

FIRST ANNUAL REPORT

OHIO RIVER VALLEY

WATER SANITATION COMMISSION

ILLINOIS

INDIANA

KENTUCKY

NEW YORK

OHIO

PENNSYLVANIA

WEST VIRGINIA

VIRGINIA

1948-49

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Chairman

HUDSON BIERY
Past-Chairman

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Indiana State Board of Health
Indianapolis 7, Indiana

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*Mr. Watson resigned as commissioner on September 6, 1949. His successor has not yet been appointed by the Governor of West Virginia.

OHIO RIVER VALLEY
WATER SANITATION COMMISSION
CINCINNATI 2, OHIO

To the Chairman and
Members of the Commission;

When you met for the first time on July 1, 1948, a unique opportunity for public service presented itself.

A day earlier the Governors of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia had assembled in Cincinnati and signed a solemn compact. In so doing they acknowledged prior formal action by their respective legislatures pledging eight sovereign states to undertake the greatest stream-pollution abatement program in the Nation. As the chosen representatives of those states you were given a mandate to execute the program.

Slightly more than a year has passed. And you have requested that I prepare an accounting of what has transpired under your direction, this for transmittal to your respective Governors and legislatures.

The following report has been drafted for that purpose. It encompasses activities from July, 1948, to the present, a period during which the one-year term of Mr. Hudson Biery as chairman, expired and Mr. Joseph L. Quinn, Jr., was elected to serve in that capacity. The financial statement, however, is on a fiscal-year basis, ending June 30, 1949.

In both spirit and substance this report is designed to provide objective information and invite critical appraisal.

Respectfully submitted,

Edward J. Cleary

EDWARD J. CLEARY
Executive Director
and Chief Engineer

November 15, 1949

Regaining a Treasure





HOEVER may be concerned with the abatement of stream pollution will find guidance for his efforts in these words:

"A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it."

This profound statement forms part of an opinion of the U. S. Supreme Court, which was handed down in 1931 by Mr. Justice Oliver Wendell Holmes in a decision involving diversion of Delaware River water.

The substance of this quotation, if not its form, motivated men of vision in the Ohio River valley who much earlier viewed with alarm the increasing degradation of streams. As far back as 1908 the need to regard the waters of the Ohio River as a treasure—to be safeguarded as a necessity of life—became apparent to a few. With it also came the realization that this would require the good will and energies of many.

It was in this year 1908 that the State of Ohio declared that its river cities need not install sewage treatment facilities until communities in other states on the banks of the Ohio did likewise. This initiated discussion among the several Ohio River states pointing to the desirability of joint action on pollution-abatement measures.

However, no steps of consequence toward cooperation were taken until 1928. By then increasing industrial pollution had seriously burdened the river. This led to an informal agreement among the states of Pennsylvania, Ohio, West Virginia, Kentucky, New York, Illinois, Maryland, Indiana, Tennessee, North Carolina, and Virginia to act in concert for control of taste-producing phenol discharges from coke plants.

Then came the droughts of 1930 and 1934. And with them came the publicity that focused widespread attention on the difficulties of producing safe drinking water from polluted Ohio River sources. An aroused Cincinnati Chamber of Commerce alerted other civic organizations to join forces with sanitation authorities in a campaign for action on pollution abatement. Important progress was registered when the 74th Congress of

the United States in June, 1936 authorized the states in the Ohio River drainage basin to enter into a compact for united action. And in 1938 delegates from eight states reached agreement on the form and type of compact that could be recommended for adoption.

By 1940 enabling legislation for this purpose had been adopted by Indiana, West Virginia, Ohio, New York, Illinois, and Kentucky. And the 76th Congress in July 1940, approved the draft of the compact on which the negotiating commission had agreed. Before it could become effective, however, reservations requiring participation by Pennsylvania and Virginia had to be satisfied. Preoccupation with the war effort delayed this step. But in April 1945, Pennsylvania adopted the compact and Virginia became a signatory in March 1948. Ninety days later, in accordance with the legal requirements, the compact became a reality at a ceremonial signing on June 30, 1948, in Cincinnati, Ohio.

More than three decades had thus elapsed since proposals were first made for joint action in the Ohio valley to curb pollution. But today no one can deny that the goal achieved was worth all it cost in time and effort. Consider it carefully: Eight sovereign states voluntarily reconciled their views and reached common agreement to take on a job that neither one could do alone.

WHAT THE COMPACT MEANS

The character of the compact executed by these eight states has been neatly phrased by Hudson Biery, first chairman of the compact Commission, as: "... a pooling of desire and purpose to do a specific task, the approximate ramifications of which were fairly well known before the making of the agreement."

Each of the signatory states pledged to each other faithful cooperation in the control of future pollution and abatement of existing pollution. To effectuate such action a Commission was created. Most importantly, this Commission is empowered to issue orders for abatement upon any municipality, corporation, person or other entity discharging sewage or industrial waste into "the Ohio River or any other river, stream or water, any part of which

Ohio River drainage basin includes the whole or parts of 14 states. Eight of these states are signatories to the pollution-abatement compact.

constitutes any part of the boundary lines between any two or more of the signatory states, or into any stream any part of which flows from any portion of one signatory state through any portion of another signatory state."

To insure judicious exercise of this grant of power, it is provided that the issuance of an order requires approval of at least a majority of the commissioners from each of not less than a majority of the signatory states, together with the assent of not less than a majority of the commissioners from the state in which the order is to be issued. In terms of numbers this means that two commissioners from each of five states, or a total of ten, must be in agreement on an action; and in addition there must be included a favorable vote from two of the three commissioners from the state affected.

It is of more than passing interest to point out that this unusual power-of-enforcement clause captured the attention of those who are concerned with development of the legal framework within

which the nations of the world may operate more effectively. In a seminar of the Academy of International Law at The Hague in July of this year the Ohio River Valley Water Sanitation Compact was cited as having been "born with perhaps the strongest teeth of any American interstate organization, indeed stronger than any international organization". And it was further observed that "the commission's power to invoke the strong sanction of enforcement is the best guarantee that only rarely will it have to exercise it."

This, in brief, furnishes the background for the Ohio River Valley Compact Commission. It explains how and why eight sovereign states voluntarily sought and obtained the approval of the Congress of the United States to pledge their efforts toward a single objective. Simply stated, this objective is to regain a treasure—clean waters for the millions of people and thousands of industries in the valley of the Ohio River.

What has been done in the first year to redeem this pledge is outlined in the following pages.

An Ohio reflection that depicts the sentiment: "A river is more than an amenity, it is a treasure."



From Plan to Action

LARGEST in size and broadest in responsibilities of the interstate agencies engaged in water-pollution control—with only three similar agencies having preceded it in order of organization—the Ohio River Valley Water Sanitation Commission had little precedent on which to base its program. This much, however, was clearly defined in the minds of the new commissioners: After years of negotiation, the time had now arrived for action.

When the Commission first met on July 1, 1948, it faced the dual task of:

Developing plans for an administrative organization as well as its staffing; and

Determining policies of action and the means for promoting their immediate execution.

The first necessity could justifiably have occupied many months to the exclusion of other activities. But the Commission was inspired by the desire to lose no time in implementing actual pollution-abatement measures. Happily, it was possible to satisfy this compulsion because the commissioners themselves were no novices in this field. Furthermore, they were willing to give freely of their time and energies to activate operations until a director could be selected.

A basic accomplishment was the formulation of a statement of policies. Here the Commission's objectives were carefully defined. This was the blueprint detailing how the machinery of the compact should be assembled, geared and operated.

Let us match, therefore, developments during the year with the action contemplated by the policy blueprint. The following point-by-point examination provides a sound basis for critical appraisal of Commission accomplishments.

WATER QUALITY OBJECTIVES

While the compact defines the minimum degree of treatment for all sewage (Appendix A, Article VI), it also recognizes that no single standard of

