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H. E. MOSES  
Vice-Chairman

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Past-Chairman

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State Health Commissioner

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Technical Secretary  
Stream Pollution Control Board
JOSEPH L. QUINN, JR.  
The Hulman Company

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Director of Public Health
CLARENCE W. KLASSEN  
Chief Sanitary Engineer
W. H. WISELY  
Champaign, Illinois

KENTUCKY
BRUCE UNDERWOOD, M.D.  
State Health Commissioner
EARL WALLACE  
Division of Game and Fish
HENRY WARD  
Commissioner of Conservation

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MARTIN F. HILFGINGER  
President, Associated Industries  
of New York State, Incorporated
HERMAN E. HILGEROE, M.D.  
State Health Commissioner
CHARLES B. McCABE  
Publisher, New York Mirror

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Terrace Park, Ohio

KENNETH M. LLOYD
Executive Secretary  
Mahoning Valley Industrial Council
JOHN D. PORTERFIELD, M.D.  
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Consulting Chief Engineer
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Secretary of Health

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Commissioner, Water Control Board
ROSS H. WALKER  
Commissioner, Water Control Board

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State Health Commissioner
W. W. JENNINGS  
State Water Commission
ROBERT F. ROCHLEAU  
Executive Secretary-Engineer  
State Water Commission

UNITED STATES GOVERNMENT
O. LLOYD MEEHAN  
Fish and Wildlife Service

LEGAL COUNSEL
LEONARD A. SCHEELE, M.D.  
Surgeon-General  
Public Health Service

Treasurer
ROBERT K. HORTON

Edward J. Cleary, Executive Director and Chief Engineer  
ROBERT K. HORTON, Sanitary Engineer
JOHN E. KINNEY, Sanitary Engineer
WILLIAM R. TAYLOR, Chemical Engineer
ELMER C. ROHMILLER, Staff Assistant
E. PHILIP BAKER, Jr., Asst. Sanitary Engineer
HAROLD W. STREETER, Consultant

SECRETARIES:
VERNA B. BALLMAN, CAROL A. CORBLY, ANNABELLA L. KIMSEY
ESTHER V. LAAKER, HENRIETTA R. ROTHERT

HEADQUARTERS: 414 WALNUT STREET • CINCINNATI 2, OHIO
4th ANNUAL REPORT

to the Governors of
ILLINOIS
INDIANA
KENTUCKY
NEW YORK
OHIO
PENNSYLVANIA
VIRGINIA
WEST VIRGINIA

OHIO RIVER VALLEY WATER SANITATION COMMISSION
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To the Chairman and
Members of the Commission

In accordance with your wishes, this report on program and
progress has been prepared for the governors of the states
signatory to the Ohio River Valley Water Sanitation Compact.

The content and presentation have been designed to show in
simplified form the relationship of the many and varied
elements that comprise the conduct of our regional pollution-
abatement campaign. In addition, accomplishments have been
matched against the goals sought in order to convey a
picture of how far we have gone and what yet remains to be
done.

It is gratifying to record the names of many people repre-
senting public agencies and private enterprise who are
lending their aid to the advancement of the Commission's
task. In this connection your attention is invited to the
listing of the industrial and advisory committees.

Respectfully submitted

Edward J. Cleary

November 15, 1952
Pattern for Coordination

Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia are joined by a compact to control water pollution in the Ohio River district. They operate through a commission on which sit three representatives from each state, appointed by the governor of the state, and three federal representatives, appointed by the President of the United States. The Commission is non-partisan and commissioners serve without compensation. Operating funds are provided by the signatory states on the basis of area and population within the compact district.

To carry out its assigned task of adopting and enforcing regulations for control of interstate pollution the Commission coordinates and supplements the water-pollution control operations underway in the eight states. To this end Commission activities are designed to reflect the attitudes of state regulatory agencies and to integrate information on water use and conservation from a host of sources and interests.

Thus, the Commission is involved with many relationships. Some of these are charted on the opposite page, which shows how:

* Representatives of eight states and the federal government form a corporate body known as the Ohio River Valley Water Sanitation Commission.

* The Commission conducts its business through internal committees and an executive director.

* Execution of Commission activities is secured through a technical staff whose operations are supplemented by:
  - Research and advisory groups sponsored by the Commission, and
  - Industry-action advisory committees voluntarily organized to assist the Commission.

* Contacts with municipalities and industries are maintained directly through state water-control regulatory agencies, except for the conduct of public hearings.
Program necessities of the Ohio River Valley Water Sanitation Commission are set forth in the compact adopted by the eight states. Here we find both the broad outline of the job to be done and certain specific requirements. In addition, the commissioners define through policy statement and directives the manner in which the program is to be executed.
What must be done

In broad terms the Commission's responsibility is to place and maintain the waters of the Ohio River basin in a condition so that they are . . .

1 available for safe and satisfactory use as public and industrial water supplies after reasonable treatment,
2 suitable for recreational usage,
3 capable of maintaining fish and other aquatic life,
4 free from unsightly or malodorous nuisances due to floating solids or sludge deposits, and
5 adaptable to such other uses as may be legitimate.

More specifically, a floor is established calling for minimum treatment of all sewage. The compact also recognizes that no single standard for treatment of sewage or industrial waste is applicable in all parts of the district, and in some cases a higher degree may be necessary. The guiding principle of the compact is that pollution originating within one signatory state shall not injuriously affect the various uses of the interstate waters.

Further, the compact instructs the Commission to "consult with and advise the various States, communities, municipalities, corporations, persons or other entities with regard to particular problems connected with the pollution of waters . . . ."

Finally, the Commission is empowered with legal authority to insure remedial action.

How the job is being tackled

To carry out the requirements of the compact and accomplish its purpose, activities of the Commission fall into three broad tasks:

TASK I — Establishing criteria of water-quality

First it is necessary to ascertain what substances are present in the waters. Then each substance must be studied to determine the maximum concentration that can be tolerated without deleterious effect, beyond which the water is unsuitable for certain uses. Uniform methods of testing polluting substances, particularly industrial wastes, must be established.

TASK II — Establishing control regulations

Comprehensive investigations relating to pollution loads, stream characteristics and water uses must be made, on the basis of which recommendations for control are drafted.

When it is found necessary to prescribe a standard higher than the minimum required by the compact, or to specify treatment for industrial wastes, a public hearing must be held to validate Commission findings and to give all those affected an opportunity to be heard. After weighing this evidence the Commission adopts a regulation.

TASK III — Securing compliance

Securing compliance with Commission regulations by municipalities and industries is a pledged responsibility of the state agencies. Educational activities and persuasion precede formal action by the states for local compliance. The Compact provides for ultimate action by the Commission when and if this should become necessary.
As the agency representing eight states and with the responsibility for decisions affecting the interests of millions of people and hundreds of industries, the Commission seeks and receives advice from numerous sources. The Commission acknowledges with pride and satisfaction the talents and resources that have been so generously made available in aiding its deliberations and promoting its work. Among the principal groups collaborating with the Commission are:

**STATE WATER POLLUTION CONTROL AGENCIES**—who deal directly with municipalities and industries in their respective areas in promoting and enforcing pollution abatement. Their records, surveys and long-time familiarity with conditions in the Ohio River valley provide the base on which has been erected the Commission structure.

