AIR POLLUTION

HEARINGS

BEFORE

SUBCOMMITTEE NO. 2

OF THE

COMMITTEE ON THE DISTRICT OF COLUMBIA HOUSE OF REPRESENTATIVES

NINETIETH CONGRESS

FIRST SESSION

ON

H.R. 6981, H.R. 10017, and H.R. 12232

TO PROVIDE FOR THE PREVENTION, ABATEMENT, AND CONTROL OF AIR POLLUTION IN THE DISTRICT OF COLUMBIA

AUGUST 10 AND 16, 1967

U.S. GOVERNMENT PRINTING OFFICE

82-615 WASHINGTON : 1967

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AIR POLLUTION

THURSDAY, AUGUST 10, 1967

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE NO. 2 OF THE
COMMITTEE ON THE DISTRICT OF COLUMBIA,
Washington, D.C.

The subcommittee met, pursuant to notice, at 11:00 a.m. in room 1310, Longworth House Office Building, Hon. Abraham Multer presiding.

Present: Representatives Multer (chairman), Winn, and Gude.

Also present: James T. Clark, clerk; Hayden S. Garber, counsel; Sara Watson, assistant counsel; Donald Tubridy, minority clerk; Leonard O. Hilder, investigator.

Mr. MULTER. The Committee will please be in order.

We have met today to consider H.R. 6981, introduced by our distinguished colleague from Maryland, Mr. Gude, and H.R. 10017, introduced by another one of our distinguished colleagues from New York, Mr. Horton, both of whom serve on this District Committee; and we will also consider H.R. 12232, which I introduced yesterday. Those three bills will be made a part of the record at this point.

(H.R. 6981 and H.R. 10017 follow:)

H.R. 6981, 90th Congress, first session, by Mr. Gude on March 9, 1967, and H.R. 10017 by Mr. Horton on May 16, 1967

A BILL To provide for the prevention, abatement, and control of air pollution in the District of Columbia

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "District of Columbia Air Pollution Control Act".

DECLARATION OF POLICY

SEC. 2. It is the policy of this Act to preserve, protect, and improve the air resources so as to promote health, safety, and welfare, prevent injury to human health, plant and animal life, and property, to foster the comfort and convenience of its inhabitants, and, to the greatest degree practicable, to facilitate the enjoyment of the natural attractions of the District of Columbia.

DEFINITIONS

SEC. 3. For purposes of this Act—

(1) The term "air contaminant" means dust, fumes, gas, mist, smoke, vapor, odor, or particulate matter, or any combination thereof, present in the atmosphere.

(2) The term "air pollution" means the presence in the outdoor atmosphere of one or more air contaminants, or any combination thereof, in sufficient quantities and of such characteristics and duration as is or is likely to be injurious to public welfare, to the health of human, plant, or animal life, or to property, or which interferes with the enjoyment of life and property.

(3) The term "control equipment" means any equipment which has the function of controlling the emissions from a process, fuel-burning, or refuse-burning equipment and reducing the creation or emission of air contaminants into the atmosphere, or both.

(4) The term "Commissioners" means the Commissioners of the District of Columbia.

(5) The term "fuel-burning equipment" means any equipment, device, or contrivance, and all appurtenances thereto, including ducts, breechings, fuel-feeding equipment, ash-removal equipment, combustion controls, stacks, and chimneys, used primarily, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by, and adds no substance to, the products of combustion.

(6) The term "incinerator" means any equipment, device, or contrivance used for the destruction of garbage, rubbish, or other wastes by burning, and all appurtenances thereof.

(7) The term "opacity" means the state of a substance which renders it partially or wholly impervious to rays of light. The term refers to the obscuration of an observer's view.

(8) The term "open fire" means a fire in which any material is burned in the open or in a receptacle other than a furnace, incinerator, or other equipment connected to a stack.

(9) The term "particulate matter" means material which is or has been suspended in air or other gases and is a liquid or a solid at standard conditions of temperature (68 degrees Fahrenheit) and pressure (14.7 pounds per square inch absolute).

(10) The term "person" includes an individual or a partnership, public or private corporation, association, department, or agency of the District of Columbia Government, or any other legal entity.

(11) The term "process weight" means the total amount of all material introduced into an industrial operation, including solid fuels, but excluding liquid fuels and gaseous fuels when these are used as fuels and air introduced for purposes of combustion.

(12) The term "process weight per hour" means—

(A) in the case of continuous or long-term operation, the total process weight for the entire period of operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof, and

(B) in the case of a batch operation, the total process weight for a period which covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such period.

(13) The term "Ringelmann Smoke Chart" means a chart for grading the appearance, density, or shade of smoke, as published, with instructions for use, by the United States Bureau of Mines in Information Circular 7718, dated August 1955.

(14) The term "salvage operation" means any operation conducted in whole or in part for the salvaging or reclaiming of any product or material.

(15) The term "smoke" means small gas borne partcles, other than water, in sufficient number to be observable.

(16) The term "source" means any physical arrangement, condition, or structure which may emit air contaminants.

SEC. 4. The Commissioners shall establish an Air Pollution Control Agency. The Commissioners shall carry out the provisions of the Act through such Agency. The Agency shall be headed by an Administrator, appointed by the Commissioners, who shall perform such duties as are delegated to him by the Commissioners.

DUTIES AND POWERS

SEC. 5. (a) The Commissioners shall—

(1) conduct studies, investigations, and research relating to air pollution and its prevention, abatement, and control;

(2) prepare and develop a comprehensive plan or plans for the prevention, abatement, and control of air pollution;

(3) advise, consult, and cooperate with agencies of the District of Columbia Government, industries, interstate or interlocal agencies, the Federal Government, and interested persons and groups;

(4) review those matters having a bearing upon air pollution referred by agencies of the District of Columbia Government, and make reports, including recommendations, to the referring agencies with respect thereto;

(5) collect and disseminate information and conduct educational and training programs relating to air pollution; and

(6) encourage voluntary cooperation by persons or affected groups to achieve the purposes of this Act.

(b) For purpose of carrying out their duties under this Act, the Commissioners may—

(1) issue such orders as may be necessary to effectuate the purposes of this Act and enforce the same by all appropriate administrative and judicial proceedings;

(2) hold hearings relating to any aspect of, or matter in, the administration of this Act;

(3) secure necessary scientific, technical, administrative, and operational services, including laboratory facilities by contract, or otherwise;

(4) receive and administer grants or gifts for the purpose of carrying out the purposes of this Act; and

(5) take any other action which may be necessary to carry out the purposes of this Act.

REPORTING OF INFORMATION

SEC. 6. The Commissioners may require persons engaged in operations which may result in air pollution to file with the Commissioners reports containing information as to (1) location and description of source; (2) rate, duration, and composition of contaminant emission; and (3) such other information as the Commissioners may require.

CONSTRUCTION PERMITS

SEC. 7. (a) Except as provided in subsection (c), it shall be unlawful to construct, reconstruct, install, or alter any fuel-burning equipment or any other equipment capable of emitting air contaminants unless the Commissioners have issued a permit for such construction, reconstruction, installation, or alteration. Applications for such permit shall be accompanied by such plans, specifications, and information as the Commissioners may by regulation prescribe.

(b) It shall be unlawful for any person to operate any fuel-burning equipment or any other equipment capable of emitting air contaminants with respect to which a permit has been issued under this section unless such equipment conforms to the plans and specifications on the basis of which such permit was issued.

(c) A permit for the construction, reconstruction, installation, or alteration of fuel-burning equipment or equipment capable of emitting air contaminants shall not be required in the case of—

(1) any oil-fired fuel-burning equipment which uses only number 1 or number 2 fuel oil and which uses only commercial equipment listed by the Underwriters Laboratory,

(2) any gas-fired fuel-burning equipment which uses only commercial equipment listed by the Underwriters Laboratory,

(3) any solid-fuel fired fuel-burning equipment which uses commercial equipment listed by the Underwriters Laboratory and the fuel input of which will not exceed three hundred and fifty thousand British thermal units per hour,

(4) any fuel-burning equipment or any other equipment capable of emitting air contaminants which is not permanently installed in a stationary building or structure, or

(5) repairs or minor alterations to any equipment installed prior to the effective date of this Act or with respect to which a permit has been issued under this section.

(d) No person may build, erect, install, or use any article, equipment, or other contrivance the sole purpose of which is to dilute or conceal an emission without resulting in the total release of air contaminants into the atmosphere.

INSPECTIONS

SEC. 8. The Commissioners or their authorized representative may enter and inspect any property, premise, or place at any reasonable time for the purpose of investigating or testing either an actual or suspected source of air pollution, or of ascertaining the state of compilance with this Act and regulations enforced pursuant thereto. No person shall refuse entry or access to the Commissioners or their authorized representative who requests entry for the aforementioned purposes, and who presents appropriate creditentials; nor shall any person obstruct, hamper, or interfere with any such inspection.

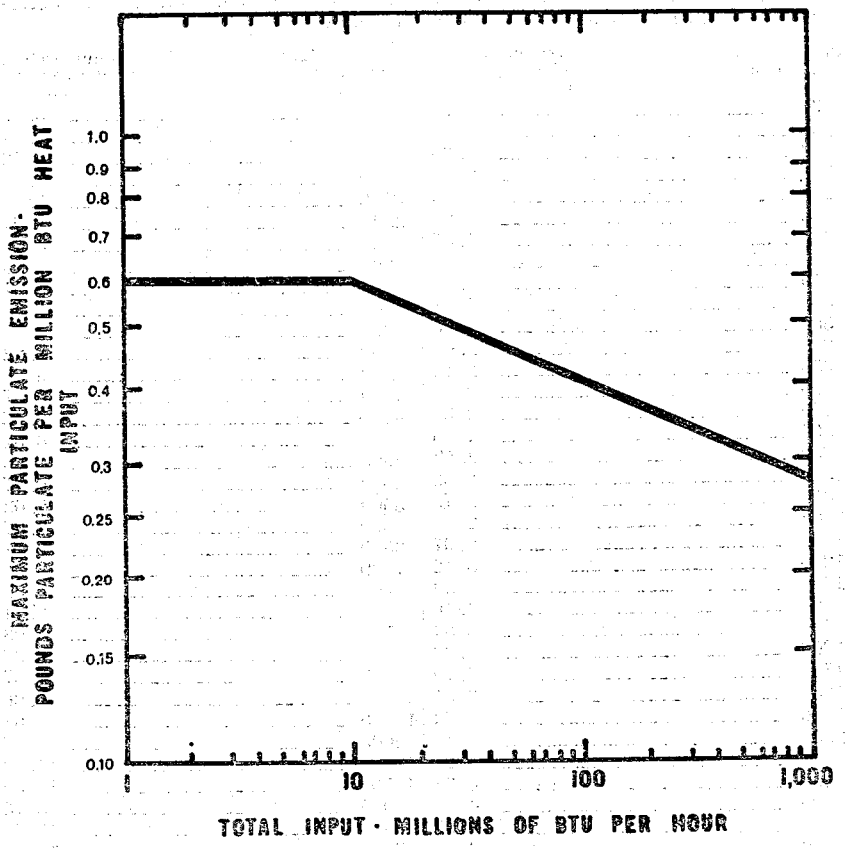
EMISSIONS PROHIBITED

SEC. 9. (a) (1) A person shall not discharge into the outdoor atmosphere from any single source of emission whatsoever any air contaminant which is (A) darker in shade than that designated as number 1 on the Ringelmann Smoke Chart or (B) of such opacity as to obscure an observer's view to a degree greater than does smoke designated as number 1 on the Ringelmann Smoke Chart, except that if a person can show to the satisfaction of the Commissioners that an emission of air contaminants contains less than ten one-hundredths pound of particulate matter per one thousand pounds of dry exhaust gas, adjusted to 12 per centum carbon dioxide (or 50 per centum excess air) for fuel-burning equipment or incinerators, such emission shall not be prohibited by this paragraph.

(2) Visible emissions existing at ground level past the lot line of the property on which the source of the emissions is located are prohibited.

(b) (1) No person shall cause, suffer, 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 sixty one-hundredths pound per one million British thermal units heat input for installations using less than ten million British thermal units per hour total input. In the case of installations using greater than ten million British thermal units per hour total input, the allowable particulate emission limitation shall be determined in accordance with the following graph:

MAXIMUM EMISSION OF PARTICULATE MATTER FROM FUEL BURNING INSTALLATIONS



(2) The burning of refuse in fuel-burning equipment is prohibited except in equipment from which no visible emissions in excess of that permitted by subsection (a) of this section and no particulate matter in excess of that permitted by this subsection are emitted, and no odors arising from the installation are observable beyond the premises on which the installation is located.

(3) No person shall cause, suffer, or allow to be emitted into the outdoor atmosphere from any incinerator or premises, or to pass a convenient measuring point near the stack outlet particulate matter to exceed sixty-five one-hundredths pound per one thousand pounds of the flue gas, adjusted to 12 per centum carbon dioxide (or 50 per centum excess air) and calculated as if no auxiliary fuel had been used, for incinerators designed for burning up to two hundred pounds of refuse per hour or to exceed thirty one-hundredths pounds per one thousand pounds of flue gas, adjusted to 12 per centum carbon dioxide (or 50 per centum excess air) and calculated as if no auxiliary fuel had been used, for incinerators designed for burning two hundred or more pounds of refuse per hour. In no case shall the total discharge of particulate matter in any one hour exceed two hundred and fifty pounds.

(4) No person shall cause or permit any materials to be handled, transported, or stored in a manner which allows or may allow particulate matter to become airborne. No person shall cause or permit a building or its appurtenances or a road to be constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne.

(5) The maximum allowable emission of particulate matter from any source, except fuel-burning equipment and incinerators, shall be determined in accordance with the table set out below. Where the process weight per hour falls between two values in the table, the maximum weight discharged per hour shall be determined by linear interpolation. The table is as follows:

Process weight per hour (pounds)	Maximum weight discharge per hour (pounds)	Process weight per hour (pounds)	Maximum weight discharge per hour (pounds)
50	0.24	3300	5.36
100	0.46	3400	5.44
150	0.66	3500	5.52
200	0.85	3600	5.61
250	1.03	3700	5.69
300	1.20	3800	5.77
350	1.35	3900	5.85
400	1.50	4000	5.93
450	1.63	4100	6.01
500	1.77	4200	6.08
550	1.85	4300	6.15
600	2.01	4400	6.22
650	2.12	4500	6.30
700	2.24	4600	6.37
750	2.34	4700	6.45
800	2.43	4800	6.52
850	2.53	4900	6.60
900	2.62	5000	6.67
950	2.72	5500	7.03
1000	2.80	6000	7.37
1100	2.97	6500	7.71
1200	3.12	7000	8.05
1300	3.26	7500	8.39
1400	3.40	8000	8.71
1500	3.54	8500	9.03
1600	3.66	9000	9.36
1700	3.79	9500	9.67
1800	3.91	10000	10.00
1900	4.03	11000	10.63
2000	4.14	12000	11.28
2100	4.24	13000	11.89
2200	4.34	14000	12.50
2300	4.44	15000	13.13
2400	4.55	16000	13.74
2500	4.64	17000	14.36
2600	4.74	18000	14.97
2700	4.84	19000	15.58
2800	4.92	20000	16.19
2900	5.02	30000	22.22
3000	5.10	40000	28.30
3100	5.18	50000	34.30
3200	5.27	60000	40.00

When the process weight is in excess of sixty thousand pounds per hour, there shall not be discharged in any one hour from any source particulate matter in excess of 0.066 per centum of the process weight per hour.

(6) Stack emission tests for particulate matter shall be undertaken by generally recognized standards or methods of measurement. Methods found in the A.S.M.E. Test Code for Dust Separating Apparatus, PTC 21–1941, the A.S.M.E. Test Code for Determining Dust Concentrations in Gas Streams, PTC 27–1957, and the Los Angeles County Source Testing Manual shall be used, but these may be modified or adjusted by the Commissioner to suit specific sampling conditions or needs based upon good practice, judgment, and experience.

(c) (1) No person shall cause, suffer, or allow any emissions of gases, vapors, or odors beyond the property line from which such emissions occur, to be in sufficient quantities and of such characteristics and duration as is or is likely to be injurious to the public welfare, to the health of human, plant or animal life, or to property, or which interferes with the enjoyment of life and property.

(2) No person shall use fuels the sulfur content of which exceeds 1 per centum by weight.

(3) In the absence of appropriate control measures, no person shall use products which, either by themselves or due to additives or impurities, result in air pollution.

OPEN BURNING

SEC. 10. (a) Except as provided in subsection (b), no person shall kindle an open fire in any public or private place outside any building. Fires started in violation of this Act shall be promptly extinguished by the person responsibile for such fire upon notice by the Commissioners.

(b) (1) Except as otherwise provided in this subsection, open burning may only be done under a permit issued by the Commissioners. A permit may be issued under this subsection only if the Commissioners determine that—

(A) there is no practical available alternate method for the disposal of the material to be burned,

(B) no hazardous condition will be created by such burning,

(C) no salvage operation by open burning will be conducted, and

(D) no leaves will be burned in those areas where provision is made for their public collection.

The Commissioners may impose conditions with respect to a permit issued under this subsection for the purpose of preventing the creation of smoke which is prohibited by this Act or protecting property and the health, safety, and comfort of persons from the effects of the burning. Such conditions may be imposed with respect to a permit at any time by notice to the person holding such permit.

(2) Open burning of leaves without a permit may be done in those areas where there is no provision for the public collection of leaves.

(3) Open fires may be set without a permit by a public officer in the performance of his official duties if such fires are set—

(A) for the prevention of a fire hazard which cannot be abated by other means;

(B) for the instruction of public firefighters or industrial employees who are under the supervision of the Fire Marshal; or

(C) for the protection of the public health.

(4) The following types of open fires may be set without a permit if no smoke violation or other nuisance is created:

(A) Fires used for the cooking of food.

(B) Fires in salamanders or other devices used for heating by construction workers or other workers.

(C) Fires set in the course of agricultural operations in growing crops or raising fowl or animals.

(D) Fires set for recreational purposes.

(c) Notwithstanding any other provision of this section, no open burning may be done during an air pollution alert declared by the Commissioners.

OPERATION OF EQUIPMENT

SEC. 11. (a) Any equipment that may produce air contaminants shall not be operated or maintained in such a manner that a nuisance is created. Nothing in this Act relating to regulation of emission of air contaminants shall in any manner be construed as authorizing or permitting the creation or maintenance of a nuisance.

(b) The engine, power, and exhaust mechanism of every motor vehicle shall be so equipped, adjusted, and operated as to prevent the escape therefrom of excessive fumes or smoke.

(c) After July 1, 1970, there shall not be operated for a period of longer than thirty days on the public ways of the District of Columbia any motor vehicle which is not equipped with either (1) an engine meeting the Commissioner's air pollution standards or (2) an exhaust control device meeting such standards.

MALFUNCTION OF EQUIPMENT

SEC. 12. Emissions which exceed any of the limits established in sections 9, 10, or 11 of this Act and which result from any unusual condition in or malfunction of any incinerator or any process, fuel-burning, or control equipment or related operating equipment, which condition or malfunction is beyond the control of the person owning or operating such equipment, shall not be deemed to be in violation of those sections if the owner or operator advises the Commissioners within twenty-four hours of the circumstances and outlines a corrective and preventive program acceptable to the Commissioners.

ENFORCEMENT

SEC. 13. (a) Whenever the Commissioners have reason to believe that a violation of any provision of this Act or a rule or regulation issued pursuant thereto has occurred, the Commissioners may cause written notice to be served upon the alleged violator or violators. The notice shall specify the provision of the Act, rule, or regulation alleged to be violated, and the facts alleged to constitute a violation thereof, and may order that the necessary corrective action be taken within a reasonable time. Any such order shall become final unless, no later than five days after the date such order is served, the person or persons named therein request in writing a hearing before the Commissioners. In lieu of such order the Commissioners may require that the alleged violator or violators appear before the Commissioners for a hearing at a time and place specified in the notice, to answer the charges complained of, or the Commissioners may initiate appropriate action for the recovery of a penalty pursuant to section 19 of this Act.

(b) After such hearing the Commissioners shall affirm, modify, or rescind the order or issue an appropriate order or orders for the prevention, abatement, or control of the air pollution involved. Such order shall prescribe the date or dates by which the violation or violations shall cease and may prescribe timetables for necessary action in preventing, abating, or controlling the air pollution.

(c) Nothing in this Act shall prevent the Commissioners from making efforts to obtain voluntary compliance through warning, conference, or any other appropriate means.

EMERGENCY PROCEDURE

SEC. 14. Notwithstanding the provision of this Act or any other provision of law, if the Commissioners find that any person is causing or contributing to air pollution and that such pollution creates an emergency which requires immediate action to protect the public health or safety, the Commissioners shall order such person to reduce or discontinue immediately the air pollution and such order shall be complied with immediately. Upon issuance of any such order, the Commissioners, if requested by the person so ordered, shall fix a time and place for a hearing before the Commissioners, such hearing to be held within a reasonable time thereafter. Not more than twenty-four hours after the conclusion of such a hearing, and without adjournment thereof, the order shall be affirmed, modified, or set aside.

EXEMPTIONS

SEC. 15. (a) Any person responsible for any source of air contaminant may apply to the Commissioners for an exemption or partial exemption from the provisions of section 9, 10, or 11 of this Act. The application shall be accompanied by such information and data as the Commissioners may require. The Commissioners may by order grant such exemption or partial exemption if the Commissioners find that—

(1) the discharges occurring or proposed to occur do not constitute a danger to public health or safety; and

(2) compliance with the provisions of the section from which exemption is sought would produce serious hardship without equal or greater benefits to the public.

(b) No exemption or partial exemption shall be granted pursuant to this section except after public hearing on due notice or until the Commissioners have considered the relative interests of the applicant, other owners of property likely to be affected by the discharges, and the general public.

(c) No order issued under this section granting an exemption or partial exemption may authorize an exemption or partial exemption for a period to exceed one year, but any such exemption or partial exemption may by an order

of the Commissioners be renewed for like periods if no complaint is made to the Commissioners on account thereof or if, after such complaint has been made and duly considered at a public hearing held by the Commissioners on due notice, the Commissioners find that renewal is justified. No renewal shall be granted except on application therefor. Any such application shall be made at least sixty days prior to the expiration of the exemption or partial exemption. Immediately prior to making his application for renewal the applicant shall give public notice of such application in accordance with the rules and regulations of the Commissioners. Any renewal granted pursuant to this subsection shall be on the same grounds and subject to the same limitations and requirements as provided in subsection (a) of this section.

(d) An exemption, partial exemption, or renewal thereof shall not be a right of the applicant or holder thereof but shall be in the discretion of the Commissioner.

(e) Nothing in this section and no exemption, partial exemption, or renewal granted under this section shall be construed to prevent or limit the application of the emergency provisions and procedures of section 14 of this Act to any person or his property.

HEARINGS AND JUDICIAL REVIEW

SEC. 16. (a) Any person aggrieved by an order of the Commissioners issued under this Act may obtain a review of such order in the District of Columbia Court of Appeals by filing in such court, within sixty days after the issuance of such order, a written petition praying that the order of the Commissioners be modified or set aside in whole or in part. A copy of such petition shall forthwith be transmitted by the clerk of the court to the Commissioners, and thereupon the Commissioners shall file in the court the record upon which the order complained of was entered. Upon the filing of such petition such court shall have exclusive jurisdiction to affirm, modify, or set aside such order in whole or in part, so far as it is applicable to the petitioner. The review by the court shall be limited to questions of law, and findings of fact by the Commissioners when supported by substantial evidence shall be conclusive. No objection to the order of the Commissioners shall be considered by the court unless such objection was presented to the Commissioners, except where there were reasonable grounds for failure to present such objections to the Commissioners. If application is made to the court for leave to offer additional evidence, and it is shown to the satisfaction of the court that such additional evidence may materially affect the result of the proceeding and that there were reasonable grounds for failure to offer such evidence in the proceedings before the Commissioners; the court may order such additional evidence to be taken by the Commissioners in such manner and upon such terms and conditions as the court may prescribe. The Commissioners may modify the initial findings by reason of the additional evidence so taken, and shall file with the court such modified or new findings which, if supported by substantial evidence, shall be conclusive, and shall also file their recommendation, if any, for the modification or setting aside of the original order.

(b) The commencement of proceedings under subsection (a) shall not, unless specifically ordered by the court, operate as a stay of the Commissioners' order. The court shall not grant any stay of the order unless the person complaining of such order shall file in court an undertaking with a surety or sureties, satisfactory to the court, for the payment to the employees affected by the order, in the event such order is affirmed, of the amount by which the compensation such employees are entitled to receive under the order exceeds the compensation they actually receive while such stay is in effect.

(c) Any hearing provided for in this Act shall be held in accordance with such regulations as the Commissioners shall prescribe.

CONFIDENTIALITY OF RECORDS

SEC. 17. Any records or other information which relate to processes or production unique to the owner or operator or which would tend to affect adversely the competitive position of such owner or operator shall be only for the confidential use of the Commissioners and the departments, agencies, and officers of the District of Columbia Government, unless such owner or operator shall expressly agree to their publication or availability to the general public. Nothing herein shall be construed to prevent the use of such records or information by

any department, agency, or officer of the District of Columbia Government in compiling or publishing analyses or summaries relating to the general condition of the outdoor atmosphere if such analyses or summaries do not reveal any information otherwise confidential under this section.

FEES

SEC. 18. The amount of fees to be charged under this Act and the procedure for their collection shall be established by the Commissioners by regulation.

PENALTIES

SEC. 19 (a) Any person who violates any provision of this Act, or any rule or regulation in force pursuant thereto shall be subject to a fine of not to exceed $150. Each day of violation shall constitute a separate offense.

(b) Action pursuant to subsection (a) of this section shall not be a bar to enforcement of this Act, rules and regulations in force pursuant thereto, and orders made pursuant to this Act, by injunction or other appropriate remedy, and the Commissioners shall have the power to institute and maintain in the name of the District of Columbia any and all such enforcement proceedings.

(c) Nothing in this Act shall be construed to abridge, limit, or otherwise impair the right of any person to damages or other relief on account of injuries to persons or property and to maintain any action or other appropriate proceeding therefor.

EFFECTIVE DATE

SEC. 20. This Act shall become effective immediately upon the date of its enactment, except that persons owning or using existing equipment or fuels not in conformance with the requirements set forth in sections 9, 10, or 11 of this Act shall, within six months after such date, comply with such sections or apply for an exemption under the provisions of section 15 of this Act.

Mr. MULTER. H.R. 12232 is what we may call the Commissioners' bill. It was submitted to us as a proposal on the part of the Commissioners of the District of Columbia. Those who may take the time to compare the bill as introduced with that which was submitted to you by the Commissioners will find some technical changes. There is no change in substance but bill drafting did make what they considered these changes in the rules of the House.

We will also make a part of the record at this point the statements and reports received from various government agencies with reference to the proposed legislation, with staff memorandum thereon.

(The material referred to follows:)

H.R. 12232, 90th Congress, first session, by Mr. Multer on August 9, 1967

A BILL To provide for the prevention, abatement, and control of air pollution in the District of Columbia

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "District of Columbia Air Pollution Control Act".

DECLARATION OF POLICY

SEC. 2. It is the policy of this Act to authorize and direct the Board of Commissioners of the District of Columbia to prescribe reasonable classifications and regulations in order to preserve, protect, and improve the air resources of the community so as to promote the health, safety, and welfare of the people of the District of Columbia and the metropolitan region; to prevent injury to human health, plant, and animal life; to prevent harm to property; to foster the comfort and convenience of its inhabitants; and, to the greatest degree practicable, to facilitate the enjoyment by the citizens of the Nation of the attractions of the Nation's Capital.

REGULATIONS OF THE BOARD OF COMMISSIONERS

SEC. 3. (a) The Board of Commissioners of the District of Columbia may prescribe such reasonable classifications and regulations as it deems necessary to prevent, abate, and control air pollution in the District of Columbia.

(b) The regulations prescribed under this section may provide for—

(1) the control of—

(A) the emission of pollutants into the outdoor atmosphere from any source,

(B) the burning of open fires in any public or private place outside of any structure,

(C) the operation and maintenance of any equipment, vehicle, or mechanical device which may discharge pollutants into the atmosphere, and

(D) the use of any fuel, substance, or product which may result in air pollution;

(2) exemptions from and enforcement of such regulations;

(3) administrative hearing and review procedures;

(4) the confidentiality of business records and trade secrets;

(5) fees; and

(6) fines (not exceeding $300) or imprisonment (not exceeding ninety days) for each violation of any such regulation.

Each day of violation of any such regulation shall constitute a separate offense.

DUTIES AND POWERS

SEC. 4. (a) The Board of Commissioners of the District of Columbia may—

(1) conduct studies, investigations, and research relating to air pollution and its prevention, abatement, and control;

(2) prepare and develop a comprehensive plan or plans for the prevention, abatement, and control of air pollution;

(3) advise, consult, and cooperate with industries, interstate or interlocal agencies, local governments within the Washington metropolitan region, the Federal Government, and interested persons and groups;

(4) collect and disseminate information and conduct educational and training programs relating to air pollution; and

(5) encourage voluntary cooperation by persons or affected groups to achieve the purposes of this Act.

(b) For the purposes of carrying out its duties under this Act, the Board of Commissioners may—

(1) establish such administrative office or agency as it may deem necessary, and delegate to such office or agency any of the duties authorized by this Act, except the power to adopt regulations;

(2) issue such orders as may be necessary to effectuate the purposes of this Act and enforce the same by all appropriate administrative and judicial proceedings, including injunctive relief;

(3) hold hearings relating to any aspect of, or matter in, the administration of the Act;

(4) secure necessary scientific, technical, administrative, and operational services, including laboratory facilities, by contract, or otherwise;

(5) receive and administer grants or gifts for the purpose of carrying out the purposes of this Act; and

(6) take any other action which may be necessary to carry out the purposes of this Act.

REPORTING OF INFORMATION

SEC. 5. The Board of Commissioners of the District of Columbia may require persons engaged in operations which may result in air pollution to file with it reports containing information as to (1) location and description of source; (2) rate, duration, and composition of pollutant emission; and (3) such other information as the Board of Commissioners may require.

REPEAL OF ACT OF AUGUST 15, 1935

SEC. 6. The Act approved August 15, 1935 (D.C. Code, secs. 6–801—6–804) is repealed.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., July 20, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, Committee on the District of Columbia,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is in response to your request of June 28, 1967, for a report on H.R. 6981, a bill "to provide for the prevention, abatement, and control of air pollution in the District of Columbia."

This bill would establish regulations for the prevention and control of air pollution from fuel-burning installations, open burning and incineration of refuse, and other manufacturing and processing activities. The bill would also require the Commissioners of the District of Columbia to establish Air Pollution Control Agency and, through this agency, to perform various functions relating to the evaluation of air pollution problems in the District of Columbia, the development of plans for dealing with such problems, and enforcement of the regulations contained in the bill.

There can be no doubt that the current program for the prevention and control of air pollution in the District of Columbia is inadequate, largely because the existing statutory authority for the program is obsolete. Air pollution control activities in the District are currently conducted under the provisions of a law passed more than 30 years ago—a law which does not provide adequate authority to cope with many of the most complex and important aspects of the modern air pollution problem A new statute is needed if the District of Columbia is to succeed in attacking its existing air pollution problem, which is a serious threat to the public's health and welfare, and in preventing the problem from reaching truly critical proportions.

This Department is strongly in favor of Congressional action to provide effective legislation for the prevention and control of air pollution in the District of Columbia. In our view, such action will be most effective, in the long run, if it leads to the adoption of enabling legislation, under which an agency of the District of Columbia government would be authorized or directed to establish and enforce appropriate regulations for the prevention and control of air pollution. This approach would be preferable to the enactment of such regulations into law, as proposed in H.R. 6981.

There are several reasons why enabling legislation would be more satisfactory. For one thing, scientific understanding of the problem of air pollution and its effects on public health and welfare is constantly improving, and, at the same time, technology for the prevention and control of air pollution is constantly being modified and improved. This means that new problems are frequently encountered and that new opportunities for effective control action are being found. To deal with such problems and to take full advantage of such opportunities, the District of Columbia must be in a position to alter its regulations without necessarily seeking the adoption of new legislation. H.R. 6981 would freeze detailed regulations into law and would apparently require the enactment of new or additional legislation by the Congress even for relatively minor technical changes in those regulations.

We recognize that the provisions of H.R. 6981 are taken from a model ordinance prepared by the Metropolitan Washington Council of Governments with technical assistance from the Department of Health, Education, and Welfare. Thus, those provisions of the model ordinance containing detailed standards for the prevention and control of air pollution do reflect technical judgments made by officials of this Department on the basis of data available at the time the model ordinance was being prepared; however, we have not endorsed the inclusion of such standards in Federal, State, or local legislation.

Their inclusion in Federal legislation affecting any part of the Washington area is particularly inappropriate at this time. This Department is currently engaged in a major new technical investigation of air pollution in both the District of Columbia and the suburban areas of Maryland and Virginia. This investigation is the first phase of action which this Department has initiated for abatement of interstate air pollution in the National Capital area, under provisions of the Clean Air Act, as amended. We expect to call an abatement conference within the next few months.

This new examination of the Washington area's air pollution problems may well indicate that the regulations needed for effective control of air pollution in both the city and the suburbs are markedly different from those contained in the Council of Governments model ordinance. We recommend, then, that those sections of the bill containing standards and regulations for the control of

various types of air pollutants, be eliminated, and that, in their place, language be inserted in Section 5, "Duties and Powers," which would atuhorize the adoption of appropriate standards and regulations by the cognizant agency of the District of Columbia government.

If the Committee wishes to place greater emphasis on the adoption of regulations than it could by merely providing discretionary authority for such action, you may wish to consider a provision which would explicitly direct the responsible agency to develop and adopt appropriate regulations, possible within a specified time period.