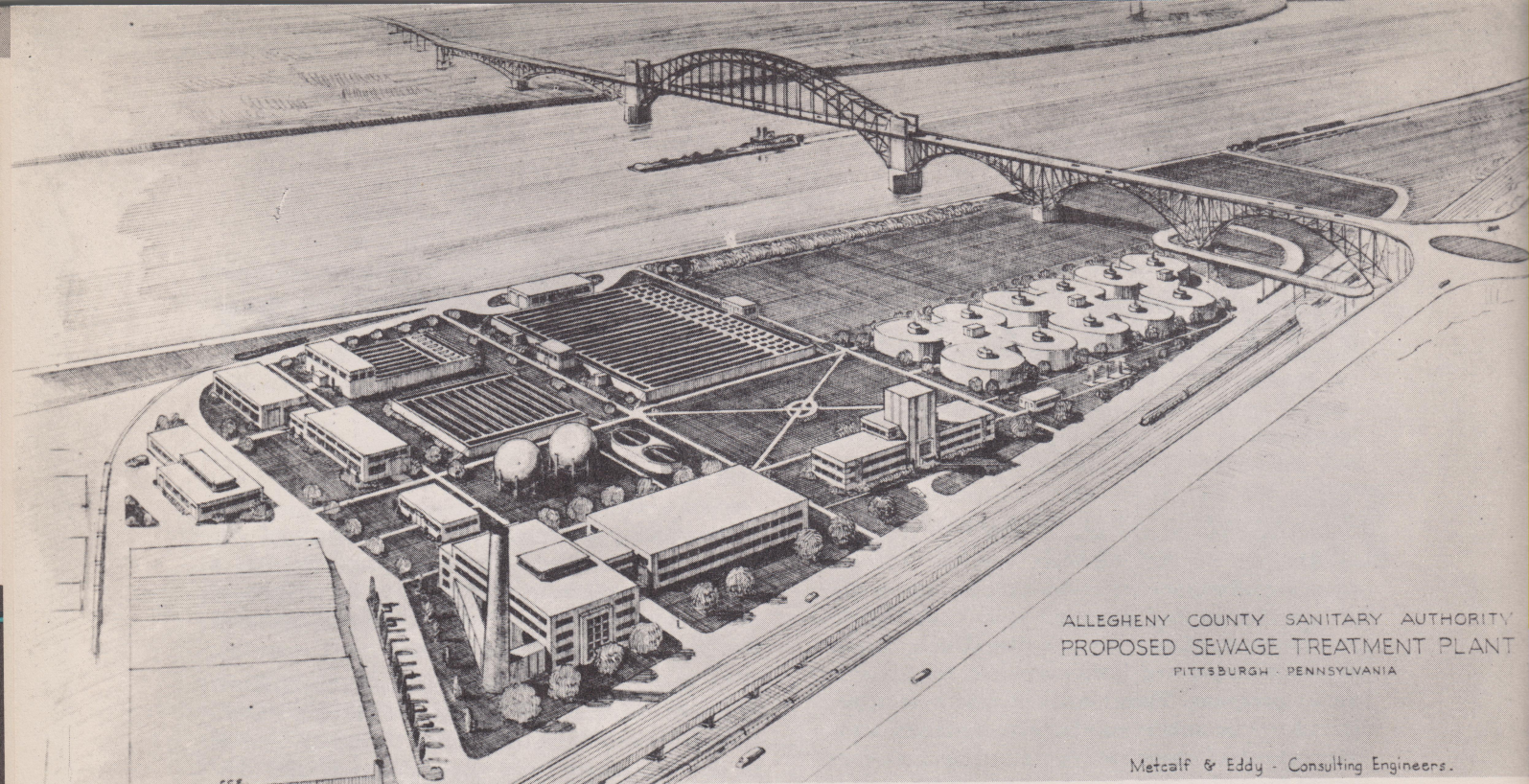
water quality is applicable in all parts of the basin. The compact provides, therefore, that a degree of treatment higher than the minimum may be specified where the Commission determines this to be in the public interest.

As part of policy execution, such a determination was required in a 22-mile stretch of the Ohio River, between navigation dams 36 and 37, known as the Cincinnati Pool. Attention was also centered on waters in the Pittsburgh area as well as in the Huntington-Ashland-Ironton stretch of the river.

Cincinnati Pool—In the Cincinnati Pool, which serves as the source of water supply for four communities serving a population of some 645,000, is discharged the wastes from Ohio and Kentucky cities and industries equivalent to a population of 1,842,800 persons. To assure installation of municipal sewage-treatment facilities adequate to safeguard raw water supplies drawn from the river, the Commission made an investigation of flow records, stream deoxygenation and reaeration characteristics, bacterial content, future population requirements and other factors bearing on self-purification capacity.

From this study it was concluded that a degree of treatment higher than the minimum in the compact should be specified to maintain proper water quality. More than a specialized technical evaluation was involved. This move likewise called for a complete development of Commission procedure in preparing and conducting a public hearing in accordance with legal necessities and compact compatibilities. As such, the Cincinnati Pool action was precedent-making.

Further, the action outlined at the public hearing constituted a test in determining whether the people, as represented by their municipal officials, were willing and ready to support the Commission. It is gratifying, therefore, to report that no exceptions to the Commission's findings were registered at this public hearing. Thus, in spite



ALLEGHENY COUNTY SANITARY AUTHORITY
PROPOSED SEWAGE TREATMENT PLANT
PITTSBURGH - PENNSYLVANIA

Metcalf & Eddy - Consulting Engineers.

of the fact that the Commission proposals called for a greater outlay of money by municipalities than had been anticipated, the move was solidly supported. This served as renewed evidence to the Commission that the people of the Ohio River valley were ready to offer more than lip service to the cause of clean streams.

Suiting action to words, Cincinnati and the major northern Kentucky cities discharging into the Cincinnati Pool have made substantial progress toward construction of treatment works. Certain detailed plans have been approved, some construction is completed and additional contracts will be let this spring.

Finally, with the Cincinnati hearing held within six months of the Commission's formation, tangible notice was served throughout the valley that the Commission was geared for action.

Pittsburgh and Huntington Areas—Findings-of-fact leading to recommendations for pollution-abatement measures also have been completed in two other sections of the Ohio River. This is in accord with Commission policy to take action on stream conditions throughout the valley. In so doing priority of attention is being given to those sections where pollution-abatement is most critical, the need for corrective measures most urgent and the means to secure it most opportune.

On this basis attention was first directed to the Pittsburgh area. Here the Commission made

studies leading to the determination that the degree of treatment proposed by the Allegheny County Sanitary Authority met minimum requirements of the Ohio River Valley Water Sanitation Commission and, in addition, was sufficient to assure a satisfactory water quality in the Ohio River at the point where it crosses the Pennsylvania-Ohio state line. Details of this were the subject of a special report approved by the Commission on July 6.

On October 5 preliminary findings in the Huntington-Ashland-Ironton were formally accepted by the Commission. These detailed a serious hazard to water supplies from bacterial contamination. It was recommended that in this area sedimentation followed by disinfection be employed for treatment of municipal sewage. Specific attention was directed to conditions created by Huntington, West Virginia. This led the Commission to throw its support behind the West Virginia state authorities to secure prompt enforcement of an order that had been entered against the city.

Oil Pollution Conditions—Oil slicks are a visible indication that a river is being abused. In most cases the presence of oil can be attributed to carelessness on the part of those who process, transport or use this product. Such being the case, the Commission felt that it would be derelict if it did not give this matter prompt attention.

Sewage-treatment works for the Pittsburgh area to be built by the Allegheny County Sanitary Authority. Completion of this plant will be of vital importance to clean-up of the Ohio River.

The first step was to solicit the aid of the U. S. Public Health Service in securing factual data. This was supplied by the Cincinnati Environmental Health Center in the form of a report titled: "An Investigation Conducted at the Request of and in Cooperation with the Ohio River Valley Water Sanitation Commission." The report, which was confined to observation at loading docks and to operations of oil-propelled vessels and barges, gave an indication of quantities involved in spillage and from cleaning of barges. Data from other sources pointed to certain refinery and pipeline operations as being additional sources of pollution.

With the aid of the Ohio River Division, U. S. Corps of Engineers, a listing has been made of vessels using the river along with companies to whom permits have been issued for loading operations. Meantime, state agencies are investigating refinery and pipe line operations in their respective areas.

On the basis of this information the Commission is preparing measures to curb pollution from oil through consultation with those who are responsible.

CONTROL OF NEW POLLUTION

As part of its obligation in carrying out the intent of the compact, the Commission stated that it would take all steps necessary to prevent the development of new sources of pollution. On this it was called to act in two instances, details of which follow. Since the companies involved in both cases have not sought a public hearing their names are omitted.

Brine Discharge in the Ohio—Looking toward the installation of a process plant, a major chemical company applied to an up-river state health department for a permit to impound and discharge wastes in the Ohio River. Residue from brine solutions constituted this waste, discharge of which would have added hardness to the river throughout its length of flow. The company could not offer a method for disposal to minimize this condition.

Obviously, here was a potential-pollution situation of concern to more than one state. Accordingly the matter was placed before a committee of the chief sanitary engineers of the states affected and represented on the Commission. This led to a detailed study of the effect of wastes on

the river. It was concluded that the additional hardness contributed to the river might vary from 11 to 60 ppm, depending on the period of discharge and the amount of flow in the river during discharge periods. As a result it was unanimously agreed that a permit should be denied for the operation of the plant until more suitable disposal methods could be developed by the company.

All of the engineers concurred that the Ohio River would be adversely affected by this waste, principally from the viewpoint of the economic burden placed on downstream users who soften water before use. Furthermore, this principle was enunciated: While the present increment of hardness contributed by the wastes from one company might not be unduly burdensome and therefore might be condoned, in the future other companies would properly expect similar waste-discharge privileges. Eventually the resulting cumulative hardness would constitute serious degradation of river water quality.

Consequently, the state department of health has refused to sanction discharge of this waste until more suitable means for its modification could be offered by the company. Should there be any dissatisfaction with this informal action the way is clear to call a public hearing.

Soda-Ash Plant—In considering the expansion of soda-ash production, a company operating in West Virginia applied to the West Virginia Water Commission for a permit to discharge wastes into the Ohio River. Since these wastes also would have materially increased the hardness of river water the West Virginia authorities specified that the plant could be located in the state only if proper waste control, recovery and treatment were provided.

Although application for the permit antedated organization of the Ohio River Valley Water Sanitation Commission, the matter subsequently came before the Commission for review. The engineering committee of the Commission, with the previous situation in mind, fully supported the West Virginia authorities in their decision.