**U. S. PUBLIC HEALTH SERVICE**—is represented on the Commission by the Surgeon-General, through appointment by the President of the United States. In addition, through its Division of Water Pollution Control and under provisions of Public Law 845, the Service has made financial grants available to the Commission for the conduct of industrial waste surveys and research. Also, through the laboratory of the Environmental Health Center at Cincinnati, many specialized services and opportunities for consultation are available to the Commission.

**U. S. CORPS OF ENGINEERS**—is represented on the Commission through a member of its Ohio River Division staff, by appointment of the President of the United States. Division and district offices of the Corps provide maps, data and other services relating to its extensive operations on river regulation. Flood control and navigation facilities planned, built and operated by the Corps bear an intimate relationship to pollution-control measures.

**U. S. FISH AND WILDLIFE SERVICE**—is represented on the Commission by the chief of the Branch of Game-fish and Hatcher, Fish and Wildlife Service, through appointment by the President of the United States. This representation makes available a specialized viewpoint on conservation matters relating to aquatic life.

**ENGINEERING COMMITTEE**—is a technical advisory arm of the Commission. Each of the signatory states is represented in this group by a person responsible for water-pollution control activities in his state. Here the engineering aspects of problems are reviewed so that recommendations can be made to aid the Commission in evaluating various proposals.
INDUSTRY-ACTION COMMITTEES — are the culmination of a desire on the part of the Commission to enlist industrial participation in the conduct of a program of regional pollution control. It reflects a Commission philosophy that local interests who have a stake in the region should have an opportunity to assume responsibility for guiding development of the program in the public interest. Thus far seven generic industry groups have allied themselves with the program at the invitation of the Commission. Four committees representing the steel, metal-finishing, chemical salts and distillery industries have been organized for more than two years. A bituminous coal advisory group was activated last year and within recent months an oil refinery committee and one representing organic-chemical manufacturers have been formed. Work programs of each committee are coordinated by a member of the Commission staff. Additional liaison in some cases is also achieved by delegation of a commissioner to sit in on committee meetings and through attendance of industry-committee representatives at meetings of the Commission and its Engineering Committee. Committees and their membership are listed on pages 17, 18 and 19.

WATER USERS COMMITTEE — includes the managers of municipal and industrial water-treatment plants that draw on the Ohio River for their supply. Their experience in preparing water for domestic consumption and industrial processes provides the Commission with the counsel of a group uniquely qualified to pass judgment on water quality. As a voluntary contribution they supply regular analyses of the water at various locations on the Ohio River and thus perform an invaluable service for monitoring and control purposes. See page 19 for names of participants.

AQUATIC-LIFE ADVISORY COMMITTEE — is a group of nationally recognized experts who were invited and volunteered to study conditions in the Ohio River valley and make recommendations for maintaining aquatic life. Their reports aid the Commission in drafting water-quality criteria. Members are listed on page 19.

U. S. COAST GUARD — with responsibility for control of oil pollution under federal statute, and in its regular patrolling of the river to insure protection of life and property, maintains liaison with the Commission. This activity is guided by Captain C. W. Thomas, St. Louis, and Commander Samuel G. Guill, Cincinnati.

KETTERING LABORATORY OF APPLIED PHYSIOLOGY — is under contract with the Commission for the evaluation of information on the potential toxicity to man and animals of substances that may be found in water, with particular reference to industrial wastes. Recommendations are made to aid in the establishment of water-quality regulations. The National Cash Register Co., a member of the Metal-Finishing Industry Action Committee, has assigned a full-time staff member to aid in this research and the Steel Industry Action Committee is making plans for similar participation. Dr. Jules S. Cass of Kettering Laboratory is project director.

LEHIGH UNIVERSITY — is under contract with the Commission for the development of analytical methods to measure the polluting effects of certain metal-finishing wastes. Members of the metal-finishing and steel industry action committees are field-testing these methods in order to insure their practical application. Dr. Earl Serfass of Lehigh University is project director.

MELLON INSTITUTE — is under joint contract with the Commission, the Bituminous Coal Industry Advisory Committee of the Commission and the Pennsylvania Sanitary Water Board for the conduct of research in the control of mine-acid drainage. Dr. S. A. Braley of Mellon Institute directs this work.
Task 1...DEVELOPING WATER-QUALITY CRITERIA

The role of the Commission is broadly stated in the compact to make the waters of the district “satisfactory,” “suitable” or “adaptable” to certain uses. A primary task of the Commission, therefore, is to define these conditions in more precise terms. In other words, the task is to determine what substances are present in the waters and in what ranges of concentration these substances would affect the suitability of water for drinking supplies, industrial needs, recreational purposes and maintenance of aquatic life. How this is being done by sponsorship of research and enlisting the talents of Commission industry and advisory committees is shown below.

TOXICITY LEVEL EVALUATION
Kettering Laboratory
Aquatic-Life Committee
Industry Committees

Evaluation of effects of all substances in water to determine those that are toxic to man and animals and in what concentration they can be tolerated without harmful effect.

QUALITY RELATED TO USE
Water Users Committee
Industry Committees
Aquatic-Life Committee

Determination of the detrimental effects of wastes discharged to streams on water supply operations, industrial processing, aquatic life, recreation and other legitimate uses.

TECHNIQUE AND ECONOMY OF CONTROL
Industry Committees
Water Users Committee

Considerations relating to the methods and costs of corrective measures, and the means for measuring performance.

REPORTS REVIEWED BY
ENGINEERING COMMITTEE
WITH RECOMMENDATIONS
TO THE COMMISSION
FOR ESTABLISHMENT OF
WATER-QUALITY CRITERIA
WHAT STEPS ARE TAKEN

STAFF INVESTIGATIONS are made of pollution conditions, on the basis of which a report is written setting forth the facts, an interpretation of what they mean and recommendations for corrective measures.

PUBLIC HEARINGS are conducted on the recommendations during which opportunity is afforded to all interested parties to submit testimony for or against the findings.

ADOPTION OF REQUIREMENTS by the Commission follows critical evaluation by a hearing board of all the findings and testimony.

FORMAL NOTICES for compliance based on lists supplied by state agencies, are issued to municipalities and industries in the area affected.

The map shows what parts of the interstate rivers in the Ohio Valley area are in what status of cities on the Ohio River.

ILL.
Determination of waste-treatment requirements for interstate rivers, or specified sections of such rivers, involves four steps of procedure designed to satisfy technical and legal considerations. These steps and the order in which they follow are shown below.
BACTERIAL LIMITS — have been defined with relation to water for drinking and for recreational purposes (see report Bacterial-Quality Objectives for the Ohio River.) Findings were applied in the regulation setting forth treatment requirements for the Huntington-Cincinnati stretch of the Ohio River.

