC 41070															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
BASICCONSTRU GRID 27 HC 3698 VC 41975															
TYPE 4	0.01	0.01	0.01	[illegible]	[illegible]	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	0.22	0.22	0.22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.01	0.01	0.01	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
CHNEWPORTCOL GRID 27 HC 3676 VC 41027															
TYPE 4	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
TOTAL	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
EWMILERCCNTR GRID 27 HC 3678 VC 41061															
TYPE 4	0.0	0.28	0.09	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
TYPE 5	0.0	0.0	0.0	0.50	0.50	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.28	0.09	0.50	0.52	0.51	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
PATRICKHENRY GRID 27 HC 3655 VC 41668															
TYPE 1	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00
TYPE 1	0.41	0.41	0.41	1.44	1.44	1.44	3.28	3.28	3.28	10.25	10.25	10.25	1.44	1.44	1.44
TYPE 1	0.01	0.01	0.01	0.04	0.04	0.04	0.01	0.01	0.01	0.02	0.02	0.02	0.04	0.04	0.04
TYPE 1	0.54	0.54	0.54	0.54	0.54	0.54	32.71	32.71	32.71	4.12	4.12	4.12	0.07	0.07	0.07
TOTAL	0.95	0.95	0.95	2.03	2.03	2.03	36.03	36.03	36.03	14.42	14.42	14.42	1.55	1.55	1.55
THONELSWCCMC GRID 28 HC 3733 VC 41029															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
LANGLEY NASA GRID 28 HC 3796 VC 41050															
TYPE 1	0.07	0.07	0.07	0.26	0.26	0.26	0.58	0.58	0.58	1.82	1.82	1.82	0.26	0.26	0.26
TYPE 1	0.12	0.12	0.12	0.73	0.73	0.73	0.24	0.24	0.24	0.36	0.36	0.36	0.61	0.61	0.61
TOTAL	0.19	0.19	0.19	0.98	0.98	0.98	0.83	0.83	0.83	2.19	2.19	2.19	0.86	0.86	0.86

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
LANGLEYNASA GRID 28 HC 3800 VC 41040															
TYPE 4	0.0	20.01	6.36	0.0	1.75	0.56	0.0	0.02	0.01	0.0	0.25	0.08	0.0	6.08	1.93
TOTAL	0.0	20.01	6.36	0.0	1.75	0.56	0.0	0.02	0.01	0.0	0.25	0.08	0.0	6.08	1.93
KIRKLUMBERCO GRID 32 HC 3541 VC 40804															
TYPE 5	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
DUXINCORPERA GRID 34 HC 3743 VC 40961															
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0
COATSANDCLAR GRID 34 HC 3722 VC 40962															
TYPE 4	0.00	0.09	0.03	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
TYPE 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0
TOTAL	0.00	0.09	0.03	0.06	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.04	0.01
DAILYPRESS GRID 34 HC 3759 VC 40975															
TYPE 4	0.0	[illegible]	[illegible]	0.0	[illegible]	[illegible]	0.0	0.00	0.00	0.0	0.00	0.00	0.0	[illegible]	0.00
TOTAL	0.0	1.92	0.61	0.0	0.51	0.16	0.0	0.39	0.12	0.0	0.12	0.04	0.0	0.24	0.07

		SOX			PART			CO			HC			NOX		
		S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
NAVALMARINE GRID 34 HC 3719 VC 40971																
TYPE	4	0.0	0.02	0.00	0.0	0.02	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL		0.0	0.02	0.00	0.0	0.02	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
HAMPTONPAINT GRID 36 HC 3790 VC 40988																
TYPE	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0
TOTAL		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0
CLYDEWELSASP GRID 36 HC 3797 VC 40995																
TYPE	4	0.0	0.04	0.01	0.0	0.02	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.07	0.02
TYPE	5	0.0	0.0	0.0	0.14	0.14	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.04	0.01	0.14	0.16	0.14	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.07	0.02
PENASPHALTPA GRID 39 HC 3766 VC 40968																
TYPE	4	0.0	0.03	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
TYPE	5	0.0	0.0	0.0	0.16	0.16	0.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.03	0.01	0.16	0.17	0.16	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
MAIDACEVELCA GRID 41 HC 3857 VC 40986																
TYPE	5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.00	0.00	0.01	0.01	0.01	0.0	0.00	0.00	0.07	0.07	0.07	0.0	0.00	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
SOUTHRNMATRH GRID 40 HC 3796 VC 40973															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HASRAYTELEDY GRID 41 HC 3800 VC 40971															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAIDADEVELCA GRID 41 HC 3827 VC 40986															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07	0.0	0.0	0.0
TOTAL	0.0	0.00	0.00	0.01	0.01	0.01	0.0	0.00	0.00	0.07	0.07	0.07	0.0	0.00	0.00
MAIDADEVELCB GRID 41 HC 3824 VC 40974															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.27	0.27	0.27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.00	0.00	0.27	0.27	0.27	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
COLUMBOPECOM GRID 45 HC 3725 VC 40932															
TYPE 4	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.00
TOTAL	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
ARKELSAFEBAG GRID 45 HC 3749 VC 40926															
TYPE 4	0.14	0.24	0.17	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.05
TOTAL	0.14	0.24	0.17	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.05
MICACOFCANAD GRID 48 HC 3740 VC 40922															
TYPE 4	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.62	0.62	0.62	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.62	0.62	0.62	0.01	0.02	0.01
ASHEVILEMICA GRID 49 HC 3735 VC 40918															
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
SEWELLSCCMPL GRID 50 HC 3840 VC 409[illegible]															
TYPE 4	0.0	41.99	13.34	0.0	3.14	1.00	0.0	0.07	0.02	0.0	0.42	0.13	0.0	9.83	3.12
TOTAL	0.0	41.99	13.34	0.0	3.14	1.00	0.0	0.07	0.02	0.0	0.42	0.13	0.0	9.83	3.12
NAVALSUPPLYA GRID 54 HC 3829 VC 40883															
TYPE 4	0.0	1.18	0.37	0.0	0.09	0.03	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.27	0.08
TOTAL	0.0	1.18	0.37	0.0	0.09	0.03	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.27	0.08

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
SFELERGLCBE GRID 55 HC 3825 VC 40882															
TYPE 4	0.05	0.19	0.09	0.01	0.05	0.03	0.01	0.06	0.03	0.00	0.02	0.01	0.01	0.03	0.02
TOTAL	0.05	0.19	0.09	0.01	0.05	0.03	0.01	0.06	0.03	0.00	0.02	0.01	0.01	0.03	0.02
NAVALAMPHBUS GRID 60 HC 3960 VC 40865															
TYPE 4	0.0	10.64	3.38	0.0	0.78	0.25	0.0	0.01	0.00	0.0	0.10	0.03	0.0	2.46	0.78
TOTAL	0.0	10.64	3.38	0.0	0.78	0.25	0.0	0.01	0.00	0.0	0.10	0.03	0.0	2.46	0.78
NORFOLKREGNL GRID 66 HC 3882 VC 40863															
TYPE 1	0.02	0.02	0.02	0.14	0.14	0.14	0.30	0.30	0.30	0.32	0.32	0.32	0.06	0.06	0.06
TYPE 1	0.13	0.13	0.13	0.45	0.45	0.45	1.03	1.03	1.03	3.23	3.23	3.23	0.45	0.45	0.45
TYPE 1	0.01	0.01	0.01	0.07	0.07	0.07	0.02	0.02	0.02	0.03	0.03	0.03	0.06	0.06	0.06
TYPE 1	0.28	0.28	0.28	0.28	0.28	0.28	17.16	17.16	17.16	2.16	2.16	2.16	0.04	0.04	0.04
TOTAL	0.45	0.45	0.45	0.94	0.94	0.94	18.51	18.51	18.51	5.74	5.74	5.74	0.61	0.61	0.61
FT STORY GRID 69 HC 4100 VC 40870															
TYPE 4	0.0	0.46	0.15	0.0	0.09	0.03	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.39	0.12
TOTAL	0.0	0.46	0.15	0.0	0.09	0.03	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.39	0.12
TIDEWTRCOMCL GRID 70 HC 3720 VC 40850															
TYPE 4	0.0	0.82	0.26	0.0	0.06	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.19	0.06
TOTAL	0.0	0.82	0.26	0.0	0.06	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.19	0.06

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
RICHARDFOUND GRID 111 HC 3864 VC 40769															
TYPE 5	0.0	0.0	0.0	0.55	0.55	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.55	0.55	0.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CAFCONCRETE GRID 111 HC 3850 VC 40772															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLONASSHIPY GRID 111 HC 3863 VC 40772															
TYPE 4	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
TOTAL	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
FCRDMCTORCO GRID 111 HC 4887 VC 40770															
TYPE 4	0.14	0.14	0.14	0.04	0.04	0.04	0.00	0.00	0.00	0.01	0.01	0.01	0.12	0.12	0.12
TYPE 8	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0	2.83	2.83	2.83	0.0	0.0	0.0
TOTAL	0.14	0.14	0.14	0.07	0.07	0.07	0.01	0.01	0.01	2.84	2.84	2.84	0.12	0.12	0.12
NCRECLKINCNC GRID 112 HC 3888 VC 40764															
TYPE 8	0.02	0.02	0.02	0.22	0.22	0.22	0.37	0.37	0.37	0.11	0.11	0.11	0.37	0.37	0.37
TOTAL	0.02	0.02	0.02	0.22	0.22	0.22	0.37	0.37	0.37	0.11	0.11	0.11	0.37	0.37	0.37

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
NCBFCLKINCIA GRID 74 HC 5828 VC 40826															
TYPE 7	0.16	0.16	0.16	1.49	1.49	1.49	0.11	0.11	0.11	0.16	0.16	0.16	0.21	0.21	0.21
TOTAL	0.16	0.16	0.16	1.49	1.49	1.49	0.11	0.11	0.11	0.16	0.16	0.16	0.21	0.21	0.21
VATRUCKCRNAM GRID 77 HC 3948 VC 40844															
TYPE 4	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
SOUTHRNMAIRE GRID 84 HC 3812 VC 40804															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HIGHSICECPEA GRID 85 HC 3828 VC 40922															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OWENPATTERN GRID 85 HC 3845 VC 40812															
TYPE 4	0.0	0.02	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.02	0.01	0.00	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
UNIONCARBIDE GRID 85 HC 3838 VC 40820															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
ATFURNMFGCO GRID 86 HC 2855 VC 40808															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BAKERSHETMET GRID 87 HC 3885 VC 40816															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GENFOAMANFLA GRID 87 HC 3892 VC 40802															
TYPE 4	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.01
TOTAL	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.01
ROYALSILVER GRID 87 HC 3888 VC 40822															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLONIALBLDG GRID 87 HC 3888 VC 40823															
TYPE 4	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	[illegible]	0.02	0.01	0.01	0.01	0.01	0.00	[illegible]	0.00	0.00	0.00	0.00	0.01	0.02	0.01

