

Regulatory Actions

**for the Control of Sewage, Industrial
Wastes and Other Substances**



**OHIO RIVER VALLEY
WATER SANITATION COMMISSION**

OHIO RIVER VALLEY WATER SANITATION COMMISSION

*... an interstate agency representing
Illinois, Indiana, Kentucky, New York,
Ohio, Pennsylvania, Virginia and West
Virginia, each of which is pledged by
compact, approved by the Congress of
the United States, faithfully to cooperate
in the control of pollution in the
waters of the Ohio River Valley.*

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Regulatory Actions

for the Control of Sewage, Industrial Wastes and Other Substances

The Ohio River Valley Water Sanitation Commission, created by the Ohio River Valley Water Sanitation Compact which became effective on June 30, 1948, is an agency representing the states of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia. The Commission is charged with the responsibility of administering the provisions of the Compact, a covenant by which the signatory states have pledged faithful cooperation in controlling water pollution in the Compact District.

The Compact establishes basic standards for the treatment of wastes and empowers the Commission to supplement these standards. In addition, the Commission is empowered to prescribe and promulgate rules and regulations for the enforcement of treatment standards and for the administration of the provisions of the Compact. Following is a compilation of Commission actions that have been taken regarding treatment and control of waste discharges and other substances.

Primary enforcement of regulatory controls is sought through the appropriate state regulatory agencies. Questions concerning compliance with Commission requirements should be addressed to the state agency of the state in which any waste discharge may occur. A list of the signatory state regulatory agencies is shown on the back cover.

COMPACT PROVISIONS

The express objective of the Compact is to place and maintain the waters of the Ohio River 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.

The Compact contains the following guides and specific-performance requirements regarding control of waste discharges:

1. All sewage discharged to those portions of the Ohio River and its tributaries 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 as to provide for substantially complete removal of settleable solids and the removal of not less than forty-five percent of the total suspended solids, and to such higher degree as may be determined to be necessary by the Commission after investigation, due notice and hearing.
2. All industrial wastes discharged to waters under Compact jurisdiction shall be modified or treated, in order to protect the public health or to preserve the waters for other legitimate purposes, to such degree as may be determined to be necessary by the Commission after investigation, due notice and hearing.
3. All sewage and industrial wastes discharged to waters situated wholly within one state shall be treated to that extent 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.

BASIC INDUSTRIAL-WASTE REQUIREMENTS

Minimum or basic requirements for the treatment and control of industrial wastes in the Compact District were promulgated on April 6, 1955. These requirements, designated as IW-1, were derived from an interpretation of Compact provisions requiring that all waters are to be free from unsightly or malodorous nuisances due to floating solids or sludge deposits. On September 12, 1958, the basic requirements were amended by the addition of restrictions on the discharge of toxic substances. IW-1 when first adopted excluded acid-mine drainage until such time as practical means for control were available. On January 14, 1960, the Commission acted to delete this exclusion so that the requirements for treatment of acid-mine drainage are now the same as those for any other industrial waste.

The basic requirements were enunciated as part of a statement of policy and procedure regarding industrial-waste control, which statement represents an agreement on basic principles among the eight states signatory to the Compact and establishes the framework within which additional waste-control measures are to be developed. Waste-control measures adopted in accordance with this statement may be transposed into formal treatment standards when furtherance of the objectives of the compact warrants or requires.

This compendium, issued in May, 1964, has been bound in such a manner that subsequent regulatory actions can be included. Copies of such actions, along with a revised contents page will be supplied on request.

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Issued May 1964

Bacterial-Quality Objectives for the Ohio River

Adopted April 4, 1951

As a guide in the establishment of treatment requirements for sewage discharged in the Ohio River, and as a yardstick for evaluating sanitary conditions in waters used for potable supplies and recreational purposes, the Ohio River Valley Water Sanitation Commission on April 4, 1951, adopted these bacterial-quality objectives:

WATER SUPPLY USES -- The monthly arithmetical average "most probable number" of coliform organisms in waters of the river at water intakes should not exceed 5,000 per 100 ml in any month; nor exceed this number in more than 20 percent of the samples of such waters examined during any month nor exceed 20,000 per 100 ml in more than 5 percent of such samples.

RECREATIONAL USES -- For bathing or swimming waters, monthly arithmetical average "most probable number" of coliform organisms should not exceed 1,000 per 100 ml during any month of the recreation season; nor exceed this number in more than 20 percent of the samples examined during any such month; nor exceed 2,400 per 100 ml on any day. For non-bathing or non-swimming waters, the monthly arithmetical average "most probable number" of coliform organisms should not exceed 5,000 per 100 ml in any month of the recreational season, nor should exceed this number in more than 20 percent of the samples examined during any such month.

Ohio River Sewage Treatment Standards

TREATMENT STANDARD No. 1

Adopted April 6, 1949

CINCINNATI POOL (Mile 461-483)

All 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, commonly known as the "Cincinnati Pool", extending from U. S. Corps of Engineers Dam No. 36, located about three miles upstream from Cincinnati, Ohio, and being 461 miles downstream from Pittsburgh, Pennsylvania, to U. S. Corps of Engineers Dam No. 37, located at Fernbank, Cincinnati, Ohio, and being 483 miles downstream from Pittsburgh shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent of the total suspended solids; and, in addition
- (c) Reduction by not less than 65% of the biochemical-oxygen-demand of organic wastes, provided, however, that whenever conditions permit, such lesser degree of reduction of biochemical-oxygen-demand, but not lower than 35%, may be applied to organic 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.

TREATMENT STANDARD No. 2

Adopted April 2, 1952

HUNTINGTON, W. VA., TO CINCINNATI, OHIO (Mile 301-461)

All 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, Pennsylvania, to U.S. Corps of Engineers Dam No. 36, located about three miles upstream from Cincinnati, Ohio, and being 461 miles downstream from Pittsburgh, Pennsylvania, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent 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.

TREATMENT STANDARD No. 3

Adopted April 29, 1953

BELOW PITTSBURGH TO HUNTINGTON (Mile 15-301)

All 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 the Allegheny County-Beaver County line in Pennsylvania, located approximately 15 miles downstream from the confluence of the Allegheny and Monongahela Rivers at Pittsburgh, to Corps of Engineers Dam No. 27, located about five miles upstream from Huntington, W. Va., and being 301.0 miles downstream from Pittsburgh, Pennsylvania, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent of the total suspended solids; and, in addition
- (c) Reduction in coliform organisms in accordance with the following schedule:
 - Not less than 80% reduction during the months
May through October.
 - Not less than 85% reduction during the months
November through April.