PHENOL LIMITS — The steel industry committee is compiling two reports on the extent of phenol wastes and measures for removal. Research sponsored by the Commission and subsidized by industry has shown that three methods of chemical oxidation treatment can be used to reduce phenols (see report Phenol Wastes Treatment by Chemical Oxidation.) The water users committee is monitoring the Ohio River three times weekly to establish relationship between phenols and threshold tastes and odors. The oil industry committee is defining its phenol-waste problem. The engineering committee is evaluating data with industry cognizance preparatory to making recommendations for adoption by the Commission on limits, treatment capabilities and application of regulations.

POLIO AND CYANIDE POISONING — a special report from Kettering Laboratory revealed that there is no relationship between symptomatology of poliomyelitis and cyanide poisoning. Questions were raised about this possibility because trace amounts of cyanide may appear in streams used for water supply. (See Engineering News-Record, April 3, 1952, p. 76)

FLUORIDE LIMIT — Evaluation of public-health aspects of fluoride in water evaluated by Kettering and report made on recommendations for maximum permissible concentration in streams. Report is in hands of members of industry and other advisory committees, as well as the engineering committee, for discussion.

LEAD LIMIT — Kettering, with the aid of the metal-finishing and steel industry committees, is compiling all known information on toxicity to man and animals of substances in water. Evaluation and recommendation is expected by the end of 1952.

COPPER LIMIT — same status as lead report.

CHLORIDES — data on physiological effects are being assembled by Kettering. The Commission has completed investigation of effect of wastes on a heavily polluted stream. (See report Brine Contamination in the Muskingum River.) The chemical-salts committee and other industry groups are reporting on economic considerations.

DISSOLVED-OXYGEN LIMIT — The aquatic-life committee is preparing recommendations in relation to aquatic-life requirements.

OTHER SUBSTANCES — Kettering has compiled a list of some 190 elements or compounds found in industrial wastes entering the Ohio River. Depending on importance of the waste — in terms of potential toxicity and quantity — priorities have been assigned for evaluation studies with the aid of industry committees.
CONTROL REGULATIONS

2 have been completed and are underway of the valley compact district. The circles show in meeting their obligation for sewage treat

HOW FAR THE JOB IS DONE

ALL STEPS have been taken on 182 miles of the 981 in Ohio River.

INVESTIGATIONS PARTLY completed on 301 miles.

INVESTIGATIONS COMPLETED on 130 miles of the Wabash River.

MUNICIPAL TREATMENT STATUS

<table>
<thead>
<tr>
<th>Cities</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment provided</td>
<td>357</td>
</tr>
<tr>
<td>Construction stage</td>
<td>26</td>
</tr>
<tr>
<td>No treatment</td>
<td>970</td>
</tr>
</tbody>
</table>

INDUSTRIAL WASTE CONTROL

| Plants in operation | 693 |
| Under construction | 42 |
| Plans in preparation | 150 |
| Requiring attention | 385 |
CONTROL REGULATIONS

Two have been completed and are underway on the
alley compact district. The circles show the
in meeting their obligation for sewage treatment.

LEGEND
- TREATMENT PROVIDED
- CONSTRUCTION STAGE
- NO TREATMENT

INVESTIGATIONS, REPORT AND
RECOMMENDATIONS

INVESTIGATION COMPLETE
HEARING HELD
REQUIREMENT ADOPTED
NOTICES ISSUED

(Cincinnati and
6 adjacent
communities)

(Northern Kentucky
Sanitation District
serving 16 communities)
Task 3...SECURING COMPLIANCE

Securing compliance with Commission regulations by municipalities and industries is a pledged responsibility of the state agencies. However, the Commission engages in educational activities and other methods of persuasion to promote local action. Should state efforts prove ineffective, the Commission may take direct action.

EDUCATIONAL AND PROMOTIONAL EFFORTS
Conducted by the commission supplement . . . . . . .

DIRECT ACTION BY STATE CONTROL AGENCIES
...For enforcement of commission requirements and

where necessary

APPLICATION OF LEGAL RESTRAINTS
Obtained in the courts by the commission

★
WHAT HAS BEEN DONE

DIRECT ACTION BY STATE CONTROL AGENCIES
★ Through existing agencies or new agencies created since establishment of the Ohio River Compact, enforcement measures have been strengthened and accelerated in the eight signatory states.
★ Uniformity of legislation and application of regulations have been brought closer to realization.

EDUCATIONAL AND PROMOTIONAL EFFORTS
On the municipal front . . .
★ Commission has developed community-action campaign material for use in municipalities. This includes fact sheets, speech outlines, proclamations, resolutions, news releases, program outlines for radio and television presentations, slogan cards, booklets and films.
★ Exhibit material is available for cities and state fairs.
★ A handbook has been published for the use of city councilmen on financial procedures, securing engineering aid and legislative requirements.
★ Speeches, newspaper and magazine articles create public understanding and support for pollution abatement.

On the industrial front . . .
★ Committees representing seven generic industries are defining the extent of their waste-control problems, assembling information on corrective measures and participating in the development of water-quality criteria. Through preparation of manuals of practice (see page 24) the benefits of committee findings are being made available throughout the Ohio Valley.

LEGAL COMPULSION
★ No signatory state has found it necessary thus far to request the Commission to institute any legal action.
★ Commission is issuing notices for compliance where requirements have been established on the Ohio River to all communities and industries. These notices and periodic reports on progress toward compliance will constitute part of the formal record for such legal action as the Commission eventually may find necessary.
FOR THE RECORD

E. Blackburn Moore, chairman of the Commission for the year 1952-1953, brings to this office a broad background of legislative experience, as well as a practical knowledge of water pollution control problems. He has been a member of the Virginia Legislature since 1933 and for the past several years has served as speaker of the House of Delegates for that Commonwealth. He is chairman of the Virginia Water Pollution Control Board.

In addition to his leadership in governmental affairs, Mr. Moore enjoys a wide reputation as an apple grower and is president of the National Apple Institute. It was the fouled condition of the Shenandoah River flowing through his orchards that first aroused his interest in a state anti-pollution law, which he now administers.