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
SHAMPINCOREM GRID 89 HC 2980 VC 40670															
TYPE 4	0.0	0.64	0.20	0.0	0.17	0.05	0.0	0.13	0.04	0.0	0.04	0.01	0.0	0.08	0.02
TOTAL	0.0	0.64	0.20	0.0	0.17	0.05	0.0	0.13	0.04	0.0	0.04	0.01	0.0	0.08	0.02
COLUMBIAYACH GRID 98 HC 3812 VC 40795															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.34	0.34	0.34	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.00	0.00	0.00	0.01	0.01	0.0	0.00	0.00	0.34	0.34	0.34	0.0	0.00	0.00
GAPACIFICPAP GRID 98 HC 2809 VC 40792															
TYPE 5	0.06	0.06	0.06	0.50	0.50	0.50	0.04	0.04	0.04	0.05	0.05	0.05	0.19	0.19	0.19
TOTAL	0.06	0.06	0.06	0.50	0.50	0.50	0.04	0.04	0.04	0.05	0.05	0.05	0.19	0.19	0.19
STARBAND GRID 98 HC 3809 VC 40793															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
DIXIEMEGCO GRID 99 HC 3836 VC 40797															
TYPE 4	0.04	0.07	0.05	0.01	0.02	0.01	0.01	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01
TYPE 8	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
TYPE 5	0.00	0.20	0.20	0.01	0.21	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
TOTAL	[illegible]	0.28	0.05	0.03	0.24	0.03	0.04	[illegible]	0.04	0.22	0.03	0.02	0.01	0.01	0.01

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
NAVALHOSPITAL GRID 99 HC 3836 VC 40780															
TYPE 4	0.0	2.13	0.69	0.0	0.22	0.07	0.0	0.07	0.02	0.0	0.05	0.02	0.0	0.74	0.23
TOTAL	0.0	2.13	0.68	0.0	0.22	0.07	0.0	0.07	0.02	0.0	0.05	0.02	0.0	0.74	0.23
NORFOLKINCAB GRID 100 HC 3852 VC 40788															
TYPE 7	0.05	0.05	0.05	0.50	0.50	0.50	0.04	0.04	0.04	0.05	0.05	0.05	0.07	0.07	0.07
TOTAL	0.05	0.05	0.05	0.50	0.50	0.50	0.04	0.04	0.04	0.05	0.05	0.05	0.07	0.07	0.07
MARSHALSTEEL GRID 100 HC 3855 VC 40780															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANDMARKCOMM GRID 100 HC 3852 VC 40794															
TYPE 4	0.0	0.02	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.04	0.01
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07	0.0	0.0	0.0
TOTAL	0.0	0.02	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.07	0.07	0.07	0.0	0.04	0.01
SOUTHRNMATRD GRID 100 HC 3875 VC 40779															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BIRSCHCONCOM GRID 101 HC 3878 VC 40781															
TYPE 4	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	6.00	6.00	6.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
AMESANNWEBCO GRID 101 HC 3889 VC 40791															
TYPE 4	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	5.00	5.00	5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.05	0.05	0.05	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
SOUTBLOCKPIP GRID 101 HC 3891 VC 40788															
TYPE 4	0.01	0.13	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02
TOTAL	0.01	0.13	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02
CONIPAVING GRID 103 HC 3989 VC 40769															
TYPE 4	0.0	0.07	0.02	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.17	0.05
TYPE 5	0.0	0.0	0.0	2.28	2.28	2.28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.07	0.02	2.28	2.31	2.29	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.17	0.05
ASPHALTROADS GRID 103 HC 3974 VC 40775															
TYPE 4	0.0	0.81	0.26	0.0	0.05	0.01	0.00	0.00	0.00	0.0	0.01	0.00	0.0	0.15	0.05
TYPE 5	0.0	0.0	0.0	4.79	4.79	4.79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.81	0.26	4.79	4.84	4.80	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.15	0.05
SOUTHRNMAIRC GRID 103 HC 4[illegible] VC 40780															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
FINLEYPAVING GRID 106 HC 4102 VC 40772															
TYPE 4	0.0	0.53	0.17	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.10	0.03
TYPE 5	0.0	0.0	0.0	9.97	9.97	9.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.53	0.17	9.97	10.00	9.98	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.10	0.03
PORTSMTHINCN GRID 109 HC 3812 VC 40762															
TYPE 7	0.10	0.10	0.10	0.96	0.96	0.96	0.07	0.07	0.07	0.10	0.10	0.10	0.14	0.14	0.14
TOTAL	0.10	0.10	0.10	0.96	0.96	0.96	0.07	0.07	0.07	0.10	0.10	0.10	0.14	0.14	0.14
SOUTHRNMATRA GRID 109 HC 3817 VC 40763															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOFOKNAVSHIP GRID 110 HC 3840 VC 40750															
TYPE 4	0.0	28.59	9.08	0.0	2.07	0.66	0.0	0.02	0.01	0.0	0.27	0.09	0.0	6.48	2.06
TOTAL	0.0	28.59	9.08	0.0	2.07	0.66	0.0	0.02	0.01	0.0	0.27	0.09	0.0	6.48	2.06
NORFOLKSHIP GRID 111 HC 3860 VC 40751															
TYPE 4	1.70	-0.69	0.94	0.10	-0.04	0.05	0.00	-0.00	0.00	0.01	-0.01	0.01	0.31	-0.13	0.17
TYPE 5	0.0	0.0	0.0	1.11	1.11	1.11	0.0	0.0	0.0	0.0	0.0	0.0	1.11	1.11	1.11
TOTAL	1.70	-0.69	0.94	1.21	1.07	1.16	0.00	-0.00	0.00	0.01	-0.01	0.01	1.42	0.98	1.28

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
SOUTHLANDCOR GRID 112 HC 3887 VC 40767															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23	0.23	0.23	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.68	0.68	0.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.69	0.69	0.69	0.00	0.00	0.00	0.23	0.23	0.23	0.00	0.00	0.00
ATCREASOTING GRID 117 HC 3836 VC 40742															
TYPE 4	0.26	0.26	0.26	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05
TYPE 5	0.79	0.79	0.79	0.14	0.14	0.14	0.53	0.53	0.53	0.53	0.53	0.53	2.60	2.60	2.60
TOTAL	1.05	1.05	1.05	0.16	0.16	0.15	0.53	0.53	0.53	0.53	0.53	0.53	2.65	2.65	2.65
JGWILSONCOPP GRID 117 HC 3842 VC 40746															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.00
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
PORTSMOTHPAV GRID 117 HC 3827 VC 40746															
TYPE 4	0.0	0.34	0.11	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
TYPE 5	0.0	0.0	0.0	6.77	6.77	6.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.34	0.11	6.77	6.79	6.78	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
NORVENERMILS GRID 117 HC 3843 VC 40743															
TYPE 4	0.15	0.16	0.16	0.12	0.13	0.12	0.01	0.01	0.01	0.00	0.00	0.00	0.06	0.06	0.06
TYPE 5	0.11	0.11	0.11	1.10	1.10	1.10	0.09	0.09	0.09	0.11	0.11	0.11	0.35	0.35	0.35
TOTAL	0.2	0.27	0.27	1.22	1.23	1.22	0.10	0.1	0.10	0.11	0.11	0.11	0.41	0.41	0.41

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
LONESTARCEM GRID 118 HC 3850 VC 40748															
TYPE 4	6.81	-12.48	0.68	8.80	-16.12	0.88	0.45	-0.82	0.04	1.04	-1.91	0.10	6.90	-12.64	0.69
TYPE 5	0.0	0.0	0.0	15.40	15.40	15.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	6.81	-12.48	0.68	24.20	-0.72	16.28	0.45	-0.82	0.04	1.04	-1.91	0.10	6.90	-12.64	0.69
ROYSTERCOMPP GRID 118 HC 3850 VC 40748															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	1.48	1.48	1.48	0.60	0.60	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.38	0.38	0.38
TOTAL	1.48	1.48	1.48	0.60	0.60	0.60	0.00	0.00	0.00	0.01	0.01	0.01	0.40	0.40	0.40
EVANSPRODUCT GRID 118 HC 3873 VC 40729															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.73	4.73	4.73	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.74	4.74	4.74	0.02	0.02	0.02
NAVALAIRSTAT GRID 123 HC 4080 VC 40740															
TYPE 4	0.0	4.82	1.53	0.0	0.38	0.12	0.0	0.00	0.00	0.0	0.05	0.02	0.0	1.26	0.40
TOTAL	0.0	4.82	1.53	0.0	0.38	0.12	0.0	0.00	0.00	0.0	0.05	0.02	0.0	1.26	0.40
FLEETANTIAIR GRID 124 HC 4144 VC 40718															
TYPE 4	0.0	2.50	0.80	0.0	0.19	0.06	0.0	0.00	0.00	0.0	0.03	0.01	0.0	0.62	0.20
TOTAL	0.0	2.50	0.80	0.0	0.19	0.06	0.0	0.00	0.00	0.0	0.03	0.01	0.0	0.62	0.20

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
SWIFTAGCHEMA GRID 128 HC 3847 VC 40705															
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	1.10	1.10	1.10	1.45	1.45	1.45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1.10	1.10	1.10	1.45	1.45	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REPUBLICCREA GRID 128 HC 3849 VC 40720															
TYPE 4	0.0	1.84	0.58	0.0	0.26	0.08	0.0	0.17	0.05	0.0	0.06	0.02	0.0	0.26	0.08
TOTAL	0.0	1.84	0.58	0.0	0.26	0.08	0.0	0.17	0.05	0.0	0.06	0.02	0.0	0.26	0.08
WEAVERFERTIL GRID 128 HC 3845 VC 40701															
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.91	0.91	0.91	0.0	0.0	0.0	0.0	0.0	0.0	1.60	1.60	1.60
TOTAL	0.00	0.00	0.00	0.91	0.91	0.91	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.60	1.60
SOUTHERNBLCA GRID 128 HC 3843 VC 40717															
TYPE 4	0.0	0.87	0.28	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.18	0.06
TOTAL	0.0	0.87	0.28	0.0	0.05	0.02	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.18	0.06
SOUTHERNSTAT GRID 128 HC 3845 VC 40705															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.18	0.18	0.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
NORFOLKTALOW GRID 128 HC 3838 VC 40710															
TYPE 4	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02
TOTAL	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02
NAVALAMMUNTN GRID 128 HC 3833 VC 40720															
TYPE 4	0.0	1.39	0.44	0.0	0.10	0.03	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.32	0.10
TOTAL	0.0	1.39	0.44	0.0	0.10	0.03	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.32	0.10
ATLANPACTEA GRID 133 HC 3594 VC 40660															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
PLANTERSPEAN GRID 133 HC 3568 VC 40656															
TYPE 4	1.50	2.33	1.77	0.45	0.70	0.53	0.06	0.09	0.07	0.03	0.05	0.04	0.50	0.78	0.59
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.21	0.21	0.21	0.0	0.0	0.0
TYPE 5	0.00	0.00	0.00	0.12	0.12	0.12	0.37	0.37	0.37	0.12	0.12	0.12	0.03	0.03	0.03
TOTAL	1.50	2.34	1.77	0.57	0.82	0.65	0.43	0.46	0.44	0.36	0.38	0.37	0.53	0.81	0.62
SWIFTAGCHEMB GRID 133 HC 3585 VC 40637															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 9	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
TYPE 5	0.0	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.25	0.25	0.25
TOTAL	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
LIPTONTEA GRID 133 HC 3577 VC 40668															
TYPE 4	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.04	0.07	0.05
TYPE 8	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
TOTAL	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.05	0.08	0.06
SUFOLKCONCRE GRID 134 HC 3625 VC 40676															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KESHEFIELDLV GRID 134 HC 3601 VC 40654															
TYPE 4	0.06	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.01	0.01	0.01	0.12	0.12	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04
TOTAL	0.07	0.08	0.08	0.12	0.12	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.06	0.06
STJOEPAPERCO GRID 135 HC 3780 VC 40695															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
SOUTHERNBLCB GRID 135 HC 3724 VC 40635															
TYPE 4	0.0	0.29	0.29	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.09	0.03
TOTAL	0.0	0.29	0.29	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.09	0.03