TREATMENT STANDARD No. 4

Adopted April 29, 1953

PITTSBURGH AND VICINITY (Mile 0.0 to Mile 15)

All 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 the point of confluence of the Allegheny and Monongahela Rivers at Pittsburgh, designated as Ohio River mile point 0.0, to the Allegheny County-Beaver County Line in Pennsylvania, located approximately 15 miles downstream from the confluence of the Allegheny and Monongahela Rivers, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent of the total suspended solids; and
- (c) Reduction in biochemical-oxygen-demand of approximately fifty percent; and, in addition
- (d) Reduction in coliform organisms in accordance with the following schedule:
 - Not less than 80% reduction during the months
May through October.
 - Not less than 85% reduction during the months
November through April.

TREATMENT STANDARD No. 5

Adopted January 13, 1954

CINCINNATI TO OWENSBORO (Mile 483-750)

All 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 mile point 483.2 (miles below Pittsburgh, Pennsylvania), located about ten miles downstream from Cincinnati, Ohio, and at which point is located Dam No. 37, to mile point 750.0 (miles below Pittsburgh, Pennsylvania), located about six miles upstream from Owensboro, Kentucky, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent of the total suspended solids.

TREATMENT STANDARD No. 6

Adopted January 13, 1954

OWENSBORO TO HENDERSON (Mile 750-803)

All 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 mile point 750.0 (miles below Pittsburgh, Pennsylvania), located about six miles upstream from Owensboro, Kentucky, to mile point 803.0 (miles below Pittsburgh, Pennsylvania) located near Henderson, Kentucky, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids, and
- (b) Removal of not less than forty-five percent of the total suspended solids; and, in addition
- (c) Reduction in coliform organisms in accordance with the following schedule:
 - Not less than 85% reduction during the months
May through October.
 - Not less than 65% reduction during the months
November through April.

TREATMENT STANDARD No. 7

Adopted January 13, 1954

HENDERSON TO CAIRO (Mile 803-981)

All 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 mile point 803.0 (miles below Pittsburgh, Pennsylvania), located near Henderson, Kentucky, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi Rivers and being 981.0 miles downstream from Pittsburgh, Pennsylvania, shall be so treated as to provide for:

- (a) Substantially complete removal of settleable solids; and
- (b) Removal of not less than forty-five percent of the total suspended solids.

Recommendations regarding Pollution-Abatement Needs for Interstate Tributaries

In cooperation with state agencies, the Commission has investigated pollution-abatement needs for the Wabash River between Terre Haute, Indiana, and Vincennes, Indiana, and for the West Fork and the Monongahela Rivers between Weston, West Virginia, and Pittsburgh, Pennsylvania. The results of these investigations have not been transposed into formal treatment standards as contemplated in Article VI of the Compact, but conclusions have been reached and recommendations made regarding degrees of treatment needed in these areas to maintain quality conditions that would be acceptable from an interstate point of view.

Wabash River

On the basis of observed conditions coupled with stream analysis and in accordance with established quality objectives, the following conclusions regarding treatment needs for the Wabash River between Terre Haute, Indiana, and Vincennes, Indiana, were adopted by the Ohio River Valley Water Sanitation Commission on October 4, 1950.

OXYGEN CONDITIONS -- Maintenance of desired dissolved-oxygen water-quality objectives requires treatment facilities for the Terre Haute pollution load capable of providing substantially complete removal of settleable solids and a total reduction of 52 percent in biochemical-oxygen-demand. Whenever stream flow and temperature conditions permit, an overall reduction in biochemical-oxygen-demand of less than 52 percent may be applied, if, as a result, there is no impairment to the water-quality objective of 50 percent dissolved-oxygen saturation in the river below Terre Haute. However, under no conditions shall treatment be less than that which will provide for substantially complete removal of settleable solids and the removal of not less than forty-five percent of the total suspended solids, which is the minimum specified under the terms of the Ohio River Compact.

BACTERIOLOGICAL CONDITIONS -- Chlorination of Terre Haute sewage is advisable because of the high concentration of coliform organisms discharged, the influence of which is felt as far downstream as Vincennes. Chlorination could be expected to improve the quality of water reaching the Vincennes intake, as well as enhance the recreational potentialities of the stream.

ALLOCATION OF TREATMENT -- Allocation of treatment requirements among the various polluters at Terre Haute is a matter that commends itself for attention by the Indiana Stream Pollution Control Board. State, municipal and industrial relationships, as well as technical considerations, are involved in this decision. Among the factors to be weighed are the relative size of domestic and industrial pollution loads and the responsibility to be assigned for their reduction. The equities involved are a matter for decision by the state.

At Vincennes treatment of all municipal and industrial wastes providing for substantially complete removal of settleable solids and the removal of not less than forty-five percent of the total suspended solids will be adequate to insure maintenance of desired dissolved-oxygen water-quality objectives in the Wabash River below this city.

West Fork and Monongahela Rivers

Conclusions and recommendations regarding treatment needs for the West Fork and the Monongahela Rivers between Weston, West Virginia, and Pittsburgh, Pennsylvania, were adopted by the Ohio River Valley Water Sanitation Commission on February 6, 1959, as follows:

This investigation was made for purposes of evaluating pollution conditions resulting from sewage discharged to the Monongahela and West Fork rivers and for determination of remedial measures in terms of sewage-treatment requirements.

Recommendations resulting from the investigation reflect the following considerations: First, sewage discharges originating within one signatory state shall not injuriously affect water uses in another state; second, waters of the Ohio Valley Compact district shall be placed and maintained in a satisfactory sanitary condition, in accordance with the provisions of Article I of the Compact.

Quality conditions were evaluated in terms of estimated dissolved-oxygen levels and coliform-bacterial concentrations at river flows of varying magnitude. From this analysis the following conclusions are reached:

1. Treatment of existing sewage discharges to the Monongahela River (which is formed by the confluence of the West Fork and Tygart rivers) in accordance with the minimum degree of treatment specified

in the Compact should insure the maintenance of adequate sanitary quality at points of interstate concern. One point of interstate concern is the West Virginia-Pennsylvania state line at Mile 91.2. Also of interstate concern is the quality of water at the mouth of the Monongahela and its consequent effect on conditions in the Ohio River.