COOPERATIVE STATE PROGRAMS

Work of the Commission is designed to coordinate and supplement, not overlap, the pollution-abatement efforts of the signatory states in the

Ohio basin. This philosophy found expression in the conduct of a cooperative river survey, in aiding the acceleration of state programs and in the promotion of legislation. Details are as follows:

Wabash River Study: Illinois and Indiana are jointly responsible for the abatement of pollution in the Wabash River, which serves as a boundary between both states. Since the Wabash is also a principal tributary of the Ohio, the condition of its waters as it enters the main stream is also of concern to the Commission.

Acting on the request of the commissioners representing the States of Illinois and Indiana the Commission staff was assigned the task of directing a study of pollution in a 110-mile stretch of the Wabash between Terre Haute, Indiana and Mt. Carmel, Illinois. It was desired that engineering, bacteriological and chemical data be assembled and analyzed in order to provide factual evidence on river conditions. Illinois and Indiana authorities require this current information to substantiate past and anticipated actions for corrective measures by municipalities and industries.

In making this survey, on which fieldwork was completed between July 18 and September 24, the Commission had an opportunity to demonstrate the manner in which cooperative ventures might be undertaken with other states, private industry and federal agencies.

The Commission assumed responsibility for direction of the work, assigning a staff sanitary engineer as project manager; in addition, the Commission furnished samplers and certain other technical specialists. The states of Illinois and Indiana contributed the services of additional specialists, laboratory and auxiliary equipment.

The National Council for Stream Improvement of the Pulp, Paper Board and Paper Industries, one of whose members (the Terre Haute Paper Co.) operates a strawboard mill discharging wastes into the Wabash River, was invited to participate. The Council generously joined forces to expedite the survey by making available the services of several technicians and a consultant on stream analysis, as well as arranging for quarters to house a field laboratory in the paper company mill.

In addition to these principal collaborators the Commission enjoyed the aid of the U. S. Geological Survey on stream-flow and cross-section measurements; the U. S. Corps of Engineers in

furnishing maps; the U. S. Weather Bureau on forecasts; and the Indiana State Department of Conservation in securing marine equipment.

With field data collected from the river and from discharges of all municipal and industrial sewers emptying into this 110-mile stretch, an analysis is now being made on which to base recommendations for corrective remedial measures. This is the subject of a separate report now in preparation.

Accelerating State Programs—The blueprint of policy calls for Commission support of state agencies in the realization of their programs. This has been implemented in the following manner:

When plans of the Alleghany County Sanitary Authority for treatment of sewage in the Pittsburgh area became the subject of controversy last March, the entire Commission met in Pittsburgh and made an inspection of river conditions in the area. Following this and with the concurrence of the Pennsylvania Sanitary Water Board, which is represented on the Commission, findings were made regarding conditions in the Ohio River and tributaries at Pittsburgh and the degree of treatment required.

These studies indicated that stipulations of the Pennsylvania Sanitary Water Board for discharges of waste in this section of the river could be fully supported by the Commission. Requirements were found to be high enough to safeguard water-quality interests of downstream states and their communities. This action of the Commission was designed to expedite the work of the Alleghany County Sanitary Authority in constructing a treatment plant, the accomplishment of which is so vital to the entire Ohio River clean-up program.

Concern of the Ohio and Kentucky public-health authorities over pollution in the stretch of the Ohio River from which the cities of Ironton, Ohio and Ashland, Kentucky draw their water supplies led to Commission action in this area. From studies in the 30-mile stretch of the river between navigation dams 27 and 30 it was determined that raw sewage discharged from Huntington, West Virginia, as well as that from Ironton and other sources contributed unusually heavy bacterial pollution. Conditions resulting from the Huntington discharge were notoriously unacceptable. As a consequence, the Commission accepted the preliminary findings leading to a recommendation

for primary treatment of all municipal sewage entering this pool along with provisions for disinfection.

Most importantly, the Commission took cognizance of the Huntington situation. Here the city had been placed under court orders to proceed with construction of treatment works by the West Virginia Water Commission and was making efforts to have the order set aside. The Ohio River Valley Water Sanitation Commission voted to utilize all its resources in backing up the West Virginia state authorities.

Not the least of the activities relating to the joint promotion of state-commission regulatory procedures were notifications for compliance issued to municipalities and industries in the basin. Each state compiled a list of pollution offenders to whom letters were to be sent.

The Commission, in turn, notified all those on the lists it received, that an interstate compact was in operation, and that details of compliance therewith should be discussed with the state sanitary engineer. Each notification was accompanied with a copy of the compact and a statement of Commission policy. Follow-through procedures are now being developed in order to insure that offenders are taking steps toward prompt compliance. The following is a breakdown of the lists by states.

<i>State</i>	<i>Municipalities Contacted</i>	<i>Industries Contacted</i>
Illinois	98	34
Indiana	160	378
Kentucky	98	103
Ohio	353	262
New York	14	102
Pennsylvania	265	324
Virginia	30	105
West Virginia	141	114

Legislative Developments — Recognizing that unification and strengthening of pollution-control legislation within the states was basic to the success of an interstate operation, the Commission proposed in its policy statement to encourage improvement of state regulatory measures.

Thus, members of the Commission and its staff testified at hearings, and otherwise promoted, an important amendment to the State of Ohio stream-pollution control law. On August 26, 1949 the Ohio state department of health, for the first time,

came into possession of adequate power to enforce pollution abatement. This law makes it possible for the State of Ohio to meet its pledged obligations under the Ohio River Valley Water Sanitation Compact.

Meantime, the State of New York strengthened its control over stream pollution through the passage of comprehensive legislation. And in Illinois important changes were incorporated in its laws permitting more aggressive action against real and potential offenders.

Kentucky is presently engaged on studies looking toward revision of its laws.

On the federal level, the passage of Public Law 845 on June 30, 1948 makes available to the states and to interstate agencies financial and other types of support. At the present time all of the signatory states to the compact, as well as the compact Commission, have been the recipients of federal funds for the promotion of their programs.

ADMINISTRATION AND STAFFING

The record cited for the year past represents what the Commission accomplished in the formulation and execution of policy. Paralleling this activity was the task of creating an administrative organization, the shape of which was quite nebulous because no previous patterns existed.

Translation of an organization on paper to one of actual fact is a time-consuming operation. For example, in the selection of an executive director, the Commission screened some 30 candidates. Consequently, several months passed before an appointment was made.

Meantime, the Commission established temporary quarters and through the cooperation of the Ohio River Division, U. S. Corps of engineers, borrowed enough office equipment to start work. A stenographer was hired and the then chairman, Hudson Biery, directed the handling of correspondence and public relations. During this interim period the commissioners also arranged with the firm of Taft, Stettinius and Hollister, of Cincinnati, to provide legal counsel.

The executive director, who also serves as chief engineer, reported for duty shortly after the first of this year. In March a sanitary engineer was added to the staff. An assistant director was appointed on September 1. The service of another sanitary engineer was obtained on September 6.

Goals to Reach

IN THIS first year a course has been plotted. Some goals have been attained. Many more remain to be reached.

For a factual appreciation of the job ahead one needs only to glance over the three-volume "Report Upon the Survey of the Ohio River and Its Tributaries for Pollution Control." The survey was made under authorization of the Congress of the United States (House Document No. 266, 78th Congress, 1st Session.) Completed in 1943, this \$600,000 investigation conducted jointly by the U. S. Public Health Service and the U. S. Army Corps of Engineers covered a period of five years. It is held to be the most complete and comprehensive examination ever made into the sanitary conditions of a river and its tributaries. Certain phases of the report should be brought up to date. Members of the Commission believe that this re-survey should command the attention of the U. S. Public Health Service in connection with its new river drainage-basin program.

Those who live in the basin need not be reminded that the report revealed, among other things, that "practically all streams in the Ohio River Basin are polluted by domestic and industrial wastes, while some have severe corrosive characteristics imparted to them by acid mine drainage." They should be mindful also that this report estimated the cost of domestic sewage treatment—translated into today's prices—at close to \$400,000,000. And finally, it seems pertinent to recall that the report urged the use of state and interstate action to secure control of pollution in preference to enforcement on a federal level.

As a baseline of reference and for orientation in reaching its goals, the Commission finds the Ohio River Survey invaluable. It gratefully acknowledges the availability of this authoritative documentation of the basin's problems and needs.

The Commission recognizes, however, that mere possession of the facts concerning pollution is not

enough. Accordingly, its program is designed to activate corrective measures and promote prompt amelioration of conditions revealed by the facts.

As outlined in the previous pages, important parts of this program have already been placed in execution. Other matters currently being activated are as follows:

PHENOL WASTE CONTROL

One of the most challenging problems in the highly industrialized Ohio River Basin is water-taste contamination from phenol wastes. Despite the best efforts of by-product coke processors and others to reduce the phenolic content of their wastes there remains the need for developing an economically feasible method of reduction of phenols.

The Commission decided, therefore, that it would employ every resource at its command to explore possible solutions. Its interests are three-fold: (1) Improve raw-water quality for municipal uses; (2) determine what permissible limits of phenol pollution, if any, should be granted to those who discharge wastes; and (3) aid industry in its efforts to find a means for treatment of phenols at their source.

To this end the Commission is sponsoring and acting as the coordinator of an intensive research program. In so doing it is enlisting and enjoying the collaboration of private industry, state and federal agencies.