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
SOLITEMASONA GRID 136 HC 3844 VC 40664															
TYPE 4	0.14	0.16	0.14	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
TOTAL	0.14	0.16	0.14	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
INTERCOASTAL GRID 136 HC 3832 VC 40692															
TYPE 4	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.06	0.06	0.06
TYPE 5	0.0	0.0	0.0	0.89	0.89	0.89	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	0.01
TOTAL	0.00	0.00	0.00	0.90	0.90	0.90	0.00	0.00	0.00	0.01	0.01	0.01	0.07	0.07	0.07
SOUTHRNMATPB GRID 136 HC 3845 VC 40666															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BIRSCHASPHAL GRID 141 HC 3580 VC 40646															
TYPE 4	0.0	2.50	0.79	0.0	0.14	0.05	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.45	0.14
TYPE 5	0.0	0.0	0.0	5.69	5.69	5.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	2.50	0.79	5.69	5.83	5.74	0.0	0.00	0.00	0.0	0.02	0.01	0.0	0.45	0.14
SHORTPAVING GRID 144 HC 3237 VC 40586															
TYPE 4	0.0	0.70	0.22	0.0	0.04	0.01	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.13	0.04
TYPE 5	0.0	0.0	0.0	11.90	11.90	11.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.70	0.22	11.90	11.94	11.91	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.13	0.04

****

ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

TYPE = SECONDARY CATEGORY

1=AIRPORT 2=RAILROADS 3=VESSELS 4=FUEL COMBUSTION 5=PROCESS LOSSES

6=SOLVENT EVAPORATION 7=MUNICIPAL INCINERATION 8=ON-SITE INCINERATION 9=DUMP

SUMMARY OF AIR POLLUTANT EMISSIONS
IN STUDY AREA, TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	809.	1545.	446885.	560[illegible].	36364.
OTHER	1340.	4407.	54098.	22590.	3081.
SUB-TOTAL	2149.	5952.	500983.	78598.	39445.
COMBUSTION OF FUELS					
INDUSTRY	584.	81.	928.	295.	17029.
STEAM-ELECTRIC	17946.	12.	1332.	8254.	11594.
RESIDENTIAL	2465.	854.	1001.	346.	1328.
COMM AND INST.	3.	1.	0.	0.	4.
SUB-TOTAL	21019.	947.	3261.	8895.	29955.
REFUSE DISPOSAL					
INCINERATION	46.	455.	607.	455.	61.
OPEN BURNING	10.	162.	860.	303.	61.
SUB-TOTAL	56.	617.	1467.	759.	121.
PROCESS	0.	49604.	0.	0.	0.
EVAP LOSSES				36497.	
GRAND TOTAL	23223.	57120.	505711.	124749.	69521.

COMBUSTION OF FUELS IN STATIONARY SOURCES IN THE STUDY AREA (TONS/YEAR)

FUEL	USER CATEGORY	SOX	PART	CO	HC	NOX
COAL						
	INDUSTRIAL	0.	0.	927.	278.	16695.
	STEAM-ELECTRIC	17887.	0.	1332.	8247.	11437.
	RESIDENTIAL	425.	134.	559.	112.	56.
	COMM AND INST	0.	0.	0.	0.	0.
	SUB-TOTAL	18311.	134.	2818.	8637.	28167.
FUEL OIL						
	INDUSTRIAL	584.	79.	1.	13.	321.
	STEAM-ELECTRIC	60.	12.	0.	7.	157.
	RESIDENTIAL	2055.	571.	285.	171.	685.
	COMM AND INST	3.	1.	0.	0.	4.
	SUB-TOTAL	2703.	663.	286.	192.	1167.
GAS						
	INDUSTRIAL	0.	1.	0.	3.	14.
	STEAM-ELECTRIC	0.	0.	0.	0.	0.
	RESIDENTIAL	5.	149.	157.	63.	587.
	COMM AND INST	0.	0.	0.	0.	0.
	SUB-TOTAL	5.	150.	157.	66.	601.
GRAND TOTAL		21019.	947.	3261.	8895.	29955.

TRANSPORTATION SOURCES
TON/YR

	SOX	PART	CO	HC	NOX
ROAD VEHICLES					
GASOLINE	809.	1314.	442940.	55362.	29928.
DIESEL	0.	231.	3945.	647.	6436.
EVAP*				15975.	
SUB-TOTAL	809.	1545.	446885.	71984.	36364.
AIRCRAFT					
JET	862.	3384.	8345.	16508.	2784.
PISTON	433.	754.	45664.	5947.	73.
TURBOPROP	45.	269.	90.	134.	224.
SUB-TOTAL	1340.	4407.	54099.	22590.	3081.
RAILROADS	0.	0.	0.	0.	0.
VESSELS	0.	0.	0.	0.	0.
GRAND-TOTAL	2149.	5952.	500983.	78598.	39445.

*EVAP NOT INCLUDED IN GRAND TOTAL

NUMBER OF FLIGHTS/YEAR*100

TYPE ENGINE	NUMBER OF ENGINES 1	2	3	4
DULLESINTER				
TURBOJET		19.		7.
TURBOFAN				
MEDIUM-RANGE		14.	566.	
LONG-RANGE				226.
JUMBO JET				29.
TURBO-PROP	0.	25.		0.
PISTON				
LIGHT	266.	151.		
TRANSPORT		184.		276.
NATIONAL				
TURBOJET		272.		0.
TURBOFAN				
MEDIUM-RANGE		569.	979.	
LONG-RANGE				0.
JUMBO JET				0.
TURBO-PROP	0.	409.		7.
PISTON				
LIGHT	342.	228.		
TRANSPORT		186.		279.

HYDROCARBON EMISSIONS FROM EVAPORATIVE LOSSES

TYPE OF SOURCE	HC EMISSIONS-TONS/YR
1. GASOLINE STORAGE AND HANDLING	18542.
2. INDUSTRIAL SOLVENT EVAP	137.
3. DRY CLEANING	1844.
4. OTHER	0.
5. AUTO	15975.
TOTAL	36498.

AIR POLLUTANT EMISSIONS FROM
SOLID WASTE DISPOSAL
TONS/YEAR

CATEGORY	SOX	PART	CO	HC	NOX
INCINERATION					
MUNICIPAL	0.	0.	0.	0.	0.
ON-SITE	46.	455.	607.	455.	61.
SUB-TOTAL	46.	455.	607.	455.	61.
OPEN BURNING					
ON-SITE	10.	162.	860.	303.	61.
DUMP	0.	0.	0.	0.	0.
SUB-TOTAL	10.	162.	860.	303.	61.
GRAND TOTAL	56.	617.	1467.	759.	121.

PROCESS LOSSES
TONS/YEAR

PROCESS CATEGORY	JUR	PLANT NAME	SOX	PART	CO	HC	NOX
CONCRETEPROD	6	ABERSTONECO	0.	11.	0.	0.	0.
STONEWORKS	3	BULLRUNSTONE	0.	34.	0.	0.	0.
STONEWORKS	2	CHANTILCRUSH	0.	139.	0.	0.	0.
CONCRETEPROD	2	CHEFRDALCEME	0.	2632.	0.	0.	0.
STONEWORKS	3	ARLINGTSTONE	0.	553.	0.	0.	0.
PRINTING	5	LANMANCOMPAN	0.	0.	0.	0.	0.
ASPHALTPLANT	6	WARRENBROSCO	0.	47.	0.	0.	0.
ASPHALTPLANT	2	NEWTONASPH18	0.	577.	0.	0.	0.
ASPHALTPLANT	3	TRICOASPHALT	0.	6716.	0.	0.	0.
ASPHALTPLANT	3	ASPHALTSUPLY	0.	855.	0.	0.	0.
ASPHALTPLANT	5	NEWTONASPHAL	0.	100.	0.	0.	0.
BRICKMANUFAC	4	WOODBRICCLAY	0.	10548.	0.	0.	0.
STONEWORKS	3	VIRGINTRAPRO	0.	971.	0.	0.	0.
STONEWORKS	4	VULCANMATERB	0.	391.	0.	0.	0.
STONEWORKS	4	VULCANMATERA	0.	391.	0.	0.	0.
CONCRETEPROD	4	WASHCONCPROD	0.	1.	0.	0.	0.
LIGHTINDUSTY	6	FARENTONMANF	0.	16.	0.	0.	0.
ASPHALTPLANT	3	SAFFINLEYINC	0.	6398.	0.	0.	0.
STONEWORKS	2	LOUDOUNQUARR	0.	2774.	0.	0.	0.
STONEWORKS	2	LUCKQUARYFFX	0.	2080.	0.	0.	0.
ASPHALTPLANT	6	FAIRFAXASPHT	0.	3281.	0.	0.	0.
ASPHALTPLANT	1	ARLNTONASPLT	0.	3150.	0.	0.	0.
ASPHALTPLANT	5	NEWTONASPHTA	0.	4051.	0.	0.	0.
ASPHALTPLANT	2	NATASPHALTPE	0.	3077.	0.	0.	0.
TOTAL			0.	49604.	0.	0.	0.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ARLINGTON COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	112.	214.	67695.	8343.	5030.
OTHER	590.	1947.	26861.	8384.	1229.
SUB-TOTAL	702.	2161.	94556.	16726.	6260.
COMBUSTION OF FUELS					
INDUSTRY	11.	3.	0.	1.	14.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	659.	212.	299.	93.	280.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	670.	215.	299.	93.	295.
REFUSE DISPOSAL					
INCINERATION	18.	175.	234.	175.	23.
OPEN BURNING	4.	62.	331.	117.	23.
SUB/TOTAL	21.	238.	565.	292.	47.
PROCESS	0.	3150.	0.	0.	0.
EVAP LOSSES				5125.	
GRAND TOTAL	1393.	5764.	95420.	22236.	6601.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN FAIRFAXIA COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	322.	614.	182031.	22711.	14462.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	322.	614.	182031.	22711.	14462.
COMBUSTION OF FUELS					
INDUSTRY	12.	6.	0.	3.	36.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	627.	234.	208.	86.	427.
COMM AND INST	2.	1.	0.	0.	4.
SUB-TOTAL	641.	241.	208.	89.	467.
REFUSE DISPOSAL					
INCINERATION	1.	14.	19.	14.	2.
OPEN BURNING	0.	5.	27.	9.	2.
SUB/TOTAL	2.	19.	45.	23.	4.
PROCESS	0.	11278.	0.	0.	0.
EVAP LOSSES				14354.	
GRAND TOTAL	964.	12153.	182285.	37177.	14933.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN FAIRFAX26 COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	186.	356.	108753.	13489.	8573.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	186.	356.	108753.	13489.	8573.
COMBUSTION OF FUELS					
INDUSTRY	30.	7.	0.	2.	28.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	360.	134.	119.	49.	245.
COMM AND INST	2.	0.	0.	0.	0.
SUB-TOTAL	392.	141.	120.	51.	274.
REFUSE DISPOSAL					
INCINERATION	1.	8.	11.	8.	1.
OPEN BURNING	0.	3.	15.	5.	1.
SUB/TOTAL	1.	11.	26.	13.	2.
PROCESS	0.	3154.	0.	0.	0.
EVAP LOSSES				8305.	
GRAND TOTAL	579.	3662.	108899.	21858.	8649.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN LOUDOUN COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	46.	88.	17511.	2389.	2181.
OTHER	750.	2460.	27238.	14206.	1352.
SUB-TOTAL	796.	2548.	44749.	16595.	3533.
COMBUSTION OF FUELS					
INDUSTRY	217.	19.	0.	3.	65.
STEAM-ELEC	0.	0.	0.	0.	0.
RESIDENTIAL	213.	62.	107.	30.	61.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	430.	82.	108.	33.	127.
REFUSE DISPOSAL					
INCINERATION	4.	37.	49.	37.	5.
OPEN BURNING	1.	13.	59.	25.	5.
SUB/TOTAL	4.	50.	119.	61.	10.
PROCESS	0.	16039.	0.	0.	0.
EVAP LOSSES				2051.	
GRAND TOTAL	1231.	18719.	44975.	18740.	4070.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN PRINC WILIAM COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	79.	150.	32137.	4301.	3537.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	79.	150.	32137.	4301.	3537.
COMBUSTION OF FUELS					
INDUSTRY	14.	14.	405.	124.	7348.
STEAM-ELEC	36.	7.	809.	8094.	2117.
RESIDENTIAL	262.	89.	86.	33.	143.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	312.	110.	1299.	8252.	9608.
REFUSE DISPOSAL					
INCINERATION	11.	111.	148.	111.	15.
OPEN BURNING	2.	39.	210.	74.	15.
SUB/TOTAL	14.	151.	358.	185.	30.
PROCESS	0.	11830.	0.	0.	0.
EVAP LOSSES				3579.	
GRAND TOTAL	404.	12242.	33794.	16318.	13175.