In many important respects, H.R. 6981 would provide opportunities for improvement in the District of Columbia's efforts to deal with problems of air pollution. The bill would apparently vest all responsibility for air pollution prevention and control activities in a single agency. This would remove an important obstacle to progress in the fight against air pollution in the city—the current division of responsibility for air pollution control activities within the District government. The experience of this Department indicates that authority for air pollution control activities, whether at the State or local level, is best vested in a single agency. We therefore urge that this concept be retained, regardless of whether authority is vested in the Commissioners or is vested in an existing agency, and that consideration be given to repeal or appropriate modification of existing statutes and regulations pertaining to the prevention and control of air pollution in the District of Columbia.

With slight modification, H.R. 6981 could provide opportunities for progress on another front—progress toward the development of a regional attack on air pollution in the Washington area. This area's air pollution problems are regional programs, in very large measure. Many people who live in the area tend to think that Washington is the source of all, or nearly all, of the area's air pollution. This is a myth that serves mainly to obscure the need for a coordinated regional effort to deal with the problem. There are numerous air pollution sources in all parts of the Washington metropolitan area, and their impact is felt throughout the area. This area clearly shares a common air supply and a common air pollution problem.

The District of Columbia should, of course, be in a position to participate fully in any regional air pollution control effort that may be undertaken in the months and years ahead. In H.R. 6981, Section 5(a)(3) would empower the District Commissioners to "advise, consult, and cooperate with agencies of the District of Columbia Government, industries, interstate or interlocal agencies, the Federal Government, and interested persons and groups." This language may not provide sufficient latitude for cooperation with State and local governmental agencies which have jurisdiction in parts of the Washington area. We suggest that "States and political subdivisions of States," also be mentioned in this provision.

In summary, this Department supports the enactment of H.R. 6981, with the modifications suggested in this report. We will be pleased to provide any assistance you may desire in effecting these modifications. We are continuing further to study the details of the bill and will submit to your Committee such further modifications of a technical or drafting nature which may be discovered thereby.

We are advised by the Bureau of the Budget that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

WILBUR J. COHEN,
Under Secretary.

GOVERNMENT OF THE DISTRICT OF COLUMBIA,
EXECUTIVE OFFICE,
Washington, July 14, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, Committee on the District of Columbia,
House of Representatives,
Washington, D.C.

DEAR MR. MCMILLAN: The Commissioners of the District of Columbia have for report H.R. 6981, 90th Congress, a bill "To provide for the prevention, abatement, and control of air pollution in the District of Columbia."

The purpose of the bill is set forth in the language of the declaration of policy which appears as section 2 of the bill and reads as follows:

"It is the policy of this Act to preserve, protect and improve the air resources so as to promote health, safety, and welfare, prevent injury to human health, plant and animal life, and property, to foster the comfort and convenience of its inhabitants, and, to the greatest degree practicable, to facilitate the enjoyment of the natural attractions of the District of Columbia."

The bill directs the Commissioners to establish an "Air Pollution Control Agency" which would be given the authority of carrying out the provisions of the Act. It provides for broad controls over the use of fuels and fuel burning equipment, emission of air contaminants, the open burning of fires, and the operation of equipment that may produce air contaminants. The bill also contains provisions for exemption or partial exemption from its air pollution control measures. It further provides for enforcement and for judicial review of actions taken pursuant to the authority granted. The bill is to become effective upon enactment, subject to an exception which would allow persons owning or using existing equipment or fuels not in conformance with the control provisions of the Act six months in which to comply with the Act or apply for an exemption.

The Commissioners fully endorse the objectives of the bill. We are convinced that more stringent controls must be imposed if there is to be any real beginning to achieving a lasting solution to the problem of air pollution. We further frankly recognize that the causes of increasing air contamination are found in large part within the central area of the metropolitan region—that is to say, within the District itself, where day-to-day requirements of a metropolitan center, such as its needs for transportation, power production, and solid waste disposal, are activities generating greater air pollution—and in taking cognizance of this fact the Commissioners have also begun to plan and develop steps to alleviate the condition.

There is much to be done before we can say that the problem can be overcome. Not only is there the need for substantial expenditures of funds, there is the further need for technological development in an area of environmental protection that has only begun to be studied. To a very large extent the ultimate solution of air pollution in the metropolitan area must rely upon regional cooperation and enforcement, particularly with respect to those aspects of the problem arising from transportation and solid waste disposal. H.R. 6981 is in fact an outgrowth of one of the first steps toward this regional approach. The bill is essentially identical to the proposed air pollution control model code proposed for the region by the Washington Metropolitan Council of Governments. As a member jurisdiction of the Council of Governments, the District has been very actively engaged in developing this model code. The Commissioners believe that it provides the region with an excellent statement of the objectives which may be hoped to be achieved, and furnishes a needed impetus for the launching of a concerted drive throughout the metropolitan area to abate air contamination. Nevertheless, the Commissioners are unable to endorse the bill in its present form. Enactment of the bill with its detailed provisions—and, most significantly, the immediacy of its effectiveness—would be unrealistic in view of the excessive costs required and particularly in view of the present stage of the District's ability to conform with the high standards of control contained in the bill.

These standards are in fact so high for the present stage of development in this area, insofar as the District is concerned, that the enactment of the bill would have a tremendous impact upon the operation of waste disposal and fuel burning facilities of the District and Federal governments, the production of power by public utilities, the operation of the transportation system, including both public and private modes of transportation, and the operation of waste disposal equipment and fuel burning equipment in most commercial and multi-unit residential structures. Unquestionably, most careful consideration of the effect upon the community must be given in weighing the consequences of passage of H.R. 6981. Particularly of concern, for example, are those provisions contained in sections 9, 10, and 11 which provide in detail the permissible levels of fuel burning emissions, restrictions on burning of open fires, and the use of equipment, engines and mechanisms. Basically, the Commissioners question the advisability of incorporating in a statute, to be effective within a few months after enactment, all of the detailed provisions of a model code designed to be implemented over a period of years. Furthermore, it is the Commissioners' view that establishment of a separate statutory agency for air pollution control, as is contemplated under section 4 of the bill, is not desirable since it precludes their taking action to develop the kind of governmental organization which may eventually be determined should be of broader scope.

Rather than enacting H.R. 6981 in its present form, the Commissioners urge that the Congress adopt legislation granting the Commissioners authority

to adopt air pollution controls substantially similar to those prescribed in H.R. 6981. To some extent, the Commissioners already have authority to control air pollution, and significant steps have been taken over the years under such authority. Presently in force in the District, for example, are regulations controlling fuel burning equipment under provisions of the Fuel Burning Equipment Regulations, motor vehicle exhaust system emissions under the Traffic Regulations, and the burning of open fires under the Police Regulations. District officials presently have under study and consideration additional regulatory provisions that could be promulgated by the Commissioners under their existing authority, with a view to developing a comprehensive and coordinated program to deal with the problem of air pollution in the District, similar to that contemplated by the provisions of H.R. 6981. Further, the Commissioners are currently considering internal organizational changes within their present authority which would establish a framework for high level program planning for air pollution control and other major programs.

The Commissioners believe that legislation providing them with full authority to develop standards and programs for air pollution control will better enable the District to cope with the involved problem, and allow a degree of flexibility in dealing with it. The present stage of technological development in this field indicates that constant redetermination of standards and approaches to the problem will be necessary. The establishment of these standards and approaches by statute would, in the view of the Commissioners, introduce an element of inflexibility that would seriously hamper the development of any program. Indeed, the regional model can be expected to be modified by those jurisdictions which have already adopted it, or will adopt it. With more flexible regulatory authority, the Commissioners could more readily meet new situations and undertake whatever further steps may be called for in the event technological advances or research findings are made. At the same time, the flexibility that this approach would afford the Commissioners would enable them to meet the realistic problems of air pollution control, particularly by allowing them to develop a timetable for compliance that would phase the necessary renovations in equipment, fuel, or other facilities that would be required by the establishment of higher standards. In this connection, the Commissioners note that the bill, in section 11(c), presently recognizes this problem insofar as motor vehicles are concerned, by providing that motor vehicle equipment standards shall not become effective until July 1, 1970.

For the reasons set forth above, the Commissioners recommend that H.R. 6981 be amended so that the bill would accomplish its highly desirable objectives and at the same time provide the flexibility necessary in dealing with the increasingly serious problem of air pollution. Accordingly, the Commissioners recommend that the following language be substituted for that which appears after the first section of the bill:

DECLARATION OF POLICY

Sec. 2. It is the policy of this Act to authorize and direct the Commissioners of the District of Columbia to make and promulgate reasonable classifications and regulations in order to preserve, protect, and improve the air resources of the community so as to promote the health, safety, and welfare of the people of the District of Columbia and the metropolitan region; to prevent injury to human health, plant, and animal life; to prevent harm of property; to foster the comfort and convenience of its inhabitants; and, to the greatest degree practicable, to facilitate the enjoyment by the citizens of the Nation of the attractions of the Nation's Capital.

AUTHORITY OF THE COMMISSIONERS

Sec. 3. (a) The Commissioners of the District of Columbia are hereby authorized and directed to make and promulgate such reasonable classifications and regulations as they in their discretion deem necessary to prevent, abate, and control air pollution in the District of Columbia.

(b) Such regulations as may be adopted pursuant to this Act may provide for the control of (1) the emission of pollutants into the outdoor atmosphere from any source; (2) the burning of open fires in any public or private place outside of any structure; (3) the operation and maintenance of any equipment, vehicle, or mechanical device which may discharge pollutants into the atmosphere; and (4) the use of any fuel, substance, or product which may result in air pollution.

(c) Such regulations as may be adopted pursuant to this Act may provide for exemptions, enforcement, administrative hearing, and review procedures,

confidentiality of business records and trade secrets, fees, and fines not exceeding $300 or imprisonment not exceeding 90 days for the violation of any regulation. Each day of violation of any regulation shall constitute a separate offense.

DUTIES AND POWERS

Sec. 5. (a) The Commissioners of the District of Columbia are hereby further authorized to—

(1) conduct studies, investigations, and research relating to air pollution and its prevention, abatement, and control;

(2) prepare and develop a comprehensive plan or plans for the prevention, abatement, and control of air pollution:

(3) advise, consult, and cooperate with industries, interstate or interlocal agencies, local governments within the Washington metropolitan region, the Federal Government, and interested persons and groups;

(4) collect and disseminate information and conduct educational and training programs relating to air pollution; and

(5) encourage voluntary cooperation by persons or affected groups to achieve the purposes of this Act.

(b) For the purpose of carrying out their duties under this Act, the Commissioners may—

(1) establish such administrative office or agency as they in their discretion may deem necessary, and delegate to such office or agency any of the duties authorized by this Act, except the power to adopt regulations;

(2) issue such orders as may be necessary to effectuate the purposes of this Act and enforce the same by all appropriate administrative and judicial proceedings, including injunctive relief;

(3) hold hearings relating to any aspect of, or matter in, the administration of the Act;

(4) secure necessary scientific, technical, administrative, and operational services, including laboratory facilities, by contract, or otherwise;

(5) receive and administer grants or gifts for the purpose of carrying out the purposes of this Act; and

(6) take any other action which may be necessary to carry out the purposes of this Act.

REPORTING OF INFORMATION

Sec. 6. The Commissioners of the District of Columbia may require persons engaged in operations which may result in air pollution to file with them reports containing information as to (1) location and description of source; (2) rate, duration, and composition of pollutant emission; and (3) such other information as said Commissioners may require.

AUTHORIZATION OF APPROPRIATIONS

Sec. 7. Appropriations to carry out the purposes of this Act are hereby authorized.

REPEAL OF ACT OF AUGUST 15, 1935

Sec. 8. The Act approved August 15, 1935 (49 Stat. 653; D.C. Code, Title 6, Chapter 8) is hereby repealed.

The Commissioners fully recognize that the problems of air pollution in the District of Columbia are serious and that steps must be taken to abate the present unsatisfactory conditions. We offer our wholehearted support for this purpose and are in complete agreement with the objectives of H.R. 6981. At the same time, we must urge upon the Committee the need for authorizing the appropriation of the substantial funds that will be necssary to solve this grav problem, and for recognizing that technologically it is one of great magnitude. The Commissioners believe, however, that with the help of Congress, the District can do much toward achieving a solution of the problem. If H.R. 6981 were amended in the manner suggested in this report, the Commissioners would favor its enactment.

The Commissioners have been advised by the Bureau of the Budget that, from the standpoint of the Administration's program, there is no objection to the submission of this report to the Congress.

Sincerely yours,

JOHN B. DUNCAN,
Acting President,
Board of Commissioners, D.C.

D.C. AIR POLLUTION CONTROL ACT, H.R. 6981 (GUDE)—H.R. 10017 (HORTON)

(Staff Memorandum—August 10, 1967)

Purpose of bill

The purpose of H.R. 6981 and H.R. 10017 is to provide for the prevention, abatement and control of air pollution in the District of Columbia and to preserve, protect, and promote the health, safety and welfare of animals, plant life, property and humans.

Commissioners (Sec. 5)

The legislation is designed to allow the D.C. Commissioners to set up an agency (under the public health department), which shall have the exclusive power to do anything that is necessary in carrying out the purpose of the bill, including inspections at reasonable times.

Prohibited Air Contaminants (Sec. 9)

Certain emissions in the atmosphere are prohibited:

1. any output darker in shade #1 on Ringleman smoke chart
2. those of such opacity to obscure view to a degree greater than smoke designated #1 on Ringlemann smoke chart
3. visible emissions to ground level if they go past lot line of property
4. output in excess of 60/100 pounds of BTU's and exceeding 65/100 pounds per 1,000 pounds of flue gas, adjusted to 12% carbon dioxide (charts are included to explain such output requirements)
5. stock emission tests shall be set up as in Los Angeles county testing manual however the D.C. Commissioners may modify such
6. any emissions of gases, vapors, or orders which interferes with enjoyment of life, and property is prohibited
7. any use of fuels with sulfur content which exceeds 1 percent by weight
8. open burning is prohibited

Permits (Sec. 7 and 10)

The bill allows certain open burning by permit and provides that certain fires, such as for cooking, need not have a permit.

Autos (Sec. 11)

After 7/1 70 no vehicle shall be operated in D.C. for over 30 days if it is not equipped with an exhaust control device.

Other Provisions

The bill allows for exceptions if notice is given
" " sets up an emergency procedure
" " sets up certain exceptions
" " sets up methods of enforcement
" " sets up method of hearings and judicial review
" " allows the D.C. Commissioners to charge fees
" " provides for penalties ($150 a day)
" " gives an effective date with 6 months to comply

TESTIMONY OF HON. GILBERT GUDE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND

Mr. GUDE. Thank you very much, Mr. Multer.

We certainly appreciate the opportunity to appear and testify on this legislation. It is very interesting that the hearing that was originally scheduled for this bill happened to fall on the day on which we were called to the White House to discuss the possibilities of reorganization; and as a result it was canceled at that time and now the hearing today falls on the day after that plan, Reorganization Plan No. 3, was adopted.

Accordingly, all these bills will require amendments to bring them into conformance with the reorganization plan and I will make comments along that line as we proceed.

Mr. MULTER. I think, Mr. Gude, it might be well to state for the record at this point, while there has been the change with reference to the District Government by virtue of the approval of the Reorganization Plan No. 3, the matters we are addressing ourselves to in any event would probably require legislation by the Congress.

Mr. GUDE. That is right. And, of course, the change in organization of the District Government hasn't reduced the problem of air pollution any. We still have to tackle it regardless, and I think this was brought out in the debate on Reorganization Plan No. 3.

Mr. Chairman and members of the subcommittee, I am pleased to have the opportunity to come before this Subcommittee to discuss legislation which I introduced to attack the grave problem of air pollution in the District of Columbia. This same legislation is being sponsored by Congressman Horton and by you, Mr. Chairman.

Before proceeding, I want to express my appreciation to Chairman McMillan of the full Committee and Chairman Multer of the Submittee for their willingness to conduct this hearing. Their interest in seeking a solution to the critical air pollution problem in the District is most commendable. I know that Chairman McMillan who comes from an especially rural area, is very cognizant of the air pollution difficulties plaguing our large Metropolitan Washington area, and you, Mr. Multer, as a representative from our nation's largest city, have many problems to deal with in your own area, so I doubly appreciate the time you are taking to consider legislation for the District of Columbia.

The largest single source of air pollution in the District is automobiles. The effects of carbon monoxide can range anywhere from drowsiness to death. Scientific tests indicate that at 1000 parts of carbon monoxide per million parts of air, the gas kills quickly and at 100 parts it produces bad headaches and dizziness. In 1966, the maximum one-hour concentration of carbon monoxide for the District was 38 parts per million, while the maximum five-minute concentration for the District was 47 parts per million. And while 50 parts per million presently is considered dangerous, we are not as certain as we learn more. For example, California researchers found that 30 parts per million for eight hours seriously affects people who already have poor blood circulation. To me the conclusion is obvious: We are flirting with dangerous levels of carbon monoxide in our own Metropolitan Washington.

I attach chart setting forth these figures.

DATA COMPILED BY THE AIR QUALITY AND EMISSION DATA BRANCH, NATIONAL CENTER FOR AIR POLLUTION CONTROL

SULFUR DIOXIDE CONCENTARTION IN PARTS PER MILLION FOR THE DISTRICT OF COLUMBIA[1]

Year	Average concentration for the year	Maximum 24-hour concentration	Maximum 1-hour concentration	Maximum 5-minute concentration
1962	0.06	0.18	0.38	0.56
1963	.05	.25	.48	.56
1964	.05	.22	.62	.87
1965	.05	.20	.35	.44
1966	.05	.25	.45	.47

[1] Data were obtained from continuous air monitoring program station in Washington, D.C. at 1st and L Streets, NW.

We do not have any heavy industry as a major source of air pollution in the Metropolitan Washington area. But we do have Federal power plants which provide a good substitute. Mr. S. Smith Griswold, Chief of Enforcement for the National Center for Air Pollution Control, reported to the Senate District Subcommittee that the Federal plants in the Washington area contribute about one-third of the sulfur dioxide in the air.

I might interject at this point that this is one very good reason that Congress should at this time set standards in regard to air pollution; because this is something which the Federal establishment is contributing to and I think that we should show that we have a recognition of the problem and a willingness to do something about it here in Congress.

To be safe, according to the National Center for Air Pollution Control, a city's air should not exceed .015 parts per million of sulfur dioxide on an annual average. Washington's air, over the past few years, has averaged about .04 parts per million of sulfur dioxide. While there are many days well below this annual average, there have been some days, such as in 1965, when the maximum measured was .2 parts per million and the average monthly high reading was .08. Quantities as low as 0.25 may damage some varieties of vegetation over long periods of exposure and will cause severe nose and throat irritation in amounts ranging in the area of 10 to 15 parts per million. In fact, studies have shown a statistical relationship between the incidence of respiratory disease and sulfur dioxide levels.

The third major source of air pollution in the District is the Kenilworth Dump, where 150,000 tons of refuse are dumped each year, producing 2,700 tons per year of flying garbage in the form of dust and soot.

I could go on at considerable length citing numerous figures to indicate further the urgent need to clean up the air, but I don't want the statistics to obscure the fact that we are dealing with people—their health and their lives.

Once we have decided we are going to clean up the air, we then must decide basically two things: (1) What Governmental structure we are going to use, and, (2) How we are going to set the standards necessary to maintain clean air. It is my belief that the Metropolitan Washington Council of Governments approach I am following in this legislation (that is, local government units adopting air pollution regulations in conformance with those developed and recommended by a regional organization to meet the particular needs of the region) is the most effective means of controlling air pollution. Mr. Frederick Babson, President of the Metropolitan Washington Council of Governments will report on how the local governments of our area can and are moving to take positive steps in the control of air pollution by adopting the Council of Governments model ordinance. My own Montgomery County, I am proud to say, is in the vanguard of this effort—in fact, all of the local jurisdictions are moving in the same direction.

I strongly feel that this cooperative regional approach I am outlining here is much more in the tradition of local governmental responsibility than a Federal strong-man type of approach, insensitive to local problems.

Thus, under the Council of Governments approach, local units of government will implement and enforce the air pollution ordinance, while the Council of Governments will provide the staff and scientific support to keep abreast of the new developments in the technology of air pollution detection and control. Hopefully, the Federal government would cooperate with the Council of Governments on this approach.

H.R. 6981 provides that the governing body of the District of Columbia will appoint an air pollution control agency with an administrator. The policy making decisions as far as the control of air pollution is concerned are left in the hands of the governing body.

There is an important fundamental principle involved here, important to this problem here in the District—and important in public administration in general. Control of air pollution in the District should be tied closely to the other activities of city government which have a direct and indirect bearing on this problem. The creation of a semi-autonomous body to carry on a function of this type ties the hands of the governing body and makes efficient government difficult to achieve.

In the debate yesterday on the reorganization bill, I think we can recall that observations were made as to the fact that there are certain semi-independent bodies in the District government which by future legislation we could consider if this Committee should be drawn into closer contact with the governing body in order to create better government in the District.

So I think while we are considering this problem of how air pollution should be handled here in the District, we ought not to create a new semi-autonomous agency, but let's make an agency that can tie in with the governing body and be responsive to the governing body.

Having decided upon the governmental structure to be used in the control and enforcement of an air pollution program, we must then decide on the procedure for establishing the specific standards to be followed by industry and government. In H.R. 6981 definite standards (though not without ample provision for exemptions) are set forth.

These standards were developed by the Council of Governments after intensive and careful study and with the cooperation of the Public Health Service. With technological advancements, it is reasonable to assume that some refinements and alterations will be necessary in the future. There has been some suggestion that new standards might be proposed at a local air pollution abatement conference in October, but I feel this is an invitation to procrastination. Those who are opposed to the setting of any standards could use the same argument for procrastination then as they do now.

For those governmental agencies, industries and individuals unable to comply with the standards set in the legislation, Section 15, on Page 20, would provide for an exemption procedure. Exemptions, however, cannot be authorized for a period to exceed one year. This legislation, thereby serves notice on those who are creating air pollution hazards, that they must demonstrate that compliance without exemption would cause unreasonable hardship. The compulsion of periodic review will yield the most effective compliance with the standards.

I think that the thought of that last sentence is worth repeating: that by having the specific standards spelled out in legislation, even though industry or government may not be able to conform with them

immediately, it does serve notice that they must at a future time conform with these standards and that they must defend their lack of compliance at regular intervals.

And speaking of compliance, some segments of the industry are active in this fight against air pollution. Last week, members of my staff and I visited the Bituminous Coal Research Facilities in Pittsburgh and had a firsthand look at what the coal industry is doing to bring the sulfur dioxide content at the point of emission to a safe level. The old bugaboo that responsible members of industry are going to flee from one part of the Metropolitan area to another to gain the "best deal" from the governing authorities, just doesn't hold true in my estimation. Responsible industries have faced their obligations in the past (as when the detergent industry accepted the need for biodegradable detergents to stop one of the major sources of water pollution in the United States), and there is little reason to believe they will not continue to do so.

Mr. Chairman, I believe this legislation, which has evolved through the cooperative efforts of the local governmental units of a region, working together for the common good, presents a great opportunity to Congress. By adopting a program and the standards outlined in this legislation, Congress will be setting a fine example for the nation—it will be affirming its belief in the viability of local government and its recognition of and the need for action against the national health problem of air pollution.

Proposed Amendments

And I have attached to this, Mr. Multer, four amendments which we have developed in the process of our study of this legislation since we introduced it and would briefly like to discuss them.

(1) The first one that we propose is that upon modification of the model ordinance by the Council of Governments I feel that the governing body of the District of Columbia must consider these modifications and adopt them if it deems it necessary.

In other words, if the Council of Governments, which is composed of all the representatives of the governing bodies of the jurisdiction that make up our metropolitan area, makes a change in the model ordinance, then I think the District of Columbia Government should consider these changes and adopt them if they deem it necessary.

This is not mandatory that they adopt them but it would be mandatory that they consider them.

(2) And after January 1, 1969, the governing body of the District should be empowered to adopt changes in standards provided that the proposed changes are referred to the Council of Governments for its comments.

I believe that we in Congress have the obligation to point the way to the nation adopting these standards for the nation's capital. But I think that the governing body of the District of Columbia should in time take over the responsibility of setting these standards. So I feel that we will be setting the course by our legislation, setting up what has been proposed as the best for this region at this time and then allow the governing body for the District of Columbia to make such modifications in the future as it deems necessary provided they get the recommendation of Congress first before talking such action.

(3) In the light of our research and investigations, we feel that a proper amendment to this legislation would provide that fuels of more than one percent sulfur content could be burned if the operator of the facility involved incorporated processes or systems which so reduced the amount of SO2 at the point of emission to a safe level.

The coal industry, in our discussions with them, has given evidence that it might be a tremendous hardship on the coal industry and also the people they serve if they were compelled to supply only one percent sulfur coal.

There are processes being developed, and some of them already are at the point where they could be used in industry, where you could burn possibly an oil of more than one percent sulfur but by the process in burning and in passing out of the flue the sulfur dioxide would be reduced so that by the time the emission went into the atmosphere the sulfur dioxide would be reduced to a safe level. I think this is a worthwhile amendment.

(4) This amendment I discussed earlier; certainly this legislation or any bill pertaining to air pollution that is adaptable to the old Commissioner form of government will have to be amended to apply to the new Commissioner-Council form of government. And briefly I think the legislation should provide that the administrative functions would be conferred upon the Commissioner, while the rulemaking authority would be given to the council.

I have some editorials I request to be included as part of my remarks.

Thank you, Mr. Multer.

Mr. MULTER. Without objection, the articles referred to will be included with your statement.

WWDC EDITORIAL

EDITORIAL NO. 14—THE AIR WE BREATHE

(Broadcast of this editorial by WWDC Vice President Ben Strouse began on March 14, 1967. We welcome comments.)

The air pollution hearings conducted by Senator Joseph Tydings have been a most valuable exercise in public education. A long list of experts have discussed this area's dirty air in language a school child could understand.

Example: The Federal government—responsible for developing air pollution standards for the whole country—is itself causing from one-third to forty percent of the "highly dangerous" levels of sulfur dioxide in Metro-Washington's air. The sulfur dioxide comes straight out of government smokestacks on Capitol Hill, at the NASA complex in Greenbelt, at the Bureau of Standards in Gaithersburg, at the Pentagon in Arlington, and most anywhere else you see a big government installation.

To reduce the release of this poison it will be necessary for Uncle Sam to quit burning fuels of high sulfur content. Fortunately moves are underway in this direction. We suspect the Tydings hearings will speed up the corrective action.

Legislation by Congressman Gilbert Gude would require the government to use fuels with a sulfur content of less than one percent by weight. The President is about to issue an Executive Order along these lines. But it would apply only to Federal facilities in New York, Philadelphia, and Los Angeles.

Let's make it apply to the National Capital Area as well, Mr. President.

EDITORIAL NO. 17—THE AIR WE BREATHE

(Broadcast of this editorial by WWDC Vice President Perry S. Samuels aired on July 2, 1967. We welcome comments addressed to Bob Robinson, Editorial Director.)

The Greater Washington area suffers from dirty air. That point has been frequently made in WWDC editorials. It was spelled out in detail during public hearings conducted by Senator Joseph Tydings last March. Now Representative Gilbert Gude reports that while there's considerable progress to show in the suburbs toward enactment of a region-wide Model Air Pollution Law, the Center City—the District of Columbia where the law is most needed—is lagging.

The Model Law was drawn up by the Council of Governments. It's been adopted by the City Council in Rockville. Montgomery County, which already has a strong air pollution ordinance, is in the process of changing it to bring it into line with the C-O-G Model. The Chairman of the Prince Georges County Commission has pledged that her County will adopt a measure in the near future. The City Attorney in Alexandria is currently preparing an ordinance and an early public hearing is planned. Within the next two weeks Fairfax County is expected to act. So are the cities of Fairfax and Falls Church. And in Arlington the County Board has the staff studying the proposal.

All of which causes Mr. Gude to say it's high time the Congress was moving to make the Model Law apply to D-C. Certainly the Model Law in the open spaces of Suburbia will make little sense unless the Center City—where much of local air pollution originates—is under the same safeguards. WWDC urges all area Congressmen to get behind Mr. Gude's bill and push.

Thank you for your interest.

Mr. MULTER. We commend you for your interest in this subject and for having taken the lead in introducing this important legislation. I recall that you set up an exhibit in the House Office Building and invited all Members of Congress to come in and view for themselves the evidence of the problem and how it was being tackled in other parts of the country.

Have you had an opportunity to look at the Commissioners bill which I introduced yesterday?

Mr. GUDE. I haven't had a chance to look at it. I think it confers the power upon the Commissioners and I guess as amended it would provide for a division of the duties between the Commissioner and the Council.

This, I think, is the principal feature I like about this bill, and as I said, this gives the authority and power to the governing body rather than creating a semi-autonomous agency. As I pointed out in my testimony, this is something that we certainly want to avoid, and I think we want to keep the government as compact as possible and yet make it responsive both to the Congress and to the people.

As I said, I do feel that there is greater merit in our setting up the standards and I think this would be the principle difference between the two bills.

Mr. MULTER. If after you have had further opportunity to study the Commissioners' bill you have any additional comments to make with reference to it, we would be very happy to have you supplement, your testimony and we will add it to the record at the conclusion of your testimony.

Have you given any thought to the necessity of a compact with Maryland and Virginia in order to further accomplish the goal we have in mind?

Mr. GUDE. I have thought about this. Maryland has adopted a very good air pollution statute and they are working on this problem. I feel that our regional approach under our Council of Governments here is a very workable way to tackle the problem. Possibly this might be formalized in an interstate compact at a future time, but I think we are showing a cooperative regional approach can work.

Mr. MULTER. At any rate, there is ample legislative authority in the Commissioners, or in the Commissioner who will succeed the Commissioners, to work out some compact and then, of course, if necessary, bring it before the Congress for approval.

Mr. GUDE. Yes, sir.

Mr. MULTER. Mr. Winn.

Mr. WINN. Thank you, Mr. Chairman.

I want to commend Congressman Gude for the many hours that he spent on this problem. It is one of the first things he tied into right after he was elected and sworn in. Many of us throughout the nation have also been greatly concerned about the air pollution problem.

Congressman Gude, we have done some anti-pollution work in our Greater Kansas City area which has much heavier industry than we have around here. But we have also found that many of the anti-pollution devices are not available. I noticed in your statement on Page 3, next to the last paragraph, you said "For those governmental agencies, industries and individuals unable to comply with the standards set in the legislation, Section 15, on Page 20, would provide for an exemption procedure. Exemptions, however, cannot be authorized for a period to exceed one year."

Now I am no expert on this by any means. There may be some experts in the room. But I understand from some of the local authorities in my district that the anti-pollution equipment is not available and cannot be secured. The manufacturers are way behind on production. This is a vital consideration. Possibly that one-year compliance deadline might be too strict through it is important to attack pollution as quickly as possible.

But if the necessary anti-pollution devices are not available to industry, then they would be in an untenable situation even though they may want to purchase the appliances.

Mr. GUDE. I agree with you that one year in regard to some of these problems could be too short a time. However, you can renew the exemptions. The philosophy behind the one-year exemption period is that the person who cannot comply or does not wish to comply has to come back and defend their lack of compliance and get the exemption renewed. So I think, as I said, this merely puts the people who cannot comply or do not wish to comply on notice that they are subject to review.

Mr. MULTER. In other words, if they are making an honest effort to secure these machines or this equipment then they could receive an extra year or six months, whatever their delivery date might be?

Mr. GUDE. Exactly.

Mr. WINN. Are you talking about a national program? Is that what you have in mind?

Mr. GUDE. Well, this legislation, of course, applies only to the District of Columbia, and these standards would apply to the District. I think they have been drawn up keeping the problems of this region

in mind because they were done by this regional Council of Governments.

Mr. WINN. As I understand it there are some national standards that have been made by the U.S. Government for other cities.

Mr. GUDE. I think the idea of this legislation would be that the national standards as far as automobiles would be tied in.

Mr. WINN. I really was thinking more of industry than I was of automobiles—the point being that there has been a discrepancy of opinion again on which types of equipment and which procedures are acceptable and not acceptable. There are several cities that have tried to originate their own air pollution control systems and because of the differences of opinion on what will work and what won't work they can't seem to get these programs off the ground. Maybe they are purposely dragging their feet. I am quite sure some cities are using this as an excuse so they won't have to spend a lot of money or industries in their cities will not have to do so.

Mr. GUDE. Well, I think that, as I said, these standards were drawn up in conjunction with staff people in the Public Health Service, and I am sure they do not deviate from the pretty well accepted national standards. The contention is made that how can we live if we have a standard set for one area that is not set in other areas. I go back to the point I made about the detergent industry in my testimony that various jurisdictions were alarmed about the problem of detergents which were not biodegradable going into waters and polluting them and causing a lot of trouble in sewage plants. The contention was our industry can't possibly live, unless we have uniform legislation, but then a biodegradable detergent was developed and the problem was licked. I think that if Congress or the other legislative body showed that they do feel we have to conform to certain standards as far as air pollution is concerned, we are going to get industry developing what is necessary to lick the problem.

I think the system of exemptions that we provided here gives the flexibility to the law so there is no injury done to somebody who is making an honest effort to conform.

Mr. WINN. I do think the detergent industry as a group has tried. Of course, they have been badly criticized in the press and probably logically so in a great many cases. But I think they have made an outstanding effort to try to cure their problems. They have problems that are unusual.

I think, Mr. Chairman, if this Committee, before we do anything, would take a ride through the D.C. area behind some of these buses and cars from 5:30 to 6:30 at night and then take an evening ride down the Potomac, we could come up with some ideas of our own.

Mr. MULTER. Yes.

Mr. WINN. I am not talking about water pollution.

Mr. MULTER. If we are not asphyxiated as we make the tour.