2. Sewage discharged in West Virginia to the West Fork River -- notably from Weston and Clarksburg -- requires something more than primary treatment to achieve satisfactory conditions in the West Fork River as measured by dissolved-oxygen content and coliform bacteria concentrations.
3. To meet local needs with regard to water supplies taken from the Monongahela River at points below certain sewage discharges in Pennsylvania, the sewage-treatment requirements at these places should be somewhat more stringent than those which are necessary to satisfy interstate necessities alone.

RECOMMENDATIONS

It is recommended that:

1. The Commission take such action as will express approval from an interstate point of view, of a program in which all sewage discharged into the Monongahela River is treated so as to provide for substantially complete removal of settleable solids and the removal of not less than 45 percent of the total suspended solids.
2. The State of West Virginia and the Commonwealth of Pennsylvania be invited to utilize such findings in this report as they may find useful in establishing sewage-treatment requirements at certain communities where local conditions claim separate consideration.
3. Quality conditions in the Monongahela River be re-evaluated at periodic intervals, notably with regard to water-quality changes resulting from the operation of sewage-treatment plants and the anticipated mitigation of mine-draingage pollution. Data being collected at Commission-sponsored monitor stations will be most useful toward this end. Equally important, however, will be such additional data as can be developed by West Virginia and Pennsylvania with regard to: (a) sewage and industrial-waste loads; and, (b) river-water analyses made by them and by water-treatment plants under their respective jurisdiction.

Industrial-Waste Control Policy and Procedure

Adopted April 6, 1955
Amended September 12, 1958
Amended January 14, 1960

1. MAIN stem drainage
pollution
2. Trib - State

WHEREAS, activities and experiences of the Ohio River Valley Water Sanitation Commission have now reached the point where it is desirable and necessary from administrative and other standpoints to issue a formal statement of policy and procedure in order to:

Promote the execution of provisions in the Compact for the control of industrial wastes;

Provide for the Compact states a plan of action for expediting the Commission's control program on interstate waters;

Furnish to existing industrial establishments in the Ohio Valley located on waters under jurisdiction of the Commission and to those who are about to locate on these waters information with regard to control of waste discharges; and

Establish a basis for effective and orderly conduct of staff activities;

NOW, THEREFORE, the Ohio River Valley Water Sanitation Commission does hereby declare the following principles and procedures by which it will be guided in pursuing the obligations placed upon it by the provisions of the Compact and in the exercise of powers vested in it:

I. Requirements for the modification or restriction of industrial-waste discharges in waters as defined in Article VI of the Compact (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 designed to safeguard and maintain water uses that will serve the public interest in the most beneficial and reasonable manner. However, certain minimum or basic requirements, applying to every industrial-waste discharge, will be stipulated in accordance with the directive in Article I of the Com-

pact that all waters are to be "free from unsightly or malodorous nuisances due to floating solids or sludge deposits."

II. In reaching conclusions on water uses to be safeguarded in various sections along streams the Commission will be guided by an evaluation of present uses, such future uses as can be reasonably foreseen and all other pertinent information. Decisions with regard to water-uses shall be subject to such review as the Commission deems necessary in accordance with changing conditions or by request from parties who may be affected. Among the legitimate uses of water to be considered by the Commission—but not necessarily restricted to them—are the following: Public and industrial supplies, maintenance of aquatic life, agricultural purposes, recreational and esthetic pursuits, navigation, power development and ultimate disposal of waste effluents.

III. To aid in the appraisal of water suitability for various uses and for guidance in the establishment of waste-control requirements the Commission will employ quality criteria. These criteria, to be applied at point of use, are not to be considered as effluent standards. The criteria will define within the boundaries of expert knowledge the respective physical, chemical, biological and bacteriological conditions of water in the stream consistent with protection of specific uses.

IV. In developing control measures for industrial-waste discharges the Commission will be guided by an examination of all local factors, including:

- a. Variations in the size, flow, location, character, self-purification characteristics and the established and proposed uses of the receiving stream;

- b. Variability of industrial operations and consequent changes in location, volume, type and combinations of waste discharges;
- c. Economic considerations.

V. Industrial-waste control measures will be promulgated on a step-by-step basis as follows:

1st step—Establishment of basic requirements that are applicable to all industrial wastes discharged into interstate waters of the district. These basic requirements, designated as IW-1, are set forth following this statement.

2nd step—Determination of supplementary "tailored" control requirements, through and in cooperation with appropriate state agencies, for each industrial plant based on such investigations and voluntary agreements or hearings as deemed necessary to establish the need and validity of control measures beyond those that satisfy basic requirements.

VI. It is recognized that time and circumstances will determine how quickly supplementary "tailored" requirements should and can be stipulated for each industrial plant. Meanwhile, every industrial plant that is now discharging or may seek to discharge wastes into interstate waters of the district as defined in the Compact, will be expected to comply as promptly as possible with the first-step basic requirements, designated as IW-1 and set forth following this statement.

VII. If supplementary "tailored" waste-control requirements are to be stipulated for an industrial plant, they will be based on stream surveys and continuing investigations of water use and quality conditions, the volume and characteristics of waste discharges and other factors applicable to a specific situation or area. Recommendations will be developed after consultation and in cooperation with appropriate state agencies

and the industrial plants involved. Revision of supplementary "tailored" control measures may be required from time to time depending on: (a) changes in the quantity or character of industrial-waste discharges; (b) changes in conditions of stream use.

VIII. It shall be the responsibility of each state agency to supply such information and data as may be necessary to develop supplementary waste-control requirements. The states will also keep the Commission informed of new or contemplated industrial-waste discharges into those waters coming under the jurisdiction of the Commission, so that the effect of these on existing conditions can be appraised and decisions reached with regard to revised control requirements.

IX. Priority of attention by the Commission in development of supplementary "tailored" requirements shall be given to those industrial plants now discharging directly into the Ohio River; the plan shall be to proceed in an orderly manner from the head of the river to its mouth. However, on request of any state, consideration will be given to shifting investigations to any location which may best serve Commission interests.

X. The appropriate state regulatory agency will administer regulatory controls. Questions concerning compliance with requirements are to be addressed to the signatory state agency in the state in which the industrial plant is operating. The state agency will arrange for such further contact or consultation with the Commission as may be necessary or requested. Whenever, in the opinion of the Commission, satisfactory compliance with basic and supplemental requirements is not being or cannot be obtained through efforts of such state agencies, the Commission will take such action as may be necessary to transpose such requirement or requirements into treatment standards or regulations within the contemplation of Article VI of the Compact and to procure enforcement of them through use of the procedures prescribed in Article IX of the Compact.