SUMMARY OF AIR POLLUTANT EMISSIONS
IN ALEXANDRIA COUNTY
TONS/YEAR

SOURCE CATEGORY	SOX	PART	CO	HC	NOX
TRANSPORTATION					
ROAD VEHICLES	64.	122.	38756.	4776.	2880.
OTHER	0.	0.	0.	0.	0.
SUB-TOTAL	64.	122.	38756.	4776.	2880.
COMBUSTION OF FUELS					
INDUSTRY	300.	31.	523.	162.	9537.
STEAM-ELEC	17911.	5.	523.	160.	9477.
RESIDENTIAL	363.	122.	181.	55.	171.
COMM AND INST	0.	0.	0.	0.	0.
SUB-TOTAL	18574.	158.	1227.	377.	19185.
REFUSE DISPOSAL					
INCINERATION	11.	110.	147.	110.	15.
OPEN BURNING	2.	39.	207.	73.	15.
SUB/TOTAL	13.	149.	354.	183.	29.
PROCESS	0.	4152.	0.	0.	0.
EVAP LOSSES				3134.	
GRAND TOTAL	18651.	4581.	40337.	8420.	22094.

AREA SOURCE EMISSIONS
TONS/DAY

	AREA			SOX			PART			CO			HC			NOX		
GRID	SQ KM	HC	VC	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
1	400.0	2700	43500	0.01	0.24	0.11	0.04	0.11	0.07	3.55	3.04	3.29	1.22	1.13	1.17	0.42	0.41	0.41
2	100.0	2850	43450	0.00	0.06	0.03	0.01	0.03	0.02	1.13	0.96	1.04	0.35	0.32	0.34	0.12	0.13	0.13
3	400.0	2500	43300	0.00	0.04	0.02	0.01	0.02	0.01	1.29	1.07	1.18	0.34	0.30	0.32	0.15	0.14	0.14
4	400.0	2700	43300	0.06	0.38	0.19	0.13	0.21	0.17	19.85	16.42	18.12	4.53	3.90	4.21	2.36	2.02	2.18
5	100.0	2850	43350	0.01	0.06	0.03	0.02	0.03	0.02	2.72	2.25	2.49	0.63	0.54	0.59	0.32	0.28	0.30
6	100.0	2850	43250	0.02	0.16	0.08	0.05	0.09	0.07	7.29	6.04	6.66	1.71	1.48	1.59	0.87	0.75	0.80
7	100.0	2950	43250	0.01	0.10	0.05	0.03	0.05	0.04	4.72	3.90	4.31	1.16	1.01	1.09	0.56	0.49	0.52
8	25.0	3025	43225	0.00	0.02	0.01	0.00	0.01	0.01	1.28	1.05	1.16	0.32	0.29	0.30	0.10	0.09	[illegible]
9	400.0	2700	43100	0.05	0.57	0.27	0.15	0.31	0.22	12.08	10.56	11.24	3.76	3.53	3.63	1.43	7.85	4.12
10	100.0	2850	43150	0.01	0.15	0.07	0.03	0.07	0.05	3.96	3.23	3.54	1.09	0.98	1.03	0.46	0.42	0.43
11	100.0	2950	43150	0.03	0.13	0.07	0.06	0.09	0.07	18.37	15.06	16.71	3.42	2.91	3.17	1.37	1.18	1.27
12	100.0	3050	43150	0.16	0.24	0.19	0.29	0.28	0.29	92.58	75.78	84.18	15.04	12.43	13.74	6.88	5.70	6.29
13	6.0	3112	43137	0.03	0.07	0.04	0.05	0.06	0.05	15.30	12.54	13.92	2.66	2.23	2.44	1.14	0.96	1.05
14	6.0	3137	43137	0.02	0.05	0.03	0.04	0.05	0.04	12.75	10.44	11.60	2.18	1.82	2.00	0.95	0.80	0.87
15	6.0	3112	43112	0.02	0.14	0.07	0.03	0.07	0.05	8.29	6.83	7.56	2.09	1.79	1.89	0.62	0.59	0.60
16	6.0	3137	43112	0.04	0.08	0.06	0.07	0.08	0.07	22.06	18.07	20.07	3.70	3.08	3.39	1.64	1.37	1.51
17	100.0	2850	43050	0.02	0.08	0.05	0.04	0.06	0.05	7.03	5.81	6.42	1.67	1.45	1.56	0.84	1.19	0.97
18	100.0	2950	43050	0.13	0.34	0.22	0.24	0.28	0.25	46.09	37.79	41.93	10.03	8.48	9.25	5.48	4.64	5.05
19	25.0	3025	43075	0.08	0.36	0.20	0.15	0.23	0.19	46.17	37.87	42.01	8.84	7.57	8.21	3.44	3.01	3.21
20	6.0	3062	43087	0.03	0.10	0.06	0.06	0.07	0.06	16.83	13.80	15.31	3.05	2.58	2.81	1.25	1.07	1.16
21	6.0	3087	43087	0.02	0.17	0.08	0.04	0.09	0.06	10.59	8.71	9.65	2.50	2.22	2.36	0.79	0.75	0.76
22	6.0	3112	43087	0.02	0.18	0.09	0.04	0.09	0.06	9.45	7.79	8.61	2.32	2.08	2.20	0.71	0.68	0.69

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
23	6.0	3137	43087	0.03	0.28	0.14	0.08	0.15	0.11	13.72	11.35	12.53	2.84	2.49	2.66	1.02	0.96	0.98
24	6.0	3162	43087	0.03	0.24	0.12	0.08	0.14	0.11	14.74	12.19	13.45	2.74	2.36	2.55	1.10	0.99	1.04
25	6.0	3187	43087	0.04	0.09	0.06	0.08	0.08	0.08	22.21	18.20	20.20	3.57	2.95	3.26	1.65	1.37	1.51
26	6.0	3062	43062	0.04	0.10	0.07	0.08	0.09	0.09	26.40	21.62	24.01	4.46	3.72	4.09	1.96	1.65	1.80
27	6.0	3037	43062	0.01	0.13	0.06	0.02	0.07	0.04	7.40	6.09	6.74	1.83	1.63	1.73	0.55	0.53	0.54
28	6.0	3112	43062	0.04	0.20	0.10	0.07	0.12	0.09	19.02	15.63	17.32	3.76	3.25	3.51	1.42	1.26	1.33
29	6.0	3137	43062	0.04	0.45	0.21	0.12	0.24	0.17	16.98	14.11	15.53	3.54	3.12	3.33	1.27	1.21	1.23
30	6.0	3162	43062	0.04	0.55	0.26	0.13	0.29	0.20	14.43	12.12	13.23	3.33	2.99	3.15	1.08	1.10	1.08
31	6.0	3187	43062	0.04	0.53	0.25	0.13	0.28	0.19	15.49	12.93	14.19	3.44	3.08	3.25	1.16	1.15	1.14
32	6.0	3212	43062	0.03	0.18	0.09	0.07	0.11	0.09	14.47	11.92	13.19	2.58	2.19	2.38	1.08	0.95	1.01
33	6.0	3012	43037	0.02	0.10	0.05	0.04	0.06	0.05	11.48	9.42	10.45	2.23	1.91	2.07	0.86	0.75	0.80
34	6.0	3037	43037	0.02	0.10	0.05	0.04	0.06	0.05	10.59	8.69	9.64	2.15	1.86	2.00	0.79	0.70	0.74
35	6.0	3062	43037	0.03	0.10	0.06	0.06	0.07	0.07	18.62	15.26	16.94	3.29	2.77	3.03	1.39	1.18	1.28
36	6.0	3087	43037	0.02	0.16	0.08	0.03	0.08	0.05	8.68	7.15	7.91	2.20	1.97	2.08	0.65	0.63	0.63
37	6.0	3112	43037	0.02	0.35	0.16	0.04	0.15	0.09	10.60	8.78	9.68	3.48	3.23	3.35	0.80	0.86	0.81
38	6.0	3137	43037	0.03	0.29	0.14	0.05	0.14	0.09	12.40	10.25	11.32	3.23	2.91	3.07	0.93	0.92	0.91
39	6.0	3162	43037	0.05	0.61	0.28	0.15	0.32	0.22	17.17	14.35	15.74	3.88	3.48	3.67	1.29	1.29	1.27
40	6.0	3187	43037	0.04	0.60	0.28	0.14	0.31	0.21	13.73	11.53	12.61	3.31	3.01	3.15	1.03	1.08	1.04
41	6.0	3212	43037	0.05	0.21	0.12	0.11	0.15	0.13	27.48	22.57	25.02	4.63	3.88	4.26	2.04	1.75	1.89
42	6.0	3237	43037	0.01	0.00	0.00	0.01	0.01	0.01	3.19	2.61	2.90	0.50	0.41	0.45	0.24	0.19	0.22
43	6.0	3012	43012	0.01	0.09	0.04	0.02	0.04	0.03	5.74	4.72	5.23	1.33	1.18	1.26	0.43	0.40	0.41
44	6.0	3037	43012	0.01	0.03	0.02	0.02	0.03	0.03	7.65	6.27	6.96	1.29	1.08	1.18	0.57	0.48	0.52
45	6.0	3062	43012	0.03	0.06	0.04	0.05	0.05	0.05	14.79	12.11	13.45	2.51	2.09	2.30	1.10	0.92	1.01