Thank you, Mr. Gude. I would appreciate it, if you have the time, if you would join us here and participate throughout. You will be free to ask questions of any of the witnesses that are called and we would like to have your cooperation.

Mr. GUDE. Thank you for your courtesy.

Mr. MULTER. Next is our colleague from New York, Mr. Horton.

STATEMENT OF HON. FRANK HORTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Thank you Mr. Chairman. It is a pleasure to appear before you and your distinguished colleagues on the committee to testify in support of the several companion measures to control air pollution in the District of Columbia. As a sponsor of one of these bills, H.R. 10017, I am gratified that you and the other committee members have acted so promptly to consider this much needed legislation.

Although I am a member of the House District of Columbia Committee, I shared the surprise of many of my colleagues when it was announced early this spring that the District of Columbia has the fourth worst air pollution problem in the Nation. Each of us is constantly exposed to air pollution and its effects and, as a result, we become complacent about the problem. To most of us air pollution is only a problem when atmospheric conditions in a particular locale are such that stagnate air poses an immediate and visible threat to life and property.

Many of us fail to recognize that air pollution continually threatens our health and property. "Crisis" levels of pollution occasionally cause people to collapse in the streets from suffocation in one degree or another but even worse is the fact that "normal" levels of pollution cause or aggravate respiratory diseases in tens of thousands of Americans. The unrelenting corrosion of metal exposed to the polluted urban atmosphere is not particularly dramatic but the property damage totals many millions of dollars annually.

Those who deal directly with the causes and effects of air pollution are increasingly aware of the fact that the Nation is faced with a problem of crisis proportions. Fortunately this concern by those working in the field of pollution abatement and control has awaken public officials to the crisis which confronts America. It is now generally recognized that all levels of government must act immediately to relieve the problem.

I am pleased that my own State of New York has been a leader in acting to solve the problem. With the aid of Federal enabling legislation, New York, New Jersey, Delaware and Connecticut are joining in an interstate compact to combat air pollution. These States have established pollution control standards within this regional airshed as the first step in a far-ranging attack on the problem which confronts them all.

Mr. Chairman, the legislation which your Committee is considering today exemplifies the type of legislation which every city in the country should adopt as a first step in combatting air pollution. These bills, drafted by the Metropolitan Council of Government in the District of Columbia, are truly model legislation of general applicability. It is therefore particularly appropriate that such a bill be adopted by the Congress for the District.

If air pollution is to be controlled, all levels of government must be committed to difficult courses of action. The authors of these bills recognize this fact and set such a course for the District government.

For instance, the selection of the fuel to be used by a householder or industry was formerly regarded as a decision totally within the discretion of the individuals involved. However, with over seventy percent of the population today living in urban areas, the range of

the individual's discretion must be narrowed if the health, safety and welfare of one's neighbors are to be preserved. Accordingly, these bills ban the use of fuels with a sulfur content of more than one percent.

This is but one example of the hard decisions which must be made in the near future if our atmosphere is to remain breathable. I commend all agencies of local, State and Federal government which have had the courage to reach these decisions, and I urge this Committee to likewise act for the mutual benefit of Washingtonians by favorably reporting a strong air pollution control measure to the whole House.

Mr. MULTER. I would like to say before calling the next witness that while we will not make it a part of our record, we have before us for reference when we get into the executive sessions on the bill an 833-page volume of testimony entitled "Problems of Air Pollution in the District of Columbia", being Joint Hearings of the Senate Committee on the District of Columbia Subcommittee on Business and Commerce and the Subcommittee on Public Health, Education, Welfare and Safety, 90th Cong., 1st sess., during March, 1967. Our attention has also been called to the following bills that have been introduced by members of the Congress, indicating there is wide interest in the matter. These bills, while they will not be made a part of the record, will be by reference before us in our executive session.

The numbers of those bills are as follows: They are all House bills, H.R.10, H.R. 42, H.R. 668, H.R. 818, H.R. 819, H.R. 896, H.R. 1199, H.R. 2050, 3126, H.R 3293, H.R. 3583, H.R. 4279, H.R. 4322, H.R. 4340, H.R. 4527, H.R. 4528, H.R. 4874, H.R. 5088, H.R. 6488, H.R. 6801, H.R. 6829, H.R 6830, and H.R. 7740.

I might say while some of these are duplications to indicate cosponsorship, many of them indicate a different approach to the solution to the same problem. I am sure our attention will also be called to the bills that have been introduced in various state legislatures covering the same problems.

Our next witness this morning will be Mr. Griswold from the Department of Health, Education, and Welfare.

Mr. Griswold, please.

STATEMENT OF S. SMITH GRISWOLD, ASSOCIATE DIRECTOR, ABATEMENT AND CONTROL, NATIONAL CENTER FOR AIR POLLUTION CONTROL, PUBLIC HEALTH SERVICES, ACCOMPANIED BY VERNON MacKENZIE, ASSISTANT SURGEON GENERAL, DEPUTY DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROLS, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Mr. GRISWOLD. Mr. Chairman, Congressman Winn, Congressman Gude.

My name is S. Smith Griswold and I am Associate Director for Abatement and Control, National Center for Air Pollution Control, Public Health Service, Department of Health, Education, and Welfare.

Mr. Chairman and members of the committee, I welcome this opportunity to express my appreciation for your efforts to insure the development of a modern and effective program for the prevention and control of air pollution in the District of Columbia.

Air pollution is clearly a significant problem both in the District of Columbia and the Washington metropolitan area. As you know, Mr. Chairman, Secretary Gardner has called for Federal action to help deal with the interstate aspects of this problem. Within the next few months, we expect to hold an abatement conference, at which Federal, State and local representatives will have an opportunity to participate in the development of recommendations for controlling sources of interstate air pollution throughout the metropolitan area. Other opportunities to plan an effective attack on the Washington area's air pollution problems already exist. The activities of the Metropolitan Washington Council of Governments are a continuing source of such opportunities. The Solid Waste Management Conference held last month by the Public Health Service provided a forum for examining ways to deal with one of the important classes of air pollution sources in the washington area—the disposal of refuse by open burning and incineration.

In short, air pollution in the Washington area is beginning to receive the high degree of attention it so clearly demands. This is indeed encouraging. But we must bear in mind that the extent to which attention will be translated into action will depend in very large measure on the activities of the State and local governments in the Washington area; unless they are all prepared to develop and carry on effective programs for the prevention and control of air pollution, the opportunities for progress toward cleaner air will be largely missed.

There can be no doubt that the District of Columbia is ill-prepared to take advantage of these opportunities. The current program for the prevention and control of air pollution in the District of Columbia is clearly inadequate, in considerable measure because the existing statutory authority for the program is obsolete. For the most part, air pollution control activities in the District are conducted under the provisions of a law passed more than 30 years ago.

Since then, the population of the District has jumped from 486,000 to 800,000. This growth has led in turn to greatly increased demands for heat and electric power; at the same time, the use of motor vehicles and production of refuse have both increased at faster rates than the population. These trends have helped to create air pollution problems of much greater magnitude and complexity than any which existed 30 years ago.

Of equal importance is the vast change that has taken place in scientific and public awareness of the dimensions of urban air pollution problems. In the 1930's, most law dealing with air pollution, including that in the District, were intended almost entirely for the abatement of visible smoke and only to the extent that such smoke constituted a nuisance. But we know now that smoke is just part of the total air pollution problem and, most importantly, the air pollution is not a mere nuisance but, rather, a serious threat to our health and welfare.

The statute passed 30 years ago in the District of Columbia simply does not provide an adequate basis for dealing with the modern air pollution problem in all its complex ramifications. A new statute clearly is needed if the District of Columbia is to succeed in attacking its existing air pollution problem and in preventing that problem from worsening.

In brief, H. R. 6981 would establish regulations for the prevention and control of air pollution from fuel-burning installations, open burning and incineration of refuse, and other manufacturing and processing activities. The bill would also require the Commissioners of the District of Columbia to establish an Air Pollution Control Agency and, through this agency, to perform various functions relating to the evaluation of air pollution problems in the District of Columbia, the development of plans for dealing with such problems, and enforcement of the regulations contained in the bill.

We are strongly in favor of Congressional action to provide effective legislation for the prevention and control of air pollution in the District of Columbia. In our view, however, such action will be most effective, in the long run, if it leads to the adoption of enabling legislation, under which an agency of the District of Columbia government would be authorized or directed to establish and enforce appropriate regulations for the prevention and control of air pollution.

There are several reasons why enabling legislation would be the most satisfactory basis for an air pollution control program in the District of Columbia. For one thing, scientific understanding of the problem of air pollution and its effects on public health and welfare is constantly improving, and, at the same time, as Congressman Gude mentioned, technology for the prevention and control of air pollution is constantly being modified and improved. This means that new problems are frequently encountered and that new opportunities for effective control action are being found. To deal with such problems and to take full advantage of such opportunities, the District of Columbia must be in a position to alter its regulations without necessarily seeking the adoption of new legislation, which would apparently be required under H.R. 6981.

May I add here we did not have, Mr. Chairman, a chance to fully evaluate Mr. Gude's suggested amendments prior to the preparation of our presentation.

Mr. MULTER. We will appreciate it if at your leisure you will examine them more closely and give us a supplemental statement with reference to them and also at the same time examine the Commissioners' bill which was introduced yesterday.

Mr. GRISWOLD. I would be glad to, Mr. Chairman.

We recognize that the provisions of this bill are taken from a model ordinance prepared by the Metropolitan Washington Council of Governments with technical assistance from the Department of Health, Education, and Welfare. Those provisions of the model ordinance containing detailed standards for the prevention and control of air pollution reflect technical judgments made on the basis of data available at the time the ordinance was being prepared; however, our current investigation of air pollution in the Washington area may well indicate that the regulations needed to deal with the problems are different from those contained in the model ordinance. We recommend, then, that those sections of the bill containing standards and regulations for the control of various types of air pollutants be eliminated, and that, in their place, language be inserted which would authorize the adoption of appropriate standards and regulations by the District of Columbia government.

If the Committee wishes to place greater emphasis on the adoption

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of regulations than it could by merely providing discretionary authority for such action, you may wish to consider a provision which would explicitly direct the responsible agency to develop and adopt adequate regulations to achieve desirable air quality within a specified time period.

In many important respects, H.R. 6981 would provide opportunities for improvement in the District of Columbia's efforts to deal with problems of air pollution. The bill would apparently vest all responsibility for air pollution prevention and control activities in a single agency. We support such a step, for we believe that the current division of responsibility for control activities is a serious obstacle to real progress in the fight against air pollution in the District. We therefore urge that this single-agency concept be retained, regardless of whether authority is vested in the Commissioners or in an existing agency.

With slight modification, H.R. 6981 could provide opportunities for progress on another front—progress toward the development of a regional attack on air pollution in the Washington area. This area's air pollution problems are regional problems, in very large measure. Many people who live in the area tend to think that Washington is the source of all, or nearly all, of the area's air pollution. This is a myth that serves mainly to obscure the need for a coordinated regional effort to deal with the problem. There are numerous air pollution sources in all parts of the Washington metropolitan area, and their impact is felt throughout the area. This area clearly shares a common air supply and a common air pollution problem. The District of Columbia should, of course, be in a position to participate fully in any regional air pollution control effort that may be undertaken in the months and years ahead. We suggest then, that H.R. 6981 be modified to give the District government explicit authority to negotiate with other State and local governments in the Washington area concerning interstate air pollution and its control. Congress would still have the opportunity to approve any compacts or agreements that might be produced.

In summary, Mr. Chairman, we believe that new legislation to deal with air pollution in the District of Columbia is urgently needed. In our view, such legislation should provide broad authority for the adoption of appropriate standards and regulations and should permit the District to play an effective role in the development of regional control action.

Mr. Chairman, the Assistant Surgeon General, Vernon MacKenzie, was able to come to the hearing today and he played a very active role in the development of the Federal Control Program and he might be interested in saying something.

Mr. MULTER. Will you come forward, sir?

Is there something you would like to add? We would be very happy to hear from you.

Mr. MACKENZIE. Mr. Chairman, I don't believe I have any added comments at this particular time. I would be glad to participate in answering any questions if I can be of benefit in this way.

Mr. MULTER. Will you identify yourself for the record, Mr. MacKenzie.

Mr. MacKenzie. Vernon MacKenzie, Assistant Surgeon General, Public Health Service, Deputy Director of the Bureau of Disease Prevention and Environmental Controls of the Public Health Service in HEW.

Mr. Multer. We are very happy to have you with us. It was my impression, as I indicated earlier, that there is sufficient legislation on the books now to authorize the District to enter into a compact with Maryland and Virginia subject, of course, to approval by the Congress if the compact is finally negotiated. If I am wrong on that I think we will have to do a little research on that. If I am wrong I think that is certainly one of the things that we can add to the bill.

Mr. Winn. Mr. MacKenzie, are you a doctor?

Mr. MacKenzie. No, sir, I am an engineer.

Mr. Winn. This shoots that one question. I wondered if you had any studies. We are all aware of the nose and throat irritations that most of us probably experience from air pollution.

I wondered if they have had any medical studies that would show us or prove to us that the District has a higher percentage of these nose and throat irritations than comparable cities of its size.

Mr. MacKenzie. I don't believe, Mr. Winn, that such data are readily available for comparative purposes specifically tied in to air pollution exposures in the Washington, D.C., metropolitan area. There is a broad mass, however, of scientific information concerning laboratory studies and other studies in various parts of the world which relate to air pollution exposures to various physiologic changes and morbid conditions and even deaths under certain acute conditions.

Mr. Winn. Do you know of any deaths that have actually occurred, directly or indirectly, from air pollution in the District?

Mr. MacKenzie. No studies have been made on this subject in the District of Columbia, to my knowledge. I am sure you are familiar with some acute episodes that have occurred in other cities, perhaps most notably in London and New York City which have been reported from time to time and have occurred over approximately the last two decades.

Mr. Winn. When we first got here in January and February there were a series of articles in the paper. I think it might possibly have been after Congressman Gude entered his bill. But there were conflicting reports in the press about the rating of the District of Columbia as far as where we stood as far as air pollution is concerned compared to other cities. As I remember, and it is little fuzzy right now, I think at one time somebody said we were the fourth worst city and it came later twenty-second.

Do we have studies along this line?

Here is one that says eighteenth.

I believe that is the third different number. I haven't read this.

Mr. MacKenzie. We have information concerning the actual concentrations of a number of specific air pollutants in the District of Columbia and a large number of other cities throughout the United States.

The air pollution problem in one city is not strictly comparable in quality and in quantity with others because of the variability of traffic density from automobiles, the variability of fuels which are used for space hearings, and of course variabilities in the types of

industry that may be contributing to the pollution problem and the variations in waste disposal practices.

Consequently, if one looks at the District of Columbia and compares it with other places in any one of these factor you will get one type of rating and if you compare it on another type of factor you will get something different.

The traffic density, for example, in the District of Columbia is among the highest in the United States. The density of industry development here and consequently the concentration that you could measure in the open atmosphere of certain types of pollutants derived from heavy industry would indicate the District of Columbia in this regard would be rated relatively low as compared to the others.

One can set up a more complex type of rating in which a variety of such factors may be taken into account. All of this is relatively arbitrary and I think can only be used as an indication and a factor on which judgments can be exercised.

I think in summary there should be no question, however, that the Washington, D.C., metropolitan area does have an air pollution problem which needs attention.

Mr. WINN. Has there been a public relations effort or educational type of effort to make people aware of this? How has that been done in the District?

I probably should know this but I don't.

Mr. MACKENZIE. I am not acquainted with the degree of the public information activity which has been carried on by the District of Columbia Government. I am sure that there are witnesses here today from which this information can be enlicited.

On the nationl level we have made a broad effort and have carried on a considerable activity in dissemination of information, both of a technical character and appropriate to general public information and education on this subject.

Mr. MULTER. Do you think this has had some effect of not only making people aware of the problem, but has it shown any results?

Mr. MACKENZIE. I think in my view it has been helpful in educating the public as to what the actual facts are and what can be done about the problem. Consequently, I think it has been helpful.

Mr. WINN. Thank you very much.

Mr. GUDE. Mr. Griswold, on Page 7, at the end of the second paragraph, you said, "We therefore urge that this single-agency concept be retained, regardless of whether authority is vested in the Commissioners or in an existing agency."

What do you think would be best for the District to establish?

Where should the policy making authority as far as the standards, reside?

Mr. GRISWOLD. Well, I wouldn't have an opinion, Congressman Gude, as to whether the policy making levels would be with the District Committee or with the District of Columbia Commissioners.

However, in commenting on this and talking of the regional concepts I think there should be one general over-all policy for the Greater Washington metropolitan area involving the District of Columbia, Virginia, and Maryland. Reasonably the citizens of the District and the citizens of the two states involved deserve the same quality of atmosphere and reasonably in acquiring that acceptable air

quality, reasonably the same type of degree of recognition of those indentical sources would have to take place in the entire area. Whether those were enforced in the District by the District of Columbia in the various portions of Virginia and Maryland by the local government agencies provided they carry on this acceptably would be a matter for determination.

For instance, your county, Montgomery County, having the—an agency to carry out enforcement in that area provided they enforce it to the same degree that enforcement was carried on in Virginia of the same regulation. I think it is completely unreansonable for Washington, D.C., the District of Columbia, to have one set of regulations, very stringent regulations, and then have the part of the metropolitan district in Maryland and Virginia to have some other regulations.

Mr. MacKenzie. I wonder if I might supplement Mr. Griswold's comments on your question.

I think the thrust of our testimony has been toward the desirability of having the regulatory authority or the enforcement of the rules resident in a single agency within the District of Columbia rather than scattered in separate agencies as is the present case.

Now, specifically with regard to the rule-making authority, in most local government jurisdictions with which I am familiar, the rule-making is retained by either the elected body or in the case of the District of Columbia, this would be presumably the new Commissioner and the Council; whereas the ordinary day-to-day business of enforcing the rules which are adopted is carried out through a single agency designated for this purpose.

Mr. Gude. We are agreed. I think the Council of Governments approach is to get uniform standards over the metropolitan area. What I was trying to say in my proposal is, that we set the standards. I think we showed the intent of Congress here and I think the Council of the District of Columbia would be the policy-making body eventually as far as standards go.

But there have been proposals that a separate agency be set up. Some people have said let's vest this authority to control air pollution in a body and at that time it was independent of the District Commissioners.

In other words, the Commissioners would appoint them but they would draw up the rules and regulations.

Now what I am asking is your preference, would you rather see the Council of the District of Columbia draw up the levels, or a body appointed by the Commissioner of the District, which would not have any relationship with the Council?

Mr. MacKenzie. Actually we have seen this operating in both of the manners which you have described. And I think that so far as the effectiveness of the air pollution control activity is concerned that this can be accomplished in either way.

From a personal standpoint I believe, however, that the ultimate authority ought to rest in the elected officials and in this case in the absence of elected officials in the District of Columbia I think this would correspond to the proposed Commissioner and Council.

Mr. Gude. If the Council is drawing up other rules and regulations to govern the District of Columbia that involve building codes, building regulations, and matters of this kind, would it not be better if they

also draw up the air-pollution regulations which in many cases are very closely tied to these other considerations?

Mr. MacKenzie. I think the ultimate responsibility should rest where you are indicating, Mr. Gude.

In many of these complex technical fields elected officials or those responsible for adopting local rules and ordinances may find it necessary to use the services of advisory committees of the technical aspects of the decisions which they may have to make.

These details, in my view, should be left to the official having the responsibility.

Mr. Gude. I don't know which one of you wants to answer this. What is your opinion of the Council of Governments approach to the air-pollution problem, the model ordinance and their working in the air-pollution control in the metropolitan area.

Mr. Griswold. So far in connection with the metropolitan problem air pollution and abatement agency we have met with representatives of the State of Maryland designated by the Governor, the State of Virginia, their duly created Air Pollution Commission, their Executive Secretary, and with the officials of the District of Columbia and with representatives of the Council of Governments.

Now in connection with the accumulation of data to come up with a program to resolve the problem here we have worked very closely with the Council of Governments and the District. In other words, the technicians of all agencies have contributed to this. This Council of Governments so far has unless this has changed, I feel that it must be eventually if there is to use the Council as a regional agency unless right now it doesn't have any enforcement powers. In other words, it can recommend and work out a program to be adopted by the elected officials in the various counties and in the District. However, eventually rules and regulations pertaining to the entire area are going to have to be enforced and at the present time it looks like there would have to be created an agency with this enforcement power, unless the units of local government undertook to do it.

Mr. Gude. Do you prefer control by local jurisdictions as opposed to control by a regional body?

Mr. Griswold. No, I would prefer the enforcement by a metropolitan body.

However, there would have to be undertaken through the agency the mechanism of an interstate compact establishing this. I think that as in the case of New York there are certain areas in New York that would very much like the City of New York to undertake the enforcement of rules and regulations within the city and possibly in New Jersey, for instance, here the State of New Jersey would undertake it because the individual cities in that metropolitan area would not want to have it or be qualified to undertake it. I think these sorts of things can be worked out in connection with the organization.

Mr. Gude. Well, you feel there should be enforcement by a regional agency. You say you prefer this.

But would the air be any cleaner if it were enforced on a regional basis or even enforced on a local basis?

Mr. Griswold. I think you would reasonably have more equitable enforcement of the entire area.

However, this does not mean that for instance the District of Columbia, if it had such an agency to carry on enforcement, could not accomplish this effectively within the area in a manner acceptable by the metropolitan commission.

Mr. MACKENZIE. I wonder if I could comment further on this also.

I don't think we have the final answers to the problems of providing services generally in the metropolitan areas. This is a subject of government administration that many people have been struggling with now for a long, long time. In general, in the air-pollution control area we see a necessity for a uniform approach on a regional basis in many metropolitan areas, and I think this includes the Washington, D.C., metropolitan area. The degree to which substitutions should be made of the authorities conducted by local government units by a strictly metropolitan area organization, I think may well vary from one locality to another.

Mr. Griswold mentioned the New York metropolitan area and there the problem is extremely complex because of the very, very large number of local government agencies whose actions would need to be coordinated if one were to have a uniform approach in the entire area.

In the Washington, D.C., area, on the other hand, you have a much smaller number of local government agencies whose actions would need to be coordinated for a uniform approach in the entire area. It may well be because of this lesser complexity here, due to the smaller number of local government units, that it could prove feasible to accomplish the desired objectives by a voluntary coordination of activity.

I would not like personally to rule out this possibility and if it can be done this way in my view it would be preferable and would eliminate further multiplication of government agencies which I think is undesirable unless a strict need can be demonstrated.

Mr. GUDE. Thank you very much. I certainly associate myself with your last remarks. We have quite a few governmental agencies in the metropolitan area now and to see a new one arise would create more problems while trying to solve some old ones. I appreciate your support of a voluntary approach. On these standards which are set forth in the COG model ordinance, do you think these are an improvement over what we have in the District of Columbia now?

Mr. GRISWOLD. I don't think there is any question that they are an improvement over what we have, Congressman.

Mr. GUDE. We could have better air if we could adopt this legislation?

Mr. GRISWOLD. That is certainly true. The representatives of the Council at our consultation asked for comments as to whether they should proceed to try and place these recommendations in effect in the various participants in the Council of Governments, and we felt that this would certainly be in the best interests of the program in the entire area and as a result of these studies we are now undertaking more stringent standards or requirements——

Mr. GUDE. What concerns me is that I know you feel that looking with the judgment of scientists these standards may not be perfect. We could certainly perfect these standards and get them down to another decimal point. At the same time, individuals who don't like these regulations and institutions for other motives can say they ought

to be refined, too, perhaps by this, unwittingly, you are combining with them and delaying the day when we really get down to the job.

Mr. GRISWOLD. Not intentionally, Congressman.

Mr. MULTER. I might call the Committee's attention to the fact that S. 780 passed the Senate on July 18 and the House Interstate Foreign Commerce Committee will start its hearings on that bill probably tomorrow and conclude them within the next two weeks; and it may be necessary for us to integrate our bill with theirs because their bill covers interstate commerce throughout the country and it specifically includes the District of Columbia. I think in that bill they do set forth specific criteria. It may be we can merely adopt that criteria by reference or on the other hand add to this bill sufficient directives to the local government to implement those provisions by regulation. Thank you very much, gentlemen.

Mr. WINN. I am sorry, Mr. Griswold, but I had to leave the room a minute. But I would like a little more clarification so that I can get a better understanding. I have seen these test stations around the District and in Virginia. I don't believe I have seen any in Maryland. I suppose there are some. Are those run by the National Center for Air Pollution Control? Who puts those up?

Mr. GRISWOLD. Those were installed here last January, last December, to measure the air quality at strategic locations in the metropolitan area in connection with the abatement action which the Secretary initiated last October.

Mr. WINN. How many do you have in the general area?

Mr. GRISWOLD. We have, as I understand it, five stations in addition to the camp station, the permanent station which we have here.

These are what you call temporary or mobile air monitoring stations and we move them from place to place.

Prior to this time they were in New York when we were working on that abatement agency.

Mr. WINN. What type of air pollution are you looking for in that type of station?

Mr. GRISWOLD. That type of station would measure five different contaminants. We are getting sulfur dioxide and carbon monoxide and oxygen. They are operated 24 hours a day seven days a week and we utilize this in connection with meteorology, our meteorological data to determine the air quality in the Washington area during different times of the year.

Mr. WINN. Now back to the Kenilworth dump, which is pretty well known as one of the trouble spots. Do you have a station close to that where you can pick up the pollution from the dump?

Mr. GRISWOLD. During certain conditions when the wind is blowing in that direction it will show that. We don't have one established just for the specific purpose of measuring the quantity of the material that comes from that. That we pretty much know. We have undertaken to evaluate the quantity of air pollution that is coming from that, the amount of material that is burned along with all the other open burning dumps and incinerators and other sources of pollution in the area.

Mr. WINN. How many open dumps do we have in the district?

Mr. GRISWOLD. There are about five.

Mr. WINN. Are they similar types?

Mr. GRISWOLD. Not as large as that and not quite as well known.

Mr. WINN. What steps have been taken to get rid of the Kennilworth dump or to change the system?

In other words, you know it's an immediate problem. You know that is where part of the trouble source is for the entire area.

What steps have been taken?

Mr. GRISWOLD. Well, this would take quite a bit of time to go through, Congressman, but it is a well-known source of pollution. There have been several studies made of this. The way the city now exists, the problem of disposing of the material that is taken to the dump there is a more acceptable means from an anti-pollution standpoint. There is no question about the fact that dump that has been in operation has to be terminated. Hopefully it could be done by sanitary land fill. I am hoping that as a result of the abatement conference we will arrive at an agreement on a more acceptable alternate solution to the Kenilworth dump.

Mr. WINN. How long has this been a problem?

Mr. GRISWOLD. This has been a problem, I think, for over a decade.

Mr. WINN. I have no more comment.

Mr. GUDE. General Mathe has been working on this problem. It is a tough one.

Mr. GRISWOLD. That is right.

Mr. GUDE. He hasn't had a decade to work on it yet.

Do you share the information you get from your monitoring stations with the Council of Governments?

Mr. GRISWOLD. Yes, we do; in fact the measurement of how much material, what type and quantity of pollutants that come from all sources including all types of incinerators and the open dump and all of this is developed with a team operation of technicians from the two States and the city and the Council of Governments and they, of course, have ready access to all this data.

Mr. MULTER. Now, then, the representatives of the District Government, will you please come forward, Lieutenant Colonel Henson, Dr. Grant, and Mr. Gimble.

STATEMENTS OF LT. COL. WILLIAM F. HENSON, ASSISTANT ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA; MURRAY GRANT, M.D., DIRECTOR, DEPARTMENT OF PUBLIC HEALTH; AND GILBERT GIMBLE, ASSISTANT CORPORATION COUNSEL; AND ROY L. ORNDORF, DIRECTOR, DEPARTMENT OF SANITARY ENGINEERING

Colonel HENSON. Sir, I am Lieutenant Colonel William F. Henson, Assistant Engineer Commissioner of the District of Columbia. On my left is Dr. Murray Grant, the Director of the District of Columbia Department of Public Health, and on my right is Mr. Roi Orndoff, Director of the Department of Sanitary Engineering.

It is a pleasure to represent the Engineer Commissioner at your hearing this morning.

The Commissioners are concerned about the increasingly severe air-pollution problem in the District of Columbia and appreciate this Committee's interest in helping us set up the necessary machinery for effective air pollution control. We are convinced the aid and guidance of Congress is essential if our effort is to succeed here in the Nation's Capital.

Mr. Chairman, the Board of Commissioners has previously submitted a report on H.R. 6981 and I ask that it be included in the record.

Briefly, the Commissioners fully endorse the objectives of the bill; however, rather than enacting H.R. 6981 in its present form, we urge that the Congress adopt legislation granting the Commissioners authority to adopt air pollution controls substantially similar to those prescribed in H.R. 6981. With this in mind, the Commissioners' Report recommends certain amendments which would provide the flexibility necessary to carry out an effective air pollution control program in keeping with the highly desirable objectives contained in H.R. 6981.

The Commissioners have recently gone on record expressing the fact that they are most anxious to establish an adequate air pollution control program and will do so as soon as authority is granted by the Congress. They have also expressed their intent to centralize air pollution control, along with all other environmental pollution controls, in the Department of Public Health. This department is presently working on proposed air pollution regulations and it is our intent to hold public hearings on such regulations within sixty days after the authority is granted.

The Commissioners have also indicated they are prepared to provide the air pollution control program with the necessary staff and budgetary support for implementation. We are hopeful that legislation giving the Commissioners appropriate authority will be forthcoming from this session of the Congress.

Thank you for the opportunity to appear before your Committee. I have representatives of several District Departments here with me today and we will be pleased to answer any questions from the Committee.

We would therefore strongly endorse and urge enactment of the bill which you, Mr. Chairman, indicated you had introduced yesterday, although we have not had a chance to see that.

Mr. MULTER. I wish you would check that out and see whether or not we have any substantive changes. As the bill is introduced there are some slight differences. If so, call it to our attention.

Thank you very much.

Colonel HENSON. Thank you very much for the opportunity to appear before your Committee. I have several representatives of the various District departments here and I believe Dr. Grant is the only one with a prepared statement. Possibly he would want to give his statement.

Mr. MULTER. I think it might be well to hear Dr. Grant's statement first. You may either read it or we will file it. The choice is yours.

Dr. GRANT. I would suggest in the interest of time, if it is satisfactory with you, I would file it and perhaps summarize very rapidly what it contains.

Mr. MULTER. Very good.

(The complete statement of Dr. Murray Grant follows:)

STATEMENT OF MURRAY GRANT, M.D., D.P.H., DIRECTOR, DISTRICT OF COLUMBIA DEPARTMENT OF PUBLIC HEALTH, BEFORE THE HOUSE DISTRICT COMMITTEE, ON H.R. 6981—A BILL TO PROVIDE FOR THE PREVENTION, ABATEMENT, AND CONTROL OF AIR POLLUTION IN THE DISTRICT OF COLUMBIA, AUG. 10, 1967

Mr. Chairman, in 1935 an Act was passed by the U.S. Congress with the expressed purpose stated as follows: "to prevent the fouling of the atmosphere in the District of Columbia by smoke and other foreign substances, and for

other purposes." This Act, which has subsequently been amended, provides primarily for the control of smoke and other particulate matter discharged from fuel burning facilities. It is quite clear that this legislation is inadequate to prevent, abate or control the types of air pollution now encountered in our community. For example, two of the more deadly kinds of air pollution, carbon monoxide and sulfur dioxide, are totally uncontrolled by present legal requirements.

In 1966, the Department of Public Health employed a legal consultant to prepare a compilation of all Federal and District of Columbia laws and regulations relating to air pollution control and affecting Washington. It became apparent as this compilation was developed that the legal authority to prevent, abate or control air pollution is woefully antiquated and lacking in essential elements.

The Department of Public Health wishes to lend its general suport to the Bill under discussion here today. It will, in our opinion, substantially strengthen the program to prevent, abate or control air pollution in the District of Columbia. The declaration of policy sets forth the necessity for the program and defines the direction it is to take; we support this policy statement.

If air pollution control is to be successful in the District of Columbia, one agency must be responsible for carrying out the overall program. We therefore support the concept expressed in Section 4 of H.R. 6981. However, as currently stated, it would appear to imply the establishment of a new agency for air pollution control. We would point out that the Department of Public Health, through its already existing Air Pollution Division, already has been designated as the Air Pollution Control Agency to receive funds for the District of Columbia under the Clean Air Act of 1963; furthermore, the Department of Public Health is the coordinating agency for air pollution control activities among the several District of Columbia agencies having responsibility in this area. What is required, in our opinion, is that our Department, through its already existing Air Pollution Division. be given the authority it now lacks, namely, not just to coordinate the air pollution program but to be able to ensure that the program is properly implemented. At present, air pollution control activities are scattered throughout several departments in the District of Columbia, with no one agency having the responsibility of ensuring that the appropriate steps are taken to abate conditions leading to contamination of the atmosphere. We would therefore hope that Section 4 can be amended in order that the Department of Public Health can be given the authority to ensure that the air pollution control program can be effectively administered.

It also appears to us that the Bill would be more flexible if some of the specifics were deleted and the authority to promulgate and enforce such reasonable rules and regulations as they deem necessary was vested in the Commissioners. There are several reasons for this:

1. The technology of air pollution is rapidly changing; what may appear to be reasonable standards today may be outdated in a few short years.
2. Not all of the desirable improvements can be achieved over night; for example, several steps may be required to eliminate high sulphur fuels.