For example, the Wallace & Tiernan Company, with its staff of chlorination experts, is already making laboratory studies on these wastes. On the basis of this research it will be determined whether or not to carry forward pilot-plant studies.

Upon invitation of the Commission the Armco Steel Corporation of Middletown, Ohio has generously agreed to collaborate in the work. The corporation has provided a field laboratory building

and otherwise make available opportunities and services to facilitate tests on wastes produced in its by-product coke plant. In addition, the mobile laboratory of the Ohio State Department of Health and its technicians will be enlisted to carry on correlated stream studies and other field work. The U. S. Public Health Service research laboratories in Cincinnati has also indicated interest in participating in certain phases of the investigation. All elements of this program are being coordinated by a project manager assigned from the Commission's staff.

RESEARCH PROGRAMS

The manner in which the phenol-control project is being carried out provides an example of how the Commission seeks to coordinate the resources, skills and interests of private industry and public agencies on problems of mutual interest. Other projects are now in the planning stage.

It must be made clear, however, that the Commission is not proposing to conduct basic or applied research. At present it has neither the funds nor the personnel to operate laboratories. It believes that existing state, federal and other established centers of research should be utilized wherever this is feasible.

Furthermore, there is abundant evidence that industries do not expect this Commission or any other regulatory body to provide solutions for their waste-disposal problems. But the Commission accepts the responsibility that it should inspire and coordinate every effort that will aid industries and municipalities in furthering stream clean-up at reasonable cost and as quickly as possible.

The Commission is sympathetic to the special problems of the smaller industries, with their limited staffs and research skills. It will seek to develop cooperative ventures on waste disposal among those who have related problems, probably in conjunction with established trade organizations.

INDUSTRIAL WASTE CONTROL

In the ten years that have elapsed since the conduct of the Ohio River Survey profound changes have occurred on the industrial scene of the Ohio basin. Tremendous expansion of industry, accelerated by the war, has taken place. What this

means in terms of increased quantities and new types of pollution has not been defined. Neither is there an assembly of data showing how much progress has been made in the control of new and existing waste discharges.

Such information is required by the Commission in order to intelligently program its activities. It is also pre-requisite to the establishment of industrial waste-treatment objectives as well as the eventual determination of river-quality standards. Finally, in assembling such information an opportunity is afforded to promote closer liaison among the states, the Commission and industrial representatives directed toward effective and economical correction of pollution conditions.

Accordingly, the Commission has established a special unit within its own staff. Its purpose is to coordinate data and otherwise develop and accelerate industrial-waste control measures. To finance operation of this unit important aid has been obtained from the Federal government under the provisions of the Water Pollution Control Act of 1948 (Public Law 845). A grant of \$29,000 was made available on October 5.

Scope of the project can be detailed as follows:

- A. Determination of present sources of industrial pollution by assembling all available data. This assembly would show:

New plants placed in operation since the Ohio River Survey.

Plants that have added new manufacturing processes or have eliminated or changed former processes.

Plants which have installed treatment facilities during the past ten years.

- B. Determination of changes that have occurred in the quality and quantity of industrial waste loadings by examining present day analyses and flow records.
- C. Field and laboratory observations on the sources, amounts, and characteristics of industrial wastes wherever records do not exist or are outdated.
- D. Promotion of research on the treatment of wastes in cooperation with industry.
- E. Evaluation of progress in the control of acid mine wastes.

F. Establishment of a procedure for periodic reporting from each of the compact states on the industrial waste situation:

To promote compliance by industry with compact requirements.

To place existing Ohio River Survey data on a continuing inventory basis.

G. Development of procedure for making periodic checks on the water quality of the Ohio River at certain fixed points.

It should be emphasized that this project is not intended simply as a reevaluation of the Ohio River Survey. It will serve, of course, to supplement and bring up-to-date this invaluable record. More importantly, the project is designed to implement the primary function of this Commission and its signatory states, which is to secure action in the abatement of pollution. And industrial wastes constitute a major part of river pollution.

TAX RELIEF FOR INDUSTRY

To assist and encourage industry in the construction of waste-treatment works, the Commission has favored the philosophy that federal income-tax laws be modified with regard to capital expenditures for such work.

A special committee of the Commission is studying proposals that would permit amortization of industrial waste plants at an accelerated rate. It is well aware that the U. S. Treasury Department looks with jaundiced eye on such proposals. And it recognizes that legislation permitting accelerated depreciation meets with objections because it opens the way for privileged classifications. Nevertheless, it is hoped that a workable arrangement may be developed.

MUSKINGUM RIVER POLLUTION

Special attention has been focused on the Muskingum River in Ohio where pollution, particularly that from industrial processing of brines, has endangered both surface and well water supplies. There are two aspects to the situation which give it more than local interest: One of these relates to the broad question of handling brine wastes, not only in the State of Ohio but in other basin states as well. The other concerns the effects

of increasing low-flow regulation of rivers with the aid of storage reservoirs.

Preliminary discussions have been held regarding the advisability of an intensive sanitary survey on the Muskingum. One objective would be to assign precise responsibility for pollution loads as a first step toward their correction. Another would be to obtain answers on the previously posed questions of brine disposal and the effects of low-flow regulation. Regarding the latter the Commission is quite cognizant of the benefits of augmented flow that are realized from construction of flood control projects by the U. S. Corps of Engineers.

SYNTHETIC FUEL PLANTS

Progress in the development of methods for producing synthetic fuels has directed attention to coal deposits in the Ohio River basin. With it have come questions relating to availability of water supplies for operation of these plants and also the discharge of phenolic wastes into streams. The Commission, along with some of the signatory states, has been consulted on certain phases of this matter. Fully appreciating the great economic importance of synthetic fuel plants in the Ohio valley, the Commission is prepared to implement their establishment insofar as solutions to waste control problems are concerned.

RADIOACTIVE WASTES

Operations of the Atomic Energy Commission in certain parts of the basin has posed questions relating to the disposal of wastes and their possible toxicity. These are currently under discussion.

SEWAGE DISPERSION DEVICES

Future construction of municipal treatment plants from which large quantities of sewage flow may emanate at a single point compels attention to design of discharge outlets. One signatory state already has requested the Commission to give consideration to a situation wherein it is proposed to discharge a concentrated flow of 100 million gallons daily from a single outlet.

The question invites study relating to sanitary engineering requirements, river navigation operations and flood conditions. Little information based on past experience with sewage dispersion devices in rivers is available as a guide.

RELATIONS WITH MUNICIPALITIES

Contacts of the Commission with municipalities, as with specific industries, are conducted through existing state agencies. This is in accordance with established policy. Only in a few cases have the signatory states thus far called upon the Commission to assist in promoting action on a local basis.

However, there is a growing feeling within the Commission that its staff may be usefully employed to aid the states in promotional efforts on a local basis. This is particularly true with regard to the dissemination of information on the financing of projects and in reporting developments throughout the basin.

The commissioners find that the obstacles of greatest magnitude in securing action on the municipal front are those associated with finances and a lack of public stimulation. By making it possible for the Commission staff to engage in the exchange of experiences on local levels the states hope to add further impetus to their own efforts.

INTERSTATE RELATIONS

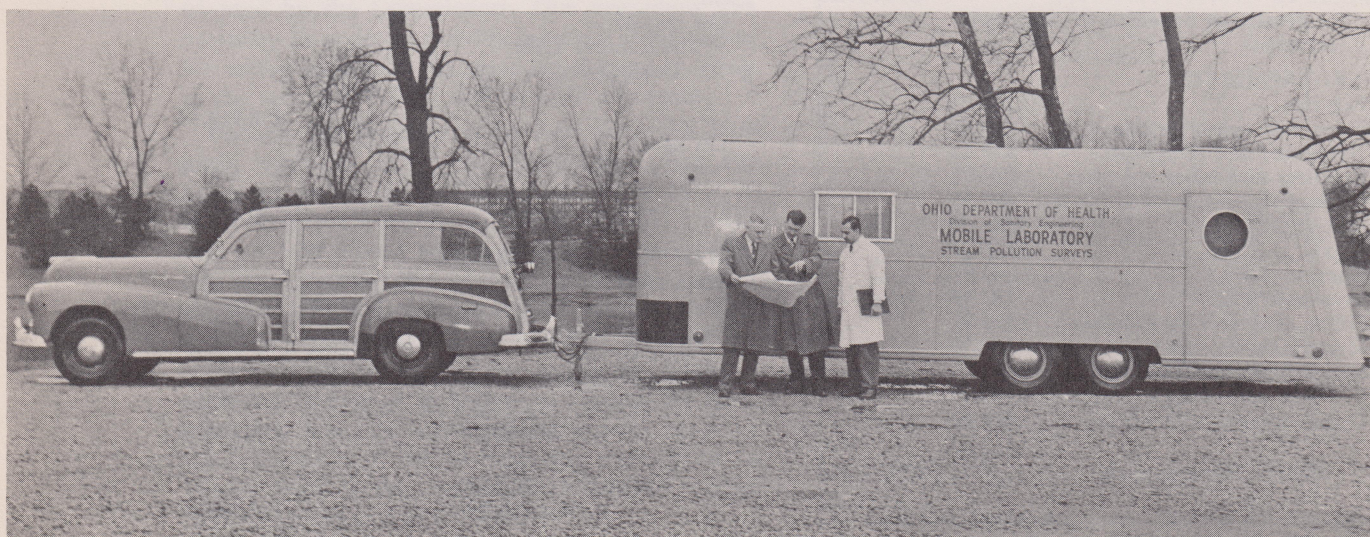
In the deliberations leading to the eight-state compact the interests of certain adjoining states received much consideration. One of these, the State of Tennessee, was an active participant in the original negotiations, looking toward the time when it might desire to be a party to the interstate agreement. That time seems near at hand in view of legislation passed last spring.