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
46	6.0	3087	43012	0.02	0.19	0.09	0.03	0.09	0.06	8.93	7.37	8.14	2.36	2.13	2.25	0.67	0.66	0.66
47	6.0	3112	43012	0.02	0.18	0.09	0.03	0.09	0.05	7.66	6.32	6.99	2.14	1.95	2.04	0.57	0.58	0.57
48	6.0	3137	43012	0.02	0.15	0.07	0.03	0.07	0.05	7.28	6.02	6.65	1.86	1.68	1.76	0.54	0.90	0.69
49	6.0	3162	43012	0.03	0.16	0.08	0.06	0.10	0.07	13.80	11.41	12.60	2.62	2.26	2.44	1.03	1.86	1.36
50	6.0	3187	43012	0.05	0.66	0.30	0.15	0.34	0.23	17.19	14.60	15.85	3.90	3.58	3.73	1.29	5.26	2.95
51	6.0	3212	43012	0.04	0.50	0.23	0.12	0.26	0.18	15.22	13.06	14.09	3.25	3.00	3.12	1.14	7.92	3.99
52	6.0	3237	43012	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	400.0	2700	42900	0.07	0.46	0.23	0.19	0.32	0.25	19.43	16.55	17.99	4.98	4.55	4.74	2.31	12.73	6.68
54	100.0	2850	42950	0.07	0.23	0.14	0.16	0.20	0.17	24.00	19.93	21.95	5.10	4.37	4.72	2.85	6.59	4.39
55	100.0	2950	42950	0.02	0.12	0.06	0.04	0.07	0.05	5.75	4.77	5.26	1.62	1.44	1.53	0.69	1.09	0.85
56	6.0	3012	42987	0.01	0.02	0.01	0.01	0.02	0.01	3.83	3.13	3.48	0.68	0.57	0.62	0.28	0.24	0.26
57	6.0	3037	42987	0.01	0.04	0.02	0.02	0.03	0.02	5.74	4.70	5.22	1.04	0.88	0.96	0.43	0.37	0.40
58	6.0	3062	42987	0.03	0.04	0.03	0.05	0.05	0.05	15.56	12.74	14.15	2.55	2.11	2.33	1.16	0.96	1.06
59	6.0	3087	42987	0.02	0.09	0.05	0.03	0.06	0.04	9.82	8.06	8.94	1.97	1.70	1.83	0.73	0.65	0.69
60	6.0	3112	42987	0.02	0.11	0.06	0.03	0.06	0.04	9.57	7.86	8.71	2.05	1.79	1.92	0.71	0.65	0.68
61	6.0	3137	42987	0.04	0.15	0.08	0.06	0.10	0.09	22.03	18.16	20.11	3.92	3.33	3.62	1.64	2.32	1.90
62	6.0	3162	42987	0.04	0.40	0.19	0.11	0.22	0.16	18.24	15.55	16.85	3.51	3.18	3.33	1.36	9.42	4.74
63	6.0	3187	42987	0.03	0.34	0.16	0.09	0.19	0.14	[illegible]	[illegible]	12.17	2.68	2.47	2.56	0.98	7.65	3.78
64	6.0	3212	42987	0.06	0.90	0.41	0.19	0.46	0.30	19.17	17.45	18.35	4.52	4.42	4.44	1.44	20.41	9.43
65	6.0	3012	42962	0.00	0.02	0.01	0.01	0.01	0.01	1.91	1.57	1.74	0.37	0.32	0.34	0.14	0.12	0.13
66	6.0	3037	42962	0.01	0.02	0.01	0.02	0.02	0.02	5.74	4.70	5.22	0.97	0.81	0.89	0.43	0.36	0.39
67	6.0	3062	42962	0.01	0.06	0.03	0.02	0.03	0.03	6.53	5.44	6.34	1.29	1.11	1.20	0.49	0.43	0.46
68	6.0	3087	42962	0.02	0.11	0.06	0.05	0.07	0.05	13.77	11.30	12.53	2.62	2.24	2.43	1.03	0.89	0.96

GRID	AREA SQ KM	HC	VC	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
69	6.0	3112	42962	0.05	0.15	0.09	0.08	0.11	0.09	25.89	21.22	23.55	4.65	3.93	4.29	1.93	1.65	1.78
70	6.0	3137	42962	0.03	0.04	0.04	0.06	[illegible]	0.06	18.62	15.24	16.93	2.99	2.46	2.73	1.38	1.21	1.29
71	6.0	3162	42962	0.02	0.13	0.07	0.05	0.08	0.06	12.76	10.50	11.63	2.52	2.18	2.34	0.95	1.29	1.08
72	6.0	3187	42962	0.04	0.19	0.10	0.07	0.12	0.09	19.54	16.13	17.82	3.69	3.18	3.43	1.46	2.78	1.99
73	6.0	3212	42962	0.05	0.22	0.12	0.17	0.26	0.21	24.84	21.37	23.08	5.12	4.69	4.89	1.87	14.33	7.11
74	25.0	3025	42925	0.01	0.05	0.03	0.02	0.03	0.02	5.36	4.40	4.89	1.05	0.91	0.98	0.40	0.35	0.37
75	25.0	3075	42925	0.12	0.26	0.18	0.23	0.24	0.23	70.26	57.54	63.90	11.82	9.85	10.83	5.23	4.37	4.79
76	6.0	3112	42937	0.01	0.09	0.04	0.01	[illegible]	0.02	2.81	2.33	2.57	0.92	0.85	0.89	0.21	0.23	0.22
77	6.0	3137	42937	0.01	0.02	0.01	0.01	0.02	0.01	3.83	3.14	3.48	0.70	0.60	0.65	0.28	0.25	0.26
78	6.0	3162	42937	0.02	0.17	0.08	0.03	[illegible]	0.05	7.56	6.32	6.93	2.06	1.86	1.96	0.57	0.57	0.56
79	25.0	3200	42925	0.07	0.69	0.33	0.11	0.32	0.20	31.52	26.00	28.74	8.42	7.61	8.01	2.36	2.33	2.32
80	56.0	3137	42887	0.06	0.44	0.22	0.11	0.23	0.16	19.71	16.25	17.97	5.84	5.21	5.52	2.35	2.17	2.24
81	100.0	2850	42850	0.02	0.23	0.11	0.07	0.14	0.10	4.10	3.74	3.89	1.46	1.44	1.44	0.49	6.05	2.83
82	100.0	2950	42850	0.01	0.17	0.08	0.05	0.11	0.07	2.08	1.99	2.02	0.91	0.93	0.92	0.25	4.45	2.02
83	25.0	3025	42875	0.02	0.03	0.02	0.03	0.03	0.03	9.05	7.41	8.23	1.49	1.24	1.36	0.67	0.56	0.62
84	25.0	3075	42875	0.09	0.14	0.11	0.17	0.17	0.17	54.70	44.78	49.74	8.91	7.36	8.13	4.07	3.37	3.72
85	25.0	3200	42875	0.04	0.21	0.11	0.07	0.12	0.09	20.54	16.86	18.69	4.16	3.61	3.88	1.53	1.36	1.44
86	25.0	3025	42825	0.05	0.11	0.07	0.10	0.11	0.10	27.06	22.24	24.64	4.47	3.73	4.10	2.01	3.07	2.43
87	25.0	3075	42825	0.01	0.06	0.03	0.02	[illegible]	0.02	4.34	3.57	3.95	0.99	0.88	0.93	0.32	0.30	0.31
88	25.0	3125	42825	0.00	0.01	0.01	0.01	0.02	0.01	1.28	1.07	1.17	0.65	0.62	0.63	0.10	0.13	0.11
89	400.0	2900	42700	0.08	0.49	0.26	0.23	0.38	0.28	25.82	21.99	23.80	6.24	5.60	5.90	3.07	13.82	7.56
90	100.0	3050	42750	0.01	0.03	0.02	0.05	0.07	0.06	4.29	3.73	4.00	1.22	1.14	1.18	0.51	3.72	1.86
TOTAL				2.87	18.04	9.24	6.49	11.01	8.33	1350.89	1118.29	1233.64	274.92	239.44	256.87	110.26	207.25	149.66

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ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

HC = HORIZONTAL VC = VERTICAL -COORDINATE

POINT SOURCE EMISSIONS BY PLANT
TONS PER DAY

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
JLYNNCCFNWEL GRID 4 HC 2657 VC 43356															
TYPE 4	0.07	0.08	0.07	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.04	0.03
TOTAL	0.07	0.08	0.07	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.03
ARLINGTSTONE GRID 6 HC 2828 VC 43272															
TYPE 5	0.0	0.0	0.0	1.52	1.52	1.52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	1.52	1.52	1.52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRICOASPHALT GRID 6 HC 2826 VC 43280															
TYPE 4	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
TYPE 5	0.0	0.0	0.0	18.40	18.40	18.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.03	0.03	0.03	18.41	18.41	18.41	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
ASPHALTSUPLY GRID 6 HC 2830 VC 43270															
TYPE 4	0.47	0.47	0.47	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
TYPE 5	0.0	0.0	0.0	2.37	2.37	2.37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.47	0.47	0.47	2.40	2.40	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
VIRGINTRAPRO GRID 6 HC 2823 VC 43286															
TYPE 5	0.0	0.0	0.0	2.66	2.66	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	2.66	2.66	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		SOX			PART			CO			HC			NOX		
		S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
BULLRUNSTONE	GRID 9	HC 2795	VC 43036													
TYPE	5	0.0	0.0	0.0	0.09	0.09	0.09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.0	0.0	0.09	0.09	0.09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHANTILCRUSH	GRID 10	HC 2837	VC 43124													
TYPE	5	0.0	0.0	0.0	0.38	0.38	0.38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.0	0.0	0.38	0.38	0.38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VACONCRETEST	GRID 10	HC 2886	VC 43170													
TYPE	4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL		0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
DULLESINTER	GRID 10	HC 2850	VC 43150													
TYPE	1	0.02	0.02	0.02	0.10	0.10	0.10	0.22	0.22	0.22	0.24	0.24	0.24	0.05	0.05	0.05
TYPE	1	1.03	1.03	1.03	4.17	4.17	4.17	11.33	11.33	11.33	14.62	14.62	14.62	3.19	3.19	3.19
TYPE	1	0.01	0.01	0.01	0.04	0.04	0.04	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
TYPE	1	0.56	0.56	0.56	1.02	1.02	1.02	62.03	62.03	62.03	8.10	8.10	8.10	0.10	0.10	0.10
TOTAL		1.62	1.62	1.62	5.33	5.33	5.33	73.59	73.59	73.59	22.97	22.97	22.97	3.37	3.37	3.37
ASMITHBOWMAN	GRID 11	HC 2965	VC 43144													
TYPE	4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00	0.0	0.03	0.01
TYPE	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.01

	SOX			PART			CO			HC			NOX		
	S	W	A	S	W	A	S	W	A	S	W	A	S	W	A
CFEPRCALCEME GRID 11 HC 2938 VC 43150															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	7.21	7.21	7.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	7.21	7.21	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LCUDCUNCUARR GRID 11 HC 2903 VC 43160															
TYPE 5	0.0	0.0	0.0	7.60	7.60	7.60	0.0	0.0	0.0	0.0	[illegible]	[illegible]	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	7.60	7.60	7.60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PEPCOPCTOMAC GRID 64 HC 3227 VC 42988															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	59.70	59.70	49.07	0.02	0.02	0.01	1.74	1.74	1.43	0.53	0.53	0.44	31.59	31.59	25.97
SAFFINLEYINC GRID 17 HC 2870 VC 43070															
TYPE 4	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
TYPE 5	0.0	0.0	0.0	18.90	18.90	18.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.02	0.02	0.02	18.91	18.91	18.91	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
NEWTCNASPHTB GRID 17 HC 2840 VC 43004															
TYPE 4	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06
TYPE 5	0.0	0.0	0.0	1.58	1.58	1.58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.03	0.03	0.03	1.59	1.59	1.59	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
VACLNCRETEFC GRID 27 HC 3095 VC 43070															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
NATASPHALTME GRID 34 HC 3035 VC 43034															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
TYPE 5	0.0	0.0	0.0	8.43	8.43	8.43	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	8.43	8.43	8.43	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
GOODWAYPRINT GRID 41 HC 3222 VC 43036															
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
GRAPHICS4INC GRID 46 HC 3091 VC 43002															
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
NUAMNTALHLTH GRID 47 HC 3110 VC 43020															
TYPE 4	0.0	0.01	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
TOTAL	0.0	0.01	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
ARLNTONASPLT GRID 50 HC 3180 VC 43018															
TYPE 4	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
TYPE 5	0.0	0.0	0.0	8.63	8.63	8.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
ATLASMACHIRE GRID 51 HC 3219 VC 43011															
TYPE 4	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.03	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
NATIONAL GRID 52 HC 3235 VC 43015															
TYPE 1	0.20	0.20	0.20	1.12	1.12	1.12	2.45	2.45	2.45	2.65	2.65	2.65	0.51	0.51	0.51
TYPE 1	1.11	1.11	1.11	3.88	3.88	3.88	8.87	8.87	8.87	27.73	27.73	27.73	3.88	3.88	3.88
TYPE 1	0.12	0.12	0.12	0.70	0.70	0.70	0.23	0.23	0.23	0.35	0.35	0.35	0.58	0.58	0.58
TYPE 1	0.63	0.63	0.63	1.04	1.04	1.04	63.07	63.07	63.07	8.20	8.20	8.20	0.10	0.10	0.10
TOTAL	2.06	2.06	2.06	6.74	6.74	6.74	74.62	74.62	74.62	38.92	38.92	38.92	5.07	5.07	5.07
WASHCOHCFROD GRID 53 HC 2741 VC 42973															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
WOODBRIDCLAY GRID 54 HC 2823 VC 42907															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	28.90	28.90	28.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	28.90	28.90	28.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
LUCKQUARYFFX GRID 54 HC 2850 VC 43000															
TYPE 5	0.0	0.0	0.0	5.70	5.70	5.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	5.70	5.70	5.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VULCANMATERB GRID 54 HC 2809 VC 42940															
TYPE 5	0.0	0.0	0.0	1.07	1.07	1.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	1.07	1.07	1.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PATCIVILLTCL GRID 64 HC 3222 VC 42984															
TYPE 4	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35	0.35	0.35	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.00	0.00	0.00
LANMANCOMPAN GRID 64 HC 3216 VC 42985															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
TYPE 5	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00
PEPCOPOTOMAC GRID 64 HC 3227 VC 42988															
TYPE 4	59.70	59.70	49.07	0.02	0.02	0.01	1.74	1.74	1.43	0.53	0.53	0.44	31.59	31.59	25.96
TOTAL	59.70	59.70	49.07	0.02	0.02	0.01	1.74	1.74	1.43	0.53	0.53	0.44	31.59	31.59	25.97

		SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
RHBOGLECO GRID 73 HC 2226 VC 42970																
TYPE	4	0.0	0.01	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.03	0.01
TOTAL		0.0	0.01	0.01	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.03	0.01
FARRNTCNMANF GRID 74 HC 3010 VC 42944																
TYPE	4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TYPE	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.02	0.02	0.0	0.0	0.0
TYPE	5	0.0	0.0	0.0	0.04	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL		0.0	0.00	0.00	0.04	0.04	0.04	0.0	0.00	0.00	0.02	0.02	0.02	0.0	0.00	0.00
GRAYCCNCRPIP GRID 76 HC 3107 VC 42936																
TYPE	4	0.0	0.12	0.05	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
TOTAL		0.0	0.12	0.05	0.0	0.02	0.01	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.06	0.02
LOGETRONICS GRID 76 HC 3104 VC 42928																
TYPE	4	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
TOTAL		0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.01	0.00
POSSUMPTPWR GRID 83 HC 3008 VC 42673																
TYPE	4	0.12	0.12	0.10	0.02	0.02	0.02	2.70	2.70	2.22	26.98	26.98	22.18	7.06	7.06	5.80
TOTAL		0.12	0.12	0.10	0.02	0.02	0.02	2.70	2.70	2.22	26.98	26.98	22.18	7.06	7.06	5.80

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
FAIRFAXASPHT GRID 68 FC 3100 VC 4295															
TYPE 4	0.00	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYPE 5	0.0	0.0	0.0	8.44	8.44	8.44	[illegible]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.00	0.00	0.00	8.44	8.44	8.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VACCNCRETEES GRID 69 FC 3115 VC 42969															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	[illegible]	[illegible]	[illegible]	0.0	0.00	0.00	0.0	0.00	0.00
NEWTONASPHAL GRID 70 FC 3145 VC 42969															
TYPE 4	0.0	0.10	0.04	0.0	0.03	0.01	[illegible]	0.00	0.00	0.0	0.01	0.00	0.0	0.15	0.07
TYPE 5	0.0	0.0	0.0	0.27	0.27	0.27	[illegible]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.10	0.04	0.27	0.21	0.29	[illegible]	0.00	0.00	0.0	0.01	0.00	0.0	0.16	0.07
NEWTONASPHTA GRID 70 FC 3149 VC 42069															
TYPE 4	0.75	0.75	0.75	0.04	0.04	0.04	0.00	0.00	0.00	0.01	0.01	0.01	0.14	0.14	0.14
TYPE 5	0.0	0.0	0.0	11.10	11.10	11.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.75	0.75	0.75	11.14	11.14	11.14	0.00	0.00	0.00	0.01	0.01	0.01	0.14	0.14	0.14
VACCNCRETERE GRID 73 FC 3230 VC 42365															
TYPE 4	0.0	0.00	0.00	0.0	0.00	0.00	[illegible]	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.00	0.00	0.0	0.00	0.00	[illegible]	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00

	SOX S	SOX W	SOX A	PART S	PART W	PART A	CO S	CO W	CO A	HC S	HC W	HC A	NOX S	NOX W	NOX A
AMERSTONECO GRID 84 HC 3099 VC 42375															
TYPE 5	0.0	0.0	0.0	0.03	0.03	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.03	0.03	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WARRENBROSCO GRID 86 HC 3040 VC 42843															
TYPE 4	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
TYPE 5	0.0	0.0	0.0	0.13	0.13	0.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.03	0.03	0.03	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
VULCANMATERA GRID 86 HC 3030 VC 42844															
TYPE 5	0.0	0.0	0.0	2.44	2.44	2.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	2.44	2.44	2.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNIVDYNAMICS GRID 86 HC 3041 VC 42810															
TYPE 4	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
TOTAL	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.02	0.01
GUNSTONHALPE GRID 88 HC 3121 VC 42816															
TYPE 4	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
TOTAL	0.0	0.01	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00

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ABBREVIATIONS AND CODES

S = SUMMER W = WINTER A = ANNUAL -AVERAGE

TYPE = SECONDARY CATEGORY

1=AIRPORT 2=RAILROADS 3=VESSELS 4=FUEL COMBUSTION 5=PROCESS LOSSES

6=SOLVENT EVAPORATION 7=MUNICIPAL INCINERATION 8=ON-SITE INCINERATION 9=DUMP

METHODOLOGY FOR AIR QUALITY DATA ANALYSES

I. INTRODUCTION

The data analysis methods were selected with consideration that many sets of data spanned appreciably less than a year and that within the time spanned data were sampled and incomplete for all averaging times of interest.

However, to the measurements we can add some additional information with an established empirical basis.

- Concentrations are log - normally distributed for any particular averaging time (Larsen, Zimmer & Larsen).
- The median concentration is proportional to a power of the averaging time (Larsen).
- Maximum concentrations are proportional to a power of the averaging time for averaging times less than one month (Larsen, Zimmer & Larsen).

By plotting the distribution of air quality measurements on log-normal plotting charts (Figure 1), we can extract several significant statistics graphically. Plots of this kind offer two prime advantages.

- Reasonableness checks on the data.
- Measurements of zero concentrations are accommodated.

The reasonableness checks require no additional computation. A quick glance at the chart shows whether the data lie on a straight line or some other curve; it also indicates whether one or more measurements are out of line with the others. Measurements yielding zero concentrations create problems when computing the geometric mean. Strictly, a single measurement of zero in a set will force the geometric mean of the set to be zero. Although this simplifies computations, it is somehow dissatisfying as a measure of central tendency. Some analysts suggest revising the data by replacing the zero readings with the minimum detectable concentration of the instrument; others suggest discarding the zero readings and computing statistics on the set of non-zero readings. Neither approach is immune to criticism; however, if the statistics can be determined from the cumulative probability distribution (the tendency line on log-normal plotting paper), then the matter of zero measurements causes no difficulty whatsoever.

II. THE CUMULATIVE PROBABILITY FUNCTION OF A SMALL SAMPLE.

Consider an ordered sample $X_1 < X_2 < \ldots < X_n$ drawn (independently) from a population with the density function $F(X)$. The joint distribution of the smallest and largest values is (Wilks):

$$\varphi(x_1, x_n) = n(n-1)\left\{ \int_{x_1}^{x_n} F(x)\,dx \right\}^{n-2} F(x_1)\, F(x_n)\, dx_1\, dx_n$$

Set $u = \int_{-\infty}^{x_1} F(x)\,dx$ and $v = \int_{x_1}^{x_n} F(x)\,dx$

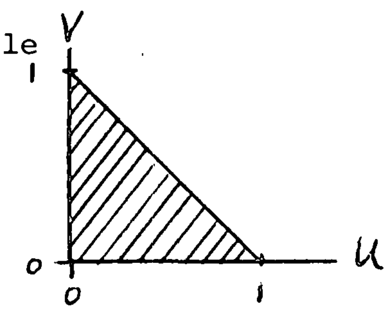
$$\phi(x_1, x_n) = n(n-1)\, v^{n-2} F(x_1) F(x_n)\, J\left(\frac{x_1, x_n}{u, v}\right) du\, dv$$

but $J\left(\frac{x_1, x_n}{u, v}\right) = \left[\frac{\partial(u, v)}{\partial(x_1, x_n)}\right]^{-1} = \frac{1}{F(x_1) F(x_n)}$

So that the joint distribution of u and v is

$$n(n-1)\, v^{n-2}\, du\, dv$$

and the region of non-zero probability is inside the triangle



The joint distribution is integrated with respect to u to yield the marginal distribution of v:

$$n(n-1) \int_0^{1-v} v^{n-2}\, du\, dv = n(n-1)\, v^{n-2} (1-v)\, dv$$

V is the proportion of the population contained between the minimum and maximum samples.

The expected value for the proportion of the population between the maximum and minimum samples is

$$\mathcal{E}(V) = \int_0^1 v\left[n(n-1)\, v^{n-2} (1-v)\right] dv = \frac{n-1}{n+1} = \bar{V}$$

Ordinarily, in constructing a cumulative frequency function from a set of ordered samples, the probability associated with sample X_k is k/n; but that implies that $P(X \leq Xn) = n/n = 1$. From the discussion above, we know that on the average

$$P(X \leq X_n) - P(X < X_1) = \bar{V} = \frac{n-1}{n+1}$$

Thus, we can expect a fraction of the population (2/(n+1)) to lie outside the sample range.

$$P(X < X_1) + P(X > X_n) = \frac{2}{n+1} = 1 - \bar{V}$$

Let F(X) be non-zero on the interval X_0 to X_∞.

Case I $\quad X_0 < X_1 < X_n < X_\infty$

In this case the remainder of the population not covered by the sample range lies both above and below the sample range. As a first approximation (in ignorance of the population parameters) we can allocate the remainder of the population equally above the largest sample and below the smallest sample. Thus, the population below X_1 is 1/n+1 of the whole and for $1 \leq K \leq n$

$$P(X \leq X_K) = \frac{1}{n+1} + \frac{K(n-1)}{n(n+1)}$$

Case II $\quad X_0 = X_1 < X_n < X_\infty$

In this case the smallest sample value corresponds to the lower end of the domain of F(X), and we allocate all of the remaining fraction of the population to the interval above Xn. Thus for $1 \leq K \leq n$

$$P(X \leq X_K) = \frac{K(n-1)}{n(n+1)}$$

In either case, a plot of X_k vs. $P(X \leq X_k)$ can be made on log-normal probability paper.