I W - 1

BASIC INDUSTRIAL WASTE REQUIREMENTS

Industrial wastes shall be treated or otherwise modified prior to discharge so as to maintain the following conditions in the receiving waters:

1. Freedom from anything that will settle to form putrescent or otherwise objectionable sludge deposits which interfere with reasonable water uses.
2. Freedom from floating debris, scum and other floating materials in amounts sufficient to be unsightly or deleterious.
3. Freedom from materials producing color or odor in such degree as to create a nuisance.
4. Freedom from substances in concentrations or combinations which are toxic or harmful to human, animal or aquatic-life.

These conditions to be maintained in the receiving waters following the discharge of industrial-waste effluents, are basic or minimum requirements. Investigations will be conducted by the Commission as time and circumstances permit to establish the need and validity of altering or adding to the above basic requirements.

Questions concerning compliance with requirements are to be addressed to the signatory state agency in the state in which the industrial plant is operating. Arrangements will be made by the state agency for such contact and consultation with the Commission as may be necessary or requested.

Acid Mine-Drainage Control Measure

ORSANCO RESOLUTION NO. 5-60 Amended

Adopted January 14, 1960

Amended January 10, 1963

WHEREAS: By resolution adopted on the 6th day of April, 1955, the Ohio River Valley Water Sanitation Commission promulgated a statement of policy and procedures for the control of industrial-waste discharges into waters included within its jurisdiction by the terms and provisions of the Ohio River Valley Water Sanitation Compact; and

WHEREAS: Waters of the Ohio River Valley Water Sanitation District are being polluted by acid discharges from coal mining and related operations, hereinafter referred to as "acid mine-drainage," contrary to the language and intent of the Ohio River Valley Water Sanitation Compact; and

WHEREAS: It has been demonstrated that the conscientious application of certain principles and practices will, under certain conditions, alleviate the pollution from acid mine-drainage;

NOW, THEREFORE: In furtherance of the policy and procedures as above set forth and for the general purpose of contributing to the achievement of the objectives specified in Article I of the Ohio River Valley Water Sanitation Compact;

BE IT RESOLVED: That the following measures are hereby adopted by the Commission for the control of acid mine-drainage pollution in the Ohio River Valley Water Sanitation District and pursuant to the statement of policy and procedures are to be followed by the signatory states:

- I. (a) Surface waters and ground waters shall be diverted where practicable to prevent the entry or reduce the flow of waters into and through workings.
- (b) Water that does gain entry to the workings shall be handled in a manner which will minimize the formation and discharge of acid mine-drainage to streams.
- II. Refuse from the mining and processing of coal shall be handled and disposed of in a manner which will minimize discharge of acid mine-drainage therefrom to streams. Where acid-producing materials are

encountered in the overburden in stripping operations, these materials shall be handled so as to prevent or minimize the production of acid mine-drainage, taking into consideration the need for stream pollution prevention and all economic factors involved.

- III. Discharge of acid mine-drainage to streams shall be regulated insofar as practicable to equalize the flow of daily accumulations throughout a 24-hour period.
- IV. Upon discontinuance of operations of any mine all practicable mine-closing measures, consistent with safety requirements, shall be employed to minimize the formation and discharge of acid mine-drainage.
- V. Under appropriate circumstances, consideration shall be given to the treatment of acid mine-drainage by chemical or other means in order to mitigate its pollutorial properties.

Nothing stated in this control measure shall be construed to relieve any municipality, corporation, person or other entity from responsibility for compliance with existing federal, state and local laws and regulations.



GUIDE TO PRACTICES IN ACID MINE-DRAINAGE CONTROL

Some operating, planning and administrative techniques relating to the practical application of ORSANCO Resolution No. 5-60 -- compiled by the Commission's Coal Industry Advisory Committee.

The following material is intended to be explanatory of the five measures contained in Resolution 5-60. This material is presented as a guide to operators and an aid to administrative agencies in applying the provisions of Resolution 5-60. This material is not necessarily complete, nor is it intended to limit the application of Resolution 5-60. It is believed, however, that it covers most of the known practical techniques in acid mine-drainage control. As progress is made in the application of such control techniques, revision and expansion of this material may be required. The application of these techniques has to be fitted to the wide variations in local conditions which characterize coal mining.

It is to be noted that attention should be given to over-all planning of mining operations to facilitate application of good drainage practices.

CONTROL MEASURE I (a)

"Surface waters and ground waters shall be diverted where practicable to prevent the entry or reduce the flow of water into and through workings."

The application of this measure obviously requires that in every mine an effort must be made to determine the source of all mine drainage. In underground mines such water may come from water-bearing strata over-

lying or underlying the coal, from cracks to the surface, from adjoining mines or mine workings, or from shaft, drift or slope openings.

Where the source of mine drainage can be determined, every practicable effort should be made to shut off the water source. In some cases cracks to the surface can be plugged by filling the cracks with earth. In some cases it may be practical to seal such cracks by grouting methods. Where surface water is being admitted by shaft, slope, drift, or other mine openings, water should be diverted around such openings, or other measures taken to prevent the flow into the mine.

In strip mining the same principles should be applied. Control Measure "I (a)" would require that wherever practicable, diversion ditches be maintained above the highwall to minimize run-off water from entering the pit.

In an area where mining operations encounter other mine workings, or mine pits, precautions should be taken to prevent entry of water from such encountered mine workings or mine pits into or through such mining operations. Measures should also be taken to control the discharge of such water into the drainage system affected in accordance with Control Measure III of Resolution 5-60.

CONTROL MEASURE I (b)

"Water that does gain entry to the workings shall be handled in a manner which will minimize the formation and discharge of acid mine-drainage to streams."

This provision requires that mine drainage be controlled within the mine to minimize the distribution or flow through or over acid-producing materials. To accomplish this, mine drainage should be removed as quickly as possible from acid-forming materials, or accumulated in sumps or other storage facilities for removal, as near as practicable to the point of entry into the mine. Local depressions in the floor which permit the accumulated water to spread out over a relatively large area are not suitable sumps. Wherever practicable mine water should be conducted in pipes rather than ditches, unless such ditches can be kept free from acid-producing materials. Where such water cannot be handled in pipes, or suitable ditches, by gravity flow, local pumping stations or suction pick-up stations should be employed. These techniques can be applied to both underground and strip mines. In both underground and strip mines, good housekeeping

practices should be followed with respect to accumulations of crushed coal or other acid-producing materials. Acid is formed on exposed surfaces and acid-producing debris is capable of producing large quantities of acid. Where flowing or standing mine water is permitted to contact such debris, it may become contaminated with a relatively large quantity of acid. It should be remembered that such good housekeeping practices are also important from the standpoint of mine safety.