The Tennessee Legislature has agreed to enter the compact provided the States of Alabama and North Carolina do likewise. Certain other reservations of lesser import have been included.

The Compact states are gratified over the possibilities for closer cooperation with their neighbor states in the basin. Although the condition of streams in Tennessee, Alabama and North Carolina has effect only on the lower Ohio River, there are many benefits to be derived by broadening the interstate relationships. Not the least of these concerns development of more effective anti-pollution legislation in all the states of the basin. And there is much to be gained in cooperative pooling of technical knowledge in the advancement of individual state programs.

In order to encourage participation of the States of Tennessee, Alabama, and North Carolina, the Commission has established a special committee to promote closer relations. The first step taken will be to invite the governors of these states to appoint representatives to sit in on Commission meetings and there learn precisely how their states might benefit from membership.

IN BRIEF, these paragraphs have sought to picture the goals that lie immediately ahead. Their realization is the dedicated task to which the energies of the Commission are directed. Each goal achieved will bring the people of the Ohio River basin closer to regaining a treasure—their lost heritage of clean waters.



Laboratory-on-wheels placed in operation by the State of Ohio this year will facilitate control of stream pollution.

Money Received & Spent

FUNDS for operating the commission are appropriated by the eight signatory States in accordance with Article X of the compact (see Appendix A).

The annual budget, as determined by the Commission and approved by the Governors of the signatory States, is pro-rated in this fashion: One-half of the amount is in proportion to population within the basin and the other half is in proportion to the land area within the basin. Details of this pro-rata distribution are given in Appendix B.

EXPENDITURES

For the first year of operation ending June 30, 1949, an interim budget of \$40,000 was approved. Following is a detailed statement for this period of receipts, disbursements and unused resources:

STATEMENT OF RECEIPTS AND DISBURSEMENTS

Year Ended June 30, 1949

RECEIPTS	\$34,730.00
(For details see Schedule of Accounts Receivable)	
DISBURSEMENTS:	
Salaries	\$11,515.33
Dues and subscriptions....	102.61
Telephone and telegraph....	477.48
Printing and office supplies.	2,086.73
Postage	477.55
Meetings	1,696.03
Travel	3,023.38
Electric	40.87
Insurance	145.55
Office rent and remodeling.	2,120.62
Miscellaneous expenses....	528.77
General office equipment and furnishings.....	1,925.52
Legal services	1,600.00
Total Disbursements ...	\$25,710.44

Continued in next column ...

EXCESS OF RECEIPTS OVER DISBURSEMENTS	\$ 9,019.56
(Indicating the net income of the commission on a receipts and disbursements basis for the fiscal year ended June 30, 1949)	
ADD: BALANCE OF CASH, JULY 1, 1948.....	None
BALANCE OF CASH, JUNE 30, 1949.....	\$ 9,019.56
The above cash balance of \$9,019.56 is comprised as follows:	
Cash on deposit with the Central Trust Company.	\$ 8,494.56
Petty cash on hand.....	100.00
Cash on deposit with American Airlines, Inc..	425.00
	<u>\$ 9,019.56</u>

STATEMENT OF UNUSED RESOURCES

June 30, 1949

Cash:	
On deposit:	
The Central Trust Company	\$ 8,494.56
American Airlines, Inc....	425.00
	<u>\$ 8,919.56</u>
On hand:	
Petty Cash	100.00
TOTAL CASH.....	<u>9,019.56</u>
ACCOUNTS RECEIVABLE:	
State of Illinois.....	\$ 1,120.00
State of New York.....	230.00
Commonwealth of Pennsylvania	3,170.00
Commonwealth of Virginia.	750.00
TOTAL ACCOUNTS RECEIVABLE	<u>\$ 5,270.00</u>
TOTAL UNUSED RESOURCES ...	<u>\$14,289.56</u>

SCHEDULE OF ACCOUNTS RECEIVABLE

June 30, 1949

	Charges During Fiscal Year			Receipts During Fiscal Year	Balance June 30, 1949
	Emergency Allocation	Deficiency Allocation	Total		
State of Illinois.....	\$ 1,120.00	\$ 1,120.00	\$ 2,240.00	\$ 1,120.00	\$ 1,120.00
State of Indiana.....	3,460.00	3,460.00	6,920.00	6,920.00
Commonwealth of Kentucky	4,300.00	4,300.00	8,600.00	8,600.00
State of New York..	230.00	230.00	460.00	230.00	230.00
State of Ohio.....	4,520.00	4,520.00	9,040.00	9,040.00
Commonwealth of Pennsylvania	3,170.00	3,170.00	6,340.00	3,170.00	3,170.00
Commonwealth of Virginia	750.00	750.00	1,500.00	750.00	750.00
State of West Virginia	2,450.00	2,450.00	4,900.00	4,900.00
TOTALS	\$20,000.00	\$20,000.00	\$40,000.00	\$34,730.00	\$ 5,270.00

The Commission retained the firm of William H. Mers Company, certified accountants, Cincinnati, to make an examination of its books and records. Reproduced is the Auditor's certificate of report. All books and records of the Commission are available for inspection in Cincinnati by authorized representatives of the signatory States.

Annual appropriations from each state to meet the \$100,000 budget requirement, in accordance with the formula prescribed in the compact, are as follows:

Illinois	\$ 5,600	Ohio	22,600
Indiana	17,300	Pennsylvania .	15,850
Kentucky	21,500	Virginia	3,750
New York	1,150	West Virginia .	12,250

BUDGETS

In 1948 the budgets for the fiscal years 1949-50 and 1950-51, each of \$100,000 annually, were adopted by the Commission. This procedure was necessary in order to provide requisite information for action by six of the state legislatures meeting in the spring of 1949.

Because the legislatures of Kentucky and Virginia meet in 1950, the Commission has endeavored to project its financial needs to 1952. It concluded that a budget of \$100,000 for the fiscal year 1951-52 would be the minimum requirement, and this amount was adopted. However, certain members of the Commission felt that this budget must not be considered as adequate or static in amount, particularly if circumstances make it necessary to engage in litigation. (When the compact plan was first submitted for consideration to the legislatures of the participating states prior to World War II the contemplated budget at that time was estimated at \$100,000.)

WM. H. MERS & CO.
CERTIFIED PUBLIC ACCOUNTANTS
DIXIE TERMINAL BUILDING
CINCINNATI

CERTIFICATE

In our opinion, the accompanying statement of receipts and disbursements, statement of unused resources, and schedule of accounts receivable present fairly the operations of the commission on a receipts and disbursements basis for the fiscal year ended June 30, 1949 and its financial condition on June 30, 1949.

Wm. H. Mers & Co.

Certified Public Accountants

July 5, 1949
Cincinnati, Ohio

Doing the Job

OPERATIONS of the Commission are carried out under the direction of a board of 27 members. There are three members from each signatory state, appointed by the Governor, and three representatives of the Federal government, appointed by the President of the United States. No member of the board of commissioners receives any compensation.

Selection of members of the board has provided representation from the fields of public health, engineering, industrial management, fish and wildlife conservation, the legal profession and the press. Therefore, in the formulation of policy, the Commission enjoys the benefit of a wide variety of viewpoints.

Administration of Commission activities and the execution of policy is carried out by a salaried staff. At present this staff numbers seven. Legal counsel and accounting service are secured through appointment and contract.

Names of the officers of the Commission, the commissioners, the legal counsellor, the treasurer, the secretary and the staff are shown on the front inside cover of this report. The deputy, resident-representative for U. S. Commissioner Leonard A. Scheele is Mr. Maurice LeBosquet, sanitary engineer-director, U. S. Public Health Service; serving in the same capacity for U. S. Commissioner Robert G. West is Mr. John Wiseman, sanitary engineer, U. S. Corps of Engineers.

The chairman and vice-chairman are elected by the members of the Commission to hold office for one year. For the fiscal year 1948-1949, Mr. Hudson Biery served as chairman and Mr. Joseph L. Quinn Jr., was vice-chairman. On July 1, 1949 Mr. Quinn took office as chairman and Mr. Henry Ward became vice-chairman.