We would therefore recommend that Sections 9 and 10 be deleted from the proposed Bill and that a new paragraph be added to Section 5 to achieve the purposes covered in the deleted portions. The paragraph might well read as follows:

"(a) The Commissioners are hereby authorized and empowered to promulgate and enforce all such reasonable rules and regulations as they may deem necessary to prevent and control air pollution in the District of Columbia, including but not limited to the authority to:

(1) Establish air quality and emission standards;

(2) Control air pollution caused by emission of vapors, gases, fumes and particulate matter;

(3) Regulate harmful or objectionable odors. dusts, pollens and similar air-borne contaminants;

(4) Restrict or control the use of any fuel containing one or more substances which upon combustion produces harmful air contaminants;

(5) Control open fires;

(6) Control or prohibit the use of chemicals which may be used to conceal or mask emission of air contaminants;

(7) Provide for an alert system during periods of temperature inversion or photochemical smog; and

(8) Prescribe the actions necessary to avert excessive accumulation of air contaminants during periods of temperature inversion or photochemical smog."

If Sections 9 and 10 are deleted certain of the definitions in Section 3 would no longer be needed in the Bill. In addition, some slight change would be needed in Section 12. Lines 21 and 22 should be changed to reflect the fact that emission standards would be set by the Commissioners under authority of this Bill.

Subsection (c) of Section 11 might well prove to be impracticable as well as unenforceable. There is a national program designed to provide guidance in this area and the present District of Columbia laws relating to motor vehicles provide ample authority to control air pollution from these sources. We would recommend that this subsection be deleted from the proposed Bill.

No matters concerning public health are involved in Sections 13 through 20 and we are, therefore, not expressing any opinions on these sections. We note, however, that the Bill does not contain a Separability Clause.

In conclusion, Mr. Chairman, the Department of Public Health strongly urges the adoption of air pollution control legislation. We support H.R. 6981 and hope that consideration will be given to the suggestions we have made, which, in our opinion, would add strength to the Bill as currently written.

Dr. GRANT. Generally, Mr. Chairman, some of its contents have already been described by Mr. Griswold in his testimony because our views were rather similar, I think. But I think in general what it says is we generally support the legislation under consideration today with certain modifications that we have outlined in this statement.

Basically, we feel it is very important for the District to have air pollution legislation because our present situation is such that while the Department of Public Health is the air pollution control agency in the District, it has only a coordinating role. In fact, it does not have the authority to really enforce adequate air-pollution methods.

We believe, therefore, that it is necessary for an agency to have the enforcement role and adequate legislative authority to back it up.

The other point we would make, Mr. Chairman, relates to the question of detailed standards being included or excluded from the legislation. I believe that Congressman Gude feels that such standards are desirable. We feel that it would be preferrable for this to be embodied in authority given to the Commissioners because as I think Mr. Griswold himself testified technological changes are rapidly taking place and what may be good standards today may not be satisfactory tomorrow. Unless the Commissioners had the authority to change these it would be necessary every time we wanted to make a change to come to Congress for specific changes.

I think this summarizes what I have to say.

Mr. MULTER. Thank you, sir.

Do either of you gentlemen or any of you gentlemen want to make any comment on whether or not we need additional authority to enter into a compact with Maryland and Virginia on the subject?

Dr. GRANT. I believe, Mr. Chairman, that the District already has such authority, although I believe it would have to come to Congress for definite authorization, for definitive authorization.

Mr. MULTER. The Corporation Counsel's office is represented here.

Mr. GIMBLE. Yes, my name is Gilbert Gimble. I am Assistant Corporation Counsel. There is provision in the language submitted by the Commissioners, I presume included in your bill, which would give the Commissioner authority to advise and consult and cooperate with other governmental jurisdictions and inter-local agencies.

However, it might be well that specific consent be included in the bill authorizing the Commissioners to enter into compacts, on the other hand, the consent of Congress would be necessary for entry into an interstate compact. I am not certain as to whether Congress would desire to specifically approve the language of a compact that would be negotiated, but I think the Commissioners would have to have authority to negotiate such a compact.

Mr. MULTER. I think the existing law and the rules of the House require such compacts when they deal with various states, as this would necessarily deal either with Maryland or Virginia or both, probably both, would have to go to the Judiciary Committee, and the compact as agreed upon would then have to be approved by the Congress. I think while the authorization is there to enter into the compact, it carries the provision that it will be subject to approval of the Congress. You might check me out on that. If I am wrong you may submit something additional for the record.

Mr. GIMBLE. I am not absolutely sure. I know of one instance in which Congress has given the states and, I believe, the District of Columbia authority to enter into compacts with regard to traffic safety agreements and I don't believe those specific compacts are brought back to the Congress.

I am not sure how the machinery works with respect to the interstate compact governing regulations of transit which is in effect in this jurisdiction.

Congress may have specifically approved that compact.

Mr. MULTER. Am I right in assuming that even though S. 780 may finally be enacted into law, in substantially its present form as passed by the Senate, we would still need the specific authorization to the District of Columbia to set up an agency and perform the task that must be done to implement that statute?

Mr. GIMBLE. I believe that is true, Mr. Chairman. I believe that the enabling aspects of Mr. Gude's bill and the Commissioners' bill would be required. I believe it would be, although I am not absolutely certain as to all the provisions of the Senate bill.

I believe this bill would in effect complement the national bill and would give the Commissioners authority or their successors authority to develop air pollution control programs, which is the authority we feel that we do not have at this time.

Mr. MULTER. I would appreciate it if you would check that out and give us a supplemental statement on it and also if you would give specific attention to the fact of whether or not the Senate S. 780, why it does not refer to the District of Columbia, in many parts of the bill it is sufficiently broad to permit the District of Columbia to participate in the grants that are called for on the part of the Federal Government and the local governments.

Mr. GIMBLE. I am not certain at this time. I believe it does include the District.

There are programs that are now underway that have been underway for some years that we participate in.

Mr. MULTER. We know it refers to the District in many places, but we must be sure when it refers to grants to the States they are not excluding the District of Columbia. The District must be specifically mentioned in order to be able to receive the grants provided in that bill.

Mr. WINN. I would like to ask Dr. Grant if in his job as Director of the District of Columbia Department of Health, have you run into any individual studies that would show the percentages of air pollution damage to nose and throat, through nose and throat irritation?

Dr. GRANT. No; we have not.

As a matter of fact, it is very difficult to do these kinds of studies. I think Mr. MacKenzie previously alluded to the fact that there have been people take a look at this all over this country and, as a matter of fact, in other countries. It is a very elusive kind of problem to tackle. While there has been evidence accumulated over a number of years of the adverse effects of air pollution on human bodies, particularly when that air pollution occurs in a sudden burst as it did, for example, in New York City, London, and Donora, Pennsylvania, it has been very difficult to prove conclusively air pollution in small doses over a long period of time, although there is a very substantial body of circumstantial evidence which has accumulated to show a very closely—a very close relationship, it is well known in some cities that people who live very close to large manufacturing plants tend to have a higher mortality and morbidity rate from heart and respiratory diseases than those in other areas of the city. So this is the kind of circumstantial evidence that is available.

But to carry out the kind of definite studies which you are suggesting, certainly these are desirable but very difficult to do in order to prove conclusively a causal relationship.

Mr. WINN. Possibly you might be able to give us a little more information. I am a little surprised with as many people as there are in Washington and the District who talk about the constant air pollution to their nose and their throat and you hear about it, it is general conversation, that we don't seem to have any studies on this thing.

Dr. GRANT. The problem, Mr. Winn, and I think you can see this rather clearly, is how does one design a study, let's say, in Washington, that would prove clearly that an individual's nose problems or throat problems or cardiac problem is specifically referable to air pollution when it could be a whole host of other things. The difficulty is to design a really good study that would prove this point.

Mr. WINN. Do you think this advisable?

Dr. GRANT. I think if one could develop this kind of study it would be most advisable. But I am not sure that one can do it very easily.

Mr. WINN. Again I am no professional on this but it looks like if you are going to try to cut down, rather than just say the various types of air pollution that affect the human life and our daily lives, that you would want to find out which ones of these or which ones are prevalent here in the District and attack those first, which ones are affecting our daily lives.

Dr. GRANT. We do have some evidence on this. You are now talking about the kind of air pollutants that we have and what affect these have. We do have some evidence of this. We are studying carbon monoxide and sulfur dioxide, which are two of the real important ones, and we do know the extent to which these exist in our atmosphere through the air monitoring station that Mr. Griswold referred to.

Mr. WINN. Mr. Griswold at one time made the statement, according to the press, that the amount of dirt in the District was the fourth highest in the country and then some additional reports later on put

out by the Public Health Service sort of watered that down. That is one of the types of air pollution that you are referring to?

Dr. GRANT. Yes, sir.

Mr. WINN. And this would be one of the types of air pollution that would come from the Kenilworth dump, with dirt in the air.

Dr. GRANT. Certainly this would be one of the important contributing factors.

Mr. WINN. So those people that live closer to the Kenilworth dump would be more affected by the pollution of dirt in the air than from possibly the gasoline fumes from cars and buses.

Dr. GRANT. There is another complicating factor. There is another large plant located in the same general vicinity that is also an important contributor to air pollution and that is the Pepco plant. That is not too far from the Kenilworth dump. Which one causes which kind of pollution is not too easy to determine.

Mr. WINN. This is again why I would think that the studies would dig into the types of air pollution that are affecting us. I think mainly, Mr. Chairman, we are first interested in what is affecting the daily lives of the people who live there, then animals and plants and on down the line.

Dr. GRANT. Yes, sir, I see what you are getting at and I think it would be possible to design a study where you would compare the morbid or mortality rates of people who live in that area with those who live in other areas of the city.

However, I really question whether the results would be conclusive. For a number of reasons. First, there is a migratory factor of approximately ten percent. We estimate people move within the District of Columbia, about ten percent of them in the District move. So you have difficulties in following these people and any study of this nature would have to be a long term study over many years. In addition, once again these people do travel moving outside of this area just not to live but for traveling purposes and, therefore, they are exposed to a number of other pollutants and it would be very difficult to prove that any condition that he had would be directly attributable to that.

Mr. WINN. I think you have a very good point. They would also be exposed in many cases to good, fresh air, too.

Dr. GRANT. Yes, sir.

Mr. GUDE. Dr. Grant, of course you are talking about long range cumulative effects of low-grade air pollution.

What about the possibility of an air pollution episode in the District?

Dr. GRANT. Yes, I think it is possible if you had the right type of temperature, wind conditions, and so on. I think it is possible we could have a large, strong episode such as has occurred in other cities and that it might prove harmful to people here. I think this is possible. We have had, as you know, occasions in the past when we have had a rather substantial amount of air pollution with very obvious irritation to the nose and throat. I think it is conceivable under certain kinds of conditions that we could have this kind of episode.

Mr. GUDE. If you get a sluggish air mass with an inverted layer and in a few days you get a build-up of the pollution which normally goes off in the area, then we could really be in trouble.

Dr. GRANT. Yes, sir.

Mr. GUDE. In regard to the standards that are set forth in the COG model ordinance, you think these would be an improvement over what you currently have?

Dr. GRANT. Yes, sir, I think there is no question, Mr. Gude, we all agree these would be an improvement. I think the questions here relate to two points.

One, whether they are all immediately enforceable or enforceable within the time limit specified in the provisions of the bill as you rendered it; and, secondly, as I have indicated, whether it would be wise to specify specific regulations in light of the rather changing technology in this field which seems to me would render it more desirable to give the Commissioners the authority to enact these kinds of technical kinds of requirements plus amendments that might be required that would not necessitate us having to come back to Congress every time we wanted to make a change.

Mr. GUDE. Right now, from what we know today, would you see any major revisions in these standards that are essential to clean up the air?

Dr. GRANT. I think that I would have to refer that question, Mr. Gude, to some of our technical experts—Mr. John V. Brink, who is Chief of our Bureau of Public Health engineering.

Mr. BRINK. No, I think as a whole actually, Congressman, we in the District work very hard—have worked very hard on this model ordinance in Committees. We are a member of the Council of Governments and we think it is a good ordinance with maybe some revision in it so we could use it.

Mr. GUDE. Don't you feel that there is no doubt that the technology is going to change and if we said we are going to have a revision next January, then the January following we can always have more revisions because science is advancing. But isn't this a way to avoid getting down and actually getting started on what we know today and drawing standards and trying to work toward a solution?

Do you think this one-year exemption which can be extended serves notice on everyone else, industry and everyone else, you have to clean up.

Mr. BRINK. I think that is a valuable feature. The only question here would be is it desirable to have an exemption which you know is going to be extended and maybe extended indefinitely. But it is a desirable feature, certainly better than not having any.

Mr. GUDE. It is better to spell out in the law what is the proper standard, rather than avoiding standards, if you don't provide for some type of exemption.

Mr. WINN. I would like to ask Colonel Henson a question.

For quite a while I have heard there is an equipment shortage of certain types of pollution control machines.

Are you aware of this?

Have you run into this or had any industry say they cannot secure the equipment needed to control their own problems?

Commissioner HENSON. Sir, I have no firsthand knowledge on this particular question. Possibly some of the other people in the District Government here may be able to answer that.

Mr. WINN. I would like to ask any of the engineers or District people if this is true, and if it isn't, we ought to throw this line out.

Mr. BRINK. Insofar as our District problems are concerned we could say no, in most instances, but for incinerators this is not an area where we can say it is not a question of equipment shortage. We are not sure what the right equipment is that can handle a problem from an incinerator. There are gases that come off when you burn insecticides and paints and there are some unsolved technical problems.

Mr. WINN. Several people have told me that some of the types of equipment have really not been proven and still the authorities are urging industry and people to meet these requirements and they don't have the equipment. I also understood there was a shortage.

Possibly it might fall the same way so that they can't meet the requirements if we would legislate that way, whether it would be in the District or in the nation. This would be probably one reason, Congressman Gude, that they would have an extension on certain types of incinerators.

Mr. GUDE. Unless we have standards and ideals to work for us I don't think business and the government know what they are trying to achieve. I think that is why these have to be drawn.

Dr. GRANT. I think If I might add, I completely agree with Mr. Gude that we would have to have standards. I think that the standards that are included here, Mr. Gude, we could live with reasonably well at the present time in general. I think the only question is whether these standards should be included in this specific legislation or whether the Commissioners should have the authority to enact them under regulatory authority because of the problem of having to come back regularly to get changes made. I think this is really the heart of the question.

Mr. MULTER. I think Mr. Gude covered that when he provided for exemptions and judicial review. I think we may have to broaden those provisions to make sure we don't work an undue hardship on people or force them to use things that have not been proven.

Mr. WINN. There have been insinuations throughout the nation, in the press and trade journals that industry does not want to cooperate. I am sure there are certain people in industry who don't want to spend a tremendous amount of money for this equipment if they don't know or their engineers are not convinced that this piece of equipment has been proven. They don't want to spend two or $300,000 and I understand they are a tremendously expensive piece of equipment that is involved in air pollution, and I think industry may be the whipping boy here when in some cases they are earnestly trying to do the job.

Mr. MULTER. We will have to give close attention to those things. There are some interesting witnesses listed and I hope they will touch on those subjects.

Mr. GUDE. Dr. Grant, one more question.

As you know, I am proposing an amendment whereby the authority to establish the regulations or modify them would be turned over to the government by 1969, thus giving them the opportunity to then move ahead and modify as they see fit.

What would you think about this procedure?

Congress does have a very real responsibility in that the Federal establishments are creating some of these problems.

Dr. GRANT. I think, Mr. Gude, that that is a very reasonable compromise. As I understand what you are suggesting here, it would give

the District immediate standards that they could work with and these could be changed by Council action effective in 1969. I think this is a realistic kind of compromse.

Mr. MULTER. I think what you say, Dr. Grant, about the changing of technology in the scientific approach is best emphasized by the fact that on July 19, 1967, President Johnson found it necessary to issue his proclamation 3794 with reference to petroleum and petroleum products and that modified a prior proclamation on the same subject. Obviously air pollution from burning fuel oil was one of the many problems.

Mr. GUDE. I might point out that the enactment of the legislation which I produced here would provide under this Presidential order that the Federal establishment in the District would have to conform to certain standards on sulfur in their fuel.

Mr. MULTER. Thank you very much, gentlemen.

(Subsequently, the following letter was received from the Commissioners for the record.)

GOVERNMENT OF THE DISTRICT OF COLUMBIA,
EXECUTIVE OFFICE,
Washington, August 21, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, Committee on the District of Columbia, U.S. House of Representatives, Washington, D.C.

DEAR MR. MCMILLAN: In the course of hearings held by Subcommittee No. 2 on H.R. 6981, relating to air pollution in the District of Columbia, certain information was requested of the Assistant Corporation Counsel who accompanied the witnesses representing the District of Columbia government. This letter is in response to the questions raised at that time.

AUTHORIZATION OF INTERSTATE COMPACT ON AIR POLLUTION CONTROL

The Congress has expressly authorized the District of Columbia to negotiate and enter into interstate compacts with respect to air pollution control. This authorization is contained in section 102(c) of the Clean Air Act (42 U.S.C. 1857a(c)), which provides as follows:

> "The consent of Congress is hereby given to two or more States to negotiate and enter into agreements or compacts, not in conflict with any law or treaty of the United States, for (1) cooperative effort and mutual assistance for the prevention and control of air pollution and the enforcement of their respective laws relating thereto, and (2) the establishment of such agencies, joint or otherwise, as they may deem desirable for making effective such agreements or compacts. No such agreement or compact shall be binding or obligatory upon any State a party thereto unless and until it has been approved by the Congress."

The definition of the term "State" as used in the Clean Air Act includes the District of Columbia (42 U.S.C. 1857h(e)). Thus the District of Columbia may negotiate and enter into interstate compacts respecting air pollution control and abatement, subject to the approval of Congress in the terms of the compact.

STATUS OF THE DISTRICT OF COLUMBIA UNDER THE AIR QUALITY ACT OF 1967 (S. 780)

Now pending in the House of Representatives is the Senate-passed bill known as the Air Quality Act of 1967 (S. 780). The question was raised as to whether the District of Columbia would be eligible to receive grants under the Senate-passed bill. S. 780 would amend the Clean Air Act, which, as noted above, includes the District of Columbia within the meaning of the term "State". New grant programs contemplated under S. 780 would provide funds for air pollution planning and control programs administered by state air pollution control agencies. The District of Columbia Department of Public Health has been designated by the Board of Commissioners, for purposes of the Clean Air Act, as the official agency for air pollution control, and grants have been made to the District of Columbia under existing programs. The District of Columbia could also be eligible for new grants under the programs to be established should S. 780 be enacted.

S. 780 also provides for a national program to enhance the quality of air resources. The proposed new section 107 of the Clean Air Act (contained in section 2 of S. 780) would require the Secretary of Health, Education, and Welfare to define atmospheric areas of the Nation on the basis of those conditions which affect the interchange and diffusion of pollutants in the atmosphere, designate air quality control regions, and develop criteria for air quality for such regions. The bill provides for a method by which the States may establish air quality standards based upon the criteria proposed by the Secretary.

Those provisions contained in H.R. 6981 granting the Board of Commissioners enabling authority to control, prevent, and abate air pollution would complement the provisions of S. 780 authorizing the local adoption and enforcement of air quality standards. However, the detailed provisions establishing standards that are contained in H.R. 6981 would impose a statutory requirement which, as the bill is now written, could not be changed either by local or Federal officials. Such inflexible statutory requirements could frustrate attempts by the District of Columbia to develop air quality standards.

Congressman Gude, the sponsor of H.R. 6981, may have foreseen this problem when he proposed to the subcommittee that his bill be amended to empower the Board of Commissioners (or its successor) to adopt changes in the standards after January 1, 1969. Nevertheless, the statutory imposition of standards until that date could delay participation by the District of Columbia in the program contemplated under S. 780.

PROVISIONS OF H.R. 12232

H.R. 12232, introduced by Congressman Multer, the Chairman of Subcommittee No. 2, is based on suggested amendatory language provided by the Commissioners in their report on H.R. 6981. Congressman Multer requested the District of Columbia representatives to examine his bill, which they had not had opportunity to see prior to the hearings, and report whether any substantive change had been made in drafting the bill. Examination of H.R. 12232 reveals that it is essentially similar to the proposed legislation recommended by the Commissioners.

If any further material or information is desired by the committee, the Commissioners will be pleased to provide whatever is requested.

Sincerely yours,

(S) WALTER N. TOBRINER,
President, Board of Commissioners, D. C.

Mr. MULTER. Our next witness this morning is Dr. Geiger.

It is quite obvious we cannot finish this morning. May I inquire whether or not the other witnesses can come back on another day? Any from out of town can leave their statements if it would be inconvenient to come back on another day. After Dr. Geiger we have Mr. Coulter, Mr. Counts, Dr. Kailian, and Mr. McGrath.

If it is necessary, can all of you gentlemen come back on another day?

We can tentatively schedule it for next Wednesday at 10:00 o'clock, if we cannot finish with you today. We have to check to seek whether another Committee or another Subcommittee has preempted this room for that day.

Dr. Geiger, you may proceed as far as we can with you today.

STATEMENT OF JASON GEIGER, M.D., CHAIRMAN, MEDICAL ADVISORY COMMITTEE, THE MONTGOMERY COUNTY (MD.) TUBERCULOSIS & RESPIRATORY DISEASE ASSOCIATION

Dr. GEIGER. My name is Jason Geiger. I am a physician specializing in internal medicine and pulmonary diseases and have been active in this field for about 15 years.

I am appearing here today as the Chairman of the Medical Advisory Committee of the Montgomery County Tuberculosis and Respiratory Disease Association.

My interest also includes work in the District of Columbia on the Committee on Inhalation Therapy for the Washington Hospital Center and various other hospital activities.

I am actually substituting to some extent for Dr. Harold Silver, who was originally scheduled to appear here, but because of the change in time, was unable to.

There have been a number of statements made and the only ones that I can substantiate are those directly relating to the care of patients with pumonary and respiratory problems, and this is my primary interest.

I have noticed in my own practice there are frequently changes for the worse in patients with emphysema and with other respiratory diseases when there is a heavier apparent air pollution. This has been particularly apparent often in clinics that we have had at the Washington Hospital Center in the pulmonary clinic where we have many patients with emphysema, chronic bronchitis, and chronic lung disease.

I cannot give any specific figures. Unfortunately this has to be simply a subjective impression.

Mr. MULTER. May I interrupt you?

Are there no statistics available and/or reports of statistics available on reports on conditions that existed in Pittsburgh before and after they cleaned up the city there?

Dr. GEIGER. I can't state as to Pittsburgh. I have a little data on an area of Staten Island in New York which was affected by Elizabeth and Bayonne, New Jersey.

Mr. MULTER. I refer to Pittsburgh specifically because we know Pittsburgh had a very bad situation at one time and they cleaned it up to a tremendous extent. Staten Island is a bad situation and the situation is getting worse. They haven't begun to clean it up.

Dr. GEIGER. That is right. I was talking earlier this morning with a doctor that comes from Pittsburgh and his impression was there was improvement. I think the work in Pittsburgh has been smoke abatement rather than the actual diminution of other contaminants which are not so readily visible and there is still considerable trouble with automotive exhaust and sulfur dioxide and other things in Pittsburgh.

In the interest of time I don't want to read a lot of things that I have written here. I would certainly hope that this kind of legislation would help to eliminate the hazards of air pollution in this area, and I would feel strongly that the capital of the nation certainly should be in the vanguard of those areas developing model standards for air pollution control.

I would hope that this bill will meet with favorable action by the Committee and the Congress.

Mr. WINN. Doctor, these people in the clinic that you mentioned and the ones that you have treated, do you feel that they would be better off, healthier, if they were sent away from the District or from the cities where there is known heavy air pollution?

Dr. GEIGER. I have seen this. Actually I can think of one particular patient of mine who has severe emphysema and who has moved to Arizona. I am not exactly sure where, but a small town in Arizona where the air is much less polluted. And from what I have heard from this man he has been benefitted by this. He would have specific worsening of his shortness of breath and cough whenever he attempted to

drive a car or ride behind a bus or get caught in traffic or just go outside his apartment.

Mr. WINN. Wouldn't you say that is true of all of us? Would you say that this air pollution, you, in your opinion, would be responsible for irritating or the start of emphysema or a source of these respiratory diseases?

Dr. GEIGER. Speaking particularly of emphysema I think this is a disease which is caused by a number of factors. There is probably in some individuals some hereditary tendency to develop it. All of us are aware of the fact of the large factor of cigarette smoking. Air pollution is an added factor. I don't think anyone could consider it the sole factor.

Mr. WINN. You have heard the questioning or my line of thinking on the nose and throat irritations. Do you get into that in any way, or do you see the results of this because of air pollution?

Dr. GEIGER. Only indirectly in that people who have for instance and allergic difficulty with the nose and throat will have added difficulty again if they are caught in traffic.

Mr. WINN. You might well get those driving across country from many types of altitudes.

Dr. GEIGER. That is true.

Mr. WINN. Have you talked to any ear, nose and throat specialists about what they have found, in your conversations along this line?

Dr. GEIGER. Not specifically, Mr. Winn.

Mr. GUDE. Doctor, you are associated with the clinic that specializes in pulmonary work?

Dr. GEIGER. Yes, sir.

Mr. GUDE. Nose and throat also?

Dr. GEIGER. No; of diseases of the lower respiratory tract and lungs and trachi and bronchi and not so much for the nose and throat. Although those are almost all common with chronic lung disease.

Mr. GUDE. What sort of a patient load do you have?

Dr. GEIGER. At this particular clinic that I mentioned we see perhaps ten to 15 patients a week, which is not a very large caseload. But it is a specialist clinic, functioning primarily on referral of patients with specific pulmonary problems from their hospital centers. The type of patients that we really see are two, those with acute problems which may be diagnostic in nature and not particularly germane to this kind of discussion, and the others are those with chronic lung disease, emphysema, chronic bronchitis, people who continually cough and have shortness of breath and are distressed by many, many things including air pollution.

Mr. GUDE. Well, then the average caseload on the average per week is about ten to 15.

Have you noticed an increase in certain periods?

Dr. GEIGER. Yes, in warm, summer weather there is a definite fall-off where you may not see perhaps not more than five or six patients at a given clinic. When the weather turns damp and colder, when people are exposed to these factors, when there is heavier smoke or fog in the air, the caseload is greater and many of these patients tend to report to the emergency room with acute difficulty when the clinic is not in session.

Mr. GUDE. You mean the emergency rooms at the various hospitals.

Dr. GEIGER. Yes, that is correct.

Mr. GUDE. What would you say would be the number in these acute periods of bad conditions?

Dr. GEIGER. This is a time when I think that one may see as many as 15 or more patients at a given clinic as opposed to a low of five at other times.

Mr. GUDE. I asked Dr. Grant about the possibilities of air pollution and this is the type of conditions that you are speaking of?

Dr. GEIGER. Yes, sir.

Mr. GUDE. The aspects are such that all the polluted air stays here instead of moving off.

Dr. GEIGER. Yes. I have not encountered this as yet. And some of these have been discovered in retrospective studies—as I am sure you are aware of the one that occurred in New York in the '50's and wasn't discovered until there was a statistical review of death some 12 years after.

Mr. WINN. Does the humidity in the District affect the air pollution?

Dr. GEIGER. It would tend to retain more air pollution.

Mr. WINN. Almost the same as a fog?

Dr. GEIGER. Yes, sir.

Mr. MULTER. Thank you, Dr. Geiger.

If you or any of the other witnesses who have not yet been heard have any comments that they want to make with reference to the bill that was introduced yesterday, the so-called Commissioners, we would be very happy to have them.

If any of the witnesses who have not yet been heard would like to file their statements for the record at this time, we will take the statements at this time.

We will stand in recess until 10:00 o'clock next Wednesday. If by any chance that is changed, notice will be given to the witnesses and the public of the change.

(Whereupon, the Subcommittee was adjourned, to reconvene next Wednesday, August 16, 1967, at 10:00 o'clock a.m.)

AIR POLLUTION

WEDNESDAY, AUGUST 16, 1967

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE NO. 2 OF THE
COMMITTEE ON THE DISTRICT OF COLUMBIA,
Washington, D.C.

The Subcommittee met, pursuant to notice, at 10:00 o'clock a.m. in Room 1310, Longworth House Office Building, Honorable Abraham Multer, presiding.

Present: Representatives Multer (Chairman), Winn, and Gude.

Also present: James T. Clark, Clerk; Hayden S. Garber, Counsel; Sara Watson, Assistant Counsel; Donald Tubridy, Minority Clerk; Leonard O. Hilder, Investigator.

Mr. MULTER. The Committee will be in order. We will hear first this morning from Captain John Thot. Captain, will you come forward please and identify yourself for the record. I understand you want to make a statement.

STATEMENT OF CAPTAIN JOHN THOT, METROPOLITAN POLICE DEPARTMENT

Capt. THOT. I am Captain John M. Thot, assigned to the Metropolitan Police Department, specifically attached to the Traffic Division in Charge of Traffic Operation and Enforcement. I was requested to be here by the Chief of Police to represent him this morning to give you the Department's thoughts on the matter at hand.

The Metropolitan Police Department's function and involvement in air pollution control is primarily that of enforcement. There have been a number of regulatory and statutory provisions, some of which remotely related to the over-all air pollution problem and with only incidental ability. The Department endorses and supports the captioned bills which provide needed regulation of a critical problem facing the District of Colubmia. It is noted that Section 9(a) would prohibit emissions containing contaminants which are darker in shade than number 1 on the Ringelmann smoke chart. In this connection the bill would prohibit and prohibit most exhaust from automobiles and thus be too broad to be properly enforced. It is suggested that a better standard be darker in shade than number 2 of the Ringelmann smoke charts.

Mr. MULTER. Which bill are you referring to?

Capt. THOT. Bill H.R. 6981.

Mr. MULTER. On page 11?

Capt. THOT. This is the Ringelmann chart published by the United States Bureau of Mines for comparison of smoke conditions, densities, and capacities. Further, it appears that Section 11–B of the proposed bill is a very broad restatement of matter already part of the traffic regulations of the District of Columbia. In order to maximize enforcement of this particular section it is felt its language could be phrased in language which appears in the traffic regulations Section 144. Section 144 is that part of the traffic regulations dealing with every motor vehicle operator on the street or highway shall be equipped with a muffler or mufflers of the type approved by the Director in constant operation properly maintained to prevent any excessive or unusual noise and no such muffler or mufflers or any part of the exhaust system shall be equipped with a cut-out, by-pass, or similar device. No person shall modify the exhaust system of the motor vehicle in a manner which will amplify or increase the noise of the motor or emitted by the muffler or mufflers installed by the manufacturer of the vehicle. It continues primarily in the muffler and exhaust emission area. Under existing law the Department functions with respect to this subject matter have been limited to enforcement, relating to motor vehicles. In this connection he invites attention to the statements admitted at an earlier hearing at Senator Tydings' Committee on Business Commerce, Public Health Education and Safety in the Senate in the District of Columbia.

With appropriate consideration of the above, the Metropolitan Police Department would recommend approval of H.R. 6981.

Mr. MULTER. Captain, have you seen the Bill, or has anybody in your organization examined H.R. 12232?

Capt. THOT. No, we haven't. This function is primarily within the scope of the Planning and Developing Unit and handled by a legal employee, Mr. Christensen. I don't know whether he has had an opportunity to see it or make a decision on it.

Mr. MULTER. Captain, I suggest you have the appropriate people in your organization examine that Bill and indicate to us, by supplemental statement, indicating whether or not you have any recommendations to that Bill. Are there any questions of Captain Thot?

Mr. WYNN. I have no questions.

Mr. GUDE. Then your specific recommendations, Captain, were that in section 9(a) number 1 contaminant should be changed to number 2 in the Ringelmann smoke chart?

Capt. THOT. Yes.

Mr. GUDE. Any other change?

Capt. THOT. Traffic regulations touching on this problem are already in effect in the District of Columbia and have been enforced for some time. The most recent statistics on our enforcement effort indicate we had 686 cases of defective mufflers, 348 cases of excessive smoke from a motor vehicle, all of which violate the regulations. This is our main enforcement effort.

Mr. GUDE. Did the Department give consideration to Subsection (C) on page 17 where the Commissioners would have the authority to require pollution control devices on auto engines?

Capt. THOT. Yes, sir.

Mr. GUDE. This approach has the approval of the Department?

Capt. THOT. Yes, sir.

Mr. GUDE. I should imagine the policeman in the street has more contact with air pollution than any other citizen.

Capt. THOT. Yes, in addition to vehicle emissions regulations which we enforce we also have the police regulations in connection with trash removal and also open burning in the District of Columbia, such as leaves, any fires and permanent construction site fires.

Mr. GUDE. I was thinking the policeman was more on the receiving end of air pollution.

Capt. THOT. This is true.

Mr. GUDE. Is this a problem that you noted in the Department among the various members?

Capt. THOT. Only one in recent times, a motorcycle officer. He was retired eventually because of emphysema. It was actually aggravated by pollution, exhaust and fumes from vehicles.

Mr. GUDE. Thank you.

Mr. MULTER. Thank you.

STATEMENT OF ELOISE W. KAILIN, M.D., DISTRICT OF COLUMBIA MEDICAL SOCIETY

Mr. MULTER. Dr. Kailin, will you come forward and identify yourself for the record?

Dr. KAILIN. Dr. Eloise W. Kailin, D.C. Medical Society.

Mr. MULTER. I see you have a prepared statement. Are you going to read it or file it? You may do as you wish.

Dr. KAILIN. All right. It isn't very long. I think I can get through it in four to five minutes.

The District of Columbia Medical Society has taken formal recognition that present levels of air pollution in Washington, D.C. are dangerous to human health. As physicians we are concerned with the immediate and often acute distress of asthma or emphysema patients who can hardly breathe when they inhale the acid mists and smokes of our city air. That group of chemical air pollutants known as "oxidants" is associated with damage to foliage such as tobacco at and above levels of 9.05 ppm. Aggravation of asthma attacks have been reported by some research workers at about the same low dose level. Other researchers report asthma attacks at the level associated with eye irritation, or 9.15 parts per million of 0.15 parts per million. A value of 0.15 parts per million was exceeded on 10 days in 1965. Sulfur dioxide is another producer of spasm in the airways of the lung. The PHS advises a standard in which levels of SO_2 be not higher than from 0.1 to 0.2 parts per million for a one hour period. When I checked the records for Washington for those levels and higher ones sustained for 2 or more hours, I found that in 1965 there were 10 days beyond these limits. The days high in sulfur dioxide usually occur in fall and winter because this is a by-product of fuel burned for heating; the oxidants are high in summer months because sunlight is a factor in producing them.