CONTROL MEASURE II

"Refuse from the mining and processing of coal shall be handled and disposed of in a manner which will minimize discharge of acid mine-drainage therefrom to streams. Where acid-producing materials are encountered in the over-burden in stripping operations, these materials shall be handled so as to prevent or minimize the production of acid mine-drainage, taking into consideration the need for stream pollution prevention and all economic factors involved."

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

In order to reduce acid formation in refuse piles and to reduce infiltration of water into the pile, refuse should be compacted. Where the "size consist" of the refuse is such as to prevent effective compaction, a suitable size consist should be obtained by crushing or other suitable means as necessary.

The run-off from the area surrounding the refuse piles should not be permitted to infiltrate the piles. If such run-off must pass through the piles it should be contained in a suitable conduit. Run-off water from the area surrounding refuse piles should be diverted around the piles by suitable ditches or conduits.

Probably the most effective protection against the formation of acid by refuse piles is permanent submergence under water.

Refuse piles may be made in strip pits or other depressions and covered by suitable non-acid producing material.

Refuse should not be used for road surfacing or other filling operations where it will produce acid drainage.

In the process of surface mining the practice of selective placement of materials is followed whenever practical, for the purpose of stabilizing the banks. The practice should also include the placement of acid-producing materials, when possible, where such materials will not be exposed even when the surface of the bank is graded. Pit cleanings and waste coal materials should be placed where they will not become exposed.

CONTROL MEASURE III

"Discharge of acid mine-drainage to streams shall be regulated insofar as practicable to equalize the flow of daily accumulations throughout a 24-hour period."

Equalization of the flow of mine drainage may be accomplished in various ways, such as:

- A. The pumping equipment can be designed or adjusted to suit the flow at any given location.
- B. The discharge from the mine may be accumulated in a lagoon or other suitable reservoir, and released at a controlled rate into the stream.
- C. In case of accidental or unusual discharge from the mine which may cause pollution, notification should be given to the proper control authorities as provided in *ORSANCO* Resolution No. 14-59, adopted September 30, 1959, amended January 12, 1961.

CONTROL MEASURE IV

"Upon discontinuance of operations of any mine all practicable mine-closing measures consistent with safety requirements, shall be employed to minimize the formation and discharge of acid mine-drainage."

Effective application of this provision will require that careful planning of underground mine openings

to the surface be carried out so as to avoid, wherever practicable, locations that would render sealing ineffective. The plan of the mine workings, including the openings to the surface, should be recorded on appropriate mine projection maps, and such maps should be made available to pollution control administrative agencies.

It should be recognized that mine sealing by the use of bulkheads is not effective in preventing acid mine-drainage unless the coal seam and other acid-producing strata and materials are submerged. This presents a serious problem in mines, the workings of which lie above the natural drainage elevation.

Where practicable, such bulkheads should be designed to be water-tight seals and so constructed as to withstand the water and earth pressure which may be imposed upon them.

Upon the permanent abandonment of strip pits, or the completion of auger mining, all acid-producing refuse should be removed, buried, or submerged, the face of the coal seam in the bottom of the pit should be covered or submerged and proper provisions for handling water should be established.

CONTROL MEASURE V

"Under appropriate circumstances, consideration shall be given to the treatment of acid mine-drainage by chemical or other means in order to mitigate its polluttional properties."

Under certain conditions, circumstances may develop which are appropriate for the application of chemical or other treatment of acid mine-drainage, as a temporary measure.

As scientific and practical progress is made on the chemical or other treatment of acid mine water, such developments should be considered for application.



The foregoing guide to practices is an excerpt from the publication "Principles and Guide to Practices in the Control of Acid Mine-Drainage supplemented by Case Histories," compiled by the Coal Industry Advisory Committee of the Ohio River Valley Water Sanitation Commission and published in March, 1964.

Notice of Intent regarding Wastes from Boats and Floating Facilities

ORSANCO RESOLUTION NO. 1-64
Adopted January 9, 1964

WHEREAS: The discharge of untreated wastes from commercial and pleasure watercraft and floating facilities operating within the Compact District may cause pollution contrary to the language and intent of the Ohio River Valley Water Sanitation Compact; and

WHEREAS: Substantial progress has been made in eliminating discharges of untreated wastes from municipalities, industries and other on-shore installations in the District;

NOW, THEREFORE: For purpose of safeguarding the waters of the District as specified in Article I of the Compact;

BE IT RESOLVED: That the following measures are hereby adopted by the Commission to be followed by the signatory states for the joint co-operative control of waste discharges from watercraft and floating facilities, such measures to become effective January 1, 1967:

1. No marine waste-disposal system on any watercraft or floating facility operated on waters within the District shall be so constructed and operated as to discharge inadequately treated wastes into these waters.
2. All marine waste-disposal systems shall be sealed or otherwise rendered inoperative on waters where use of such systems is prohibited by federal, state or local regulations.
3. On waters within the Compact District where the operation of marine waste-disposal systems is permitted, such systems on or within any watercraft or floating facility shall include a suitable, operat-

ing treatment device for the maceration and disinfection of wastes prior to discharge. In lieu of treatment, wastes from watercraft and floating facilities shall be collected in holding tanks properly equipped so that the wastes can be discharged to approved shore-based installations.

BE IT FURTHER RESOLVED: That the Commission request that each of the signatory states take steps to carry out the provisions of this resolution; and

BE IT FURTHER RESOLVED: That the Commission direct the Engineering Committee to provide a guide-line memorandum for use in implementing this resolution; and

BE IT FURTHER RESOLVED: That, following the effective date of this resolution, the U. S. Coast Guard and appropriate signatory state enforcement agencies, in connection with their routine licensing inspections of watercraft and floating facilities operating within waters of the Compact District, be requested to report to the appropriate state agency or to the Commission those watercraft and floating facilities not complying with this control measure.