The distributions of measured concentrations of air pollutants are expected to follow the log-normal distribution according to Larsen. Thus, we can expect the plots of X_k vs. $P(X \leq X_k)$ to approximate straight lines. Usually, a straight line can be drawn by eye-ball analysis. If the plot is curved rather than straight, then the analyst still has a reasonable basis for selecting meaningful parameters of the concentration distributions.

III. ESTIMATING STATISTICAL PARAMETERS

The median (P=0.5) is an estimator for the geometric mean (Hald, Zimmer & Larsen).

For a given averaging time (a) there are (365.26 days/a) = N possible independent samples in a year. Thus, the probability that only one sample in a year will exceed a particular concentration can be computed from

$$N \int_0^{X_{max}} \psi(x,m,s)\,dx = N-1$$

where $\psi(x,m,s)$ is the probability density function. Thus

$$\int_0^{X_{max}} \psi(x,m,s)\,dx = \frac{N-1}{N} = 1 - \frac{1}{N}$$

defines Xmax. This value can be determined from the plot and the straight line through it by noting the concentration corresponding to a probability of 1-1/N. If the plotted points do not conform to a straight line they can be extrapolated following the trend to cross the probability level. Thus, even if the data are not log-normal distributed, the maximum expected concentration can be estimated meaningfully. Moreover, if the maximum observed value does not lie on or near a smooth curve thru the other plotted points, it can be neglected on reasonable grounds. This computation yields "maximum" concentrations that are typically in excess of the observed maximum concentrations; however, this is as it should be for the observed maxima are drawn from incomplete sets of measurements.

The probabilities for several averaging times and the corresponding reduced variate are shown below.

Averaging Time	Probability	Reduced Variate
24 hours	0.997262	2.775
8 hours	0.999087	3.117
1 hour	0.999886	3.715

The log-normal cumulative probability function is

$$P_{LN}(\chi \leq X) = \int_0^X \frac{1}{S\chi\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{\ln\chi - m}{S}\right)^2} d\chi$$

For the normal distribution with zero mean and unit standard deviation, the cumulative probability distribution is

$$P_N(z \le Z) = \int_{-\infty}^{Z} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2} dz$$

Equating probabilities

$$P_{LN}(x \le X) = P_N(z \le Z)$$

defines the reduced variate, Z, referred to above.

The geometric standard deviation (Sg) can also be computed with the aid of the plotted data and the relation

$$X = (\text{median})\, S_g^{Z}$$ (Zimmer & Larsen)

Where Z is the reduced variate corresponding to the probability of the concentration X. In particular for Z =1, we have the probability 0.841. Thus, if we chose the concentration corresponding to the probability 0.841 for X then

$$S_g = \frac{X_{.841}}{\text{median}}$$

Zimmer and Larsen suggest another method for computing the geometric standard deviation for 1-hour averaging times. It is

$$S_g = \left(\frac{X_{.999}}{X_{.7}}\right)^{0.388}$$

where X.999 is the concentration at probability 0.999=99.9% and X.70 is the concentration at probability 0.70=70%.

Larsen used the formula

$$M = M_g \, S_g^{\ln \sqrt{S_g}}$$

where Mg is the geometric mean and M is the arithmetic mean to define a relation valid for all averaging times. However, it also provides a means for computing the annual arithmetic mean. This formulation was used in the form of a Nomogram (Figure 2) for computing annual arithmetic means. Kendall and Stuart argue that this formulation is biased upward and suggest another maximum likelihood estimator that is unbiased; however, time constraints did not permit investigation of the suitability of the suggested approach for application to the data in this case.

IV. CHANGING AVERAGING TIMES FOR MAXIMUM CONCENTRATIONS.

Zimmer and Larsen and Larsen provide formulations for computing maximum concentrations at different averaging times. In Larsen the basic formula is

$$X_{max} = (X_{maxHR})\, a^{b}$$

where XmaxHr is the maximum concentration for a one hour averaging time.

a is another averaging time expressed in hours.

b is a function of the geometric standard deviation tabulated in Table III of Larsen.

References

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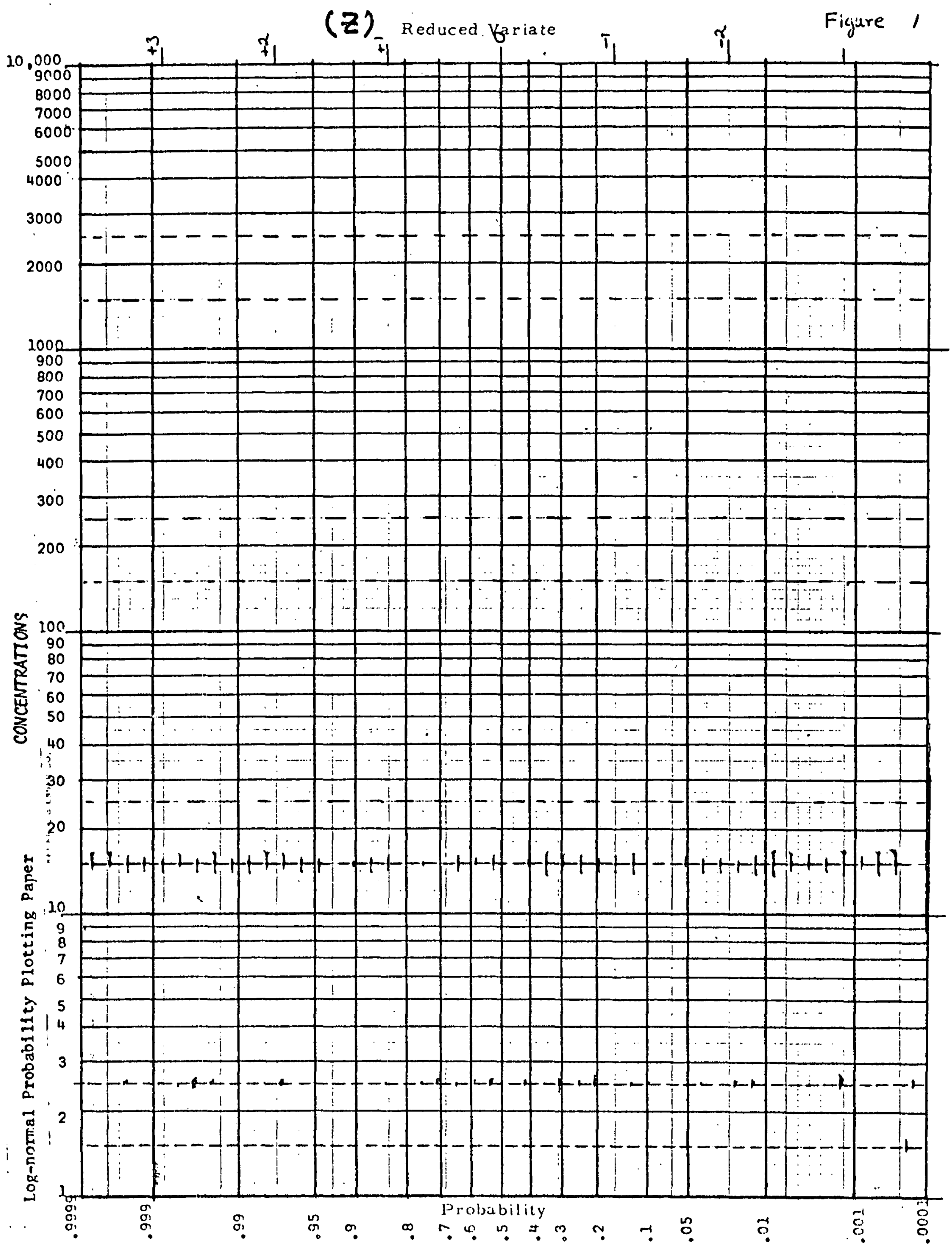
C. E. Zimmer And R. I. Larsen — "Calculating Air Quality And Its Control", Jnl Of The Air Pollution Control Association, V15#12, December 1965 (p.565-572)

Figure 1



(Z) Reduced Variate
+3
+2
+1
0
-1
-2
CONCENTRATIONS
10,000
9000
8000
7000
6000
5000
4000
3000
2000
1000
900
800
700
600
500
400
300
200
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Log-normal Probability Plotting Paper
Probability
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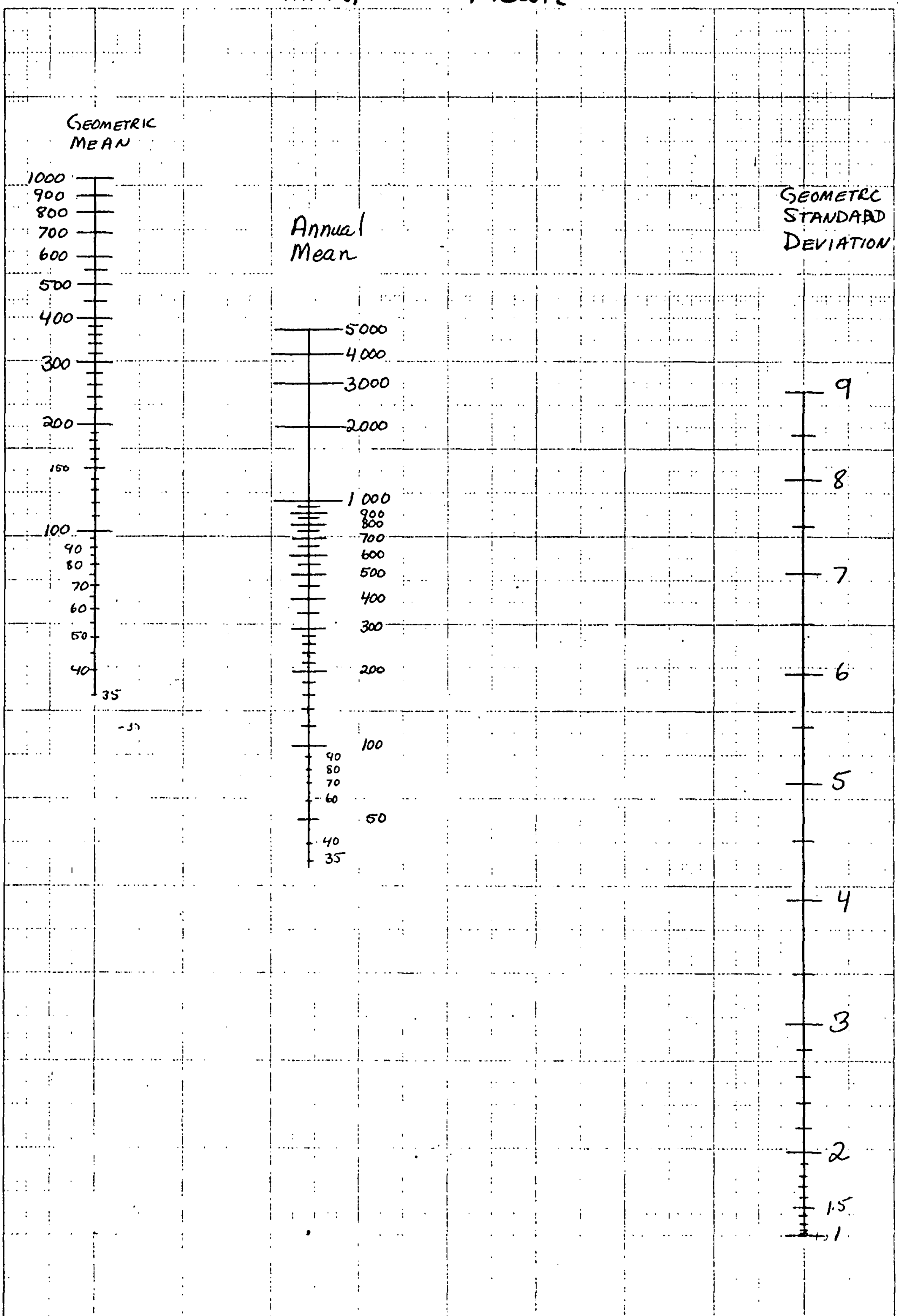
Figure 2