We are concerned for persons with heart disease and anemia who need all the oxygen they can get and whose tissues become oxygen starved when their lung air passages close down in response to irritant gases and whose blood levels of Carbon Monoxide rise and interfere with oxygen absorption. As physicians we are also concerned with the long term effects of exposure of people to low levels of air pollution. Evidence is mounting linking these over and beyond the effects of

smoking—to chronic bronchitis, emphysema, lung cancer, pneumonia, and chronic heart disease. As an individual physician I have a particular concern with the effects of air pollution on brain function. Among my patients are some who become dizzy and confused, some stagger. They are apt to become irritable and then drowsy as a result of coming into the center of town. Such people, once their trouble is diagnosed, not only avoid coming into Washington, they even shun the business districts of Bethesda and Silver Spring. I can't help wondering how many fatigued and irritable people have this problem and don't know it.

Sick persons are not the only ones affected by air pollution. Just last March the Journal of the American Medical Association carried a report showing that the performance of runners in races was diminished in proportion to the concentration of certain smog irritants in the air. Effects were noted at levels we have in Washington. I have a copy of that for your record. Thus we have a clear and present need for cleaner air. Our metropolitan population is growing—1,989,000 in 1960, 2,468,000 in 1965. More people means more trash to burn, more heat for homes and other buildings, more automobiles all throwing more waste products into our already overburdoned atmosphere. We will have to make significant improvement just to keep even with the present highly unsatisfactory situation.

H.R. 6981 is a broad statement outlining specific problems of importance to this area. The bill also would set conservative limits to certain of our worst sources of pollution. For instance we don't want to become a dumping ground for the cheap sulfur laden heating oil rejected by other jurisdictions. We don't want New York City rejects. This bill, by requiring permits for new heavy duty fuel burning equipment, by specifying standards for smoke emissions and by setting a limit on sulfur content of fuels used, would protect us from this eventuality.

It has been a year now since the Medical Society's statement that closing of the Kenilworth dump and better controls of auto exhausts were urgently needed. The fact that these conditions are still unchanged indicates that present instruments of government are insufficient to break through the inertia of the customary ways we use our air for waste disposal. For this reason the District of Columbia Medical Society endorses H.R. 6981 and begs that its effectiveness not be diminished by substitution of generalities for the specific recommendations made.

Mr. MULTER. Thank you. Your bibliography and the article you referred to, will be made a part of the record.

(The statement follows:)

[From Public Health Reports, Vol. 77, No. 10, Oct. 1962]

Reprinted by the U.S. Department of Health, Education, and Welfare, Public Health Service

HEALTH EFFECTS FROM REPEATED EXPOSURES TO LOW CONCENTRATIONS OF AIR POLLUTANTS

Richard A. Prindle, M.D., M.P.H., and Emanuel Landau

Both authors are with the Division of Air Pollution, Public Health Service. Dr. Prindle is deputy chief of the division, and Mr. Landau is chief of the Biometrics Section, Field Studies Branch. The paper was given before the Verein Deutscher Ingenieure (DI) Kommission (Commission for Clean Air) June 20,

1962, at Düsseldorf, Germany. It is scheduled to be published in Staub in October 1962.

One of the best documented facts in the whole complex field of air pollution is that it can, in certain circumstances, result in acute illness and sudden death. Everyone knows about the disasters in Belgium's Meuse Valley, in Donora, Pa., and in London. Continuing research is uncovering other such episodes, long after they have occurred. In the United States we plan to continue our search for further evidence from the past. We hope to develop eventually a warning system that will predict the weather and other conditions which made possible such abnormally high concentrations of air pollutants and thereby mitigate, or even eliminate, future air pollution disasters.

Nevertheless, although more Americans than ever before are doing research today in air pollution, an increasing proportion of this effort is devoted to the long-term effects of exposure to low pollutant levels.

Our approaches to the determination of chronic effects of pollution have been of two major kinds: (*a*) the repeated laboratory exposure of human and animal subjects to specific pollutants or mixtures; and (*b*) the epidemiologic approach, using the community as a field laboratory.

LABORATORY RESEARCH

In pursuing the first kind of research, the Division of Air Pollution, Public Health Service, has encouraged attempts to develop techniques capable of measuring minute changes in physiology to supplement new knowledge of pollutant concentrations at levels which cause marked pathological variations or death. Accordingly, we have recently undertaken studies of physiological and metabolic activities. Unfortunately, because of lack of knowledge about the physiological effects of pollutants, the choice of metabolic activity to be studied must often be based on trial and error. In some cases, a chance observation by other investigators, discovered in a search of the literature or through personal communication, offers a clue which seems worth pursuing. In one such instance, because of the similarity of certain toxiocological effects of ozone to those produced by ionizing radiation, our researchers are following, in rats exposed to ozone, the urinary excretion pattern of creatine and creatinine, known to be affected by radiation. Possible alterations in protein and purine metabolism after exposure to various pollutants are being sought by analyses of the urinary excretion of uric acid and amino acid nitrogen. Measurements of oxygen consumption, also in progress, may yield useful information during long-term inhalation exposures. These approaches are then coupled with studies of pulmonary function for comparison with human disease states.

The following examples illustrate some of the various approaches in the study of the long-term effects of air pollution on animals and man. In a study using classic laboratory techniques, repeated inhalation of ozone at a concentration of 1 ppm (2.6 mg./m.^{3}), only slightly greater than that existing in some urban atmospheres, produced chronic bronchitis and bronchiolitis in small animals (*1*). The smaller bronchioles were partly occluded by hyperplastic or sloughed epithelium mixed with acute inflammatory exludate in guinea pigs which survived the experiments and were sacrified at the end of more than 400 days of exposure. The bronchiolar walls displayed fibrosis extending into the alveolar ducts and alveoli. A mild degree of emphysema was considered to be secondary to the bronchial occlusion. The changes were less marked in rats and hamsters and inconsistent in three mice examined. No evidence of intrapulmonary injury was detected in two dogs whose lungs were examined microscopically, but the trachea and major bronchi showed slight epithelial injury. Rats and guinea pigs which died during the course of exposure exibited massive pneumonia; slight fibrosis was noted as early as the 25th day of exposure.

Groups of 9-month-old rats were exposed continuously up to 2 years to 1, 2, 4, 8, 16, and 32 ppm of sulfur dioxide to determine the long-term effects as manifested by survival, hematological response, and clinical symptoms (*2*).

Exposed rats exhibited changes in skin, fur, and conjunctiva and respiratory distress of increasing severity with increasing concentrations of the gas. A marked difference in the death rate of the group exposed to the 32 ppm concentration (84 mg./m.^{3}) was observed, as compared with controls, and groups exposed to lesser concentrations of sulfur dioxide also began to die before the control group. All control animals survived the first 9 months. By 18 months and until the end of the experiment, the survival rate of rats at all exposures to SO_2 except 32 ppm was similar but distinctly different from that of control

animals. The earlier age at death of exposed animals was considered compatible with a process of accelerated aging, possibly resulting from the stress of such exposure.

It is becoming increasingly evident that oxides of sulfur, in concentrations attainable in community air, may affect the human respiratory tract. A research team at the Harvard School of Public Health has shown that the acute response in human beings resembles that in guinea pigs. Normal persons who inhaled either sulfuric acid mist or sulfur dioxide for brief periods exhibited markedly shallower, more rapid breathing (*3,4*). More recently another team of investigators at Harvard measured pulmonary function in healthy volunteers exposed to controlled levels of sulfur dioxide (*5*). During administration of the gas, all measurements of resistance showed an increase, greatest for pulmonary flow resistance (PFR) on quiet breathing, intermediate for PFR on panting and for airway resistance, and smallest for total respiratory resistance. Pulmonary flow resistance showed no change at 1 to 2 ppm of sulfur dioxide; it increased an average of 19 percent above control levels at 4 to 5 ppm and 49 percent at 8 to 19 ppm; and when sulfur dioxide was combined with aerosol, the increase was 72 percent. However, investigators at St. Luke's Hospital in Cleveland observed no changes in resistance in normal subjects exposed briefly to sulfur dioxide in concentrations of 2.5 to 23 ppm, combined with particulates and aerosols, where emphysematous subjects exhibited a decrease in airway resistance (*5*).

Although the acute effects of exposure to high concentrations of carbon monoxide are well documented, the chronic effects from long-term subtoxic doses are controversial. Recent findings suggest that, besides its known effects upon hemoglobin, carbon monoxide exposure may affect the eye and nervous system adversely. Since 1955, carbon monoxide levels in the Los Angeles atmosphere have been increasing by about 1 ppm (0.0012 mg./m.^{3}) per year. It is estimated that gasoline engine exhaust is the source of about 75 percent of the total carbon monoxide content of Los Angeles air, with significant contributions also from metallurgic and oil-refining operations.

Research workers (*6, 7*) have found an average blood carboxyhemoglobin of 3.8 percent, not markedly different from average levels in groups with lesser degrees of exposure, in subjects exposed to carbon monoxide in their working environment, from smoking, or while commuting to work in private automobiles. The carbon monoxide concentration in a garage and automobile inspection center where the exposed group worked ranged from 10 to 150 ppm, (0.06 mg./m.^{3}); in the working environment of the control group, the ambient carbon monoxide level was less than 10 ppm (0.012 mg./m.^{3}). Although 17 of 68 exposed subjects, compared with 3 of 25 controls, complained of headache, dizziness, or unusual fatigue at the end of the workday, no relationship could be found between carboxyhemoglobin levels and occurrence of those symptoms.

In a preliminary study performed by Public Health Service scientists at Cincinnati, Ohio (*8*), the *levels of carbon monoxide in the passenger compartment of stationery vehicles in heavy traffic were greatly increased*, reaching a maximum of 370 ppm (0.44 mg./m.^{3}). Investigators at the University of Michigan (*9a, 10*) sought to determine whether atmospheric carbon monoxide levels in urban areas might interfere with the driver's ability to operate his vehicle. Data collected from appropriate sites in Detroit for 1 year showed that median daily values of atmospheric carbon monoxide ranged between 0 and 20 ppm. During periods of high atmospheric stability and heavy traffic, concentrations reached 100 ppm at some sampling sites and persisted at this level for several hours. A later study on Los Angeles freeways showed significant build-up of carbon monoxide in drivers in rush-hour traffic to dangerous levels with respect to driving judgment. In homes several hundred feet from street sampling sites, concentrations approximated those in the street. Analysis of reports of more than 4,000 consecutive accidents involving almost 5,000 persons failed to reveal a higher accident rate associated with occupations in which high carbon monoxide exposure would be expected. In an attempt to relate the carbon monoxide content of the blood to air levels, a cigar smoker and a nonsmoker traveled in a police scout car for 8 hours for a distance of 130 miles. The carbon monoxide in the vehicular air, monitored continuously—reflecting outside traffic conditions and not influenced by any tobacco smoke in the car—averaged 17 ppm with a peak of 120 ppm when the engine was idling. The smoker's loaded carboxyhemoglobin rose from 3.4 to 3.9 percent, the nonsmoker's from 0.8 to 1.2 percent.

In a study of 237 persons involved in traffic accidents (including both drivers and pedestrians) and brought to the hospital for treatment, 50 percent of the drivers had less than 3 percent carboxyhemoglobin, 50 percent of the pedestrians had less than 2 percent, and only 3 persons had levels of 10 percent or more; in

1 of these the carboxyhemoglobin was 31.5 percent. It was concluded by the investigators that carbon monoxide concentrations in the general atmosphere of Detroit do not impair driving ability (*10*), *but further work is now underway* to substantiate or amend these findings.

Studies undertaken on animals have demonstrated that *guinea pigs exposed to automobile exhaust*, at a concentration several times normal, for 1, 2, and 4 weeks, were especially susceptible to *severe pulmonary disease* (*9b*). This came to light accidentally following an epidemic which produced pneumonia in the test animals. Significantly higher mortality occurred in the animals exposed to irradiated exhaust, comparable to heavy photochemical smog, than in animals exposed to nonirradiated exhaust or in control animals, which also experienced the epidemic but were exposed only to pure air. This finding parallels the results of another study in which *animals exposed for only 2 hours to pure nitrogen dioxide at levels similar to those occasionally found in community atmospheres were much fore susceptible to infection by certain pneumonia organisms* (personal communication, Richard Ehrlich, Armour Research Institute, Chicago). More serious illnesses and more deaths occurred in this group than in the control animals, which were exposed to the same organisms but otherwise breathed only pure air.

Irradiated exhaust, that is, automobile exhaust which has been diluted with air and then exposed either to sunlight or to artificial light with ultraviolet components, is chemically different from exhaust which has not been irradiated. It has been shown that this irradiated gas is chemically similar to the so-called "photochemical smog" so notorious on our west coast. It also causes the same types of damage to vegetation as the "smog" found in California. Constituents include ozone, "oxidants" (oxygen-containing compounds of high reactivity), other hydrocarbons, and oxides of nitrogen.

These ingredients appear to result from complex interactions due to photochemical action on the unburned hydrocarbons and oxides of nitrogen found in exhaust gases. Merely mixing ozone with hydrocarbons, such as gasoline vapors, can simulate this process to some degree. Because these ingredients appear to be more biologically potent, causing damage to plants and eye irritation in people, our recent studies have been focused on them to a large extent.

Physiological experimentation in which measures were made of respiratory function of guinea pigs, including pulmonary resistance, respiratory rate, and minute volume, has shown that the greatest changes occurred in those animals exposed to irradiated exhaust. In general, these changes have occurred when the animals have been exposed to concentrations two or more times the usual ambient levels. However, some physiological changes have occurred in animals at "community" levels, and certain specific pollutants have been observed to produce effects at or near these concentrations. This would appear to indicate that the observed maximum levels present in communities at this time are borderline with respect to causing immediate effects such as changes in pulmonary function and may be highly significant in their long-term effects.

Last year workers at the University of Southern California were able to produce true squamous cancers in the lungs of mice, similar in type to those found in human beings, by exposing the animals first to infection, then to air containing ozonized gasoline. In this experiment, one group of animals was exposed to a virus type of influenza and another was unexposed. Each of these groups was divided after recovery into two further groups, one exposed to purified air and the other to ozonized gasoline. In the animals receiving the infection alone, approximately 8 percent showed squamous changes in the bronchi consistent with healing processes after infection and occasionally demonstrated metaplastic changes. In the animals exposed to ozonized gasoline alone, there were no significant findings. In the uninfected animals exposed to pure air, the findings were negative. A striking 30 percent of the animals which had been infected and subsequently exposed to ozonized gasoline demonstrated the presence of squamous carcinoma. Interestingly enough, the male-female ratio was approximately 3 to 1, similar, in fact, to that found in humans and obviously not associated with smoking habits or occupation (*11*, *12*).

EPIDEMIOLOGIC RESEARCH

Considerable epidemiologic research has also been undertaken with the community used as a laboratory. While increasing effort has been devoted to the chronic effects of normal low levels of community pollutants, the Public Health Service has continued to support research into the extent of previously unreported air pollution disasters.

The literature of air pollution disasters was enriched recently by the publication of a paper reporting excess mortality, presumably due to elevated levels of pollutants resulting from an extended temperature inversion in New York City as long ago as November 1953. This excess mortality in the largest metropolis in the United States was determined retrospectively by an examination of death records (*13*). It parallels in that respect the experience of the 1952 disaster in London, the largest metropolitan area in Great Britain. However, while the London episode was studied almost concurrently, the study in the United States was made more than 5 years after the event.

In the 1953 incident, 220 excess deaths were attributed to cardiac and respiratory diseases, again paralleling the London episodes. These deaths must have been accompanied by increased morbidity. Unfortunately, the precise magnitude of this morbidity is uncertain, since it is extremely difficult to obtain reliable morbidity data for past years.

There are some possible source of illness data, such as hospital admissions, physician visits, group medical practice usage, health surveys, and the like. It is obvious that it is no easy matter to collect such data after the lapse of nearly a decade. The less current the records, the greater is the danger that they may no longer exist. Therefore, it was gratifying to find that an examination of the records on emergency room visits to the largest New York City hospitals for November 15–24, 1953, undertaken recently by the same group which reported on mortality in New York City, revealed about twice the expected number of visits by patients with respiratory and cardiac conditions (*14*).

The line of demarcation between an acute air pollution episode and the chronic long-term effects of low levels of air pollution can become quite blurred. This difficulty is exemplified when we look for causes of the large number of asthmatic responses to sublethal levels of pollutants which have been observed in New Orleans, Pasadena, and Nashville.

In New Orleans, it was demonstrated that there had been sharp periodic increases in emergency clinic visits to Charity Hospital by nonwhite asthmatics. This has occurred often enough so that adequate documentation is now possible (*9c*). The usual number of visits to Charity Hospital by asthmatics was 25 per day for the period 1953 to 1961.

Frequently, however, outbreaks of asthmatic attacks have seriously strained the facilities of the hospital. In August 1958, for example, an outbreak of asthma involved 100 people, with 3 deaths. There have been instances of daily admissions of 150 and even 200 Negro adult patients. Asthma outbreaks have been accurately predicted in advance on at least two occasions; the predictions were made on the basis of meteorological data which had shown that the outbreaks were associated with particular wind movements.

We are now able to report that these asthma outbreaks are thought to be related to particles of a silicon-containing compound emitted into the atmosphere as a result of poor combustion of garbage and refuse in the New Orleans city dumps. This could very possibly be an instance of an air pollutant acting as an allergen and creating an allergic response in certain susceptible individuals. Obviously, testing of skin and pulmonary sensitivity and further research are indicated to verify or disprove this hypothesis.

How are we to consider the response of asthmatics to insults to the respiratory tract in such diverse air pollution areas as Los Angeles and Nashville? Are these responses the product of acute or chronic insults? In the Los Angeles area a study was conducted from September 3 to December 9, 1946, of 137 bronchial asthma patients of 5 practicing physicians (*15*). The study revealed that the average number of patients afflicted on days when oxidant values were above a level that caused eye irritation was significantly greater than the average number on days when oxidant values were below this level. Similarly, the number of persons who had attacks on days when plants showed damage from air pollutants, a biological indicator, was significantly greater than the number on other days.

In Nashville, also, it was found that attack rates were significantly different when comparison was made of days with the highest and the lowest sulfur dioxide levels (*16*). The statistical significance was even greater when the daily data on asthma attacks were lagged 1 day to take account of possible delayed rections to sulfur dioxide. A possibly corroborative finding was that the pattern of attacks for adult asthmatics reflected differences in air pollution levels in different sections of the city. Thus, the attack rate was three times as high in an area of high pollution as it was in a low-pollution area. It is particularly noteworthy that the sulfur dioxide levels in Nashville are not very high even at their worst.

Evidence from episodes in the Orient which afflicted American servicemen and their dependents also shows that air pollution appears to be an etiologic agent for a condition that was originally called "Yokohama asthma" (*17*). This is now referred to as "air pollution asthma." Some of the servicemen and their dependents were relieved of asthmatic attacks when they were moved out of affected areas in Japan and Okinawa. Conversely, some persons who were not evacuated quickly from the areas continued to manifest asthmatic symptoms. Accordingly, it appears that for some susceptible individuals this kind of asthmatic response may be truly a chronic effect of air pollution.

A further bit of evidence is based on recent data on illnesses of employee groups. These data indicate a high degree of relationship between respiratory illnesses lasting 8 days or more and levels of sulfates in selected cities in the United States (*18*). If this relationship were to be more completely documented, it might explain some of the striking rise in the prevalence of chronic respiratory diseases which has been observed recently.

The best indication of all of the chronic effects of air pollution is undoubtedly provided by the statistics on chronic bronchitis in Great Britain (*19*). There, the disease is the third leading cause of death and the leading cause of disability.

In the United States there has been increasing acceptance of the view that a group of chronic respiratory diseases in this country, comprising emphysema, chronic bronchitis, bronchiectasis, and "other chronic interstitial pneumonia," is similar to the chronic bronchitis syndrome observed in Great Britain and that the apparent differences reported in the two countries may merely reflect differences in medical diagnostic criteria and terminology in patients with cases of differing severity and degree of infection.

We are aware that in the United States no evidence has been produced to demonstrate that air pollution is an etiologic agent for the emphysema syndrome. Nonetheless, there is an ever-mounting accumulation of evidence linking the two. Well known is the phenomenal rise of deaths from emphysema in the American population as a whole since 1950 (*20*). One may, with considerable certainty, ascribe part of the increase to the increasing acceptance of this classification as a cause of death, which in turn is due to the increasing discussion of chronic respiratory disease in the medical literature. Nevertheless, we have no reservation in stating that part, perhaps most, of the sevenfold increase in the frequency of this diagnosis as a cause of death is due to the greater prevalence of the disease.

One reason for assuming an air pollution factor as a cause of emphysema is the urban-rural comparison of mortality in the United States. Certainly, when the age-adjusted urban rates are double the rural rates, there would appear to be some factor which is directly related to residence in cities. Attention has been drawn previously to the fact that smoking differences among males, by residence, are relatively small and presumably do not account for the urban-rural ratio found for emphysema (*21*). The well-documented greater pollution of urban atmospheres as compared with rural points to a possible causal relationship.

It is recognized, of course, that there may also be an occupational exposure factor. The records of the Social Security Administration show that emphysema is the second leading cause of disability among male workers 50 years of age and older (*22*). It is clear that the evaluation of the role of air pollution in the increase in mortality from emphysema will have to take account of the occupational history of the decedent as well as his smoking habits.

Because of the increased interest in chronic respiratory diseases there has been a growing awareness of the need to inform people of the importance of certain symptoms. Accordingly, the National Tuberculosis Association has announced its intention of conducting a campaign during the spring of 1963 to alert people to the significance of "shortness of breath" and "chronic cough" (*23*). It is quite possible that people become so accustomed to these symptoms that they pay little attention or attach no importance to them. An increasing amount of data on the prevalence of emphysema and chronic bronchitis should be forthcoming as this educational campaign progresses.

In order to learn more about the long-term effects of air pollution, it was found necessary to conduct extensive field studies on selected populations. In 1959 the Division of Air Pollution of the Public Health Service, in cooperation with the Pennsylvania Department of Health, the Pennsylvania Electric Co., and others, undertook a study of two small communities in Pennsylvania, Seward and New Florence (*24*). The study had the elements of a natural laboratory setting inasmuch as the towns were virtually identical demographically. These

towns, inhabited by about 1,000 persons each, are approximately 4 miles apart, with a soft-coal-burning electric power plant between them. The prevailing wind pattern was such that the town of Seward was subject to much higher levels of air pollution than New Florence. Thus, for the period of the study, the level of dustfall in Seward was three times that of New Florence, the level of sulfation was seven times as high, and the level of SO_2 was at least nine times as high. Nevertheless, the SO_2 level in Seward was below that generally found in London (*25*).

The purpose of the study was to determine the long-term effects of low concentrations of air pollutants. An attempt was made to include the entire adult population of both sexes 30 years old and over. In addition to X-rays, the study used the long Medical Research Council questionnaire, with slight revisions, chiefly in terms of a much more detailed work-experience history. A battery of pulmonary function tests, including the body plethysmograph, was administered to the study group. The analysis, which was scheduled for completion in the summer of 1962, takes into account such variables as smoking and occupational and residence exposure of the townspeople.

In the preliminary report, one significant finding was that the average airway resistance (measured by the body plethysmograph) was higher in Seward than in New Florence even after differences in height and age were taken into account.

A curious finding was that the male population of the polluted area was almost 1 inch shorter than that of New Florence. One would rightfully hesitate to attribute this difference in height to the difference in the environment. Yet this possibility should not be dismissed arbitrarily because of its apparent implausibility. One may only say that differences of this sort would have to be documented in many other communities before we could accept the hypothesis that the stature of the inhabitants was related to exposure to air pollutants rather than to ethnic or socioeconomic differences.

Since this study was completed, considerable effort has been made by the industry to reduce the pollution in the area. A restudy some time in the future might prove of considerable interest in evaluating the possible benefits of such reduction in pollutant levels as may have been achieved.

The long-term effects of the Donora disaster have also been studied in the United States (*26*). The resurvey of Donora 10 years after the disastrous smog of 1948 has shown that the persons who became ill during the outbreak have had a less favorable morbidity and mortality experience than the persons who were not affected in 1948. While it is true that those who became ill were probably less healthy to begin with than those who did not, it is quite likely that chronic effects due to unusually high levels of air pollution have been manifested in the affected group. Further, it is possible that repeated exposure to air pollution, even at very low levels, may have contributed to the long-term unfavorable experience.

The responsibility of air pollutants for the increasing frequency of lung cancer in the United States is at the moment a matter of some disagreement. Authoritative quantitative estimates of the role of air pollution as an etiologic agent do not exist, and only informed guesses can be made. Nevertheless, it is our thesis that, without decrying the importance of cigarette smoking as a factor, air pollution is also an important etiologic agent. This is not a novel idea. The World Health Organization report on lung cancer mentioned a number of possible etiologic agents and noted the prominence of air pollution in the list (*27*). Once again the sharp urban-rural differential in mortality rates for this disease is manifested. Also, lung cancer mortality rates appear to be related to the size of the urban area, the larger areas having the higher age-standardized mortality ratios.

The studies by Dean (*28*) and Eastcott (*29*) on migrants from Britain to South Africa and New Zealand suggest the role of air pollution as a causative factor in lung cancer. Unfortunately, there is no completed comparable study as yet in the United States. A study of British and Scandinavian migrants to the United States is underway, but we will have to wait several years for the results.

CONCLUSIONS

The great volume and variety of air pollutants in the United States offers unparalleled opportunities to study the chronic effects of low-level air pollution on health. In what other country is there amassed the concentration of automobiles found in Los Angeles with its resultant oxidant type of smog? The lethal concentration of pollutants in Donora in 1948 created a far different air pollution

problem than is found currently on the west coast. In the United States, air pollution arises from many and varied sources in every category, industrial, residential, residential, municipal, and automotive, and makes necessary a wider range of research activities than in many other countries.

In summary, we in the United States are devoting considerable time and effort to this important question: Does longtime exposure to low concentrations of air pollution result in adverse health effects? Our preliminary answer, based on both laboratory and epidemiologic studies, is yes. The evidence as yet is only qualitative; much more will have to be done before the necessary quantitative answers are found on which to base rational control standards. Hopefully, with the data the Public Health Service is able to collect and that amassed by researchers in Europe and throughout the world, this goal can be attained.

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Oxidant Air Pollution and Athletic Performance

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The effect of Los Angeles' oxidizing type of air pollution on athletic performance was studied in 21 competitive meets of high school cross-country track runners from 1959 to 1964. Since running times tend to improve throughout the season, team performance at a meet was evaluated by determining the percent of boys who failed to improve when their running time was compared to that run at the previous meet on the same course. The highest correlation to team performance is that of the oxidant level in the hour before the race. Neither carbon monoxide, temperature, nor humidity shows any relationship to performance. The specificity of the effect to a biologically meaningful time and the very high correlation are convincing evidence of a cause and effect relationship. The mechanism by which oxidants affect performance may be directly physiological or may be decreased motivation due to discomfort.

Air pollution in the Los Angeles area, in contrast to most other cities, is composed predominately of oxidizing compounds that arise from photochemical reactions among various combustion products of motor vehicle fuel. Effects of this smog on human health, other than eye irritation and chest discomfort, have never been clearly demonstrated. If other effects occur, they might well be more readily detected in the presence of other stresses such as illness, or fatigue due to exertion. To our knowledge, no type of air pollution has been studied in relation to athletic performance. Long-distance races would seem to be most likely to reveal such effects since they involve a maximal effort with considerable pulmonary air exchange.

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Methods

Because of the meticulous records of running times kept by the coach, the performance of the cross-country track team at San Marino (California) High School was studied. All competitive meets on the team's home course during the six-year period from 1959 to 1964 were included in the analysis.

To minimize the effect of differences in training and experience between the boys, only boys who ran in *all* the home meets during a year were studied. The running time of each athlete on a specific day was compared with his performance at the previous home meet. The group performance for each meet (after the first meet of the year) was expressed as the percent of the group members who failed to improve when their running time was compared to that of the previous meet.

Air pollution data were supplied by the Los Angeles County Air Pollution Control District. All measurements are from station 64, which is located approximately 2 miles north of the track. The hourly levels used for this report are the arithmetic averages of the readings taken during the hours.

All meets began at approximately 3 PM except the second meet of 1963, which was held at 6 PM. The air pollution data are only available for clock hours. Thus, the average pollutant concentration between 2 PM and 3 PM is considered to be the level for the hour preceding the race, even if the race actually began at 3:15 PM. In this case, the hour during which the race occurred would be from 3 PM to 4 PM; however, since the races only last about 12 minutes, most of the measured pollution for the hour of the race actually was present after the race was completed.

Results

As expected, the average running time for the group of boys who ran in all the home meets for a year tended to improve throughout the season (Fig 1). The four meets in which the average team time did not improve were the four worst days of the series for air pollution as measured by oxidant level in the hour before the race.

The percent of team members who failed to improve their performance is highly correlated to the level of oxidant in the air (Fig 2). This correlation is highest during the hour before the meets (product moment correlation coefficient [r] = 0.88). Oxidant levels at hours further from the time of the meet show progressively lower correlations (Table).

Correlations with other measures of air pollution are less striking or absent. Total suspended particulate matter in the hour before the races has a lower correlation than oxidant (r = 0.62). Correlations with particulates at other hours are even lower. Carbon monoxide levels show no relationship to performance (r = 0.08). Too few determinations for oxides of nitrogen are available for calculation of meaningful hourly correlations; however, the average level for the day shows no relationship at all. Neither temperature, relative humidity, wind velocity, nor wind direction shows any relationship to performance.

Although all of the oxidant concentrations are significantly different from zero, the differences *between* them are not statistically significant by the usual test. The consistent trend, however, of decreasing correlations at times further away from the race implies that the differences probably are real and that the maximum effect was during the hour before the race.

Correlation Coefficients Between Cross-Country Track Performance and Air Pollutants

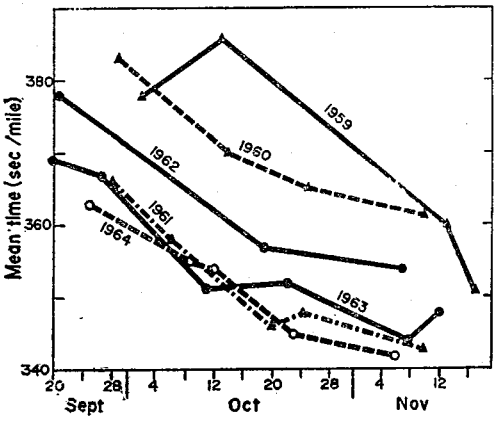
Correlation of Decreased Performance and	r	No.*
Oxidant		
1 hr before race	0.879	20
2 hr before race	0.774	20
3 hr before race	0.731	20
Hour of race	0.762	20
Suspended particulates		
1 hr before race	0.616	21
2 hr before race	0.528	21
Carbon monoxide		
1 hr before race	0.084	18
Correlation of Oxidants 1 hr Before Race and		
Oxidant		
2 hr before race	0.884	19
3 hr before race	0.810	19
Hour of race	0.910	20
Particulates		
1 hr before race	0.718	20
2 hr before race	0.538	20
Carbon monoxide		
1 hr before race	0.076	17

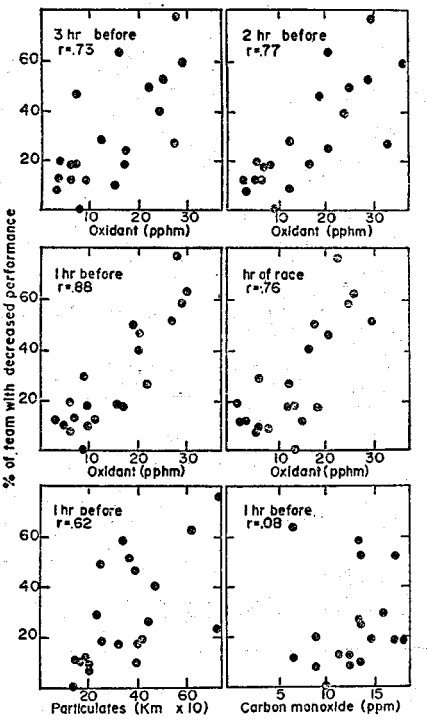
*Total of 21 meets analyzed, 1959 to 1964. Number varies because of missing values for some pollutant levels.

Because the pollution at one hour is highly dependent on the level at the preceding hour, the intercorrelations between various measurements must be considered before a causal relationship can be assumed. For example, even if the oxidant effect on performance was *limited* to the hour before the race, some correlation of performance with the level two hours before would be expected because of the high intercorrelation between the two oxidant levels. When these interrelationships are examined by the use of partial correlation techniques, the effect on performance appears to be limited to oxidant in the hour before the race. That is, the correlation with performance of all the measurements *except* oxidant in the hour before the race can be fully explained by the correlations between pollutant levels.

Examination of plots for each of the years indicates a difference in the oxidant to performance relationship between the first and last three years of the study. When the races in the periods 1959 to 1961 and 1962 to 1964 are analyzed separately, each group has a correlation with oxidant of 0.945 (Fig 3). The slopes of the two regression lines are almost identical, but for a given oxidant level during the period 1962 to 1964 a larger percent of the team decreased their performance than during the earlier three years. We do not have any simple explanation for this difference. The method of measuring oxidant did not change during the six years, and the running-time curves in Fig 1 do not show this grouping. Differences in intensity of preseason training or changes

1. Mean running times for home meets for boys who ran in all home meets of the year. Number of boys (n) for 1959 was 17; 1960, n = 11; 1961, n = 16; 1962, n = 25; 1963, n = 17; and 1964, n = 30.