Committee assignments and membership follow:

Executive

B. A. Poole
W. W. Jennings
K. M. Lloyd
M. F. Hilfinger
C. W. Klassen
Earl Wallace
E. A. Holbrook
E. B. Moore
M. LeBosquet
J. L. Quinn
Henry Ward
Hudson Biery

Engineering

C. W. Klassen
F. H. Waring
Earl Devendorf
F. C. Dugan
O. L. Meehan
Richard Messer
H. E. Moses
B. A. Poole
M. LeBosquet
K. S. Watson
J. W. Wiseman

Audit

R. H. Walker
R. R. Cross
J. D. Porterfield
Alternate—F. H. Waring
J. L. Quinn
Bruce Underwood
Alternate—F. C. Dugan

By-Laws

Henry Ward
H. E. Hilleboe
Alternate—Earl Devendorf
W. W. Jennings
J. D. Porterfield
Alternate—F. H. Waring
T. B. Saunders

Finance

B. A. Poole
K. M. Lloyd
E. B. Moore
H. P. Sorg
J. J. Woltmann

Policy

E. A. Holbrook
M. F. Hilfinger
C. W. Klassen
B. A. Poole
Henry Ward
K. S. Watson

Public Agencies

W. W. Jennings
L. E. Burney
J. J. Woltmann
O. L. Meehan
L. A. Scheele
Bruce Underwood
Alternate—F. C. Dugan
N. W. Vaux
Alternate—H. E. Moses
R. G. West

Public Relations

J. L. Quinn
N. H. Dyer
R. G. West
C. B. McCabe
O. L. Meehan
Earl Wallace

Pension Plan

B. A. Poole
Martin F. Hilfinger
John D. Porterfield
Ross H. Walker
Earl Wallace

Personnel

Joseph L. Quinn
C. W. Klassen
Hudson Biery

Soil Erosion

O. L. Meehan
Henry Ward
E. A. Holbrook
J. J. Woltmann
R. H. Walker

Interstate Relations

Hudson Biery
R. H. Walker
W. W. Jennings
Henry Ward

APPENDIX A

OHIO RIVER VALLEY WATER SANITATION COMPACT

THIS COMPACT, Made and entered into by and between the States of Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania, Virginia and such additional States as may join in its execution,

WITNESSETH THAT:

WHEREAS, Pursuant to authority of the 74th Congress of the United States, granted by Public Resolution 104, approved June 8, 1936, duly appointed Commissioners respectively representing the States of Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania and Tennessee have heretofore negotiated a proposed Compact in form as hereinafter set forth and as approved by the 76th Congress of the United States by Public Act No. 739, effective July 11, 1940; and

WHEREAS, By legislation duly enacted, each of said negotiating States, with the exception of Tennessee, has caused said Compact to be approved, ratified, adopted and enacted into law and has authorized its execution; and

WHEREAS, By legislation duly enacted, the Commonwealth of Virginia, although not participating in the original negotiation thereof, has authorized and requested its Governor to execute said Compact on behalf of the Commonwealth and thereby to bind the Commonwealth and to indicate its assent to and acceptance of the terms and conditions of the Compact; and

WHEREAS, Since all conditions upon which the effectiveness of the Compact or the ratification and approval thereof by any of the signatory States was contingent have been met and satisfied, it is now appropriate that the signatory States duly execute the OHIO RIVER VALLEY WATER SANITATION COMPACT, which, as specifically set out in the legislation hereinabove referred to, reads as follows:

WHEREAS, A substantial part of the territory of each of the signatory States is situated within the drainage basin of the Ohio River; and

WHEREAS, The rapid increase in the population of the various metropolitan areas situated

within the Ohio drainage basin, and the growth in industrial activity within that area, have resulted in recent years in an increasingly serious pollution of the waters and streams within the said drainage basin, constituting a grave menace to the health, welfare and recreational facilities of the people living in such basin, and occasioning great economic loss; and

WHEREAS, The control of future pollution and the abatement of existing pollution in the waters of said basin are of prime importance to the people thereof, and can best be accomplished through the cooperation of the States situated therein, by and through a joint or common agency;

Now, therefore, The States of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Tennessee and West Virginia do hereby covenant and agree as follows:

ARTICLE I

Each of the signatory States pledges to each of the other signatory States faithful cooperation in the control of future pollution in and abatement of existing pollution from the rivers, streams and water in the Ohio River basin which flow through, into or border upon any of such signatory States, and in order to effect such object, agrees to enact any necessary legislation to enable each such State to place and maintain the waters of said basin in a satisfactory sanitary condition, available for safe and satisfactory use as public and industrial water supplies after reasonable treatment, suitable for recreational usage, capable of maintaining fish and other aquatic life, free from unsightly or malodorous nuisances due to floating solids or sludge deposits, and adaptable to such other uses as may be legitimate.

ARTICLE II

The signatory States hereby create a district to be known as the "Ohio River Valley Water Sanitation District," hereinafter called the District, which shall embrace all territory within the signatory States, the water in which flows

ultimately into the Ohio River, or its tributaries.

ARTICLE III

The signatory States hereby create the "Ohio River Valley Water Sanitation Commission," hereinafter called the Commission, which shall be a body corporate, with the powers and duties set forth herein, and such additional powers as may be conferred upon it by subsequent action of the respective legislatures of the signatory States or by act or acts of the Congress of the United States.

ARTICLE IV

The Commission shall consist of three commissioners from each State, each of whom shall be a citizen of the State from which he is appointed, and three commissioners representing the United States Government. The commissioners from each State shall be chosen in the manner and for the terms provided by the laws of the State from which they shall be appointed, and any commissioner may be removed or suspended from office as provided by the law of the State from which he shall be appointed. The commissioners representing the United States shall be appointed by the President of the United States, or in such other manner as may be provided by Congress. The commissioners shall serve without compensation, but shall be paid their actual expenses incurred in and incident to the performance of their duties; but nothing herein shall prevent the appointment of an officer or employee of any State or of the United States Government.

ARTICLE V

The Commission shall elect from its number a chairman and vice chairman, and shall appoint, and at its pleasure remove or discharge, such officers and legal, clerical, expert and other assistants as may be required to carry the provisions of this Compact into effect, and shall fix and determine their duties, qualifications and compensation. It shall adopt a seal and suitable by-laws, and shall adopt and promulgate rules and regulations for its management and control. It may establish and maintain one or more offices within the District for the transaction of its business, and may meet at any time or place. One or more commissioners from a majority of the member States shall constitute a quorum for the transaction of business.

The Commission shall submit to the Governor

of each State, at such time as he may request, a budget of its estimated expenditures for such period as may be required by the laws of such State for presentation to the legislature thereof.

The Commission shall keep accurate books of account, showing in full its receipts and disbursements, and said books of account shall be open at any reasonable time to the inspection of such representatives of the respective signatory States as may be duly constituted for that purpose.

On or before the first day of December of each year, the Commission shall submit to the respective governors of the signatory States a full and complete report of its activities for the preceding year.

The Commission shall not incur any obligations of any kind prior to the making of appropriations adequate to meet the same; nor shall the Commission pledge the credit of any of the signatory States, except by and with the authority of the legislature thereof.

ARTICLE VI

It is recognized by the signatory States that no single standard for the treatment of sewage or industrial wastes is applicable in all parts of the District due to such variable factors as size, flow, location, character, self-purification, and usage of waters within the District. The guiding principle of this Compact shall be that pollution by sewage or industrial wastes originating within a signatory State shall not injuriously affect the various uses of the interstate waters as hereinbefore defined.

All sewage from municipalities or other political subdivisions, public or private institutions, or corporations discharged or permitted to flow into these portions of the Ohio River and its tributary waters which form boundaries between, or are contiguous to, two or more signatory States, or which flow from one signatory State into another signatory State, shall be so treated, within a time reasonable for the construction of the necessary works, as to provide for substantially complete removal of settleable solids, and the removal of not less than forty-five per cent, of the total suspended solids; provided that, in order to protect the public health or to preserve the waters for other legitimate purposes, including those specified in Article I, in specific instances such higher degree of treatment shall be

used as may be determined to be necessary by the Commission after investigation, due notice and hearing.

All industrial wastes discharged or permitted to flow into the aforesaid waters shall be modified or treated, within a time reasonable for the construction of the necessary works, in order to protect the public health or to preserve the waters for other legitimate purposes, including those specified in Article I, to such degree as may be determined to be necessary by the Commission after investigation, due notice and hearing.

All sewage or industrial wastes discharged or permitted to flow into tributaries of the aforesaid waters situated wholly within one State shall be treated to that extent, if any, which may be necessary to maintain such waters in a sanitary and satisfactory condition at least equal to the condition of the waters of the interstate stream immediately above the confluence.

The Commission is hereby authorized to adopt, prescribe and promulgate rules, regulations and standards for administering and enforcing the provisions of this article.

ARTICLE VII

Nothing in this Compact shall be construed to limit the powers of any signatory State, or to repeal or prevent the enactment of any legislation or the enforcement of any requirement by any signatory State, imposing additional conditions and restrictions to further lessen or prevent the pollution of waters within its jurisdiction.

ARTICLE VIII

The Commission shall conduct a survey of the territory included within the District, shall study the pollution problems of the District, and shall make a comprehensive report for the prevention or reduction of stream pollution therein. In preparing such report, the Commission shall confer with any national or regional planning body which may be established, and any department of the Federal Government authorized to deal with matters relating to the pollution problems of the District. The Commission shall draft and recommend to the governors of the various signatory States uniform legislation dealing with the pollution of rivers, streams and waters and other pollution problems within the District. The Commission shall 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, particularly with regard to the construction of plants for the disposal of sewage, industrial and other waste. The Commission shall, more than one month prior to any regular meeting of the legislature of any State which is a party thereto, present to the governor of the State its recommendations relating to enactments to be made by any legislature in furthering the intents and purposes of this Compact.