Chloride - Control Measure

ORSANCO RESOLUTION NO. 17-58

Adopted September 12, 1958

WHEREAS: By resolution adopted at a regular meeting held on the 6th day of April, 1955, the Ohio River Valley Water Sanitation Commission promulgated a statement of policy and procedures for the control of industrial waste discharges into waters included within its jurisdiction by the terms and provisions of the Ohio River Valley Water Sanitation Compact; and

WHEREAS: Uncontrolled as well as improperly controlled discharges of wastes containing chloride may cause degradation of the quality of the waters of the Ohio River Valley Water Sanitation District, contrary to the language and intent of the Ohio River Valley Water Sanitation Compact;

NOW, THEREFORE: In furtherance of the statement of policy and procedures promulgated as above set forth and for the purpose of contributing to the achievement of the objective specified in Article I of the Ohio River Valley Water Sanitation Compact by safeguarding the quality of the waters of the Ohio River Valley Water Sanitation District and of securing maximum utilization of the capacity of those waters for assimilating chloride waste discharges;

BE IT RESOLVED: That the following measures are hereby adopted by the Commission to be followed by the signatory states for the joint co-operative control of chloride discharges:

1. Existing and future discharges of wastes containing significant chloride loads into the waters of the Ohio River Valley Water Sanitation District shall be subject to control by impoundment or by such other methods as may be acceptable to the water pollution-control agency of the state in which the discharge originates, so as to insure that the amount thereof shall conform to a discharge schedule to be formulated, as hereinafter provided, for the purpose of maintaining an acceptable proportion between the amount of such chloride-containing wastes and the volume of flow in the stream into which it is discharged;
2. In order to insure appropriate ratios between chloride-waste discharges and volume of stream flows, all impoundment basins and

other control methods shall be operated in accordance with schedules to be formulated by the water pollution-control agency of the state in which the discharge originates in consultation with the Ohio River Valley Water Sanitation Commission.

Definition of Significant Chloride Load

ORSANCO RESOLUTION NO. 14-60

Adopted April 8, 1960

RESOLVED: That for present determination of chloride discharges subject to compliance with the **ORSANCO** chloride-control measure, a "significant load" is defined as:

1. Any existing discharge to the Ohio River or its tributaries which is equal to or greater than 25 tons per day; or
2. Any discharge from new or expanded operations to the Ohio River or its tributaries which is equal to or greater than 5 tons per day; or
3. Any discharge less than any of the above values which in the opinion of the state agency, causes a local degradation of water quality, although it otherwise satisfies interstate control requirements.

Deviations from the above definitions may be permitted only with the approval of the water pollution control agency of the state in which the discharge originates after consultation with the Commission.

Implementation of Chloride-Control Program

ORSANCO RESOLUTION NO. 18-58

Adopted September 12, 1958

WHEREAS: Effective conduct of a chloride-control program as set forth in Resolution No. 17-58 requires close collaboration of the administrative staffs of the signatory state agencies and the Commission;

NOW, THEREFORE, BE IT RESOLVED THAT:

- (a) Where impoundment basins are employed for control purposes, the discharge from which enters the Ohio River directly or through its tributaries, the preferred minimum storage capacity shall be sufficient to contain three-months production of chloride waste. Deviations from this preferred minimum capacity requirement may be permitted only with the approval of the water pollution-control agency of the state in which the discharge originates after consultation with the Ohio River Valley Water Sanitation Commission.
- (b) Each of the signatory states shall compile an inventory of existing industries discharging a significant chloride load, together with the locations and amounts of such discharges. These inventories shall be maintained up-to-date as new industries are granted discharge privileges and shall be made part of the Commission records.
- (c) Within one year following the adoption of these chloride-control resolutions each state shall prepare a progress report for presentation at a regular meeting of the Commission on the status of control for each discharger of chloride waste subject to compliance.
- (d) Each state shall conduct, and may request collaboration of the Commission in conducting, such investigations of effluents from political subdivisions that discharge sewage into the Ohio River directly or through its tributaries as may be necessary to determine whether these effluents contain abnormal concentrations of chloride. Where abnormal conditions are revealed, the state shall take appropriate steps to insure correction of such conditions.
- (e) The Executive Director is hereby instructed to make periodic reports on chloride concentration in the waters of the Ohio River Valley Water Sanitation District as revealed from monitor-station records.

Color-Producing Materials in Municipal Discharges

ORSANCO RESOLUTION NO. 2-61 Amended
Adopted January 12, 1961
Amended May 11, 1961

WHEREAS: The effluent from municipal sewage-treatment plants discharged into waters located within the Ohio River Valley Water Sanitation District may contain materials which impart to such waters unusual and objectionable colors; and

WHEREAS: The presence of such discoloration in such waters is contrary to the objectives of the Ohio River Valley Water Sanitation Compact, and the discharge thereof into such waters is a violation of the provisions of that Compact, and of regulations and requirements promulgated thereunder by the Ohio River Valley Water Sanitation Commission;

NOW, THEREFORE, BE IT RESOLVED: That the Ohio River Valley Water Sanitation Commission hereby recommends that the states signatory to the Ohio River Valley Water Sanitation Compact, in order to further the objectives thereof and to promote compliance with its provisions and with the regulations and requirements promulgated thereunder, adopt and enforce the policy that all municipal discharges into waters of the Ohio River Valley Water Sanitation District shall be free of any materials producing color of such a degree as to be unsightly or otherwise detrimental to legitimate water uses as specified in Article I of the Ohio River Valley Water Sanitation Compact.

Oil Control Measure

ORSANCO RESOLUTION NO. 20-58

Adopted September 12, 1958

WHEREAS: By resolution adopted at a regular meeting held on the 6th day of April, 1955, the Ohio River Valley Water Sanitation Commission promulgated a statement of policy and procedures for the control of industrial-waste discharges into waters included within its jurisdiction by the terms and provisions of the Ohio River Valley Water Sanitation Compact; and

WHEREAS: Pollution of such waters by discharge of oil and oily substances from vessels and shore installations have an injurious effect upon the condition of the waters of the Ohio River Valley Water Sanitation District, contrary to the language and the intent of the Ohio River Valley Water Sanitation Compact,

NOW, THEREFORE: In furtherance of the statement of policy and procedures promulgated as above set forth and for the purpose of safeguarding the waters of the Ohio River Valley Water Sanitation District against pollution as specified in Article I of the Ohio River Valley Water Sanitation Compact,

BE IT RESOLVED: That the following measure is hereby adopted by the Commission, to be followed by the signatory states for the joint co-operative control of oil pollution:

No municipality, corporation, person or other entity engaged in using, transferring, transporting or storing oil or oily substances upon the waters within the jurisdiction of the Ohio River Valley Water Sanitation Commission or at locations which may ultimately drain into such waters shall cause or permit oil or oily substances in amounts sufficient to be unsightly or deleterious to be pumped, discharged, thrown or deposited into such waters or at any location which may ultimately drain into such waters.

Nothing in this control measure shall relieve any municipality, corporation, person or other entity from responsibility for compliance with existing federal, state or local regulations in effect.