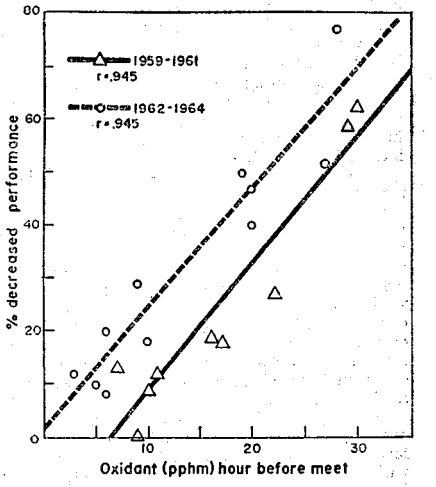


2. Correlations between selected pollutant levels and the percent of team members whose performance decreased compared to that in the previous home meet (pphm signifies parts per hundred million).

in individuals on the team could be responsible.

Comment

Because improvement in performance is somewhat easier to accomplish early in the season, a tendency for the days with high pollution to come late in the season could produce a spurious positive correlation. Days with high pollution, however, appear to be scattered randomly throughout the two-month cross-country running season in each of the six years. For example, in 1962 the worst pollution was during the first meet, whereas in 1963 the highest level was reached in the sixth meet. Furthermore, the average pollution level for meets held in the first half of the season is almost identical to the average for the last half. A bias also might result if the opposing team were the same on days of similar pollution; however, this was not the case.



3. Oxidant level in the hour before the meet by percent of team members with decreased performance.

An attempt to identify individual runners who were particularly susceptible to the effects of air pollution was unsuccessful. Careful examination of the team roster for each year indicated that none of the boys were consistently affected when they ran on heavily polluted days. Nor was there any tendency for the runners whose performance decreased to come from any particular school grade; seniors were affected as often as sophomores. Actually, this finding is not surprising since a boy whose performance drops at one meet may be strongly motivated to do well in succeeding meets. Also, any boy who showed frequent decreases in performance would hardly be desirable on a competitive team.

If the observed marked association of oxidant levels were for less specific measures of pollution, such as *daily* averages, then an explanation other than that oxidants were directly causal might be plausible. For example, other variables such as day of the week might be related to both performance and air pollution. Our results, however, indicate that the relationship is apparently limited to the oxidant level in the hour before the race. This specificity to a biologically meaningful time and the extremely high correlation ($r = 0.95$) are convincing evidence that some component of the air which is measured as oxidant has a causal effect on team performance. That a long-range, chronic effect of air pollution is not also operative can not be inferred, since the study was designed to detect immediate effects only.

The level of oxidant in the air reflects the con-

centration of a number of specific compounds including ozone. The exact mechanism by which one or several of these components affects performance is not clear. Smith[1] claims that athletes require more oxygen during exercise when they breathe air polluted with one of the oxidant components, peroxyacetyl nitrate (PAN). His observed difference in oxygen consumption, however, is small (2.3% increase). In addition, his failure to describe adequately the experimental design and statistics used makes the results essentially uninterpretable.

Ozone at levels several times higher than those usually reached in Los Angeles seems to have some effect on pulmonary function.[2,3] That breathing some of the oxidant compounds might cause an increase in airway resistance and hence an increase in work of breathing is not unreasonable. Maximal exertion in healthy boys, especially at sea level, however, is not limited by ventilation or work of breathing.[4] Thus, it seems unlikely that the observed effect of oxidants on performance is due to decreased availability of oxygen.

Oxidizing pollution is definitely irritating to the eyes, and athletes often complain of chest discomfort after exercising in the Los Angeles area on days with high pollution. Thus, the observed effects may be more related to lack of maximal effort due to increasing discomfort than directly to physiologic capability.

Determination of exactly how oxidants affect performance in these athletes is of great importance. For example, the relevance of these results to patients with borderline cardiac competence or chronic lung disease is completely different if the effect is directly on physiologic mechanisms such as ventilatory capacity rather than secondarily through an effect on motivation. Careful studies of pulmonary function and oxygen debt incurred during a race might help clarify the issue. Analyses of other types of athletic events requiring less ventilation and less aerobic metabolism are also needed.

Our results should not be interpreted as representing an effect of air pollution in general, since a predominately oxidizing type of pollution is not present in most cities. Repetition of the study is necessary in situations where oxidant pollution is not present. Care should be taken to be sure that oxidants are really nonexistent, however, as high levels of common pollutants such as sulfur dioxide can interfere with the usual tests for oxidants and give a false zero level.[5]

This investigation was supported in part by US Public Health Service contract SAph 78639 from the National Center for Air Pollution Control and by the Hastings Foundation Fund.
Jack Bradford provided the athletic data.

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5. Saltzman, B.E., and Wartburg, A.F.: Absorption Tube for Removal of Interfering Sulfur Dioxide in Analysis of Atmospheric Oxidant, *Anal Chem* 37:779-782 (May) 1965.

Fee Increased

Radiology Board Sets Written Examination

The following change in policy and procedures of the American Board of Radiology was received too late for inclusion in the Nov 21, 1966, Education Number of THE JOURNAL. *It is published here for the attention of all physicians concerned with specialty certification by the American Board of Radiology.*

The American Board of Radiology wishes to announce the institution of a written examination to be given for the first time during the latter half of June 1968. This is to be given in various centers over the country, and all residents having completed three years of approved training as of June 30, 1968, will be eligible to take the examination. Passing of the written examination will be a prerequisite to taking the oral examination. The fourth year of further training or practice presently required will still be mandatory.

Applications for the written examination or either of the oral examinations (June or December) *in any given* year must be filed *before* Jan 1 of the year in which the examination is given.

The present examination fee of $150 will, as of July 1, 1967, be increased to $200. This fee, however, will cover both the written and oral examinations where both are required. *Candidates eligible for the oral examinations in June 1968 will not be required to take the written examination.* All reexamination fees will be increased from $75 to $100 as of the above date.

The December 1967 examination will be held at the Statler Hilton Hotel, Dallas, Dec 4-8, inclusive; the deadline for filing applications is June 30, 1967.

The June 1968 examination will be held at the Fontainebleau Hotel, Miami Beach, Fla, June 10-14, inclusive; the deadline date for filing applications is Dec 31, 1967. *Deadline for filing for the written examination in June 1968 or the oral examination in December 1968 is Dec 31, 1967.*

Mr. MULTER. Does your last reference refer to the bill, H.R. 12232? Have you seen that bill?

Dr. KAILIN. No. I was referring to H.R. 6981.

Mr. MULTER. You might look at that bill and then send us a supplemental statement to indicate your thoughts as to whether that is covered by your statement. If you want to add anything to your statement with reference to that bill, you may do so.

Dr. KAILIN. Thank you.

Mr. MULTER. Any questions?

Mr. WINN. Dr. Kailin, has the District of Columbia Medical Society run any tests?

Dr. KAILIN. Tests? No. Surveys? Yes.

Mr. WINN. What do you mean by surveys?

Dr. KAILIN. I was here last Thursday. I heard your questions.

Mr. WINN. I'm still looking for the answers.

Dr. KAILIN. I decided to do something about it, sir. In the last two days I have sent out 172 questionnaires. We handled it this way. I placed 16 questionnaires in an office, a member of one of my family in Suitland, Maryland. The question that we asked was, "Do you believe that air pollution causes eye irritation? Does it actually occur or do you believe it occurs?" So it is not a measurement of a physiological thing. With this approach of the 16 subjects, ten reported that in some circumstances air pollution did irritate their eyes. We asked a little bit further questions. "Is this only under special circumstances, such as being behind a bus or in a parking garage, or is it true of a more general area." 75% of the group, 12 of the 16, had symptoms under some circumstances. 44% of the group found—7 of the group told us they did have eye irritation in a more general area. We took 24 questionnaires asking the staff of a cancer clinic, at 23rd and Pennsylvania, these other nurses, the secretaries, the technicians, the medical students, the doctors, of those 24 people 15 in all felt that air pollution affected their eyes under some circumstances and 11 of them felt that the air in general on at least several occasions a year bothered their eyes.

Mr. MULTER. Without objection, copy of your questionnaire will be included in the record.

(The document referred to follows:)

QUESTIONNAIRE SURVEY OF EYE SYMPTOMS

Question: The D.C. Medical Society would like to know whether people feel that air pollution in the Washington Metropolitan area at times has an irritating effect on their eyes.

I. Have you felt such irritation in the last 12 months?

A. Not at all.

B. On one to three occasions

C. Four or more occasions

II. If you have noticed such irritation, do you associate eye irritation with:

A. A special local situation such as being behind a bus or in a parking garage?

B. Being almost any place in downtown Washington on a smoggy day?

C. In the suburbs of Washington on a smoggy day?

III. Do you know other people who live or work near you who have complained that air pollution irritates their eyes?

IV. Do you have an allergy to anything that affects your nose?

Results	Total with symptoms from air pollution, any situation (percent	Total attributing symptoms to either metropolitan or suburban area (percent)	Total number of subjects
1. Office employees	66.0	45.0	53
(a) Bureau of Census, Suitland, Md	75.0	44.0	16
(b) Warwick Cancer Clinic, Washington, D.C	62.5	46.0	24
(c) Allergist's office, Silver Spring, Md	62.0	46.0	13
2. Random telephone survey, Washington, D.C	63.0	51.7	89
3. Patients in allergist's office, Silver Spring, Md	77.0	56.6	30
Total	66.0	50.6	172

Of the 52 persons in all of the above groups who reported nasal allergy, 43 or 83 percent attributed eye irritation to air pollution under at least some circumstances.

Mr. WINN. Not being a doctor I cannot get the tie between cancer and checking people's eyes. Why were you asking people in a cancer clinic about eyes? Just a place to poll people?

Dr. KAILIN. A place to ask people working in a downtown area and because one of my colleagues works there. My own office staff and people dropping in the office, people without allergies, just people coming in—we found again 45% of these people had eye irritation in a general area and about 66% complained about eye irritation when it included heavy spot exposure such as behind a bus.

Mr. WINN. Are you an eye doctor?

Dr. KAILAN. No I am an allergist. We did a telephone survey. We just picked names out of the D.C. telephone directory and we reached 89 people. 63 Percent of those people had symptoms under the whole spectrum of possible circumstances.

Mr. WINN. What question did you ask them on the telephone? How did you pose the question?

Dr. KAILIN. The D.C. Medical Society would like to know whether people feel that air pollution in the Washington metropolitan area at times have an irritating effect on their eyes. Are you willing to answer four questions? First, have you felt such irritation in the last 12 months, not at all, one, two, three occasions, four or more occasions? And then, if you noticed such irritation did you associate it with a special location such as being behind a bus or in a parking garage; being almost any place in downtown Washington on a smoggy day; being in the suburbs of Washington on a smoggy day?

Mr. WINN. Was there a difference between downtown Washington and the suburbs in your percentages? Did pollution or irritants seem higher downtown.

Dr. KAILIN. I couldn't answer that question. I will know more when I go over the data again. But many of these people never went into the suburbs. If we went back over our data and searched a little deeper I had one person who said she had trouble in Washington once but she almost never goes into Washington. The one day she went in she had trouble.

Mr. WINN. Anything further you can give us on that will be appreciated.

Dr. KAILIN. On our telephone survey we also found half the people complained of eye irritation from the general air. Among allergic

persons it runs much higher, If we select the persons who told us they had an allergy in their nose, 83 percent of them have some symptoms under some circumstances.

Mr. WINN. These are people who had known allergies?

Dr. KAILIN. Yes. Thirty of them are my own patient.

Mr. WINN. These are nose and throat types of allergies?

Dr. KAILIN. Yes. I did not include persons who got hives after a bee sting, for instance.

Mr. WINN. These people were more aware of air pollution than a person that does not have an allergy?

Dr. KAILIN. Yes.

Mr. WINN. What percentage of the general public have allergies?

Dr. KAILIN. I think it is going to run around 20%.

Mr. WINN. Twenty percent of all of us have some type of allergy?

Dr. KAILIN. Yes. Pretty close to it. There have been a number of surveys. This is going to hit pretty close to that.

Mr. WINN. Thank you very much.

Mr. GUDE. You said one part of your survey was just a random selection out of the telephone book. Then it was not confined just to persons with allergies.

Dr. KAILIN. This was a random selection of telephone numbers from the telephone book.

Mr. GUDE. What were the results of your random poll?

Dr. KAILIN. Of that group 51.7 percent felt that the general downtown area was irritating to their eyes and 63 percent felt both the general area and special circumstanes, like being in a high pollution area behind a bus or in a parking garage, was irritating.

Mr. GUDE. Now as to specific data. You stated on line 7, "aggravation of asthma attacks have been reported by some research workers at about the same low does level. Other researchers report asthma attacks at the level associated with eye irritation, or 9.15 parts per million of .15 parts per million. A value of .15 parts per million was exceeded on ten days in 1965." So these are specific figures that you researched?

Dr. KAILIN. Yes. Those are people's surveys, not made in Washington.

Mr. GUDE. But the .15 apart from being a sulfur dioxide——

Dr. KAILIN. That was oxidants.

Mr. GUDE. Whether it occurred in Washington or any other area, this would hold true for an asthmatic regardless of which city he lived in?

Dr. KAILIN. That is right.

Mr. GUDE. This is a constant.

Dr. KAILIN. It is a constant for a particular site. I think that Mr. Wynn has already indicated that a measuring device only measures the air where that device is. This is correct.

I have a person over in Bethesda. Is it .15 where he is or does it happen to be much more? This is one of the difficulties of doing research in this field.

Mr. GUDE. But you do know that when .15 is present, asthma patients will have more difficulty than they will in areas where there is less than .15?

Dr. KAILIN. That is what the survey indicates so far.

Mr. GUDE. So if we detect .15 in any particular area in Washington, then in that particular area asthma patients would have more difficulty.

Dr. KAILIN. We would expect that.

Mr. GUDE. Is this a scientific method that you are describing?

Dr. KAILIN. Yes.

Mr. GUDE. In the second paragraph of your statement you appear to discuss the fact that certain irritant gases cause the lung air passages to close down and as a result of that carbon monoxide begins to build up.

Dr. KAILIN. No. There are two thoughts there Mr. Gude. A person who is barely getting enough oxygen to his tissues because he does not have enough red cells to carry it or because his heart is not working well, needs to be able to breathe freely in the first place to absorb it. Therefore, his air tubes have to be opened. Or the person with anemia or heart disease, if part of his red cells are plugged up with carbon monoxide, as an alternative mechanism he also does not have the ability to get as much oxygen to his tissues.

Carbon Monoxide is something he gets out of auto exhaust from the air. These are two completely separate ways of diminishing the oxygen available to the man's tissues.

He will get carbon monoxide too if he smokes, you know.

Mr. GUDE. If you have an irritating gas in the atmosphere, the patient cannot take in as much oxygen.

Dr. KAILIN. That is because his air tubes clamp down. If independently of this he is also breathing some carbon monoxide, maybe he is driving in his automobile in heavy traffic and his blood carbon monoxide levels go up, and this has been measured on a number of occasions, again his blood cells are not available to take such oxygen as his lungs pick up.

Mr. GUDE. Isn't there somewhat of a snowballing effect that goes on here? First you have the irritation through the lungs, which then are less able to function. At the same time, while the pollutant is going up in the air the carbon monoxide is also building up. So what the person is breathing is supplying him with more carbon monoxide than he would get if the air was cleaner.

Dr. KAILIN. There is likely to be more than one oxygen interfering agent in the air at one time; yes. One is bad, another may not be bad. But usually it is.

Mr. GUDE. In other words, having a variety of pollutants in the air can cause a greater effect than just one pollutant by itself.

Dr. KAILIN. That is correct.

Mr. GUDE. In other words, when we are talking about polluted air we are describing a very complex mixture.

Dr. KAILIN. And there are many more pollutants than we are able to measure.

Mr. GUDE. I wonder if you could provide for us the source of the figures that you quoted in the first paragraph, so we could have them for the record.

Dr. KAILIN. Yes.

Mr. GUDE. We would then have a scientific source.

Mr. MULTER. When we receive them we will make them part of the record.

Mr. WINN. I would like to ask an unusual question but I have a thought behind it. Other than the 20% of us who are allergic, what part of the anatomy of the remaining non-allergic 80% would be first affected by air pollution? Let us say, downtown in the District. The eyes, the nose, the throat, the lungs?

Dr. KAILIN. Probably the eye would be first to be appreciated by the person.

Mr. WINN. You mean watering of the eyes or irritation?

Dr. KAILIN. Burning and irritation.

Mr. WINN. Do you think this would have anything to do with accidents?

Dr. KAILIN. It might, but I haven't seen any figures that nail the point down. There has been a question of interference with vision. I have seen this reported and the question has been raised whether interference of vision increased the driving safety. Interfering with vision can be a physical thing. You get the haze in the atmosphere. What happens to the person, his eyes water and tear.

Mr. WINN. Would you do an additional study for us? Would you interview a few more people that live in the outskirts of town and come into the District to work? That category of people you don't seem to be covered in your survey.

Dr. KAILIN. I might be able to get that.

Mr. WINN. I am referring to people who live in Maryland and Virginia, away from the downtown.

Dr. KAILIN. I can tell you this. I asked Dr. Eugene Higgins, who is a nose and throat specialist who happened to call in yesterday when we were in the middle of doing all this—I asked him to check the patients coming into his office. He interviewed twelve, most of whom live in the suburbs and work in the District. All twelve felt that the pollution irritated their eyes and their noses.

Mr. WINN. Downtown?

Dr. KAILIN. Yes, and reported that in most instances when they have most discomfort other people in their offices also complained. Half of them said that when they have difficulty, their families out in the suburbs had difficulty with their eyes.

Mr. WINN. I'm trying to find out if there is any relief when they go home away from downtown.

Dr. KAILIN. I don't have that for you. I have the strong impression this is the case, particularly some persons who are trying to get away from air pollution.

Mr. WINN. Thank you.

Mr. MULTER. I suggest it might be well if we asked HEW to make a survey of a number of employees in Government in various departments in the District and ask them to indicate whether they live in the District or out of the District and ask this same question.

Mr. WINN. A very good idea. I would appreciate it.

Mr. MULTER. It would seem to me that the D.C. Medical Society can render a real service here if they would make a survey or send a questionnaire to some of its members who specialize in eye, nose, throat and lung diseases. I know all physicians are interested in not only treating the patients but also trying to determine what causes the illness. I think we might get some valuable information from that. Would you undertake that for us? Or ask the Society to do it?

Dr. KAILIN. I can. My experience with conducting surveys of this type, however, is that if you can reach the affected individual you get a far higher degree of replies and you know a little better what you are doing. Working through a busy physician who is doing this as ancillary to other things you are likely to lose a lot of information.

Mr. MULTER. It would seem to me in making a survey questioning individuals who are not physicians and who are likely patients you would get subjective opinions rather than objective.

Dr. KAILIN. How is one going to get an objective measurement on a subjective person. It is nearly impossible to do. Burning of the eyes is not something you can put under a microscope. Short of a laboratory experiment where you can put a gas of known concentration past a person's eyes and switch it from one gas to another, which gives you a laboratory answer, I do not see how you are going to do it on a city-wide basis.

Mr. MULTER. We are dealing here with an area where the politically motivated person is going to say, why should we intefere with private enterprise and tell people what to do unless there is some good reason to do it. This is going to be the reaction of some of our colleagues when we bring legislation of this kind before them. They are going to say where is the proof you need this. We may feel this because our eyes are irriated and we have gotten some complaints. We will be asked let's see the evidence that requires that we step in and do these things.

Dr. KAILIN. Yes, you do need objective things but you don't want to use eye irritation which is such a nebulous thing for this kind of a study. I am currently doing another study using an objective technique in which Dr. Platt who works at that cancer committee—Dr. Platt and I are looking at the nuclei of cells scraped from the inside of the cheek in people who are most severely affected by air pollution. We count to see how many of these cells show a particular characteristic in their nuclei. It is one of the chromosomes we are looking at. We find in the severely affected people as oxidant levels in the air go up, the thing we are looking at in the cell changes. This is not true of people who are not affected by air pollution to a severe extent. It is only true of the person who has such severe symptoms that they become confused and stagger and have muscle weakness and forgetful and this kind of thing when they come into the downtown area. This bunch of people worries the daylights out of me because more than ten percent of them have developed cancers in various parts of the body. We think it is important. These are in the Washington area. These are people where the oxidant level seems to matter. This is the sort of thing that makes us feel need, not just the irritation of the eyes.

Mr. MULTER. Do not a considerable part of the people in the medical profession contend a large part of smoke contamination results in cancer and others say you get the same result in breathing the air around us.

Dr. KAILIN. When you are getting known cancer-producing agents from smoke and in addition you are getting known cancer-producing agents in the air benzo pyrene in both groups you are getting a double dose.

Mr. MULTER. The point is, is air pollution so bad that we should legislate on it? We have legislated on smoking to the extent of requiring a caution on the package.

Dr. KAILIN. You cannot put a precaution on breathing, can you?

Mr. MULTER. Thank you.

Mr. GUDE. Doctor, in the first paragraph of your statement, you did mention damage to plant materials at specific levels of pollution and also specific levels in the occurrence of asthma as far as particular pollutants go.

Dr. KAILIN. Yes, that is right.

Mr. GUDE. This is the type of factual data that you can point to?

Dr. KAILIN. I can cite you literature on that and I can tell you the American Academy of Allergy has an active air pollution committee and we are getting verbal reports before they are being printed, all confirming the same point.

Mr. MULTER. Thank you. You have been very helpful.

Mr. MULTER. Mr. James Coulter.

(No response.)

Mr. MULTER. We have a letter from him, addressed to the Chairman, McMillan, which will be made a part of the record at this point.

(The letter follows:)

STATE OF MARYLAND DEPARTMENT OF HEALTH,
ENVIRONMENTAL HEALTH SERVICES,
Baltimore, Md., April 25, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
House of Represenatives, Washington, D.C.

DEAR MR. MCMILLAN: The General Assembly recently enacted and Governor Agnew has just signed a new Air Quality Control Act for Maryland. It is a strong, fair law and I believe a forerunner of the type of State legislation that is needed to control air pollution.

The success of the law and Maryland's program depend in large measure on the development of strong regional programs. Because we are committed to a coordinated local-State-Federal effort, the State of Maryland strongly supports the efforts of the Metropolitan Washington Council of Governments in air pollution control.

Congressman Gude has introduced a bill, H.R. 6981, which is closely patterned to the model Act which the Council of Governments is sponsoring in the Washington Metropolitan area. Any assistance you can give in arranging for a prompt hearing of Congressman Gude's bill before the District of Columbia Committee will be greatly appreciated.

Thank you for your assistance and help with air pollution and other environmental matters.

Sincerely yours,

JAMES B. COULTER,
Assistant Commissioner,
Environmental Health Services.

Mr. MULTER. Mr. Richard L. Counts, will you come forward please.

Mr. COUNTS. Good morning, Mr. Chairman, gentlemen, my name is Richard L. Counts. I am President of the Steuart Petroleum Company. This is Robert Smith, General Counsel, and Louis Via.

Mr. MULTER. You may be seated. You have quite a long statement. We will put it in the record in full. You can summarize it, or you may read it.

Mr. COUNTS. I would like to read it.

Mr. MULTER. Very good.

STATEMENTS OF RICHARD L. COUNTS, PRESIDENT, ROBERT SMITH, GENERAL COUNSEL, AND LOUIS VIA, STEUART PETROLEUM COMPANY

Mr. COUNTS. On behalf of Steuart Petroleum Company, of which I am President, and on behalf of the Oil Heat Institute of the District of Columbia, of which our company is a member, as representing the local Oil Industry in the Washington Metropolitan Area, I welcome this opportunity to appear before your Committee and to present to you the problems of the local Oil Industry as related to the matter of air pollution in the Washington Metropolitan Area.

The local Oil Industry naturally is not opposed to air pollution controls and in fact favors them. The local Oil Industry recognizes, of course, that the burning of fuel contributes to air pollution, but at the same time we maintain that it does not play the dominant role that some would lead you to believe.

However, since attention has been focused on the air pollution problem in the Washington area, our company and our suppliers have been diligently engaged in plans and activities toward developing methods and means of producing and making available residual fuel oil of a sulphur content within limits acceptable to the health authorities. Though this presents difficult problems, good progress is being made. The Oil Industry, by the blending of products and the use of improved technology in the reduction of sulphur content residual fuel oil, has been able to reduce the sulphur content from 3 per cent to 2 per cent without any particular increase by reason thereof in cost to consumer, and for the current heating year of July 1, 1967 to June 30, 1968, 2 per cent sulphur content residual is being supplied, at least to those companies receiving products through our company's terminals, which represent approximately 75 per cent of the consumption in the area. We have been assured by our suppliers that within one year, this can be further reduced to 1.5 per cent to be available for the July 1, 1968 to June 30, 1969 heating year, and further reduced to 1 per cent by the heating year commencing July 1, 1969. We hope that this gradual reduction may be effected without disruption of the normal marketing operations and at limited increase in cost to consumers.

One per cent sulphur content residual fuel oil, reduced from 3 percent, 2 per cent, or even 1.5 per cent, cannot be obtained merely by turning on a faucet, or by any simple process. We doubt if it is possible to achieve sufficient quantities of 1 per cent residual fuel oil to supply the entire Washington Metropolitan Area, or any major metropolitan area on the East Coast of the United States where residual fuel oil is principally consumed, prior to July, 1969. New York City, which consumes more residual fuel oil than any other city, recognized Industry's problem in this regard by adopting a program of gradual reduction of sulphur content residual fuel, when, in connection with its Air Pollution Control Act, adopted in 1964, it provided for 1 per cent sulphur content residual fuel oil after May, 1971.

The local Oil Industry, therefore, strongly urges that any legislation for air pollution control considered by this Committee, provide for gradual reduction of sulphur content in residual fuel oil so as to result in 1 per cent sulphur content residual fuel oil no earlier than July 1, 1969.

Large scale conversions from residual oil to other fuels is not feasible. There is already heavy demand on the East Coast for grade No. 2 heating oil. By next winter this product will probably be in short supply even if no conversions from other fuel to this oil occur, and there simply will not be enough No. 2 oil available to meet the growing needs if substantial conversions from higher sulphur fuels should take place. Neither are sufficient quantities of gas or coal available and even if there were, extensive changes in residual oil burning equipment would have to be made before these other fuels could be burned in existing furnaces. These changes would be extremely costly and could not be made overnight.

In order that you may understand the problems facing the local Oil Industry in this regard and the reason for our recommendation for a graduated sulphur reduction program, I would like to elaborate on the operations of the residual fuel oil industry in relation to 1 per cent sulphur content residual fuel oil.

In the first place, what is residual fuel oil? Residual fuel oil is a heavy liquid substance, which remains after certain of lighter fuels, that is, gasoline, kerosene, distillate fuel oil, lubricating oils, solvents, etc., are extracted from crude petroleum.

It is known as heavy fuel or No. 6 fuel oil. No. 5 fuel oil, which is a blend of No. 6 and the lighter No. 2 oil is also used as "residual fuel oil," to a small degree that is. In the marine application, it is known as bunker fuel oil or Bunker C.

Secondly, what are the uses of residual fuel oil? Due to its unusual properties, heavy fuel oil is the Oil Industry's best heat-energy bargain, that is, the most heat units at the lowest cost. The significant properties of this heavy fuel are: gravity, viscosity, or resistance to flow at a certain temperature, sulphur content, carbon residue, water content, asphaltine content, sediment content, pour point—or congealing at certain temperatures—flash point, and ash content.

It is used extensively to fire power plant boilers in public utility and industrial installations; as a fuel in heating plants of apartment houses, office buildings, hotels, schools and hospitals; as fuel in large diesel engines, especially in the marine field; and as fuel for diesel railroad locomotives.

It is not to be confused with the lighter No. 2 heating oil, which is used in the ordinary residence, and which is considerably more expensive than No. 6 oil.

Then, how is residual fuel oil made? Crude oil consists of a mixture of hydrocarbons, ranging from light volatile gases to heavy asphalt-like residues. Proper refining is required to produce the many finished products which Industry demands. The first basic step in refining is the separation of the crude into selected parts or fractions by distillation at atmospheric pressure. Each part or fraction has different properties, particularly as to the boiling point. The thick heavy fractions, such as fuel oil, have high boiling points, whereas the thin, light fractions, such as gasoline and kerosene, have low boiling points. As these fractions boil, they change to vapors which, when cooled, condense and thereby the different parts of crude petroleum are separated.

Heavy residual fuel oil is made by three different methods.

There is a Straight-Run Residual which is the remainder of the crude oil that does not vaporize in the distillation process.

There is the Cracked Residual which is still the residue of the crude remaining after further processing of the Straight-Run Residual by the thermal cracking process. In the thermal cracking process, the heavy Straight Run residue from distillation is subjected to high pressure and high temperature so that a modification of the hydrocarbon structure and molecular rearrangement produces a high yield of gasoline of higher octane number, a substantial quantity of distillate or gas oil, and consequently a decreased amount of residue, that is, residual fuel oil. During World War II, as the result of this demand for higher octane aviation gas, a catalytic cracking process was developed which leaves no residue. Thus, through the development of the thermal and catalytic cracking processes, crude oil can be refined 100 per cent so that no residue or residual fuel oil remains, which permits the refiner to convert crude oil to products which yield the highest dollar return, for example, gasoline, kerosene, distillate, lubricating oils and solvents.

Residual fuel oil is also made by blending the residue from the distillation process or the residue from the cracking process with a distillate or "cutter stock" to reduce viscosity to a level that permits these residuals to be handled in and out of tankers, barges, transports and terminals.

What are the sources of supply of residual fuel oil? During the year 1966, on the East Coast of the United States where residual fuel is mostly used, approximately 1,170,000 barrels per day were consumed. This amounts to 49,140,000 gallons per day—42 gallons to a barrel. Of this amount, approximately 15 per cent was produced by domestic refiners, with the balance being imported from foreign based refineries.

The relatively small supply from the domestic refineries is substantially all committed and delivered to certain captive markets such as the metal industry, because of the relatively low sulphur content of the domestic production. The balance of the consumers on the East Coast are thus required to use foreign produced residual fuel oil.

The reason for the relatively small supply of domestic residual fuel oil is simple. Due to the advanced technology of catalytic cracking, and the higher prices obtainable from the lighter fuels, such as gasoline and jet fuels most in demand, as compared to the lower price of residual fuel oil and also due to domestic conservation policies, the domestic refiners naturally prefer to crack the crude 100 per cent, which leaves no residual fuel oil.

Thus, approximately 85 per cent of the residual fuel oil consumed on the East Coast of the United States is imported. Of this imported amount, some 90 per cent comes from Caribbean refineries whose residual yields average some 57 per cent—that is, 57 per cent of the crude barrel as residual compared to 7.5 per cent yield of the U.S. refineries or 0 per cent on catalytic cracking. Venezuela crudes supply approximately 95 per cent of the Caribbean residual fuel oil. The balance of the imported residual fuel oil comes from Africa and Argentina.

The Caribbean crude oils have a high sulphur content and are known as "sour" crude. The low sulphur content crudes, or otherwise known as "sweet" crudes, are found in the Middle East, Africa and Argentina.

The importation of crude oil is closely tied to our foreign policy and particularly concerning Venezuela and other Caribbean areas.

Due to the current Middle East crisis, African crude is not readily available.

How is residual fuel oil transported, stored, and delivered? Residual fuel oil, regardless of how made, being a heavy substance, in order to be transported, stored and delivered, must be handled under heat, approximately 120 degrees–150 degrees F., at all times to permit mobility.

Residual fuel oil used on the East Coast is delivered by large ocean going tankers to deep water terminals located at various points on the East Coast. These tankers are specially designed to carry the residual fuel oil under heat and the average tanker load is about 10,000,000 gallons.

The deep water terminal must be equipped to receive these large ocean going tankers by having docking facilities of sufficient size to receive an 800-foot long tanker which draws approximately 40 feet of water. The terminal must have heated pipelines leading from the dock to the heated storage tanks and should be capable of receiving residual fuel oil at the rate of 200,000 gallons or more per hour.

Generally, in order to transport the residual fuel inland from the deep water terminal facilities, residual fuel is then barged or trucked to an inland terminal. These barges, which are likewise specially designed to carry residual fuel oil under heat, carry 500,000 to 1,000,000 gallons in a barge load.

The inland terminal, like the deep water terminal, must have heated pipes to discharge the product from the barge into storage tanks which likewise must be equipped with heating facilities to maintain the product at a constant temperature. The inland terminal, like the deep water terminal, must have heated pipes to discharge the product from the barge into storage tanks which likewise must be equipped with heating facilities to maintain the product at a constant temperature. The inland terminal must also be of sufficient size to store several days' supply and is ordinarily located centrally to a metropolitan area to ensure delivery to consumers at all times, particularly during adverse weather conditions in the winter months when the consumption is at the highest point, and to fully utilize transportation equipment and labor.

Delivery to the consumer is made in specially designed heavy duty tractor trailer units capable of carrying 4,000 to 6,000 gallons per load to a customer, compared to 1500–2500 gallon trucks used for delivery of No. 2 heating oil to private residences.

In order for the consumer to handle the residual fuel oil, he must have large storage tanks and specially designed and engineered boilers and burning equipment with complicated controls.

The contract heating year is generally considered to be July 1 to June 30, although some annual consumer purchase contracts are entered into as early as April and May 1 of each year.