COMMITTEE ASSIGNMENTS
(for year ending June 30, 1953)

Engineering
H. E. Moses, Chairman
Earl Devendorf
F. C. Dugan
Clarence W. Klassen
Edgar Landenberger
Maurice LeBosquet
O. Lloyd Meekin
Richard Messer
Blucher A. Poole
Robert F. Rocheleau
W. W. Towne
F. H. Waring

Executive Committee
Chairman — E. Blackburn Moore
Vice Chairman — H. E. Moses
Past Chairman — Clarence W. Klassen
Illinois — W. H. Wisely
Indiana — Joseph L. Quinn, Jr.
Kentucky — Henry Ward
New York — Martin F. Hilfinger
Ohio — John D. Porterfield
Pennsylvania — E. A. Holbrook
Virginia — T. Brady Saunders
West Virginia — W. W. Jennings
Federal — Robert G. West

Finance
Blucher A. Poole, Chairman
W. W. Jennings
Kenneth M. Lloyd
Henry Ward

Interstate Relations
Hudson Biery, Chairman
W. W. Jennings
Henry Ward
Ross H. Walker

Pension Trust
John D. Porterfield
Ross H. Walker
Robert K. Horton

Audit
Ross H. Walker, Chairman
Earl Wallace
L. E. Burney

By-Laws
Clarence W. Klassen, Chairman
Hudson Biery
Henry Ward

IN MEMORIAM

With profound sorrow the Ohio River Valley Water Sanitation Commission records the death on May 2, 1952, of Commissioner J. J. Woltmann of Illinois. During his more than three years of service, Mr. Woltmann’s sound counsel and his conscientious attendance at virtually every meeting of the Commission reflected great credit on him, the State of Illinois and the compact commission. With the sense of our loss is mingled deep sympathy for the members of his family. (This resolution passed at the quarterly meeting of the commission on July 2, 1952)
INDUSTRY-ACTION AND ADVISORY COMMITTEES

STEEL INDUSTRY COMMITTEE

C. W. Weesner, Consulting Metallurgical Engineer
SHARON STEEL CORPORATION
Chairman of the Committee

Grant A. Pettit, Industrial Waste Engineer
ARMCO STEEL CORPORATION
Co-chairman of the committee
Chairman, Subcommittee on By-Product Coke-plant Effluents

R. F. Pullen, Fuel Engineer
BETHLEHEM STEEL COMPANY
Chairman, Subcommittee on Settleable Solids Disposal

G. M. Drehser, Chemical Engineer
JONES AND LAUGHLIN STEEL COMPANY

R. H. Ferguson, Assistant Director of Industrial Relations
REPUBLIC STEEL CORPORATION

Ralph Drews, Metallurgist
REPUBLIC STEEL CORPORATION
Chairman, Subcommittee on Coating and Plating Wastes

Earl Smith, Chief Metallurgist
REPUBLIC STEEL CORPORATION

G. A. Howell, Assistant Chief Engineer
U. S. STEEL CORPORATION
Chairman, Subcommittee on Water Quality

C. A. Bishop, Research Associate
Research and Development
U. S. STEEL CORPORATION
Chairman, Subcommittee on Acid Pickle Liquor

J. S. Williamson, Vice-President
WEIRTON STEEL COMPANY

Joseph Sample, Chief Chemist
WEIRTON STEEL COMPANY

J. H. Strassburger, Manager
Department of Service and Maintenance
WEIRTON STEEL COMPANY

H. A. Stobbs, Special Engineer
WHEELING STEEL CORPORATION

P. S. Snyder, District Engineer
YOUNGSTOWN SHEET AND TUBE COMPANY

B. A. Poole
Commission liaison member

J. E. Kinney
Committee coordinator

METAL-FINISHING COMMITTEE

R. G. Chollar, Director of Research
NATIONAL CASH REGISTER COMPANY
Chairman of the committee

William J. Neill, Past President
American Electroplaters' Society
COLUMBUS METAL PRODUCTS, INC.
Chairman, Subcommittee on Methods of Analysis

G. A. Lockwood, Plating Superintendent
Louisville Works, AMERICAN RADIATOR AND STANDARD SANITARY CORPORATION

C. L. Prichard, Manager, Electrical Appliances and Dinette Furniture Plants
ARVIN INDUSTRIES, INC.

Allen M. Reed, Chemist
ELECTRIC AUTO-LITE COMPANY
Chairman, Subcommittee on Industry Liaison

K. S. Watson, Coordinator of Waste Treatment Manufacturing Facilities Service Department
GENERAL ELECTRIC COMPANY

David Milne, Chemical Engineer
Production Engineering Section
GENERAL MOTORS CORPORATION

Hubert S. Kline, Director
Industrial Hygiene and Sanitary Engineering
FRIGIDAIRE DIVISION, GENERAL MOTORS CORPORATION
Chairman, Subcommittee on Methods of Treatment

Walter Miller, Assistant Secretary-Treasurer
HAMILTON MANUFACTURING CORPORATION

W. L. Pinney, Manager, Process Development Division
HOUDAILLE-HIRSHEY CORPORATION
Chairman, Subcommittee on Waste Reduction in Plant Operations

W. H. Toller, Chief Chemical Engineer
Huntington Division, HOUDAILLE-HIRSHEY CORPORATION
Chairman, Subcommittee on Methods for Measuring Waste Discharges

L. J. Hubert, Head, Finishes Laboratories
NATIONAL CASH REGISTER COMPANY
Chairman, Subcommittee on Toxicity

C. C. Cuff, Engineer, Newton Falls Division
STANDARD STEEL SPRING COMPANY

H. W. McElhaney, Head Foreman
Metal Finishing, Plating and Waste Disposal
Talon, Inc.

Harold Farber, Chief Chemist, Mansfield Works
WESTINGHOUSE ELECTRIC CORPORATION

F. H. Waring
Commission liaison member

J. E. Kinney
Committee coordinator

DISTILLERY COMMITTEE

Frank Shipman, Technical Director
BROWN-FORMAN DISTILLERS CORPORATION
Chairman of the committee

J. W. Spanyer, Jr., Assistant Technical Director
BROWN-FORMAN DISTILLERS CORPORATION

P. J. Schaible, Director
DISTILLERS FEED RESEARCH COUNCIL

Wilbur R. Gouveia, Plant Manager
FLEischMANN DISTILLING CORPORATION

W. O. Reedon
FLEischMANN DISTILLING CORPORATION

Please turn page
Stuart Schott, Assistant Director of Research  
National Distillers Chemical Corporation

Lester Rodenberg, Regional Production Manager  
National Distillers Products Corporation

E. M. Stallings, Member of the Executive Committee  
Joseph E. Seagram and Sons, Inc.

James B. Hardwick, Development Engineer  
Joseph E. Seagram and Sons, Inc.

Alex B. Davidson, Chemical and Sanitary Engineer  
Schenley Distillers

James Banks, Chemist  
George T. Stagg Company

C. S. Boruff, Technical Director  
Hiram Walker and Sons, Inc.

Russell Blaine, Chemist  
Hiram Walker and Sons, Inc.