Recommended Practices for Oil-Pollution Control

ORSANCO RESOLUTION NO. 2-59

Adopted February 6, 1959

WHEREAS: An effective program for the control of oil pollution from the use, transfer and storage of oil and oily substances in the Ohio River Valley Water Sanitation District, as contemplated in Resolution 20-58, invites collaboration among the administrative staffs of the signatory state water pollution control agencies, and

WHEREAS: Such collaboration and exchange of experience has resulted thus far in the assembly of information that may serve as a useful guide in the control of oil pollution;

NOW, THEREFORE, BE IT RESOLVED: That the following definitions, principles and practices are hereby adopted by the Ohio River Valley Water Sanitation Commission, subject to revisions as new information becomes available, as a guide for the signatory states in the execution of Resolution 20-58, titled "Oil-Control Measure", and in accordance with the policy and procedures adopted April 6, 1955, are submitted to the signatory states for appropriate application:

DEFINITIONS

OIL - Shall mean oil or oily substances of animal, vegetable or mineral origin.

TANK VESSEL - Shall mean any marine vessel, self-powered or towed, used for the transportation of oil.

CARGO CARRIER - Shall mean any vessel, tank vessel, railroad tank-car, or motor tank-truck used for the transportation of oil in bulk, barrels or packages.

TERMINAL AND BULK PLANT - Shall mean any tankage, loading facilities and buildings used for the receiving, storage and distribution of oil in bulk, barrels or packages, by tank-truck, tank-car, pipeline, or tank vessel.

MARINE SERVICE STATION - Shall mean that portion of a property where oil is stored and dispensed from fixed or portable equip-

4. Pressure relief devices should be piped to suction side of the pump, to a sump or in such manner as to prevent the discharge of oil to the stream, sewers or other drains not protected by adequate oil-trapping devices, in accordance with the regulations of the state water pollution control agency.

5. Suitable containers should be provided at the docks to catch any spillage of oil. Drip pans or other suitable receptacles should be placed and maintained under cargo hose connections.

6. When transfer operations are completed, the cargo hose should be drained either back into the tanks or into suitable receptacles avoiding spillage.

7. Pipe heads at docks should be equipped with valves properly maintained and be sealed with caps or blank flanges on the valve or on the end of connected hoses when not in use.

8. All storage tanks should be enclosed by continuous dikes in accordance with the State Fire Marshall regulations or be provided with such dikes as are required by the state water pollution control agency. Any drainage facilities for rain water should be equipped with properly maintained and adequate oil-trapping devices and valves. These valves should be kept closed except when required for drainage of rain or other waters.

9. Receptacles, storage and proper disposal should be provided for oil-containing materials and rubbish.

10. Waste oil should be collected and held for proper disposal (see Section V).

11. Proper maintenance measures should be provided and due caution exercised to prevent any spills or discharges of oil.

II. MARINE SERVICE STATIONS

1. Dispensing hose not requiring mechanical connection (threads or bolts) to receiving tank should be equipped with a self-closing nozzle or with a valve that must be held open by manual control while making a delivery. Fueling of tow boats and large craft should be governed by the cargo transfer provisions of the tank vessel section of these principles and practices.

2. Pipe and hose lines at marine service stations should be protected against mechanical damage. A valve should be provided in each line at or

near the pier, wharf, or other structure whereby the supply from a shore facility or storage may be shut off.

3. Receptacles, storage and proper disposal should be provided for oil-containing materials and rubbish.

4. Waste oil should be collected and held for proper disposal (see Section V).

5. Proper maintenance measures should be provided and due caution exercised to prevent any spills or discharges of oil.

III. RIVER CRAFT

1. Care should be exercised in the pumping of bilge to insure that only oil-free water shall be discharged.

2. River craft should pump oil-containing bilge water only at such places where treatment facilities are provided to remove the oil before discharging bilge water to the river.

3. Filters and other objects containing oil or oil residue should be washed, cleansed or disposed of in such a way to prevent pollution of the river.

4. Waste oil should be collected and held for proper disposal (see Section V).

5. Receptacles, storage and proper disposal should be provided for oil-containing materials and rubbish.

6. Proper maintenance measures should be provided and due caution exercised to prevent any spills or discharges of oil.

IV. OTHER INSTALLATIONS

1. Other installations should be so constructed as to prevent the discharge of oil or oily substances to sewers, drains or water courses without adequate treatment to remove the oil, in accordance with regulations of the state water pollution control agency.

2. All sewers and drains from locations where oil is used or handled should be provided with properly maintained and adequate oil-trapping

facilities in accordance with regulations of the state water pollution control agency.

3. Suitable facilities should be provided for the collection and holding of used or waste oil for proper disposal (see Section VI).

V. DISPOSAL OF WASTE OIL

1. Disposal of waste oil should be undertaken in a manner which will avoid stream pollution, such as:

- (a) Salvaging or sale to a salvage company.
- (b) Burning at a suitable site, use as fuel, etc.
- (c) Using as a binder for roads, parking grounds, etc.

VI. EMERGENCY MEASURES FOLLOWING OIL SPILLS

1. The source of leakage or spillage should be located and immediate corrective action taken to stop discharge of oil.

2. Oil spills should be confined to as small an area of the waterway as possible and collected or disposed of in a satisfactory manner to minimize pollution effects.

VII. NOTIFICATION OF OIL SPILLS

Notification of oil spills and accidental discharges of oil or oily substances in quantities sufficient to be unsightly or deleterious should be made immediately by telephone to the water pollution control agency in the state where the spill or discharge occurs by the municipality, corporation, person or entity responsible for such occurrence.

A written report should be required when the state agency considers additional information desirable. Such notification and reports should set forth the time and place of the oil spill or discharge, the type and amount of the oil lost, actions taken to stop the spill or discharge and to minimize the pollution resulting therefrom and a statement of measures taken or intended to be taken in order to prevent a recurrence of such spill or discharge.

Where spills may affect interstate waters, the state agency should notify the Ohio River Valley Water Sanitation Commission by telephone in order that an appropriate alert may be given to downstream state agencies.