The consumer purchase contracts for fuel oils are generally on an annual basis. Supply contracts between the distributor or marketer and the refinery are generally long term contracts usually negotiated to coincide with the heating year, and designate the type of products and quantities to be delivered by the refinery during the heating year, with heavy deliveries contemplated in the winter months.

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The refineries usually require a minimum of six months lead time to schedule their refinery output of the various products.

What are the residual fuel oil facilities in the Washington Metropolitan Area? The nearest deep water terminal facility to serve the Washington Metropolitan Area by water is located at the mouth of the Potomac at Piney Point, Maryland, and was completed in 1950. This deep water terminal is owned and operated by Steuart Petroleum Company and represents an investment of many millions of dollars. This deep water terminal facility handles various types of petroleum products, including aviation gas and residual fuel oil. The facilities for the residual fuel oil, including the pipelines of more than one mile from the dock to the storage tanks, the storage tanks and the piping from the storage tanks, are specially designed for residaul fuel oil, due to the necessity of handling residual fuel oil at high temperatures, and are separate and distinct from the facilities for the other petroleum products also handled at this facility. This Piney Point deep water terminal has twenty-five million gallons of storage solely for residual fuel oil.

The only inland residual fuel oil barge terminal located in the Washington Metropolitan Area is located on the Anacostia River near the East Capital Street Bridge, which was constructed in 1942. This likewise is owned and operated by Steuart Petroleum Company and represents an investment of millions of dollars. This barge terminal likewise handles other petroleum products, but has facilities to store five million gallons of residual fuel oil. The only other residual fuel oil storage facilities in the Washington Metropolitan Area consist of a combined storage capacity of only 410,000 gallons supplied by truck from Baltimore.

Prior to the construction of the deep water terminal at Piney Point, Maryland, in 1950, the Washington Metropolitan Area was dependent upon Norfolk and Baltimore residual fuel oil storage.

Thus, the total storage facilities for residual fuel oil to serve the Washington Metropolitan Area is 30,410,000 gallons. Twenty-five million gallons at Piney Point and 5,410,000 at Washington, D.C.

The distance by barge from the deep water terminal at Piney Point to the barge terminal on the Anacostia River at Washington, D.C. is 80 miles, and the average round trip of the tug and barge take approximately 36 hours, including loading and unloading.

The distance by barge from deep water terminals at Baltimore and at Norfolk to the Anacostia River barge terminal is approximately 200 miles.

By having 5,000,000 gallons residual fuel oil storage available at the Washington, D.C. barge terminal from which truck deliveries are affected, consumers in the Washington Metropolitan Area, including the Federal Government which purchases residual fuel oil to heat Federal and D.C. Government installations in the Washington Metropolitan Area, are fully protected because of this centrally located terminal from which truck deliveries can readily be effected. Truck deliveries from Baltimore to the Washington Metropolitan Area during the severe weather presents hazardous problems. There have been occasions during heavy snowfall when reseidual fuel oil could not be trucked to the Washington Metropolitan Area from Baltimore and the Anacostia barge terminal had to be used for the

sole supply in the emergency. During this past heating season, July 1, 1966 to June 30, 1967, approximately 75 per cent of all residual fuel oil consumed in the Washington Metropolitan Area was delivered through the Anacostia River inland terminal. Peak daily delivery was in excess of 1,500,000 gallons.

The balance, or approximately 25 percent, of the residual fuel oil consumed in the Washington Metropolitan Area during the 1966–1967 heating season was delivered by truck from storage facilities located in Baltimore, including to the aforementioned 410,000 gallon storage located in the Washington Metropolitan Area.

The total residual fuel oil consumed in the Washington Metropolitan Area is approximately 250,000,000 gallons per year. This includes 71,400,000 gallons per year for Federal and D. C. Government installations which were terminalled through the Anacostia River inland barge terminal.

How is 1 percent sulphur content residual fuel oil made? As stated before, 1 percent sulphur content residual fuel oil reduced from 3 percent or 2 percent, or even 1.5 percent, cannot be obtained by merely turning on a faucet or by any simple process. Excluding the Soviet Bloc, of the approximately 75,000,000 barrels per day residual fuel oil produced in the entire world, only 1,000,000 barrels daily is naturally-occurring 1 percent maximum sulphur content, and this is produced in Africa and Argentina. The East Coast of the United States alone consumes 1,170,000 barrels daily of residual fuel oil. Thus, the East Coast alone could consume the entire production of naturally-occurring 1 percent sulphur content residual fuel oil, which would leave none available for the rest of the United States, or the rest of the entire world. New York City alone requires approximately 300,000 barrels of residual fuel oil daily.

The balance of the low sulphur content residual fuel oil is currently obtained through a refining and blending process.

The bulk of residual fuel oil consumed on the East Coast of the United States comes from Venezuela refineries and the sulphur content of this residual fuel oil runs about 3 percent. Currently, because of special handling techniques, 2 percent sulphur content residual fuel oil has been made available to the Washington Metropolitan Area for the heating year July 1, 1967 to June 30, 1968. This reduction is accomplished by a special refining process and by blending low sulphur residual from Africa or Argentina with the Venezuelan produced residual at the refineries located in the Caribbean area.

Another means of reducing the sulphur content of residual fuel oil is through vacuum distillation and hydrosulfrization. The only facility of this kind now in operation in Cities Service located at Lake Charles, Louisiana, capable of producing only 2,500 barrels daily, except this facility is not used primarily for desulfurization, but to upgrade residual fuel oil into synthetic crude oil. The desulfurization accomplished in the process is merely a by-product.

Shell Oil, in anticipation of the air pollution problems in the major East Coast cities and the possible restrictions to be involved in using lower sulphur content residual fuel oil, commenced more than three years ago to plan and construct in Venezuela a desulfurization plant at a cost of approximately $25,000,000, which will not be in operation until October, 1967 and will have an ability to manufacture approxi-

mately 60,000 barrels of residual per day. This plant, however, is currently geared to produce 2 per cent sulphur content residual fuel oil, and will not be able to produce 1 per cent sulphur content residual fuel oil until mid-1969. It is understood that Esso has plans to construct a desulfurization plant in the Caribbean, but construction is not yet commenced and it is estimated this will not be in operation until 1970. The only other desulfurization plants under way are located in Kuwait and Japan but these facilities will not be completed until 1968 and 1969, and in any event would not supply the U.S. consumer. Shell, however, has two other such desulfurization plants on the drawing board for possible installation in the Caribbean area.

In view of what has been stated here, it is our firm belief that 1 per cent sulphur content residual fuel oil just cannot be supplied to the entire Washington Metropolitan Area, or even to the entire District of Columbia, earlier than the heating year commencing July 1, 1969.

Aside from supply, what are the additional problems? In addition to supply, there are other problems with which the local industry would have to cope until a sufficient quantity of 1 per cent sulphur content residual fuel oil could be made available to the entire Washington Metropolitan Area.

This revolves around the fact that different percentages of sulphur content residual fuel oil cannot be commingled at any stage of handling.

For example, a recent Montgomery County Air Pollution Ordinance calls for 1 per cent sulphur content residual oil by January 1, 1968, just 5 months from now. Approximately 39,336, 500 gallons of residual fuel oil are consumed annually in Montgomery County. The Federal Government's supply contract for the heating year July 1, 1967 to June 30, 1968, which was let prior to the passage of the Montgomery County Ordinance, covering 71,400,000 gallons annually, of which 12,137,000 is in Montgomery County consumers, pursuant to contracts also let prior to the passage of the Montgomery County Ordinance, will be supplied 2 per cent sulphur content residual fuel oil for the heating year 1967–1968, commenced as of July 1, 1967. A Falls Church, Virginia proposed air pollution ordinance calls for 1 per cent sulphur content residual fuel oil by January 1, 1970.

If the Piney Point deep water terminal and the Anacostia barge terminal were to terminal 2 per cent and 1 per cent sulphur content residual fuel oil for consumers in the different areas of metropolitan Washington, it would have to construct two more tanks at Piney Point of approximately 270,000 barrels each for the 1 per cent residual plus a separate pipe system of more than 6,000 feet to transfer the 1 per cent residual separately from shipside to the separate storage tanks. This would be necessary so a tanker load of 10,000,000 gallons of 1 per cent residual could be received and stored at any time and still have a reserve. The cost of such additional facility would run approximately $600,000. In addition, at least one storage tank capable of receiving and handling at least 1,000,000 gallons of 1 per cent residual separately from the 2 per cent, would be required at the Anacostia barge terminal. Barge and truck facilities would have to be segregated just to handle the 1 per cent residual. Our company, as the owner and operator of these terminals does not see the point of making such an investment, which would be required only for a temporary period of less than two years, because if the Oil Industry's realistic gradual

sulphur reduction program is adopted so that 1 per cent residual is available for the entire Washington Metropolitan Area by July 1, 1969, segregation by that time would not be necessary. Besides, and more importantly, there is no additional land available at the Anacostia barge terminal on which to construct such a segregated facility, nor is there known to be available any other location on the Anacostia or Potomac River within the District of Columbia to construct any segregated facility solely for the purpose of handling 1 per cent sulphur content residual fuel oil.

It is further understood that there are probably no storage facilities available to Baltimore which would permit segregation of the 1 per cent sulphur residual.

It is also a mistake to assume that all 1 per cent sulphur content residual fuel oil on the market today can be used in the same facilities currently using 2 per cent residual. This depends entirely on the properties of the particular 1 per cent residual supplied, especially the pour point, which now averages about 35 degrees–45 degrees. Some 1 per cent residual has a pour point of 80 degrees or higher but this is used by large utility generating facilities which have specially constructed heating equipment, such as steam tracers on the pipelines, to handle such a high pour point. Apartments, office buildings, schools and hospitals do not have such special equipment. Thus, to simply designate 1 per cent sulphur content residual merely to require a low burning sulphur for air pollutant purposes is not the complete answer. Other specifications of the 1 per cent sulphur residual must also necessarily be considered.

There is also a misconception that the percentage of sulphur content in residual fuel oil controls the visible emission of the pollutant into the air. The sulphur content has little or nothing to do with the visible emission but sulphur content is one of the items in the air which can be measured. Visible emission is principally a problem of the quality, condition and maintenance of the fuel burning equipment.

The difference in smoke emission between 2 per cent and 1 per cent sulphur content residual would not be discernable to the naked eye. Nor could the difference in odor be detected. I would like to digress at the conclusion and have Mr. Via make a few remarks on stack emission.

In conclusion, and in view of the aforegoing, the Oil Industry in the Washington Metropolitan Area recommends that any Air Pollution Control law or regulation effective for any area or district of the Washington Metropolitan Area adopt a gradual sulphur content reduction program for residual fuel oil of a maximum of 2 per cent to July 1, 1968, 1.5 per cent for July 1, 1968 to June 30, 1969, and 1 per cent commencing July 1, 1969, in order to coincide with the realities of the supply and distribution problem for residual fuel oil in the area. It will be catastrophic for each individual local government in the area to adopt different effective dates for 1 per cent suphur content residual because, even if some supply were available segregation is not only economically infeasible but probably an impossibility.

It is also believed that under the proposed gradual reduction schedule, the Oil Industry can supply lower sulphur content residual fuel oil to its consumers at a limited increase in cost and without otherwise disrupting all related economic factors.

Certainly the Oil Industry, as well as the consumer, should be permitted this relatively short time to meet regulatory standards, which are somewhat debatable.

We would therefore recommend that Section 9(c)2, of both H.R. 6981, by Gude, and H.R. 10017, by Horton, be amended to read as follows:

(2) No person shall use fuels the sulphur content of which exceeds the following percentages by weight: Effective Date. From effective date of law to June 30, 1968, maximum sulphur content, 2 per cent. July 1, 1968, maximum sulphur content, 1.5 per cent. July 1, 1969, maximum sulphur content, 1 per cent.

I thank you, gentlemen, for your patience. I would like to ask Mr. Via to make a few brief statements on stack emissions.

Mr. MULTER. We have three other witnesses whom we would like to hear, and time is running out.

Mr. COUNTS. This would take just a few minutes.

Mr. MULTER. I would appreciate it if you would be very brief.

Mr. VIA. Gentlemen, residual oil—properly burned—does not smoke. Smoke is the result of incomplete combustion and is principally caused by an insufficient amount of air mixing with the fuel being burned. Smoke can occur with the burning of all fuels.

"Perfect" combustion is that in which all of the combustible is burned while supplying only the exact amount of air to complete the reaction. In actual practice this condition is never attained and additional air—beyond the theoretical requirement is supplied to insure that combustion is complete. If this additional air is not supplied in sufficient volume—incomplete combustion and smoke results. This is not the fault of the fuel, rather it is the fault of the equipment burning the fuel.

In practice, good combustion requires three things: A. proper proportioning of fuel and air, B. thorough mixing of fuel and air, and, C. initial and sustained ignition of the mixture.

Residual oil can, and is being burned completely, efficiently and with practically zero smoke. This is accomplished when quality equipment is being used, properly installed, and properly adjusted to supply sufficient combustion air to burn all the fuel.

The time of greatest potential for smoke emission occurs on a cold start-up. That is, when the burner first fires into a cold combustion chamber and stack.

But even here, if the combustion cycle is so designed so that the start-up occurs on "low fire" and remains on "low fire" until the combustion chamber refractory is heated to a point where it assists in supporting combustion—and then the burner switches to a "high fire" condition—incomplete combustion and smoke can virtually be eliminated.

Once the combustion chamber is hot—repeated cycles of the burner occur with a crisp, clean ignition—and produces no smoke. The combustion equipment, of course, must be serviced and maintained at a high efficiency just as an automobile must be checked and serviced to keep it running well.

Last winter and spring, under the close supervision of a committee of Department of Health, Education, and Welfare—headed by Mr. Jack Copeland—a survey was taken by the Steuart Petroleum Company on some 20 installations of residual oil burning equipment

here in Washington, D.C. The results of that survey point out and prove that residual fuel oil can and does burn cleanly.

The amount of sulphur in a fuel has no bearing whatsoever on smoke emission. For example, a fuel with a high sulfur content—say 5 percent—can be made to burn without sufficient combustion air.

For a fuel with 2 per cent sulphur, only about .15 per cent of sulphur dioxide will be found in the stack gasses and only .002 per cent by volume of sulphur trioxide might be found.

This gas is normally invisible and only under rare cases can it be seen in the form of a white water vapor. Normally, however, the white vapor seen on a cold day coming from the top of a stack is the result of hydrogen burning which has no pollutant or detrimental effects. It is immediately reabsorbed by the atmosphere.

Quality equipment is available today from a variety of manufacturers which has been designed and field proven to be capable of burning residual oil completely, efficiently and cleanly. It must merely be installed and adjusted properly.

I repeat—residual oil properly burned—does not smoke.

Thank you.

Mr. MULTER. Is there any sulphur pollutant emitted in the air by the burning of gas?

Mr. VIA. Yes, sir.

Mr. MULTER. How about coal?

Mr. VIA. Yes, sir.

Mr. MULTER. Do you have any figures on the different quantities of sulphur emitted by burning gas, oil and coal?

Mr. VIA. I do not have them with me at the moment, sir, but I can submit them.

Mr. MULTER. Will you submit them to us?

Mr. VIA. Yes.

Mr. MULTER. Thank you.

Mr. WINN. Mr. Via, you state that the local oil industry recognizes that the burning of fuel contributes to air pollution. At the same time you maintain it does not play a dominant role that some would lead us to believe.

I was going to ask Mr. Counts to enlarge on that. Most of the witnesses that we have heard at the last hearing felt that fuel did contribute to air pollution and they had some facts and figures to back this up.

Mr. COUNTS. We believe that motor vehicles, buses, diesel vehicles, gasoline, trash burning, and other things play a very dominant part and that the stack emissions from heating equipment in this area are not as dominant as has been represented.

Mr. WINN. Then we are to believe, in our opinion, that stack emissions are negligible compared to automobile and buses, and other methods of air pollution?

Mr. COUNTS. I don't know about "negligible." But, I would say they are minor compared to these other sources. Particularly in good operating equipment.

Mr. WINN. Mr. Via's statement didn't lead me to believe that because he was so firm and so strong in it. He also had figures that mentioned "If." If everything was working right. If everything was burned right. And if they had the right equipment. Then it could be controlled.

Mr. COUNTS. We feel therefore the fuel is not as much at fault as the method of operation. In almost all industrial activities the use of energy—in the use of energy there can be pollution where there are improper methods used. We feel our fuel is somewhat being used as a "Whipping Boy" when it should not be.

Mr. WINN. I see. If all these stacks have perfect fuel burning equipment, and it operated perfectly, you have practically no contamination of the air through stack emission?

Mr. COUNTS. We could almost substitute "properly." "Perfectly" perhaps being a stronger word. In other words it is not too difficult, it is not impossible, it is not impractical to achieve such clean operations. Mr. Colkin of HEW I believe would bear us out on that.

Mr. WINN. I would like very much to have that HEW study. I recall you said it was made by Jack Colkin.

Mr. COUNTS. Yes.

Mr. WINN. I would like to have that made part of the record.

Mr. MULTER. We will request it.

Mr. GUDE. I think we are talking about two different air pollutants. One, sulphur dioxide and the other the question of emission from the stack, incomplete combustion carbon particles and other material. Isn't that right?

Mr. COUNTS. This is correct.

Mr. GUDE. What you are saying by "proper operation" Mr. Via is that if a plant is properly operated then there is no visible or negligible stack emission and there is no air pollution problem, but if the operators were burning high sulphur fuels, says four percent sulphur fuels you are still going to get the emission of sulphur dioxide.

There is no way the operator under the present facilities that are available can cut down on sulphur dioxide, but he can control the stack emission.

Mr. VIA. This is true.

Mr. GUDE. Sulphur dioxide is still there.

Mr. WINN. I appreciate the clarification. I don't believe it's that easy no matter how you break it down. I would like to ask how many plants are properly operated in the city in your opinion?

Mr. VIA. I would think basically Mr. Winn, certainly more than half of those plants operating are operating properly. I might go further to say that those installations which we installed and I don't mean that to sound commercial, but ours operate properly and it can be operated properly so there is no smoke emission.

Mr. WINN. I probably expect you, after your strong statement, to say yours are operating properly. Probably someone could go down and show you some aren't operating properly. Regarding stack emission, can't it be controlled by ordinances? Can't we require strict operation so that the operation can be controlled better?

Mr. COUNTS. There are certain codes available to control emissions. Just how stringent they are and how diligently they are enforced, I couldn't say.

Mr. VIA. The City of Pittsburgh has such codes which are vigorously enforced and they have made great strides in the elimination and reduction of smoke stack emission.

Mr. WINN. Doesn't the District have codes on this?

Mr. VIA. I think there are some, sir.

Mr. WINN. Thank you very much Mr. Chairman. I am completely confused now.

Mr. GUDE. Mr. Via, you are familiar with the legislation of the Ringelmann Smoke Test?

Mr. VIA. Yes.

Mr. GUDE. Wouldn't this require an operator to comply? He would then get the minimal stack emission we are seeking.

Mr. VIA. When a piece of equipment is adjusted and set up for proper firing one of the devices used to determine it's efficiency and proper firing is the Ringelmann Smoke Test along with a CO_2 analyzer to measure the efficiency or the CO_2 content or the fluid gases. These two tests are performed at all times when the burner is adjusted and the answer to your question is yes. It should be, and can be used to determine the amount of smoke being emitted at the stack.

Mr. GUDE. What we are really saying here is this: As far as the use of oil is concerned, it's not just the problem of getting low sulphur content but it's the problem of the operator of the apartment house to see to it that his equipment is burning properly so there is not this emission.

Mr. VIA. Yes.

Mr. GUDE. So it goes back to the individual, just as the one burning trash in the backyard.

Mr. VIA. Yes, the oil will burn clean if it's properly burned.

Mr. GUDE. So this legislation, with its standards, will provide the means of seeing to it that the owner of the apartment house is complying with the law.

Mr. WINN. Are there standards provided in this bill that would guide the apartment house owner?

Mr. GUDE. That's what's provided in this legislation. There is a standard set up, they would have to follow it.

Mr. WINN. Aren't they operating under any codes now?

Mr. GUDE. There are certain codes here now and I imagine there is some enforcement going on in this area.

Mr. WINN. Is there a lack of enforcement of the codes?

Mr. COUNTS. I couldn't say that. I'm not familiar enough. Our expert on that is on vacation and neither Mr. Via nor I are entire familiar with the Bill. We are only vaguely familiar with it. I don't know whether it's the code in itself or the enforcement, but there is a smoke control or emission control in the District.

Mr. VIA. This states the emission shall not exceed a Number two Ringelmann Smoke Test.

Mr. GUDE. There is some regulation going on, but also it gets into the question of sulphur. Then there is the question of proper ignition of fuels.

Mr. COUNTS. And combined with the fact that we don't think sulphur is the entire problem in pollution. We feel that the other polluting particulars being emitted play a role at least, in addition to sulphur.

Mr. GUDE. As far as the amount of fuel that is burnt here in the Metropolitan area, is there not a greater amount of oil burned than coal?

Mr. COUNTS. I'm sorry, but I couldn't give you a yes or no answer on that. You would have to confer to them to BTUs because of the difference of tonnage and gallons. I don't know the answer.

I would think there is.

Mr. GUDE. The principle Government heating plants use fuel oil?

Mr. COUNTS. Yes.

Mr. GUDE. Very few burn coal.

Mr. COUNTS. Yes.

Mr. GUDE. I think the fuel industry is trying to reduce the amount of sulphur content because it recognizes the problem. In the research laboratories in Pittsburgh they are doing considerable research in sulphur reduction.

Mr. VIA. Mr. Gude, I am aware of these experiments as well as the research being made on the extensive use of the electronic precipitators and water precipitators and the removal of particular matter of smoke stacks, where these devices are used. These can only use the particular matter or the solid matter and have no ability to remove a gaseous substance such as sulphur dioxide or sulphur trioxide. The experiments that are being conducted to remove these gases are at a point now where considerable research is yet to be done and it would be fantastically expensive for normal histat, even now, to install an electronic precipitator to remove the particular matter. It would exceed twenty thousand dollars.

Mr. GUDE. I know there are several ways in which the sulphur can be reduced. For example, the coal people showed us one experiment where they gasified the coal, so to speak, and converted the sulphur into hydrogen sulphide; extracted the sulphur, which they could sell, and by the time they burned whatever it was they got from the coal, there was practically no emission at all of sulphur. It's an entirely new chemical process. As I recall, heat was cheaper this way then under the old process. Is there any kind of research going on in this area?

Mr. VIA. There has been research that has been conducted on the removal of sulphur prior to burning the oil, which Mr. Counts covered in his presentation. But there is only one plant in Louisiana now conducting this actual process. The production of that type of oil is a by-product. It's very limited and it's very expensive processes.

Mr. GUDE. You think it is feasible to reduce the sulphur emission by other means then by just reducing the sulphur in the oil when it arrives?

Mr. VIA. At the moment, not practical.

Mr. GUDE. But it is possible to do it in the laboratory?

Mr. VIA. Yes.

Mr. GUDE. In the legislation we have proposed, we provide for a system of exemptions whereby if an industry or an individual was unable to comply completely with this law, they could get an exemption for one year. Would you have any objections to this? You have given us some very comprehensive statements on this situation as you see it, and obviously, the industry is trying to comply.

Looking at other testimonv and so on, I think maybe this Committee could accept it. I think the governing body would be in the same position. Would you have any objection to this exemption process until the industry was able to comply?

Mr. COUNTS. Yes, sir, I do. I don't think it would be practicable from the standpoint of when you consider the large volume of residual oil

used in the Washington area to attempt to rely upon individual exemptions; because the problems that I pointed out in the receiving and the storing and the making available of the lowest sulphur oil, I think would—nullify the relief afforded by the individual exemption. In other words if they can't get the oil where is the low sulphur oil, how is it going to be brought in, where is it going to be stored and how is it going to be made available to anyone is the question in my mind. In other words, if the law went into effect based on one percent, before industry could supply it I don't see how each individual consumer applying for relief would be the right answer.

Mr. GUDE. If this exemption applies to all users, of say grade six or grade five fuel, what would be the difficulty?

Mr. COUNTS. Perhaps I didn't entirely understand. I thought the exemption was to be applied for on an individual basis by each individual consumer.

Mr. GUDE. Well it could be the industry could apply for it, or the suppliers could apply for it.

Mr. COUNTS. If it were brought in to include this type of provision perhaps it could be workable.

Mr. GUDE. You mentioned in your testimony the contract the Government signed for two percent oil. Were there any bids for oil of a lower sulphur content?

Mr. COUNTS. They sent out written invitations and to their invitations specified two percent.

Mr. GUDE. Do you know of any offer made of fuel oil of a lower sulphur content?

Mr. COUNTS. I know of none.

Mr. GUDE. We were going to try to inquire of the GSA whether there were other suppliers.

Mr. COUNTS. They may have had their conversations or they may have had activities of which I am not familiar, but when they issued their invitation to bid, after their studies and after their investigation, they did then specify two percent.

Mr. GUDE. I think the Federal Government has a responsibility to use as low sulphur oil as possible.

Mr. COUNTS. I think they were convinced they could not get it.

Mr. GUDE. We are going to try to find out from these people. Thank you very much.

Mr. MULTER. Page nineteen. On the last page of your statement, page nineteen, have you made any changes or corrections to that since you submitted it, or is this statement submitted the same way you read it?

Mr. COUNTS. No. I would like it to remain as stated in the page.

Mr. MULTER. What do you mean on "June 30, 1968 two percent and the next day one and a half percent."?

Mr. COUNTS. Up to June 30, 1968. In other words, whenever the law becomes effective until June 30, 1968 it would be two percent.

Mr. MULTER. What you are suggesting is that on July 1, 1968, it be reduced to one and a half percent, and July 1, 1969, it be reduced to one percent?

Mr. COUNTS. Yes, sir.

Mr. MULTER. Thank you.

(Subsequently, the following supplemental statements were filed for the record:)

SUPPLEMENTAL STATEMENT TO HOUSE COMMITTEE FOR THE DISTRICT OF COLUMBIA REGARDING H.R. 6981 (GUDE BILL) AND H.R. 10017 (HORTON BILL)

During the testimony submitted to the Committee on Wednesday, August 16, 1967 by Mr. R. L. Counts and Mr. L. T. Via, of Steuart Petroleum Company, additional information was requested by Congressman Multer and Congressman Winn appertaining to that testimony.

These requests for additional information concerned:

1. The percentage of coal to residual oil usage by the Federal Government in the Washington, D.C. area.
2. The sulphur content of available coal.
3. The project number and full name and address of Mr. J. O. Copeland concerning the survey of heating equipment made by the Department of Health, Education and Welfare.

The current G. S. A. contract calls for a usage of approximately 420,000 tons of coal. The Federal Government currently uses 48% coal—52% oil, calculated on a B. T. U. basis.

The total sulphur content of coal mined in the bituminous fields of Virginia, Kentucky and West Virginia varies from .4% to 5.5% by weight on a dry coal basis. However, the availability of the low sulphur coal is limited.

The HEW survey referred to by Mr. L. T. Via in his testimony was conducted by Mr. John O. Copeland, Department of Health, Education and Welfare, U.S. Public Health Center, 1055 Laidlaw Road, Cincinnati, Ohio 45237, and was referred to as Project No. 103—Central Development Program.

L. T. VIA, *Sales Manager,*
Industrial Oil Burner Division,
Steuart Petroleum Company.

ADDENDUM BY L. T. VIA, SALES MANAGER, INDUSTRIAL OIL BURNER DIVISION, STEUART PETROLEUM COMPANY

(Submitted by: Richard L. Counts, President Steuart Petroleum Company)

AUGUST 16, 1967.

Residual oil—properly burned—does not smoke! Smoke is the result of incomplete combustion and is principally caused by an insufficient amount of air mixing with the fuel being burned. Smoke *can* occur with the burning of *all* fuels.

"Perfect" combustion is that in which all of the combustible is burned while supplying only the exact amount of air to complete the reaction. In actual practice this condition is never attained and *additional* air—beyond the theoretical requirement is supplied to insure that combusion is complete. If this additional air *is not* supplied in sufficient volume—incomplete combusion and smoke results. This is not the fault of the *fuel*—but the fault of the equipment *burning* the fuel.

In practice, good combustion requires; a) proper proportioning of fuel and air, b) thorough mixing of fuel and air—and c) initial and sustained ignition of the mixture.

Residual oil can—and is being burned completely, efficiently and with practically zero smoke. This is accomplished when quality equipment is used, properly installed, and properly adjusted to supply sufficient combustion air to burn all the fuel.

The time of greatest potential for smoke emission occurs on a cold startup. That is, when the burner first fires into a cold combustion chamber and stack.

But even here, if the combustion cycle is so designed so that the startup occurs on "low fire" and remains on "low fire" until the combustion chamber refractory is heated to a point where it assists in supporting combustion—and *then* the burner switches to a "high fire" condition—incomplete combustion and smoke can virtually be eliminated.

Once the combustion chamber is hot—repeated cycles of the burner occur with a crisp, clean ignition—and produces no smoke. The combustion equipment, of course, must be serviced and maintained at a high efficiency just as an automobile must be checked and serviced to keep it running well.

Last winter and spring, under the close supervision of a committee of the Department of Health, Education and Welfare—headed by Mr. Jack Copeland—a survey was taken by Steuart Petroleum Company on some 20 installations of residual oil burning equipment here in Washington. The results of that survey point out and prove that residual fuel oil can and does burn cleanly.

The amount of sulfur in a fuel has no bearing whatsoever on smoke emission. For example, a fuel with a high sulfur content—say 5%—can be made to burn without *any* smoke; while a fuel with *no* sulfur *will smoke* if burned without sufficient combustion air.

For a fuel with 2% sulfur, only about .15% of sulfur dioxide will be found in the stack gases and only .002% by volume of sulfur trioxide might be produced.

This gas is normally invisible and only under rare cases can it be seen in the form of a white water vapor. Normally, however, the white vapor seen on a cold day coming from the top of a stack is the result of hydrogen burning which has no pollutant or detrimental effects. It is immediately reabsorbed by the atmosphere.

Quality equipment is available today from a variety of manufacturers which has been designed and field proven to be capable of burning residual oil completely, efficiently and cleanly. It must merely be installed and adjusted properly.

I repeat—residual oil properly burned—does not smoke!

Mr. MULTER. Our next witness is Mr. Frederick Babson.

STATEMENT OF FREDERICK A. BABSON, PRESIDENT, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

Mr. MULTER. Introduce yourself for the record.

Mr. BABSON. Mr. Chairman and Members of the Committee, my name is Frederick A. Babson. I am president of the Metropolitan Washington Council of Governments and a member and past Chairman of the Board of Supervisors of Fairfax County, Virginia. I have with me Dr. Hohn J. Lentz, Director of Environmental Health for the Metropolitan Washington Council of Governments.

I am grateful for the opportunity to appear before you this morning. The Council of Governments is deeply concerned with the air pollution problem in this region and with the urgent need for a broad and intensive battle against this threat to our health and our economy.

The Council of Governments is the cooperative organization of the District of Columbia and the 14 other major local governments of Maryland and Virginia within the National Capitol Region. It is composed of the District Commissioners, members of the governing bodies of six counties and eight cities, and members of the U.S. Congress and the General Assemblies of Maryland and Virginia who represent portions of the National Capital Region. Through its members, the Council is reponsible to more than 2½ million people.

In its ten years of operation, COG has contributed materially to the solution of areawide problems in such fields as Environmental Health, Public Safety, Transportation and Regional Planning. It has helped to pioneer the vigorous campaign against air pollution by embarking two years ago on a thorough three-year analysis, which is now almost two-thirds complete, to identify the kinds of pollution of our air and the most effective means of combating this enemy of life and property.

In cooperation with the local governments and the U.S. Public Health Service, our Council developed a scientific laboratory containing the latest technical equipment and a network of monitoring stations which enables us to sample air on a continuing basis in every part of the metropolitan area. This data in turn are providing the basis

for our recommendations on what our local governments can do in eliminating the problem.

In July of 1966 our Board of Directors unanimously endorsed a model air pollution control ordinance and voted to submit it to the local governments of the National Capital Region for their consideration and adoption. It was the Council of Governments' Model Air Pollution Control Ordinance that Congressman Gude used as a guide in developing the ordinance which is before the Committee today.

The COG Model Ordinance was developed by one of our standing technical committees, the Regional Air Pollution Advisory Board. The Advisory Board has among its members the most competent local environmental health officials in the Washington Metropolitan area. In addition, the Advisory Board has representatives from the Maryland State Health Department, the U.S. Public Health Service, and the Virginia State Air Pollution Control Board.

The Regional Air Pollution Advisory Board, in developing the COG Model Ordinance, worked closely with the Taft Air Pollution Laboratory in Cincinatti, Ohio and with the Public Health Service's regional offices in Charlottesville, Virginia.

In addition, this ordnance is consistent with positions taken by the Maryland State Health Department, the D.C. Medical Society, the District of Columbia Tuberculosis Society, Greater Washington Citizens for Clean Air.

In January of this year, the Council of Governments formed an Air Pollution Technical Evaluation Committee. This Committee is composed of some of the leading experts in the country in the fields of industrial engineering, metallurgical engineering, agricultural research, pulmonary diseases and allergies. This committee of non-governmental specialists has strongly endorsed the COG Model Ordinance for the Washington Metropolitan area.

Two of our member jurisdictions, Montgomery County, Maryland, with a population of about 460,000 and Rockville, Maryland, with a population of about 40,000, have already adopted air pollution control ordinances conforming to the provisions of the COG Model.

The City of Falls Church, Virginia, has held a public hearing on a similar ordinance and should adopt the measure in the very near future. The legal staffs of Alexandria, Virginia; Arlington, Virginia and City of Fairfax, Virginia, and Prince George's County, Maryland, are in advance stages of preparing air pollution measures for council or commission consideration.