John Wight  
Frank L. Wight Distilling Company

Robert K. Horton  
Committee coordinator

CHEMICAL SALTS COMMITTEE

Walker Penfield, Assistant to Vice-President  
Pennsylvania Salt Manufacturing Company

Chairman of the committee

Bates Torrey, Jr., Technical Manager  
Solca Process Division

Allied Chemical and Dye Corporation

L. L. Hedgepeth, Waste Consultant  
Calco Chemical Division

American Cyanamid Company

Dr. U. T. Greene, Staff Engineer  
Central Engineering Division

Diamond Alkali Company

J. F. Synan, Manager  
Market Development Department

Mathieson Chemical Corporation

J. A. Neubauer, Technical Director  
Columbia-Southern Chemical Corporation

Pittsburgh Plate Glass Company

William R. Harris, Technical Assistant to Operations Superintendent  
Columbia-Southern Chemical Corporation

Pittsburgh Plate Glass Company

L. W. Jillson, Assistant Manager  
Wyandotte Chemicals Corporation

William R. Taylor  
Committee coordinator

ORGANIC CHEMICAL COMMITTEE

W. T. Dickens, Plant Manager  
Monsanto Chemical Company

Chairman of the committee

George F. Jenkins, Supervisor of Design  
Union Carbide and Carbon Corporation

Vice-chairman of the committee

Austin Heller, Supervisor, Waste Disposal  
Allied Chemical and Dye Corporation

John F. Vocler, Sanitary Engineer  
American Cyanamid Corporation

W. L. Rosnoy, Assistant Supervising Engineer—Planning  
Celanese Corporation

James Crane, Projects Engineer  
Cincinnati Chemical Works

Don E. Bloodgood  
Commercial Solvents Corporation

Harold L. Jacobs, Waste Disposal Consultant  
E. I. DuPont de Nemours and Company

A. C. Hyde, Process Engineer  
E. I. DuPont de Nemours and Company

Chester H. Allen, Safety Director  
Hilton-Davis Chemical Company

Richard S. Rhodes, Assistant Manager  
Staff Production Department

Koppers Company

BITUMINOUS COAL INDUSTRY ADVISORY COMMITTEE

E. R. Price, Manager of Mines  
Inland Steel Company

Chairman of the committee

R. T. Laing, Managing Director  
Central Pennsylvania Coal Producers Association

Vice-chairman of the committee

J. J. Foster, Assistant to President  
Island Creek Coal Company

Vice-chairman of the committee

Henry F. Hebley, Research Consultant  
Pittsburgh Consolidation Coal Company

Secretary of the committee

W. P. Vance, General Superintendent  
Butler Consolidated Coal Company

L. N. Thomas, President  
Carbon Fuel Company

S. M. Cassidy, President  
Consolidation Coal Company of Kentucky

James Hyslop, President  
Hanna Coal Company

I. J. Richardson, Vice-President  
Harman Coal Corporation

Harvey Cartwright, Commissioner  
Indiana Coal Operators Association

Ernest B. Acee, Secretary  
Indiana Coal Producers Association

L. I. Cothern, Director of Engineering  
Jewel Ridge Coal Corporation

T. E. Johnson, Secretary  
Northern West Virginia Coal Association

Larry Cook, Executive Vice-President  
Ohio Reclamation Association

William Foster, General Attorney  
U. S. Steel Company (H. C. Frick Coke and Associated Companies, Subsidiary)

T. J. Hoffman, Vice-President  
West Kentucky Coal Company

Edward J. Cleary  
Committee coordinator
OIL REFINERY COMMITTEE

ALEX S. CHAMBERLAIN
Executive Assistant to President
ASHLAND OIL AND REFINING COMPANY
Chairman of the committee

WALTER NORMAN, Engineering Manager
AETNA OIL COMPANY

L. H. CORN, Process Engineer
Gulf Oil Corporation

J. J. LOUDERMILL, Superintendent
LOUISVILLE REFINING COMPANY

R. E. LUTON, Manager of Refineries
THE OHIO OIL COMPANY

A. E. HARNSBREECE, Manager
Refinery Technical Department
THE PURE OIL COMPANY

G. F. EISELE, Technical Foreman
THE PURE OIL COMPANY

T. A. ANDERSON, Refinery Manager
QUAKER STATE OIL REFINING CORPORATION

L. M. FISCHUSON, Design Engineer
SINCLAIR REFINING COMPANY

R. R. JACKSON
SOCONY-VACUUM OIL COMPANY, INC.

H. P. CALDWELL, Jr., Supervisor
SOCONY-VACUUM OIL COMPANY, INC.

DONALD W. HEIL, Process Engineer
SOHIO PETROLEUM COMPANY

HANS SCHINDLER
L. SONNENBORN SONS, INC.

W. F. MEEHAN, Assistant Superintendent
Technical Service
STANDARD OIL COMPANY (INDIANA)

DONALD G. STEVENS, Chief
Technical Services
STANDARD OIL COMPANY (OHIO)

E. E. AINE, Assistant Superintendent
LAWRENCEVILLE REFINERY
THE TEXAS COMPANY

GEORGE A. COLLINS, JR., Supervisor of Operations
THE TEXAS COMPANY

L. V. PHILLIPS, Assistant to Manager
THE TEXAS COMPANY

J. E. KINNEY
Committee coordinator

WATER USERS COMMITTEE

A. R. TODD, Superintendent
WHEELING, WEST VIRGINIA, WATER TREATMENT PLANT
Chairman of the committee

W. H. LOVEJOY, Superintendent
LOUISVILLE, KENTUCKY, WATER TREATMENT PLANT
Vice-chairman of the committee

F. J. DEFRANCO, Superintendent and Chief Chemist
WEIRTON, WEST VIRGINIA, WATER TREATMENT PLANT

P. D. SIMMONS
WEIRTON STEEL CORPORATION

HENRY STORBS, Special Engineer
WHEELING STEEL CORPORATION

ROBERT G. CALL
AMERICAN GAS AND ELECTRIC SERVICE COMPANY

T. W. HEISKELL, Chief Chemist
COLUMBIA-SOUTHERN CHEMICAL CORPORATION

JOHN F. VOGLER, Sanitary Engineer
AMERICAN CYANAMID CORPORATION

J. C. EDWARDS, Superintendent
HUNTINGTON, WEST VIRGINIA, WATER TREATMENT PLANT

H. C. GHOVDON, Director
PORTSMOUTH, OHIO, WATER TREATMENT PLANT

DAN ENIGHT, Supervisor of Purification
CINCINNATI, OHIO, WATER PURIFICATION PLANT

CHARLES BEAVEN, Superintendent of Filtration
EVANSVILLE, INDIANA, WATER TREATMENT PLANT

H. L. HILEMAN, Manager
CAIRO, ILLINOIS, WATER TREATMENT PLANT

WILLIAM R. TAYLOR
Committee coordinator

AQUATIC-LIFE ADVISORY COMMITTEE

DR. LLOYD L. SMITH, JR.
Division of Entomology and Economic Zoology
UNIVERSITY OF MINNESOTA
Chairman of the committee

DR. BERTIL G. ANDERSON, Professor of Zoology
WEST VIRGINIA UNIVERSITY

DR. WALTER A. CHIPMAN, Chief
Special Shellfishery Investigations
U. S. SHELLFISH LABORATORY

PROF. THEODORE OLSON
School of Public Health
UNIVERSITY OF MINNESOTA

DR. EDWARD SCHNEEBERGER, Superintendent
Fish Management Division
Wisconsin Conservation Commission

DR. WILLIAM A. SPOOR, Associate Professor of Zoology
University of Cincinnati

AND ... STONE INSTITUTE OF HYDROBIOLOGY

DR. CLARENCE M. TAYLOR, Chief, Biology Section
Environmental Health Service
U. S. Public Health Service