Annual Mean



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AIR QUALITY DATA SUMMARY

Virginia
Concentrations in micrograms per cubic meter

Pollutant	Sampling site location: UTM Zone	Easting (KM)	Northing (KM)	Sampling interval (months)	Start date	End date	No. of samples	Maximum 1-hour	Observed Maximum 24-Hours	Maximum 24-hours	Annual arithmetic mean	Annual geometric mean	Geometric standard deviation
Particulate Matter	17	529.2	4136.3	7	11/69	3/71	35		2428	3100		600	2.00
	17	523.7	4130.9	5	5/70	9/70	38		296	640		110	1.91
	17	517.6	4130.8	6	10/70	4/71	38		161	260		59	1.70
	17	431.2	4082.5	11	11/69	10/70	68		600	880		160	1.88
	17	518.5	4099.8	6	3/71	8/71	41		359	180		63	1.46
	17	522.4	4099.7	6	4/71	9/71	33		453	800		75	3.20
	17	617.6	4154.1	10	10/70	9/71	76		1239	1600		80	3.12
	17	751.6	4349.0	6	3/71	8/71	54		883	1000		105	2.28
	17	753.4	4349.1	2	5/70	6/70	15		195	440		80	1.81
	17	751.8	4349.0	2	6/70	7/70	12		173	310		84	1.61
	17	751.8	4349.0	2	8/70	9/70	10		124	180		62	1.36
	17	751.8	4349.0	6	9/70	2/71	34		510	790		65	2.46
	17	743.0	4315.7	8	10/69	5/70	46		182	220		50	1.72
	17	742.4	4313.2	4	1/71	4/71	16		199	420		55	2.18
	17	753.9	4330.6	11	9/70	7/71	63		391	105		39	1.64
	18	280.8	4331.5	22	10/69	9/71	169		274	280		45	1.78
	18	284.6	4292.0	22	10/69	9/71	171		245	280		80	1.53
	18	300.4	4275.0	18	3/70	9/71	121		128	150		56	1.41
	17	652.8	4108.5	9	4/70	12/70	69		383	450		130	1.54
	17	266.0	4107.0	8	2/71	9/71	59		222	280		56	1.79
	17	236.1	4136.5	9	1/71	9/71	63		271	320		54	2.04
	18	284.0	4146.0	4	3/71	8/71	14		141	370		50	2.00
	18	289.2	4143.4	4	11/69	2/70	29		56	76		32	1.31
	18	275.3	4165.9	2	11/70	12/70	10		199	915		58	2.67
	17	391.1	4050.9	20	2/70	9/71	119		229	240		54	1.46
	17	507.2	4056.7	13	8/70	8/71	88		269	285		85	1.53
	17	686.1	4216.8	16	1/70	9/71	113		249	170		49	1.76
	18	297.5	4130.2	19	10/69	8/71	83		417	440		85	1.63
	17	600.5	4061.0	12	8/70	8/71	82		185	210		63	1.52

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AIR QUALITY DATA SUMMARY

Virginia

Concentrations in micrograms per cubic meter

Pollutant	Sampling site location UTM Zone	Easting (KM)	Northing (KM)	Sampling interval (months)	Start date	End date	No. of samples	Maximum 1-hour	Observed Maximum 24-Hours	Maximum 24-hours	Annual arithmetic mean	Annual geometric mean	Geometric standard deviation
Particulate Matter	17	674.0	4174.95	6	1/70	4/70	16		379	1,000		100	2.30
	17	737.0	4176.2	2	4/70	5/70	11		109	580		35	2.74
	17	736.7	4176.3	3	5/70	7/70	12		189	640		68	2.22
	18	283.1	4326.8	3	7/71	9/71	12		113	280		47	1.91
	17	632.1	4133.2	2	7/70	8/70	12		92	183		43	1.70
	17	736.8	4175.8	2	4/70	5/70	12		249	1,200		125	2.32
	17	735.4	4178.4	2	5/70	6/70	14		90	152		52	1.50
	17	644.8	4155.3	2	5/70	6/70	15		374	500		96	1.82
	17	564.8	4062.2	3	3/71	5/71	16		395	670		225	1.51
	17	632.0	4133.0	3	12/69	2/70	18		129	255		47	1.70
	17	631.4	4133.0	4	6/71	9/71	19		617	2,100		172	2.53
	17	675.3	4174.5	4	8/70	11/70	19		358	900		110	2.18
	17	739.6	4167.1	4	9/70	12/70	21		84	300		45	2.00
	17	738.2	4177.4	3	5/69	7/69	22		125	205		87	1.38
	18	301.9	4277.7	3	3/71	5/71	22		141	260		73	1.62
	17	671.5	4163.2	4	6/71	9/71	23		124	220		58	1.60
	17	668.1	4139.2	3	12/69	3/70	23		156	430		63	2.03
	17	632.1	4132.9	4	2/70	5/70	25		215	370		79	1.75
	17	537.4	4109.2	4	11/69	4/70	24		136	240		48	1.79
	17	736.6	4175.8	3	7/69	9/69	25		311	720		107	2.03
	17	738.0	4176.5	3	5/69	7/69	26		97	137		52	1.44
	17	663.8	4140.6	4	5/71	8/71	28		1,000	680		120	1.88
	17	666.2	4142.2	5	12/69	4/70	28		273	380		62	1.94
	17	739.5	4177.1	4	6/70	9/70	28		382	305		65	1.73
	17	569.7	4056.2	6	8/70	5/71	28		179	270		78	1.60
	17	646.5	4052.7	5	4/71	8/71	28		360	330		64	1.80
	17	687.5	4062.8	6	10/69	7/71	28		91	165		34	1.82

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Virginia

Concentrations in micrograms per cubic meter

AIR QUALITY DATA SUMMARY

Pollutant	Sampling site location UTM Zone	Easting (KM)	Northing (KM)	Sampling interval (months)	Start date	End date	No. of samples	Maximum 1-hour	Observed Maximum 24-Hours	Maximum 24-hours	Annual arithmetic mean	Annual geometric mean	Geometric standard deviation
Particulate Matter	18	287.9	4123.3	3	10/70	12/71	9		154	360		77	1.75
	18	286.6	4122.7	9	1/71	9/71	75		343	430		85	1.76
	18	284.9	4156.4	3	4/70	6/70	24		173	260		80	1.75
	18	284.9	4157.4	11	7/70	7/71	65		342	270		85	1.53
	17	686.9	4063.9	7	2/71	8/71	50		865	1850		130	2.62
	18	383.8	4075.0	5	11/69	3/70	31		186	300		78	1.67
	18	385.6	4076.1	18	3/70	8/71	172		394	490		80	1.94
	18	384.5	4069.7	9	12/70	8/71	81		796	1100		90	2.44
	18	328.0	4060.8	15	5/70	9/71	109		196	250		50	1.78
	18	372.8	4093.3	17	4/70	8/71	143		489	310		60	1.83
	18	383.5	4083.0	16	5/70	8/71	135		215	260		58	1.71
	18	383.5	4073.0	8	4/70	11/70	67		238	190		55	1.58
	18	379.9	4080.5	10	11/70	8/71	86		139	160		54	1.84
	17	589.1	4069.2	6	4/71	9/71	29		328	600		122	1.80
	18	321.7	4301.1	4	3/70	6/70	31		196	280		81	1.58
	17	602.4	4060.7	5	2/70	6/70	31		113	177		55	1.67
	17	631.0	4132.7	6	2/70	7/70	36		129	225		65	1.74
	18	295.4	4267.0	7	2/71	9/71	44		155	270		43	1.95
	17	682.9	4102.5	12	9/70	8/71	49		124	680		68	1.89
	18	314.7	4305.9	7	12/69	6/70	63		198	200		57	1.44
	17	664.8	4142.2	5	5/71	9/71	25		308	348		80	1.86

AIR QUALITY DATA SUMMARY

Virginia
Concentrations in micrograms per cubic meter

Pollutant	Sampling site location			Sampling interval (months)	Start date	End date	No. of samples	Maximum 1-hour	Observed Maximum 24-Hours	Maximum 24-hours	Annual arithmetic mean	Annual geometric mean	Geometric standard deviation
	UTM Zone	Easting (KM)	Northing (KM)										
Sulfur Dioxide	18	284.9	4157.4	7	7/70	3/71	9		144	524	65.5		2.48
	18	386.6	4075.6	13	5/70	7/71	21		241	838	50		3.70
	18	384.5	4069.7	4	5/71	8/71	8		76	246	38		2.26
	18	383.5	4083.0	10	11/70	8/71	19		288	785	60		3.19
	18	313.4	4305.0	8	12/70	7/71	5675		200	218	63		1.85
	18	290.3	4143.0	Point	Model	Appendix A				132			
	18	286.0	4150.0	Point	Model	Appendix A				10			
	18	300.5	4134.5	Point	Model	Appendix A				10			
	18	383.8	4073.8	Point	Model	Appendix A				38			
	18	370.0	4050.0	Point	Model	Appendix A				20			
	18	381.3	4071.3	Point	Model	Appendix A				31			
									Observed Maximum 1-Hour	Observed 2nd Highest 1-Hour Maximum			
Oxidants	18	286.6	4162.7	3	7/71	9/71	874	274	220				1.60
	18	321.7	4298.5	3	4/71	6/71	1969	191	157				1.85
	18	313.4	4305.0	3	5/71	7/71	2141	388	231				1.82
	18	392.7	4083.7	2	7/71	8/71	1240	274	206				1.58
	Richmond (Summer Study)				1600 8 July '71					220			
	Norfolk (Summer Study)				1500 18 July '71					176			
Hydrocarbons	18	285.0	4160.0	Area	Model	Appendix A					58		
	18	387.5	4073.8	Area	Model	Appendix A					115		

AIR QUALITY DATA SUMMARY

Virginia

Concentrations in micrograms per cubic meter

Pollutant	Sampling site location: UTM Zone	Easting (KM)	Northing (KM)	Sampling interval (months)	Start date	End date	No. of samples	Maximum 1-hour	Maximum 8-hours	Maximum 24-hours	Annual arithmetic mean	Annual geometric mean	Geometric standard deviation
Nitrogen Dioxide	18	284.9	4157.4	7	7/70	3/71	9				168		3.085
	18	386.6	4075.6	13	5/70	7/71	21				124		2.58
	18	384.5	4069.7	4	5/71	8/71	8				185		1.59
	18	391.7	4081.9	9	11/70	8/71	18				234		4.68
	18	321.7	4298.5	3	4/71	6/71	1713				40		2.02
	18	313.4	4305.0	3	4/71	6/71	1816				73		1.92
	18	285.0	4155.0	Area	Model	Appendix A					87		
	18	385.0	4072.5	Area	Model	Appendix A					211		
										Observed Maximum 1-Hour			
Carbon Monoxide	18	283.5	4158.0	3	7/71	9/71	1813	13,180	4,587	9,170			3.73
	18	386.2	4078.8	2	7/71	8/71	544	95,200	35,530	32,600			3.84
	18	313.4	4305.0	3	5/71	7/71	2178	13,750	8,710	9,740			1.68
	18	285.0	4160.0	Area	Model	Appendix A					258		
	18	387.5	4085.0	Area	Model	Appendix A			Observed		373		
	Richmond, Va.			Summer Study	0800 - 1500	27 Aug. '71			9,270				
	Norfolk, Va.			Summer Study	0100 - 0800	13 July '71			16,500				