ARTICLE IX

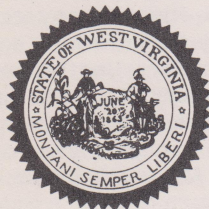
The Commission may from time to time, after investigation and after a hearing, issue an order or orders upon any municipality, corporation, person, or other entity discharging sewage or industrial waste into the Ohio River or any other river, stream or water, any part of which constitutes any part of the boundary line between any two or more of the signatory States, or into any stream any part of which flows from any portion of one signatory State through any portion of another signatory State. Any such order or orders may prescribe the date on or before which such discharge shall be wholly or partially discontinued, modified or treated or otherwise disposed of. The Commission shall give reasonable notice of the time and place of the hearing to the municipality, corporation or other entity against which such order is proposed. No such order shall go into effect unless and until it receives the assent of at least a majority of the commissioners from each of not less than a majority of the signatory States; and no such order upon a municipality, corporation, person or entity in any State shall go into effect unless and until it receives the assent of not less than a majority of the commissioners from such State.

It shall be the duty of the municipality, corporation, person or other entity to comply with any such order issued against it or him by the Commission, and any court of general jurisdiction or any United States District Court in any of the signatory States shall have the jurisdiction, by mandamus, injunction, specific performance or other form of remedy, to enforce any such order against any municipality, corporation or other entity domiciled or located within such State or whose discharge of the waste takes place within or adjoining such State, or against any employee, department or subdivision of such municipality, corporation, person or other entity; provided, however, such court may review the order and affirm, reverse or modify

the same upon any of the grounds customarily applicable in proceedings for court review of administrative decisions. The Commission or, at its request, the Attorney General or other law enforcing official, shall have power to institute in such court any action for the enforcement of such order.

ARTICLE X

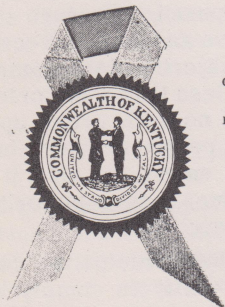
The signatory States agree to appropriate for the salaries, office and other administrative expenses, their proper proportion of the annual budget as determined by the Commission and approved by the Governors of the signatory States, one-half of such amount to be prorated among the several States in proportion to their population within the District at the last preceding Federal census, the other half to be prorated in proportion to their land area within the District.



STATE OF WEST VIRGINIA

By Clarence W. Meadows
CLARENCE W. MEADOWS,
Governor
Kenneth S. Watson
KENNETH S. WATSON,
Commissioner
W. W. Jennings
W. W. JENNINGS,
Commissioner
N. H. Dyer
N. H. DYER,
Commissioner

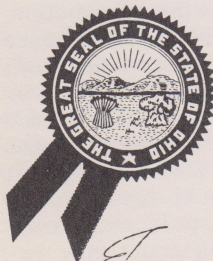
Attest: William J. O'Brien
WILLIAM J. O'BRIEN,
Secretary of State



COMMONWEALTH OF KENTUCKY

By Earle C. Clements
EARLE C. CLEMENTS,
Governor
Henry Ward
HENRY WARD,
Commissioner
P. E. DeBerry
P. E. DEBERRY,
Commissioner
Earle Wallace
EARLE WALLACE,
Commissioner

Attest: George Glenn Hatcher
GEORGE GLENN HATCHER,
Secretary of State



STATE OF OHIO

By Thomas J. Herbert
THOS. J. HERBERT,
Governor
Hudson Blevins
HUDSON BLEVINS,
Commissioner
Kenneth M. Lloyd
KENNETH M. LLOYD,
Commissioner
John D. Porterfield
JOHN D. PORTERFIELD,
Commissioner

Attest: Edward J. Hummel
EDWARD J. HUMMEL,
Secretary of State

ARTICLE XI

This Compact shall become effective upon ratification by the legislatures of a majority of the States located within the District and upon approval by the Congress of the United States; and shall become effective as to any additional States signing thereafter at the time of such signing.

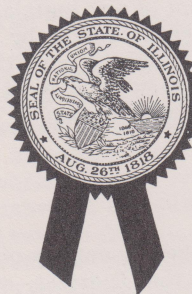
NOW, THEREFORE, IN WITNESS of their ratification, adoption and enactment into law of the foregoing Compact, and in witness of their assent to and acceptance of the terms, conditions and obligations therein contained, the signatory States have caused this OHIO RIVER VALLEY WATER SANITATION COMPACT to be executed by their respective Governors and by their respective Compact Commissioners and have caused their respective seals to be hereunto affixed this 30th day of June, 1948.



STATE OF NEW YORK

By Thos. E. Dewey
THOS. E. DEWEY,
Governor
Martin F. Hilfinger
MARTIN F. HILFINGER,
Commissioner
Charles B. McCabe
CHARLES B. MCCABE,
Commissioner
Herman E. Hilleboe
HERMAN E. HILLEBOE,
Commissioner

Attest: Thomas J. Curran
THOMAS J. CURRAN,
Secretary of State



STATE OF ILLINOIS

By Dwight N. Green
DWIGHT N. GREEN,
Governor
C. W. Klassen
C. W. KLASSEN,
Commissioner
J. J. Woltmann
J. J. WOLTMANN,
Commissioner
Roland R. Cross
ROLAND R. CROSS,
Commissioner

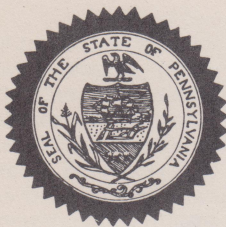
Attest: Edward J. Byrnes
EDWARD J. BYRNES,
Secretary of State



COMMONWEALTH OF VIRGINIA

By William M. Tuck
WILLIAM M. TUCK,
Governor
E. Blackburn Moore
E. BLACKBURN MOORE,
Commissioner
Ross H. Walker
ROSS H. WALKER,
Commissioner
A. Brady Saunders
A. BRADY SAUNDERS,
Commissioner

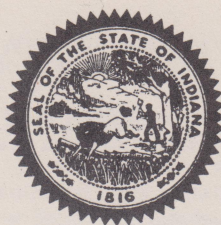
Attest: Thelma Y. Gordon
THELMA Y. GORDON,
Secretary of the Commonwealth



COMMONWEALTH OF PENNSYLVANIA

By James H. Duff
JAMES H. DUFF,
Governor
Herbert P. Sorg
HERBERT P. SORG,
Commissioner
E. A. Holbrook
E. A. HOLBROOK,
Commissioner
Norris W. Vaux
NORRIS W. VAUX,
Commissioner

Attest: C. M. Morrison
C. M. MORRISON,
Secretary of the Commonwealth



STATE OF INDIANA

By Ralph F. Gates
RALPH F. GATES,
Governor
L. E. Burney
L. E. BURNLEY,
Commissioner
Blancher A. Poole
BLANCHER A. POOLE,
Commissioner
Joseph L. Quinn
JOSEPH L. QUINN,
Commissioner

Attest: Thomas E. Bath
THOMAS E. BATH,
Secretary of State

ENABLING LEGISLATION

Approval by the Congress of

the United States of America

Authority to enter into the foregoing Compact was initially granted by act of the 74th Congress of the United States by Public Resolution No. 104, approved June 8, 1936, and subsequent consent to and approval thereof was expressly granted by the Congress of the United States by the following legislation:

Public — No. 739 — 76th Congress
Chapter 581 — 3rd Session
S. 3617, approved July 11, 1940

Approval by the Signatory States

The foregoing Compact was expressly ratified and approved and its execution authorized by the respective legislatures of the signatory States by the following Acts:

INDIANA

Enrolled Act No. 337, House
Approved March 4, 1939

No reservations were contained in this legislation.

WEST VIRGINIA

H. B. No. 369 of the Legislature of 1939 of the State of West Virginia; passed March 11, 1939 and effective 90 days thereafter.

This Act was expressly to become effective after the approval, ratification, adoption and entering into thereof by the States of New York, Pennsylvania, Ohio and Virginia.

OHIO

Amended Senate Bill No. 33; passed by the Regular Session of the 93rd General Assembly of Ohio on May 24, 1939; approved by the Governor on May 29, 1939; effective August 31, 1939.

This act was expressly conditioned to become effective and become operative and Compact executed for and on behalf of the State of Ohio only from and after the approval, ratification, adoption and entering into thereof by the States of New York, Pennsylvania and West Virginia.

NEW YORK

Chapter 945 of the Laws of 1939 of the State of New York; passed by the Legislature, approved by the Governor and became effective July 11, 1939.

No reservations were contained in this legislation.

This Act was expressly conditioned to become effective as to Sections 1 to 6 thereof as of June 8, 1939.

ILLINOIS

H. B. 891 D of the General Assembly of 1939 of the State of Illinois; approved July 22, 1939.

No reservations were contained in this legislation.

KENTUCKY

Chapter 150 (H. B. 172) of the Acts of 1940 Regular Session of the General Assembly of Kentucky; approved March 16, 1940; effective June 30, 1940.

No reservations were contained in this legislation.

PENNSYLVANIA

Act No. 50 of the General Assembly of the Commonwealth of Pennsylvania; approved April 2, 1945.

This Act expressly provided that the Compact shall be executed for and on behalf of the Commonwealth of Pennsylvania only after the approval, ratification and entering into thereof of the States of New York, Ohio and West Virginia.

VIRGINIA

Chapter 117 (H. B. 15) of the Acts of the 1948 Regular Session of the General Assembly of the Commonwealth of Virginia; approved March 5, 1948; effective 90 days after adjournment of the General Assembly which took place on March 13, 1948.