DR. O. LLOYD MEEHAN
Commission liaison member

JOHN E. KINNEY
Committee coordinator
### Status of Municipal and Institutional Sewage-Treatment Facilities — July 1, 1952

<table>
<thead>
<tr>
<th>Status</th>
<th>Illinois</th>
<th>Indiana</th>
<th>Kentucky</th>
<th>N.Y.</th>
<th>Ohio</th>
<th>Pennsylvania</th>
<th>Va.</th>
<th>W. Va.</th>
<th>Totals</th>
<th>% of Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate treatment</td>
<td>32</td>
<td>69</td>
<td>70</td>
<td>9</td>
<td>105</td>
<td>47</td>
<td>13</td>
<td>12</td>
<td>357</td>
<td>26.4</td>
</tr>
<tr>
<td>Treatment provided, not adequate</td>
<td>6</td>
<td>33</td>
<td>22</td>
<td>3</td>
<td>46</td>
<td>30</td>
<td>12</td>
<td>14</td>
<td>166</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>12,999</td>
<td>642,903</td>
<td>148,132</td>
<td>48,537</td>
<td>840,429</td>
<td>154,719</td>
<td>14,470</td>
<td>34,264</td>
<td>1,894,453</td>
<td>20.4</td>
</tr>
<tr>
<td>Treatment works under construction</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>26</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>167,992</td>
<td>0</td>
<td>0</td>
<td>583,268</td>
<td>4,500</td>
<td>23,509</td>
<td>2,700</td>
<td>781,969</td>
<td>8.5</td>
</tr>
<tr>
<td>Final plans approved</td>
<td>22</td>
<td>31</td>
<td>13</td>
<td>1</td>
<td>48</td>
<td>95</td>
<td>10</td>
<td>21</td>
<td>235</td>
<td>17.4</td>
</tr>
<tr>
<td></td>
<td>54,560</td>
<td>224,032</td>
<td>110,920</td>
<td>8,861</td>
<td>386,311</td>
<td>598,241</td>
<td>9,210</td>
<td>304,878</td>
<td>1,697,113</td>
<td>18.2</td>
</tr>
<tr>
<td>Final plans in preparation</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>2</td>
<td>79**</td>
<td>0</td>
<td>2</td>
<td>92</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>35,568</td>
<td>127,079</td>
<td>0</td>
<td>58,982</td>
<td>1,068,270</td>
<td>0</td>
<td>94,385</td>
<td>1,384,284</td>
<td>14.9</td>
</tr>
<tr>
<td>Preliminary plans or report approved</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>27</td>
<td>12</td>
<td>7</td>
<td>66</td>
<td>4.9</td>
</tr>
<tr>
<td>or in preparation</td>
<td>6,900</td>
<td>36,724</td>
<td>16,064</td>
<td>1,492</td>
<td>280,945</td>
<td>94,127</td>
<td>30,338</td>
<td>37,041</td>
<td>503,631</td>
<td>5.4</td>
</tr>
<tr>
<td>Treatment program under discussion</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>33</td>
<td>54</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>1,119</td>
<td>29,409</td>
<td>1,351</td>
<td>0</td>
<td>2,523</td>
<td>13,987</td>
<td>0</td>
<td>117,810</td>
<td>166,199</td>
<td>1.8</td>
</tr>
<tr>
<td>Order, notice or recommendation for</td>
<td>0</td>
<td>24</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>25</td>
<td>56</td>
<td>4.1</td>
</tr>
<tr>
<td>treatment issued by state</td>
<td>0</td>
<td>78,573</td>
<td>369,129</td>
<td>0</td>
<td>27,541</td>
<td>43,076</td>
<td>0</td>
<td>518,419</td>
<td>518,419</td>
<td>5.6</td>
</tr>
<tr>
<td>Sewage discharged to stream by permit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18*</td>
<td>13*</td>
<td>0</td>
<td>31</td>
<td>2.3</td>
</tr>
<tr>
<td>or law</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>59,208</td>
<td>30,570</td>
<td>0</td>
<td>89,778</td>
<td>1.0</td>
</tr>
<tr>
<td>Pollution of minor significance</td>
<td>0</td>
<td>85</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>125</td>
<td>9.2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>78,173</td>
<td>26,281</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15,610</td>
<td>122,064</td>
<td>1.3</td>
</tr>
<tr>
<td>No action</td>
<td>3</td>
<td>0</td>
<td>22</td>
<td>0</td>
<td>82</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>145</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>17,300</td>
<td>0</td>
<td>81,075</td>
<td>0</td>
<td>126,932</td>
<td>0</td>
<td>1,000</td>
<td>65,420</td>
<td>291,727</td>
<td>3.2</td>
</tr>
<tr>
<td>**Totals</td>
<td>**66</td>
<td><strong>270</strong></td>
<td><strong>166</strong></td>
<td><strong>14</strong></td>
<td><strong>301</strong></td>
<td><strong>309</strong></td>
<td><strong>59</strong></td>
<td><strong>168</strong></td>
<td><strong>1,353</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td>**Totals</td>
<td>310,769</td>
<td>1,692,120</td>
<td>1,101,002</td>
<td>104,105</td>
<td>2,980,544</td>
<td>2,203,980</td>
<td>140,777</td>
<td>750,603</td>
<td>9,283,900</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Acid stream law (Pa.), Sewage permits (Va.).  
** 942,975 pop. to Allegheny County Sanitary Authority.
### SUMMARY OF SIGNIFICANT CHANGES SINCE JULY 1951 IN MUNICIPAL SEWAGE-TREATMENT STATUS

<table>
<thead>
<tr>
<th>STATUS</th>
<th>ILLINOIS</th>
<th>INDIANA</th>
<th>KENTUCKY</th>
<th>N.Y.</th>
<th>OHIO</th>
<th>PENNA.</th>
<th>VA.</th>
<th>W. VA.</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>New plants placed in operation</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Plants or additions placed under construction</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Final plans approved</td>
<td>5</td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td>12</td>
<td>1</td>
<td>6</td>
<td>49</td>
</tr>
<tr>
<td>TOTALS</td>
<td>10</td>
<td>23</td>
<td>7</td>
<td>0</td>
<td>22</td>
<td>15</td>
<td>5</td>
<td>9</td>
<td>91</td>
</tr>
</tbody>
</table>