My own Fairfax County, Virginia, has recently transmitted a strong air pollution ordinance, also based on the COG Model to Virginia State Air Pollution Control Board in Richmond for review and approval. Our Board will schedule public readings and hearings on the bill as soon as the draft is returned. I expect this to be within the next few weeks.

The Council of Governments has expressed keen interest in the air pollution control activities of the federal Department of Health, Education and Welfare. It is the judgment of the elected officials and staff of our Council that local and state governments may see their pollution functions assumed by the Federal government unless they act quickly and wisely. Our Board has so advised our local jurisdictions.

The present and proposed federal legislative efforts in this field, we believe, generally constitute constructive attempts to help clean up the air over America's cities, but they also lay down a direct challenge to state and local governments everywhere. In effect, the Federal government is saying to our local jurisdictions, "put your houses in order, or we'll do it for you."

The local governments of Metropolitan Washington are aware of this possibility and of the seriousness of the air pollution problem in this region. As a member of the Board of a large jurisdiction, I can appreciate the need for the larger cities and counties to adopt effective air pollution ordinances. As an elected official in a suburban jurisdiction, it is clear to me that the central city, in this case the District of Columbia, must have effective air pollution measures to supplement ordinances of suburban governments. And as the President of a metropolitan organization, I realize fully the need for all jurisdictions to take action on this regional problem.

I have been pleased to learn of the amendments to this legislation proposed by Congressman Gude. Since control of air pollution should remain a local function, it is essential that legislation provide local control. Because of this, we strongly favor those amendments which would enable the District of Columbia Government to revise its standards to suit local conditions, just as all other local governments are and must be free to do.

This ability to adapt to local conditions has been a key element in the fact that the ordinance is nearing adoption in our local jurisdictions. We feel that, with this provision, we can endorse this proposed legislation to the degree that it achieves local control while still providing an effective ordinance.

The need for legislation in this field is dramatic. The District of Columbia Medical Society has called air pollution in metropolitan Washington "a matter of urgent public health importance." The U.S. Public Health Service estimates that air pollution causes $11 billion in damage to property every year in this Nation.

In the Washington area, this figure is approximately $110 million. This is $40 every year for every man, woman and child in Metropolitan Washington, a staggering sum to the general public, to the business community and to our cities and counties.

The Council of Governments over the years has called for action to fight this deadly enemy of life and property. We do so again today, Mr. Chairman, in the face of this increasing public urgency. Thank you.

Mr. MULTER. Thank you very much Mr. Babson. Can you make available to us, for our records, the studies you made or a report on the study you've made thus far?

Mr. BABSON. Yes. Dr. Lentz, I think, could make that available. Could you—the results of the studies you made?

Dr. LENTZ. I have been with the Council of Governments for approximately three months now. In the time that I have been there we have discussed some studies of damage to vegetation as a result of pollution in the air. What studies were made prior to my joining the Council of Governments were undoubtedly made as a result of activities concerned with developing the Model Ordinance. I'm talking now of formal studies. In the past three years we have been working closely

with the Public Health Service. We have been collecting data at ten to twelve locations in the vicinity of Washington, D.C. and the surrounding community. These data are in very raw form, I don't really believe they would be of any help to the committee until they have been reviewed. In fact they will be reviewed along with other data being collected by the Public Health Service as part of the abatement action. We can make what we have available certainly. What we have, I do not think, will be of material assistance in the form it is now.

Mr. MULTER. We would like that included in our record; when will your study and your evaluation be completed?

Dr. LENTZ. We hope to have a great deal of it done about the time the abatement action reconvenes, early in the fall.

Mr. MULTER. All right. Have you examined H.R. 12232, which is the bill recommended by the D.C. Commissioners?

Mr. BABSON. Yes.

Mr. MULTER. We would like to have you submit a supplemental statement for the record giving your views as to that, if you would please.

Mr. BABSON. Yes.

(Subsequently the following letter was received for the record:)

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS,
Washington, D.C., August 24, 1967.

HON. ABRAHAM J. MULTER,
Chairman, Subcommittee No. 5, The Committee on the District of Columbia, U.S. House of Representatives, 2185 Rayburn House Office Building, Washington, D.C.

DEAR MR. MULTER: As you requested, I am submitting my comments on H.R. 12232, which is one of two bills pending in the House of Representatives as the District of Columbia Air Pollution Control Act.

H.R. 12232 would authorize and direct the Board of Commissioners of the District of Columbia to prescribe reasonable classifications and regulations in order to preserve, protect and improve the air resources of the District.

In addition to authorizing the Board of Commissioners—and apparently its successors under the President's reorganization plan—to prescribe air pollution regulations, the bill stipulates particular areas in which standards are to be promulgated. It gives the Board of Commissioners authority to establish an administrative office in the District government to implement regulations adopted by the Commissioners.

We agree with the intent of this legislation. However, if this bill rather than H.R. 6981 were passed, I feel that it would further delay the establishment of much needed standards for air pollution control in the region. Therefore, we must reiterate our position that the model legislation adopted by the Council of Governments should be the first step in this direction.

Since it is recognized that any further delay in the establishment of a sound air quality program for the District of Columbia will continue to impede the establishment of a meaningful metropolitan-wide program, we urge your Subcommittee to take affirmative action giving the District of Columbia government the proper legislative authority to participate fully in such a program. Our preference is that the program be based on the Council of Governments' model ordinance, with the understanding that the District Commissioners or their successors have necessary legislative powers to modify this program to suit changing needs and increasing knowledge in the field of air pollution control.

Thank you for the opportunity to comment on this legislation.

Sincerely yours,

FREDERICK A. BABSON, *President.*

Mr. WINN. Several times you referred to the threat to our health and economy. Later you said the U.S. Public Health Service estimates air pollution nationally causes $11 billion worth of damage to property every year. What type of property damage are we talking about?

Mr. BABSON. Dirty curtains is one thing. The dirt in the air is actually harming property. I suppose if I had to have my car washed——

Mr. WINN. Eleven billion dollars worth of dirty curtains?

Mr. BABSON. Having your car washed ten times a year more than you otherwise would if you lived in the country—I suppose there are many ways. This was about a year ago when that figure was given. That figure was given before a committee of Congress. Mr. Wertz is on our staff and is more familiar with this.

Mr. WERTZ (from the audience). That figure is in terms of crop damage, it's in terms of public buildings that would have to be cleaned by sand blasting, it's in terms of corrosion to metal, this type of damage. The eleven billion dollars is the national estimate for this type of damage. It's a rough guideline figure.

Mr. WINN. Wouldn't that be difficult to pinpoint?

Mr. WERTZ. I think you can contribute very easily such type of corrosion and damage to this.

Mr. WINN. I wouldn't disagree. Thank you.

Mr. MULTER. I wonder if you have identified yourself for the record.

Mr. WERTZ. My name is Richard Wertz. I am Director of Public Safety for the Council.

Mr. GUDE. What do you think is the responsibility of Congress, as the governing body for the District of Columbia, as far as the Federal installations here are concerned?

Mr. BABSON. Well, I feel Congress really has a responsibility here to take the lead in this area of air pollution. For example, I would urge that the action be taken quickly so we in the suburbs will know what type of ordinance to adhere to. For example in Fairfax County, we would like to know whether you are going to have the staggered provisions recommended or requested by the oil industry, so we could do likewise if this is deemed appropriate by Congress. Frankly it seems it may be reasonable. We would want to have the same provisions because the air doesn't stop flowing when it crosses a river or crosses a boundary. We do feel Congress should act in this area.

Mr. GUDE. In other words, set the standards, show the way and then let the local governing bodies take over?

Mr. BABSON. Yes.

Mr. MULTER. Thank you. Mr. McGrath.

Mr. WINN. I'd like to commend COG for the work they have done and for their very fine statement.

Mr. MULTER. Mr. Winn is talking for all of us.

Next is Mr. John A. McGrath. Identify yourself for the record, please.

STATEMENT OF JOHN A. McGRATH, EXECUTIVE VICE PRESIDENT, FUELS RESEARCH COUNCIL, INC., WASHINGTON, D.C.

Mr. MCGRATH. My name is John A. McGrath. I am Executive Vice President of Fuels Research Council, Inc., with offices at 1130 17th St. N.W., Washington, D.C. Fuels Research Council is an affiliate of the National Coal Association and as an affiliate of NCA, it speaks for the principal commercial coal producers and sales companies of the nation. In addition several of the major coal hauling railroads are members of Fuels Research.

Although we agree with the basic intent of H.R. 6981, we do not feel it's workable legislation because of the time element Mr. Chairman. I would like to submit my statement for the record but be accorded the privilege of addressing a few remarks to HR 12232 if I may, and just try to be as short as I can.

Mr. MULTER. Certainly your statement will be made part of the record at this point.

(The prepared statement follows.)

STATEMENT OF JOHN A. MCGRATH, EXECUTIVE VICE PRESIDENT OF FUELS RESEARCH COUNCIL, AUGUST 10, 1967

Mr. Chairman and members of the Committee, my name is John A. McGrath. I am Executive Vice President of Fuels Research Council, Inc., with offices at 1130 17th St., N.W., Washington, D.C. Fuels Research Council is an affiliate of the National Coal Association. As an affiliate of NCA, it speaks for the principal commercial coal producers and sales companies of the nation. In addition several of the major coal hauling railroads are members of Fuels Research.

Although we in the coal industry agree with the basic intent of H.R. 6981, we do not feel it is workable legislation. We do believe, however, that a single Air Pollution Control Agency or Board should be established in the District of Columbia. We believe that this agency or board should be empowered to establish and enforce rules and regulations.

Section 5. directs the Commissioners to conduct studies and develop plans for prevention or abatement of air pollution. This is not a job for the Commissioners. They are already heavily burdened with the everyday problems of the District. In addition, they may not be sufficiently technically oriented to pass on regulations dealing with such a complex problem as air pollution, its abatement and control.

It is, we suggest, far better to set up a Board or Agency comprised of people knowledgeable in the field of air pollution. This Board or Agency should, as stated earlier, have the authority to adopt rules and regulations and the power to enforce them. However, interested parties should be accorded a hearing before regulations are promulgated with of course the opportunity afforded aggrieved parties to seek relief in the courts as Section 16 of H.R. 6981 provides.

Because of the many complex factors which must be considered in seeking to improve air quality, it would be most appropriate to have a technical advisory committee to the Board composed of qualified representatives of the public, government and business.

In authorizing any regulation, it is wise to know existing conditions, whether a problem exists, and if so, its dimensions. The Public Health Service is presently conducting a study which it hopes to conclude this fall to try to determine the pollutants in the ambient air, the air we all breathe in the District of Columbia, and their sources.

After this has been determined, the Board could then go forward with proper steps to regulate air pollution in the District. In striving to achieve desired goals of improved air quality it is essential that the regulations be economically and technically feasible. It is therefore essential that a technical advisory committee be established so that the Air Pollution Board or Agency will have at its disposal consensus of opinion from people knowledgeable in all aspects of air pollution.

We have reviewed Senate Bill S. 1941 introduced on June 13, 1967 by Mr. Tydings of Maryland for himself, Mr. Morse and Mr. Spong and referred to the Committee on the District of Columbia. This is the type of legislation which should be enacted. S. 1941 adopts the concept of establishing an Air Pollution Board and an Advisory Committee much along the lines we have outlined above. We respectfully recommend that similar legislation be introduced in the House since we are firmly convinced that the establishment of an Air Pollution Board with strong powers and duties is the best way to cope with control over our environment.

As you know better than I, it is unwise to write specific regulations into law, the better practice is to authorize regulations which can be altered as required to meet changing needs and new technology. Therefore we oppose embedding into law specific regulatory limitations on alleged air pollutants or potential air pollution sources as H.R. 6981 does in its sections 6 through 15. For example,

in Section 9, entitled "Emissions Prohibited," the bill sets forth specific limitations on opacity of plumes from stacks, limits use of fuels to those containing no more than 1% sulfur and contains other restrictive provisions.

Without arguing the merits of these proposals, let me point out that the coal and electric utility industries are spending millions of dollars to develop means to remove sulfur dioxide from stack gases. If we succeed—as we believe we may in a few years—it would be to no avail under H.R. 6981, which limits fuel to 1% sulfur, no matter if the stack gases are entirely free of sulfur. We would have to come back to this committee and ask you to put the law in step with technology.

With me today is Mr. Joseph W. Mullan, Assistant Director, Technical Services Department of the National Coal Association and a Vice President of the Air Pollution Control Association. We are prepared to discuss the specifics of the legislation found in Section 6 through 15 if you wish us to address ourselves to that subject matter.

We respectfully urge, Mr. Chairman, that your Committee not report this bill out of committee. Instead we in the coal industry urge you to consider legislation along the lines of S. 1941. Towards that end we are at the Committee's disposal if you should desire our assistance. We believe in the necessity of clean air leigislation but it must be a workable law with necessary built-in flexibility and fairness to all affected parties.

For the reasons I have given, we do not believe H.R. 6981 would be workable and effective law.

Thank you for the opportunity to appear before you today.

Mr. McGrath. Basically our opposition to H.R. 6981 is because it builds a degree of inflexibility into the law. We feel that HR 12232 sets up a procedure by which the flexibility of change and technology could be more beneficial. It would appear that under Section three, sub-paragraph D–3 of HR 12232, where there is provision for administrative hearing and review procedures that would be sufficiently encompassing to call for judicial review. So that an aggrieved party would have a right after exhausting administrative remedies to go into a court and get review of a ruling which would be adverse to his interests.

Also under Section four, paragraph three, provisions are made for advice and consultation and cooperation with industries. This doesn't specifically spell out an advisory committee as S1941, Senator Tydings Bill does, however, I like to brevity and the clarity of S 12232, if these are what are contemplated. In other words, the parties will be protected by judicial review that an advisory type of committee would be set up. So that the Commissioner now, I guess and his council, would have the technical knowledge of industry people and others knowledgeable in the pollution matter available to them.

I would like to address myself to why we don't feel that HR 6981 is good legislation if you were to conclude that it would be best for Congress to enact the specific standards that must be met. There were some questions this morning regarding what is in existence now. In Chapter eight, Section 6, 801 through 804 of the D.C. Code deals with smoke prevention and Section 801 is the emission of smoke and removal of debris; 802– the Commissioner is to make regulations under that section and section 804 provides for appropriations for enforcement and the enforcement agencies are the Public Health officials and the Police Department and others. So there is existence at the present time, regulations respecting smoke.

Mr. Winn. But what particularly concerns us in the coal industry, and incidentally we supply to the Government approximately forty eight percent of their fuel in the Metropolitan area, I don't know what the percentage relationship is with respect to other consumers, other

than electric utilities and in this case, VEPCO and PEPCO are principally using coal because at the present time it's the most economical fuel. To adopt a blanket endorsement of one percent to me under the present state of the art, is entirely inappropriate.

Yesterday the Surgeon General of the United States testified before the committee which is in session right now, hearing Secretary Gardner, with respect to sulpher oxide, said even though they have issued criteria, criteria on which the so called one percent is based, nevertheless they have subsequently found that the technology has not yet caught up. Nor has there been an evaluation of the economic impact of the imposition of an inflexible one percent limitation. In addition S. 780 calls for a re-evaluation of existing criteria because of the many days of hearings that were held and the testimony that was given before the Senate Committee. It became quite obvious that the information available on which to base the sulpher standards are very nebulous and inconclusive principally because there hasn't been this relationship between the actual specific injury that occurs due to the amount of SO_2 in the air and whether or not it is of sufficient injurious effect that it should be completely wiped out of the atmosphere regardless of cost. So there is a new approach by the Public Health Service as announced by Dr. Steuart, the Surgeon General yesterday that they are re-evaluating; and they are going to look at when technical feasibility is going to catch up. Mr. Gude has made reference to the research and studies that are going on, it calls for tremendous amounts of money to get this research.

With the respect to the profile of the ambient air, that is the air that surrounds us here in Washington, there is not sufficient information which has been made of this to you gentlemen at the present time, as Mr. Griswold testified on the tenth of August. They are conducting studies and they have additional measuring stations so they can get a more meaningful profile of just what the condition of the atmosphere is in the Metropolitan district, and then they will have an abatement proceeding at which time we may then have a proper springboard from which to develop adequate regulations.

Just in conclusion, Mr. Chairman, I think New York City is a perfect example where local law 14 was passed during a time when there was quite a political situation. There was voting time, Councilman Lowe is the author of local law 14. In that law they were talking about how they were going to bear down on Consolidated Edison, they must put in ninety nine percent efficiency precipitators the law also limits incinerator emissions, eight thousand of which had to have scrubbers on them by 1967. And that was the Council passing this legislation. Austin Heller, your Air Pollution Controlman, on May 20th says to the people, well you've got to close down. Your sanitation man says, we can't possibly handle all that garbage and debris.

So when legislative bodies who—and I respectfully represent are not significantly knowledgeable of the techniques and complexity of air pollution—try to write legislation, it puts the whole community in a strait jacket. Therefore I respectfully suggest that HR 12232 be considered but also perhaps it could be expanded to include the provision in S 1941 so there are the sufficient safeguards.

Mr. MULTER. A good question. Is it agreed amongst most people who study the problem and most agencies that the principal air pollutant from burning of fuels is sulphur dioxide?

Mr. McGRATH. No, sir. Let me say this is my opinion. SO_2 is the most easily measurable gas. A man can sit at his desk and he can know the amount of sulphur by weight in a ton of coal. He can then make a mathematical computation and determine how much, after combustion, SO_2 is going to be in it from that stack. He can also assume certain meteorological conditions and topographical conditions that he can mathematically compute, how far that dispersion of the emission will go, and what it is likely to be at ground level. So what they have done, although there are many other gases which go to make up the atmosphere which we breathe indited SO_2 as it happened to be the easiest one to measure. And not only from a mathematical standpoint but also the devices, which we presently have with respect to measuring at ground level, are not very sophisticated devices as yet. They are still not very accurate. However, most of them have been developed to measure SO_2, not some of the others. There are some carbon monoxide measurement facilities, but not many of them. So SO_2 has been picked on, in my opinion, and I think it has been enforced by a critique by a Dr. Negelbaum. Negelbaum wrote a critique of the criteria which is almost equally as long as the criteria itself, in which he said there couldn't be possibly evidence to support the conclusions published by PHS.

So in my opinion they took sulphur because it was the easiest gas or the easiest element to handle to come to some conclusions. They were criticized yesterday for being so slow, but the Senate says you better re-evaluate because we don't like the looks of your criteria at the moment.

Mr. MULTER. Thank you.

Mr. WINN. Do you agree with Mr. Via who said that if the ignition equipment was operated properly there would be "a negligible amount of air pollution.

Mr. McGRATH. From that phase of air pollution, I would say I agree with him to an extent. One, it is of economic benefit to the consumer to burn his fuel in a proper manner. Therefore he gets the most BTUs and the most heat with proper combustion. There is the problem of start up and of cleaning the flu in the boilers where occasionally there will be puffs of smoke for limited periods of time, say three or four minutes duration where nothing would clear it out insofar as burning, burning coal. You are talking about electrostatic percipitators which have efficiencies of ninety nine and a half percent. You are getting out practically everything. But these are terribly expensive pieces of equipment. The only ones who can really afford these are the electric utilities.

Now proper combustion, however, in small installations for the most part can give you fairly clean burning but you have a problem of whether the janitor has proper ventilation in the room. He may have the finest piece of equipment in the world in there and yet he isn't operating the equipment properly by improper ventilation.

Mr. WINN. Would you agree that approximately fifty percent are not properly operated?

Mr. McGRATH. Let me put it this way sir, insofar as coal is concerned our major market here is the utilities and Government. Now both the Federal government and the utilities have of necessity, insisted that there be adequate and proper combustion in the fuel they

use Most of them have indicators on the stack so it would indicate when a dark puff would come out so they could change the ingredients, add more air or remove some of the air, so they would get proper combustion.

It was just a few years ago we worked very closely with the Federal government at one of the installations here in town and came up with more advanced technology so there was better combustion. I would say in these areas, yes there is, and we are talking in the neighborhood of a half million tons of coal in this area. Yes, they are being burned properly. But of course there is the problem of the SO_2 removal. We don't have the answers to that yet. We are working on them hard, when we do get the answers to them we will know the technology, but then applying the actual economics to it is something else again.

Mr. WINN. Thank you very much.

Mr. GUDE. Mr. McGrath, with reference to all of the research that the coal and oil industries are doing you seem unconvinced of the necessity of reasearch. Is it because you are not sure there is a problem?

Mr. MCGRATH. Well I'm not sure there is a problem with SO_2 because it has not been sufficiently—it has not been a sufficient indictment on this other than a very shallow one, in my estimation. Nevertheless there has been terrific pressure because of abatement proceedings on behalf of the Public Health Service throughout the country. If you don't put a regulation setting up a one percent sulphur, the Federal government is going to step in and beat you over the head and make you do it. Because of the hearings that were held before the Senate, it has become quite apparent there is sufficient information as Dr.——

Mr. GUDE. Insufficient informaton?

Mr. MCGRATH. Insufficient information to indict sulphur dioxide as the principle contributor to the determental effects which occur as a result of air pollution. The two gentlemen from England, Mr. Clarke and Mr. Stone, were over here and testified and they talked about deaths in England and how they had been reduced. They said for twenty years the studies in England have been going on to try to indict sulphur dioxide as the culprit and they have failed to do so. It's this type of thing. Nevertheless the cause of precipitous action like Montgomery County, of which I am a resident, suddenly there is a one percent limitation in Montgomery County and there is Dickerson Plant way out there in the far northwest corner of Montgomery County without hardly any residents around, no complaints, and all of a sudden they are faced with the burden of one percent sulphur coal.

Mr. MULTER. We will have to suspend sir. We are being called to

Mr. MULTER. You will have to suspend sir. We are being called to the House Chamber.

Mr. MCGRATH. I'm sorry.

Mr. GUDE. The claim has been made that farm crops are being damaged by sulphur dioxide.

Mr. MCGRATH. There has been no showing.

Mr. MULTER. I suggest you submit a list of questions to Mr. McGrath and let him answer them for the record.

Mr. GUDE. We have two additonal witnesses that have not submitted statements.

Mr. MULTER. I think we ought to ask them to do that. Mr. Coulter may submit a statement. We have other witnesses that want to be

heard but obviously time has run out. We will ask them please to submit their statements for the record. We will add them to the record when they come in. We will keep the record open for additonal data for at least ten days, before we close the record.

The Committee will stand in recess subject to the call of the Chair.

(Whereupon, at 12:25 o'clock p.m. the Committee adjourned subject to the call of the Chair.)

(Subsequently, the following statements and letters were filed for the record:)

WASHINGTON, D.C., *May 17, 1967.*

Hon. B. F. SISK,
U.S. House of Representatives,
Rayburn Building, Washington, D.C.:

The Committee of 100 on the Federal City endorses H.R. 6981, the proposed bill for prevention, abatement, and control of air pollution in the District of Columbia. Such legislation is basic to an effective program to safeguard the health of Washington area residents and preserve the appearance and livability of the National Capital. It is respectfully requested that this statement be included inthe official record of the current hearings.

DAVID SANDERS CLARK,
Chairman, Air and Water Pollution Subcommittee.

WASHINGTON, D.C., *April 14, 1967.*

Hon. JOHN MCMILLAN,
Chairman, D.C. Committee,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN MCMILLAN: As a citizen of the District of Columbia, I wish to thank you for your interest and efforts in behalf of the city.

At the moment, I am most concerned about air pollution. I strongly urge that public hearings be held on proposed legislation in the field, so that facts may be brought out in the open and acted upon.

People are already being adversely affected by the conditions of our air. It is my belief that everyone, statesmen, businessmen and private citizens must begin to work together to solve this problem, before we are confronted by real tragedy.

Thank you for any thing you may do.

Sincerely,

(MRS.) GLADYS F. LOWREY.

ROCKVILLE, MD., *April 15, 1967.*

Subject: Air Pollution Bill

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
House of Representatives,
Washington, D.C.

DEAR SIR: On many days it is alarmingly obvious that the District of Columbia desperately needs adequate air pollution control legislation immediately. Clear days when landmarks may be seen for miles are a joy, appreciated increasingly because of the many days when a film of smog hangs heavy.

"Let's Get Going On Air Pollution Control", pp. 3–5, BULLETIN, NATIONAL TUBERCULOSIS ASSOCIATION, March, 1967, is only one of a multitude of articles protesting the apathy, ignorance and unconcern that prevent proper legislation. We are aware that powerful, self-interest groups exert pressure, hoping to delay what must be done if people are to escape suffering needless death and sickness from pollution. The evidence is too great to be ignored, and once one has watched a relative die in agony from a disease associated with air pollution, a person no longer could possibly want to ignore mounds of research evidence.

Please conduct public hearings so that legislation such as that proposed by Congressman Gude can be enacted.

Yours very truly,

(MRS.) PATRICIA DOWNES.

WASHINGTON, D.C., *April 29, 1967.*

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
House of Representatives,
Washington, D.C.

DEAR SIR: As responsible citizens of this country we should all be fully aware of and well informed in the problems that modern civilization has provided us with, not the least of which is the air pollution which is a blight on city living, and I wonder at the increasing number of asthmatic and allergic children that I find in my classes, if in part it might not be due to the pollution.

I want you to know that I support Congressman Gude's bill and believe it imperative that public hearings be held on such important legislation.

Thank you.

Yours truly,

MARIE S. CONTRERAS
Mrs. B. R. Contreras.

BETHESDA, MD., *May 10, 1967.*

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
Washington, D.C.

DEAR SIR: The members of The Woman's Club of Bethesda are keenly interested in Air Pollution Control. We urge you to schedule public hearings on the House of Representatives Air Pollution Act, H.R. 6981 at your earliest opportunity.

Yours truly,

EATHOL W. ALLEN, *President.*

EASTLANDS GARDENS CIVIC ASSOCIATION,
Washington, D.C., May 16, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: The Eastland Gardens Civic Association has voted to urge your committee to hold public hearings on H.R. 6981, a bill introduced by Mr. Gude, 8th District, Maryland, to provide for the prevention, abatement, and control of air pollution in the District of Columbia. Should hearings be held it is requested that our organization be permitted to express its views at these hearings.

We favor this progressive legislation; our interest is more than casual in that our association's boundries are contiguous with a part of those of the Kenilworth Dump, the dump being a well known major source of air pollution in the District of Columbia Metropolitan area.

We as citizens urge the closing of Kenilworth Dump since it needlessly adversely affects the lives of all of us, particularly the inhabitants of the District of Columbia and Maryland and those others that have business to attend to in the area.

It is our opinion that H.R. 6981 should be enacted into law as a vital piece of legislation designed for the protection of *all* people and living things in the Metropolitan area.

Respectfully submitted.

WILBUR C. GOODWIN, *President.*

THE SILVER SPRING WOMAN'S CLUB, INC.,
Silver Spring, Md., June 14, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, D.C. Committee,
House of Representatives, Washington, D.C.

DEAR SIR: The Board of Directors of the Silver Spring Woman's Club voted to request that public hearings be held on Air Pollution Bill HR 6981.

I present this request to you, with a copy to Congressman Gilbert Gude.

This important matter is the concern of many club women, who wish to keep informed of progress made and actions contemplated.

Sincerely,

MRS. G. E. MURCH,
Corresponding Secretary.

KINGMAN PARK CIVIC ASSOCIATION,
Washington, D.C., June 24, 1967.

Hon. JOHN L. MCMILLAN,
Chairman, District of Columbia Committee,
House of Representatives, Washington, D.C.

DEAR SIR: The members of the Kingman Park Civic Association are deeply concerned about air pollution in the District of Columbia. They have had first hand knowledge of the problem.

At the last regular monthly meeting, our Association voted to go on record as being in support of the bill introduced by Representative Gilbert Gude of Maryland.

The bill, H.R. 6981, provides for the prevention, abatement and control of air pollution in the District of Columbia.

Polluted air is a serious menace to the health of many individuals. That fact alone should be sufficient to warrant drastic controls for the air pollution.

Yours sincerely,

ROBERT REID,
President, Kingman Park Civic Association.

WASHINGTON, D.C., *August 19, 1967.*

Hon. JOHN L. MCMILLAN,
Chairman, Committee on the District of Columbia,
House of Representatives, Washington, D.C.

DEAR MR. MCMILLAN: As control of air pollution in the National Capital area is one of our major current objectives, the COMMITTEE OF 100 ON THE FEDERAL CITY would greatly appreciate having the attached statement included in the printed record of your hearings on H.R. 6981 and H.R. 12232.

Respectfully yours,

DAVID SANDERS CLARK,
Chairman, Subcommittee on Air and Water Pollution,
Committee on 100 on the Federal City.

STATEMENT ON H.R. 6981 AND H.R. 12232, BILLS TO PROVIDE FOR THE PREVENTION, ABATEMENT AND CONTROL OF AIR POLLUTION IN THE DISTRICT OF COLUMBIA

AUGUST 19, 1967.

The Committee of 100 on the Federal City urges prompt enactment of H.R. 6981 as an essential first step toward prevention and control of air pollution in the Washington area. We find it appalling that among 65 major metropolitan areas studied by the Public Health Service, Washington ranks 6th in the amount of sulfur dioxide in the air from burning coal and heavy oils, 13th in carbon monoxide, nitrogen oxide, and hydrocarbon from gasoline, and 18th in general severity of air pollution.

As residents of the District of Columbia and nearby Maryland and Virginia, our members are acutely aware that air pollution is a regional problem. Efforts to clean up the air over the National Capital will not be truly effective until regulations are enacted for the District of Columbia which are compatible with those adopted by Montgomery County, Maryland, and now under consideration in other adjoining jurisdictions. H.R. 6981 meets the requirements for compatability.

The bill further merits approval because it establishes definite standards limiting emissions from fuel-burning equipment, incinerators, and motor vehicles, and sets dates by which these standards must be met.

H.R. 12232, which merely authorizes the District Commissioners to take air pollution control measures, but requires no positive action on their part, would, in our judgment, be quite ineffective.

STATEMENT BY DR. HAROLD SILVER ON WHAT AIR POLLUTION MEANS IN THE DISTRICT OF COLUMBIA

My name is Harold M. Silver. I am a physician who has been active in Pulmonary Disease from the standpoint of research, teaching, and, most important, patient care, for more than ten years. I am Associate Clinical Professor of Medicine and Director of the Pulmonary Research Laboratory at the George Wash-

ington University School of Medicine. I am a charter member of the D.C. Thoracic Society and a member of the Board of the District of Columbia Tuberculosis Association.

As one who takes care of patients with emphysema, bronchitis and asthma, I am deeply concerned about our air pollution, as it relates to the well being and even survival of these people. The high level of atmospheric pollution in the Washington area constitutes a potentially explosive situation to which these patients are hostage. Current levels of air pollution may well aggravate the disease which these patients have, and are probably a contributing factor to the development of chest diseases in people who are still well.

Perhaps more important and certainly more alarming is the real risk of a major air pollution disaster which could cause hundreds of deaths and hospitalizations here in this area. Such catastrophies have occurred in New York, London, and Donora. and with certain weather conditions could occur here.

This situation is particularly unhappy and frustrating because the individual doctor and patient have no control over it. It differs from the personal form of air pollution, cigarette, smoking, where the physician's firm advice and the patient's resolution can control it instantly and completely. To control atmospheric air pollution, community action in this entire geographic area is required. Only through community activity can this clear and substantial danger to the public health be improved, and people spared the possible anguish of an air pollution disaster.

There is already ample knowledge for some action. We know that most harmful substances such as sulfur dioxide result from the combustion of fuels such as happens in open burning of garbage, and the use of coal, gasoline, and fuel oil. By putting an immediate stop to open burning, and by furthering the use of energy forms which minimize air pollution, this committee could take prompt positive action. By furthering electric mass transportation and by requiring devices on automobiles which reduce their discharge of pollutants, this committee could have an important impact on the problem now.

There is, however, a need for more research as well as for immediate action. Means must be developed for purifying air in the home, in the work situation, and possibly even in the streets. Research is required to study the long term effects of air pollution on the development and progression of obstructive lung disease. I have personally done research in the field of early recognition of these diseases and similar surveys in areas of high and low air pollution could be very valuable. I have also done research on the progression of these diseases in each individual patient and similar work in areas of high and lower air pollution could well reveal the exact quantitative effect of air pollution on the natural history of these diseases.

Careful study of the proposed HR–6981 indicates that this offers promise for decreasing air pollution in the District of Columbia and therefore it earns my enthusiastic support.

HAROLD M. SILVER, M.D.

MAY 29, 1967.

[Editorial from Washington Evening Star, August 13, 1967]

POISONED ATMOSPHERE

The evidence continues to pile up on Washington's contaminated air. A few days ago the Public Health Service reported that the city ranks 18th in the nation in severity of air pollution. Its atmosphere is exceedingly high in sulfur dioxide from the burning of coal and heavy oils, and ranks 13th in gasoline consumption, a source of deadly carbon monoxide.

Now additional testimony has been heard by a House District subcommittee. Dr. Jason Geiger, specialist in respiratory ailments, reported his caseload at Washington Hospital Center clinic goes up when air pollution levels are heavy. Assistant Surgeon General Vernon MacKenzie pointed out that the area's auto density is one of the highest in the nation. And Dr. Murray Grant, District health director, noting that carbon monoxide and sulphur dioxide are "totally uncontrolled" under persent city law, warned that an "air pollution disaster" could occur here.

Can anything be done before such a calamity takes place? A bill introduced by Representative Gilbert Gude of Maryland at least offers one approach. It would require the District government to appoint an air pollution control agency, bringing all regulation under one roof, and would set minimum standards for pollu-

tion control. A flexible act, it would permit one-year exemptions in cases where violators would suffer "unreasonable hardships."

Other areas such as the New York-New Jersey region and the State of California have moved ahead with much more detailed plans for air pollution controls. It is time Washington recognized that the absence of steel mills or oil refineries here does not mean its atmosphere is or will remain safe to breathe.

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