This Act contains no reservations except that it shall become effective in due course provided the Governor signs the Compact therein referred to on behalf of the Commonwealth.

APPENDIX B

STATEMENT OF POLICIES

Submitted and adopted at a meeting of the Commission, October 29, 1948

WHEREAS, on June 30, 1948, at Cincinnati, Ohio, the states of Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania, and Virginia, formally executed the Ohio River Valley Water Sanitation Compact, Article III of which created the Ohio River Valley Water Sanitation Commission as the instrumentality through which to accomplish the basic objectives of the Compact, namely, the control of future pollution and the abatement of existing pollution from the rivers, streams and waters in the Ohio River Basin which flow through or into or border upon any of the signatory States; and

WHEREAS, through duly appointed Commissioners of the signatory States the Commission has been activated and its organization has been completed so that it is now able to commence to function as contemplated by the Compact;

NOW, THEREFORE, the Ohio River Valley Water Sanitation Commission does hereby announce the following policies which it will follow in the exercise of the powers vested in it and in the discharge of the duties placed upon it by the provisions of the Compact:

1. The primary function of the Ohio River Valley Water Sanitation Commission is to take such action as may be within its power and to promote within the States which are signatories to the Compact the taking of such action as may be necessary in order to place and maintain the interstate waters of the Ohio River Basin in a sanitary condition satisfactory for a source of public and industrial water supplies, suitable for recreational and agricultural usage, capable of maintaining fish and other aquatic life, free from unsightly or malodorous nuisances due to floating solids or sludge deposits, and adaptable to other legitimate uses.

2. (a) In the performance of its primary function, the Commission will be guided by the principle that no sewage or industrial waste originating within one of the signatory States shall injuriously affect any of the above-defined uses of the interstate waters of the Ohio River Basin which are intended to be protected by the Compact;

(b) In performing its primary function, the Commission will take any and all action necessary and appropriate to bring about the treatment of all sewage which flows into the waters subject to its jurisdiction at least to a degree sufficient to result in substantially complete removal of all settleable solids and suitable removal of suspended solids; and, in addition, to bring about the treatment of all industrial waste discharged therein to a degree

sufficient to insure the suitability of such waters for the above-defined uses.

(c) As promptly as possible, the Commission will define, after investigation, due notice and public hearings, those sections of the waters subject to its jurisdiction which may require particular standards of treatment in order to produce the above-prescribed sanitary condition.

(d) The Commission proposes to take any and all action necessary and appropriate to prevent the development or the creation of any new source of polluting waste or discharge likely to affect any of the waters which are subject to its jurisdiction.

3. The realization by the Commission of any objective will be accomplished whenever possible through the use of or through cooperation with the established regulatory agencies of the States which are signatories of the Compact, and resort by the Commission to any precedural remedy expressly made available to it by the provisions of the Compact will occur only after the efforts of the Commission to accomplish any objective through an appropriate state agency have proved unproductive, or under circumstances which clearly indicate that any such efforts would prove futile.

4. The Commission proposes to undertake a study of all legislation relating to water sanitation which is now in effect in the various States which are signatories of the Compact and based upon that study the Commission proposes, whenever deemed necessary, to submit and to encourage the adoption of recommendations for legislative additions or amendments designed to raise to a satisfactory standard the regulatory and enforcement legislation of those states pertaining to water sanitation.

5. The Commission, upon request, will assist and support state agencies or representatives seeking enactment of legislation pertinent to the accomplishment of any objective of the Commission.

6. Through cooperation with existing state regulatory agencies and industrial representatives, the Commission will formulate and promote upon an industry-wide basis, a program looking toward the establishment of minimum standards for the treatment of industrial wastes.

7. When and to the extent deemed necessary to the development of the above-prescribed sanitary condition, the Commission will adopt quality standards for the various waters which are subject to its jurisdiction.

8. Except when it may not be conducive to the satisfactory accomplishment of any of its objectives, the Commission proposes to deal with individual communities and industries through appropriate

communities and industries through appropriate state agencies, rather than to do so directly.

9. The Commission, through cooperation with various state agencies, will establish a procedure for the filing with the Commission of engineering design data covering new or revised projects for the treatment of sewage and industrial wastes. The Commission will also establish a program whereby all such data will be reviewed in order that the adequacy of any such new or revised installations may be determined and in order that the Commission can submit and urge for adoption by the sponsors of any such project appropriate recommendations for such changes or additions as may be necessary to meet the standards of the Commission. As has heretofore been the practice, detailed plans and specifications for any such projects will be submitted directly to appropriate state agencies for their review and approval.

10. The Commission intends to promote a program of public information and education pertaining to its functions and objectives, but before any publicity is released or before any program is undertaken which has particular bearing upon any one or more of the signatory States, clearance therefore will be obtained from the appropriate agency of the State or States affected.

11. The Commission does not propose, in the immediate future, to operate a laboratory or to engage in research activities, but instead will endeavor to accomplish any necessary laboratory or research

work through state agencies, the United States Public Health Service, or established research agencies.

12. The Commission will conduct studies and prepare reports as follows:

(a) All available water analyses and other technical studies relating to streams of the Ohio River Basin, including reports or surveys of the United States Public Health Service and state water pollution control agencies, will be assembled, correlated and supplemented. Based thereon a comprehensive report will be prepared covering the water pollution problems of the Ohio River Basin, and making recommendations for their correction, elimination and prevention.

(b) A study, analysis and comparison will be made of the stream pollution control policies, procedures, philosophies, limitations and accomplishments of each of the signatory States, and based thereon, recommendations for improvements will be prepared for submission to the States when deemed necessary.

(c) Surveys which the Commission may be required to make covering interstate streams, concerning which questions involving the rights and duties of two or more States may be at issue, as a consequence of which the Commission may have been called upon to act as an arbitrator.

(d) Such investigations, studies, or analyses as may be necessary or desirable to the furtherance of any of the objectives of the Commission.

APPENDIX C

DISTRIBUTION OF ANNUAL SHARE OF BUDGET BY STATES

Basic data for determining proportion of annual budget of the Commission to be prorated among the several states in the Ohio River drainage basin in accordance with the provisions of Article X of the Compact.

STATE	Area within Ohio River drainage basin	Percent of total area of basin	Population within area of basin (1940)	Percent total population within basin area	Weighted Averages of percentages of total areas and total populations within drainage basin and Annual Share of costs	
Ill.	11,440 sq. mi.	7.4 %	600,458	3.8 %	5.60 %	\$ 5,600
Ind.	29,135	18.8	2,503,450	15.8	17.30	17,300
Ky.	39,375	25.4	2,790,756	17.6	21.50	21,500
N. Y.	1,955	1.3	149,421	1.0	1.15	1,150
Ohio	29,570	19.1	4,126,594	26.1	22.60	22,600
Pa.	15,620	10.1	3,418,605	21.6	15.85	15,850
Va.	7,175	4.6	455,441	2.9	3.75	3,750
W. Va.	20,610	13.3	1,777,612	11.2	12.25	12,250
TOTALS	154,880	100.0	15,822,337	100.0	100.00	\$ 100,000

Note: Basic data from report of U. S. Public Health Service contained in Ohio River Pollution Control Report, House Document No. 266, 78th Congress, 1st Session. These data compare closely with independent computations furnished by the chief engineers of the several state health departments. Data included in the above table appeared originally in "Proceedings of Fourth Conference of Delegates Appointed to Draft an Ohio River Valley Water Sanitation Compact, June 13, 1938. The above tabulation, dated March 25, 1948, corrects for the 1940 census, omits Tennessee, and includes Virginia.

APPENDIX D

CINCINNATI POOL HEARING REPORT

Ohio River Valley Water
Sanitation Commission
First National Bank Building
Cincinnati, Ohio

Gentlemen:

The undersigned, appointed pursuant to authority contained in a resolution of the Commission adopted at its meeting of January 5, 1949, 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 Cincinnati Pool of the Ohio River. 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 16th day of January, 1949, at the Auditorium, Second Floor, Cincinnati Gas and Electric Building, Fourth and Main Streets, Cincinnati, Ohio, commencing at 10:00 o'clock, a.m. As directed by the resolution of the Commission, 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 Hearing Committee, appointed pursuant to authority of the above-mentioned resolution of the Commission for the purpose of assembling and compiling 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 the respective members of that Committee. 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 Hearing Committee. No evidence other than that presented by the Hearing Committee was offered and the only views expressed

by parties present affirmed the findings and approved the conclusions set forth in the above-mentioned report of that Committee.

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 1st day of March, 1949. 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 Hearing Committee is accurate and is pertinent to the subject matter of the hearing, and the Board further finds that the conclusions and recommendations of the Hearing Committee 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 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 Dam 36 to Dam 37 and known as the Cincinnati Pool:

- (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 by 65 per cent of the biochemical oxygen demand of organic wastes, subject, however, to the limitation that whenever conditions permit, such lesser degree of reduction, but not lower than 35 per cent, may be applied to such wastes if as a result there will be no impairment in the Cincinnati Pool of a water quality standard of 4.0 parts per million of dissolved oxygen at the bottom of the oxygen sag in the Ohio River below Cincinnati.

Respectfully submitted,

JOSEPH L. QUINN

KENNETH M. LLOYD

HENRY WARD

Cincinnati, Ohio
March 15, 1949

Hearing Board