### STATUS OF INDUSTRIAL WASTE-CONTROL FACILITIES—JULY 1, 1952

For industries discharging wastes directly to streams

<table>
<thead>
<tr>
<th>STATUS</th>
<th>ILLINOIS</th>
<th>INDIANA</th>
<th>KENTUCKY</th>
<th>N.Y.</th>
<th>OHIO</th>
<th>PENNA.</th>
<th>VA.</th>
<th>W. VA.</th>
<th>TOTAL</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate treatment or control facilities</td>
<td>6</td>
<td>95</td>
<td>50</td>
<td>2</td>
<td>18</td>
<td>63</td>
<td>12</td>
<td>36</td>
<td>282</td>
<td>22</td>
</tr>
<tr>
<td>Inadequate treatment or control facilities</td>
<td>2</td>
<td>80</td>
<td>35</td>
<td>10</td>
<td>68</td>
<td>8</td>
<td>1</td>
<td>30</td>
<td>234</td>
<td>19</td>
</tr>
<tr>
<td>Inadequate—pressing plans for improvement</td>
<td>22</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td>27</td>
<td>4</td>
<td>13</td>
<td>131</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Adequacy undetermined</td>
<td>2</td>
<td>7</td>
<td>62</td>
<td>1</td>
<td>15</td>
<td>27</td>
<td>4</td>
<td>13</td>
<td>131</td>
<td>10</td>
</tr>
<tr>
<td>Total facilities in operation</td>
<td>10</td>
<td>204</td>
<td>150</td>
<td>13</td>
<td>108</td>
<td>98</td>
<td>17</td>
<td>93</td>
<td>693</td>
<td>55</td>
</tr>
<tr>
<td>Facilities under construction</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td>29</td>
<td>1</td>
<td>3</td>
<td>42</td>
<td>3</td>
</tr>
<tr>
<td>Plans completed or in progress</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8</td>
<td>110</td>
<td>1</td>
<td>23</td>
<td>150</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Need for facilities undetermined</td>
<td>3</td>
<td></td>
<td></td>
<td>10</td>
<td>27</td>
<td>10</td>
<td>146</td>
<td>196</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>No formal action by the company</td>
<td>11</td>
<td>15</td>
<td>104</td>
<td>26</td>
<td>5</td>
<td>28</td>
<td>189</td>
<td>15</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total number of industries reported</td>
<td>11</td>
<td>226</td>
<td>156</td>
<td>30</td>
<td>230</td>
<td>290</td>
<td>34</td>
<td>293</td>
<td>1270</td>
<td>100</td>
</tr>
</tbody>
</table>

Data pertains only to number of plants, without regard to type or volume of waste. Information supplied by state pollution control agencies.
REPORT ON PUBLIC HEARING HELD AT HUNTINGTON, WEST VIRGINIA
resulting in establishment of Treatment Standard No. 2 by the Commission on April 2, 1952.

The undersigned, appointed pursuant to action taken by the Commission at its meeting of January 9, 1952, constitute the Hearing Board empowered and instructed to conduct a public hearing with regard to the degree of treatment which shall be given to sewage discharged or permitted to flow into the waters of the Ohio River between Huntington, W. Va. and Cincinnati, Ohio. In accordance with the direction of the Commission, the undersigned submit the following report of the conduct of such hearing together with their findings and recommendations based upon the testimony and other evidence produced at that hearing.

1. The hearing was held, with all members of the Hearing Board present, on the 20th day of February, 1952, at the United States District Court, Room Nos. 218 and 220, Second Floor, U. S. Post Office and Court House, Ninth Street and Fifth Avenue, Huntington, West Virginia, commencing at 10:00 o’clock, a.m. A complete stenographic transcript was made of the proceedings had at the hearing and a copy thereof is filed herewith.

2. Prior notice of the hearing had been published and had been served upon interested parties in the manner and to the extent set forth in the attached transcript of proceedings.

3. Parties interested in the subject matter of the hearing were present or were represented to the extent indicated by the roster of appearances which is attached to the transcript of proceedings filed herewith.

4. A written report of the Commission staff setting forth information, data, testimony and other evidence, relevant and material to the subject matter of the hearing, was presented in evidence and was supported by oral testimony of members of the Staff. A copy of that report is attached as an exhibit to the transcript of proceedings filed herewith.

5. Full opportunity was given to all parties present or represented at the hearing to introduce evidence or testimony relevant or material to the subject matter of the hearing and to express their views with regard to the report and recommendations of the Staff. No evidence other than that presented by the Staff was offered and the only views expressed by parties present affirmed the findings and approved the conclusions set forth in the above-mentioned report.

6. Opportunity for the submission of written evidence or views pertinent to the subject matter of the hearing was expressly provided to any interested party, subject to the condition that it be submitted to the Hearing Board on or before the 31st day of March, 1952. No such additional evidence or views were submitted to this Board prior to the expiration of the period specified.

7. From a consideration of the evidence presented at the hearing, this Board finds that the information and other data submitted as above stated by the Staff are accurate and pertinent to the subject matter of the hearing, and the Board further finds that the conclusions of the Staff which are expressed in the written report presented at the hearing, as above stated, are reasonable and are fully supported by the evidence and data therein contained.

8. The Board finds that a standard of treatment for sewage to be discharged or permitted to flow into this section of the Ohio River, should be adopted by the Commission and put into effect, which (1) will provide adequate protection for public water supplies by reducing the presence of coliform organisms at all water supply intakes located in this section of the Ohio River to not more than 5,000 per 100 milliliters, as a probable monthly average, (2) will, under normal summer flow conditions, maintain in substantial areas of the Ohio River between Cincinnati and Maysville, between Maysville and Portsmouth and between Portsmouth and Ironton, a water quality, suitable for recreational purposes, of not more than 1,000 coliform organisms per 100 milliliters as a probable monthly average, and (3) will otherwise accomplish the objectives of the Ohio River Valley Water Sanitation Compact with respect to the discharge of sewage into this stretch of the Ohio River. On the basis of information and data submitted at the hearing the Board is of the opinion that the establishment of the standard of treatment for sewage which is hereinafter recommended is based upon these considerations, is reasonable and is in conformity with the provisions of the Ohio River Valley Water Sanitation Compact.

9. Therefore, this Board recommends that the Commission take appropriate action to establish, subject to further revision as changing conditions may require, the following standard for the treatment of sewage from municipalities or other political subdivisions, public or private institutions or corporations discharged or permitted to flow into that portion of the Ohio River extending from U. S. Corps of Engineers Dam No. 27, located about five miles upstream from Huntington, West Virginia, and being 301 miles downstream from Pittsburgh, Pa., to U. S. Corps of Engineers Dam No. 36, located about three miles upstream from Cincinnati, Ohio, and being 461 miles downstream from Pittsburgh, Pa.:

(a) Substantially complete removal of settleable solids; and
(b) Removal of not less than forty-five per cent of the total suspended solids; and, in addition
(c) Reduction in coliform organisms in accordance with the following schedule:
   - Not less than 90% reduction during the months May through November.
   - Not less than 80% reduction during the months December through April.

Respectfully submitted,

Hudson Biery, Chairman
Cincinnati, Ohio
Henry Ward
April 1, 1952
W. W. Jennings
W. W. Jennings, members of the hearing board, and Edward J. Cleary, executive director of the Commission.
OHIO RIVER VALLEY WATER SANITATION COMMISSION
STATEMENT OF RECEIPTS AND DISBURSEMENTS
Year Ended June 30, 1952

STATEMENT OF RECEIPTS AND DISBURSEMENTS

RECEIPTS:
From signatory states ................. $100,000.00
From Federal Security Agency
(Grant from P. L. 545 fund) ........... 26,084.00
Interest earned on bank deposit ........ 210.58
Sale and handling of publications ....... 144.80
Total Receipts .................. $126,439.38

DISBURSEMENTS
From state funds:
Salaries ........................ 47,622.92
Dues and subscriptions ......... 400.41
Telephone and telegraph ......... 1,473.65
Printing ......................... 6,304.65
Office supplies .................. 2,145.75
Postage ........................ 1,086.50
Meetings ......................... 2,193.26
Travel—commissioners .......... 4,268.07
Travel—staff ..................... 5,108.17
Electric and water ............... 586.66
Insurance ....................... 265.33
Office rent ...................... 4,014.98
Miscellaneous ................... 2,117.18
General office equipment and furnishings .... 2,059.41
Legal services .................. 13,600.00
Auditing ........................ 425.00
Consulting service ............... 3,600.00
Information materials and services .... 2,253.22
Employees pension trust ........... 5,394.49
Social security tax .............. 844.59
$105,764.04

From federal funds:
Salaries ....................... 13,575.07
Printing ....................... 2,036.94
Travel ......................... 2,827.58
Rent .......................... 1,200.00
General office equipment and furnishings .... 809.25
Mellon Institute of Industrial Research ........... 2,000.00
Kettering Laboratory of Applied Physiology .......... 11,700.00
$34,148.84 $139,912.88
Excess of Disbursements over Receipts ........ 13,473.50

NOTE: The above receipts of $126,439.38 does not include an amount of $15,850.00 received from the Commonwealth of Pennsylvania covering its contribution for the period of twelve months ending June 30, 1953.

NOTE: The Commission received an amount of $31,700.00 from the Commonwealth of Pennsylvania during the year ended June 30, 1952. An amount of $15,850.00, covering the twelve months ending June 30, 1953, is not shown in the above receipts.

STATEMENT OF UNUSED RESOURCES

June 30, 1952

<table>
<thead>
<tr>
<th>State Funds</th>
<th>Federal Funds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unused resources, June 30, 1951</td>
<td>$64,491.46</td>
<td>$8,064.84</td>
</tr>
<tr>
<td>Annual budget—July 1, 1951—June 30, 1952</td>
<td>100,000.00</td>
<td>100,000.00</td>
</tr>
<tr>
<td>Federal Security Agency</td>
<td>26,084.00</td>
<td>26,084.00</td>
</tr>
<tr>
<td>Interest earned on bank deposit</td>
<td>210.58</td>
<td>210.58</td>
</tr>
<tr>
<td>Sale and handling of publications</td>
<td>144.80</td>
<td>144.80</td>
</tr>
<tr>
<td>$164,946.84</td>
<td>$34,148.84</td>
<td>$198,995.68</td>
</tr>
</tbody>
</table>

Disbursements
July 1, 1951
June 30, 1952 ................ 105,764.04 | 34,148.84 | 139,912.88

Unused resources for period to June 30, 1952 .... $59,082.80 | None | $59,082.80

Add: Receipt from Commonwealth of Pennsylvania covering period of 12 months ending June 30, 1953 15,850.00 | 15,850.00

Unused resources June 30, 1952 ........ $74,932.80 | None | $74,932.80

The above Unused Resources at June 30, 1952 is comprised as follows:
Cash on deposit with the Central Trust Company .......... $73,871.72
Petty cash on hand .................................. 200.00
Cash on deposit with American Airlines, Inc .......... 425.00
Due from employees for advances of social security tax and employees pension trust contributions .......... 436.08

$74,932.80

SCHEDULE OF RECEIPTS FROM SIGNATORY STATES

<table>
<thead>
<tr>
<th>State</th>
<th>Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Illinois</td>
<td>$5,600.00</td>
</tr>
<tr>
<td>State of Indiana</td>
<td>$17,300.00</td>
</tr>
<tr>
<td>Commonwealth of Kentucky</td>
<td>$21,500.00</td>
</tr>
<tr>
<td>State of New York</td>
<td>$1,150.00</td>
</tr>
<tr>
<td>State of Ohio</td>
<td>$22,600.00</td>
</tr>
<tr>
<td>Commonwealth of Pennsylvania</td>
<td>$15,850.00</td>
</tr>
<tr>
<td>Commonwealth of Virginia</td>
<td>$3,750.00</td>
</tr>
<tr>
<td>State of West Virginia</td>
<td>$12,250.00</td>
</tr>
<tr>
<td>Total</td>
<td>$100,000.00</td>
</tr>
</tbody>
</table>

In our opinion, the accompanying statement of receipts and disbursements, statement of unused resources, and schedule of receipts from signatory states present fairly the operations of the commission on a receipts and disbursements basis for the fiscal year ended June 30, 1952, and its financial condition on June 30, 1952.

Win. H. Mers & Co., Certified Public Accountants
PLATING-ROOM CONTROLS FOR POLLUTION ABATEMENT
July 1951 (20 pp., illus.) A manual of principles and practice on "good housekeeping" to curb losses of solutions and metals that otherwise might find their way into water courses. Compiled by sixteen industrial representatives who comprise the Metal-Finishing Industry Action Committee of the Commission. (Price 50c)

BRINE CONTAMINATION IN THE MUSKINGUM RIVER
Aug. 1951 (43 pp., illus.) Determination of the nature and magnitude of brine-waste discharges from salt processing operations and their effect on water quality. (Limited supply)

CLEAN STREAMS FOR THE OHIO VALLEY
Sept. 1951 (18 pp., illus.) A public education booklet in layman's language that tells the story of water pollution, something about the cost of such a plant, and what citizens can do to get action in their communities.

THIRD ANNUAL REPORT
Nov. 1951 (36 pp., illus.) Outline of program activities, including details of technical studies, river investigations and educational campaign. Status report, by states, on municipal sewage treatment installations. Composition and program of industry-action committees.

OHIO RIVER POLLUTION-ABATEMENT NEEDS—HUNTINGTON TO CINCINNATI STRETCH
Feb. 1952, (20 pp., 19 illus.) Findings on treatment requirements for maintaining oxygen and bacterial-quality objectives in a 160-mile section of the Ohio River, which served as the basis for the establishment of Treatment Standard No. 2. (Limited supply)

PLANNING AND MAKING INDUSTRIAL WASTE SURVEYS
April 1952 (44 pp., 27 illus.) Detailed instructions for measuring volume of flow, obtaining representative samples and calculating waste loads, applicable to any type of industrial waste; compiled by the Metal-Finishing Industry-Action Committee of the Commission. (Price $1.00)

HOW TO GET SEWAGE TREATMENT WORKS IN OHIO
June 1950 (40 pp.) A guide describing recommended step-by-step engineering and financial procedures for cities or villages undertaking a sewage works project. (Price $1.00)

DISPOSAL OF SPENT SULFATE PICKLING SOLUTIONS
Oct. 1952 (76 pp., 17 illus.) An evaluation of methods for treating spent solutions resulting from sulphuric acid pickling to reduce stream pollution. Compiled by the Steel Industry Action Committee of the Commission. (Price $2.00)