Abnormal Phenolic Discharges

ORSANCO RESOLUTION NO. 3-57

Adopted January 24, 1957

WHEREAS: There is increasing evidence of the indiscriminate discharge of abnormal amounts of phenolic substances into the Ohio River and its tributaries from industrial plants, occurring notably over week-ends and presumably during periods of routine clean-up and adjustment of plant operations; and

WHEREAS: These discharges are creating serious problems at municipal water supply plants with resultant public distress because of taste-and-odor in the finished water; and

WHEREAS: Findings of the Steel Industry Action Committee of the Commission made available to the staff and to the Engineering Committee in connection with a study of phenolic wastes suggest that "slug" (abnormal) discharges are related to the taste-and-odor control difficulties experienced at water-treatment plants;

NOW, THEREFORE, BE IT RESOLVED: That pending the completion of comprehensive investigations relating to the adoption of a phenol-control program, the Ohio River Valley Water Sanitation Commission declares the existence of a condition requiring the prompt cessation of indiscriminate discharge of abnormal quantities of phenolic substances in accordance with the intent of basic industrial-waste control requirements adopted on April 6, 1955, and

BE IT FURTHER RESOLVED: That the states signatory to the Ohio River Valley Water Sanitation Compact (1) transmit copies of this resolution to all industrial companies known to be discharging phenolic substances to the Ohio River and its tributaries; and (2) take such action as they deem appropriate to insure compliance with this resolution; and (3) request all companies to promptly notify the state agencies of accidental leaks, spills or other discharges of any abnormal nature as soon as they occur so that this information may be relayed to the Commission and thus provide opportunity for warning downstream water users to make such preparation as they can to cope with the situation; and

BE IT FURTHER RESOLVED: That each signatory state bordering the Ohio River, present at the April 4 meeting of the Commission, a list of the names and locations of the industries that have been notified by them.

Permits for Sewer Extensions

ORSANCO RESOLUTION NO. 17-60

Adopted April 8, 1960

WHEREAS: More than two-thirds of the municipalities in the Ohio Valley have undertaken construction of sewage-treatment facilities, and have thus expressed confidence that the eight-state compact would insist upon compliance from all municipalities in meeting their basic obligation for stream pollution prevention and abatement; and

WHEREAS: Certain municipalities have shown little disposition to advance the installation of adequate sewage-treatment facilities despite the urging of the states signatory to the Ohio River Valley Water Sanitation Commission; and

WHEREAS: These municipalities which have not yet installed adequate sewage-treatment facilities can create additional pollution by the connection of new sewers;

NOW, THEREFORE, BE IT RESOLVED: That the signatory states hereby adopt the policy that permits for the extension of such sewers that could increase pollution will be issued only when adequate treatment facilities exist or are definitely assured within a time satisfactory to the state; and

BE IT FURTHER RESOLVED: That the signatory states will report to the Ohio River Valley Water Sanitation Commission those municipalities within the interstate compact district who are denied permits for the extension of sewers.

Notification of Spills and Accidental Discharges

**ORSANCO RESOLUTION NO. 14-59 Amended
Adopted September 30, 1959
Amended January 12, 1961**

WHEREAS: Spills and other accidental discharges of sewage, industrial wastes and other substances which are contrary to the language and intent of the Ohio River Valley Water Sanitation Compact and are in violation of the treatment standards and other regulations duly promulgated by the Ohio River Valley Water Sanitation Commission are likely to occur from time to time, notwithstanding efforts to prevent them; and

WHEREAS: Such spills and discharges are likely to have such a deleterious effect upon the quality of the waters of the Ohio River Valley Water Sanitation District as to cause serious damage to or to impose unwarranted burdens upon the users thereof;

BE IT RESOLVED: That, in order to minimize the adverse effect which the above-described occurrences may have upon users of waters within its jurisdiction, the Ohio River Valley Water Sanitation Commission does hereby establish the following procedure for the dissemination of information with regard to such occurrences among agencies, municipalities, corporations, persons or other entities which or who may be affected thereby:

1. Each and every municipality, corporation, person or other entity which or who may cause or be responsible for any spill or accidental discharge into any of the waters of the Ohio River Valley Water Sanitation District of sewage, industrial waste or other substance of such character and in such quantity as to be unsightly or deleterious to the quality of such waters shall give immediate notification thereof by telephone to the water pollution control agency of the state in which such spill or discharge may occur;
2. Such notification shall set forth the time and place of such spill or discharge, the type or types and quantity or quantities of the material or materials included therein, action or actions taken to stop such spill or discharge and to minimize the polluting effect

thereof, the measure or measures taken or to be taken in order to prevent a recurrence of any such spill or discharge and such additional information as may be requested by the state agency;

3. It shall be the responsibility of each industrial establishment or other entity discharging directly to a stream to have available insofar as practicable and reasonable the following information pertaining to those substances that are employed or handled in its operations in sufficiently large amounts as to constitute a hazard in case of an accidental spill and discharge into a public stream:
 - (a) Potential toxicity in water to man, animals and aquatic life,
 - (b) Details on analytical procedures for the quantitative estimation of such substances in water,
 - (c) Suggestions on safeguards or other precautionary measures to nullify the toxic effects of a substance once it has gotten into a stream;
4. A written verification of such report shall be submitted upon request of the state agency;
5. Whenever any such spill or discharge may affect interstate waters which are within the jurisdiction of the Ohio River Valley Water Sanitation Commission, the state agency receiving the notification to be given as above provided shall promptly relay the information contained therein to the Ohio River Valley Water Sanitation Commission by telephone in order to permit it to alert downstream state agencies and water users which are or who may be adversely affected by such spill or discharge;
6. Nothing herein shall relieve any municipality, corporation, person or other entity from responsibility for complying with the terms provisions and conditions of the Ohio River Valley Water Sanitation Compact or with treatment standards and other regulations promulgated under authority thereof or from responsibility for complying with any federal, regional, state or local statutes, ordinances or regulations which may be applicable.

Toxic Materials in Municipal Discharges

ORSANCO RESOLUTION NO. 3-61

Adopted January 12, 1961

WHEREAS: The effluent from municipal sewage-treatment plants discharged into waters located within the Ohio River Valley Water Sanitation District may contain substances in concentrations or combinations which are toxic or harmful to human, animal or aquatic life; and

WHEREAS: The presence of such substances in such waters is contrary to the objectives of the Ohio River Valley Water Sanitation Compact, and the discharge thereof into such waters is a violation of the provisions of that Compact, and of regulations and requirements promulgated thereunder by the Ohio River Valley Water Sanitation Commission;

NOW, THEREFORE, BE IT RESOLVED: That the Ohio River Valley Water Sanitation Commission hereby recommends that the states signatory to the Ohio River Valley Water Sanitation Compact, in order to further the objectives thereof and to promote compliance with its provisions and with the regulations and requirements promulgated thereunder, adopt and enforce the policy that requirements relating to or permits for all municipal discharges into waters of the Ohio River Valley Water Sanitation District shall include the condition that such discharges shall be free of all substances in concentrations or combinations which are toxic or harmful to human, animal or aquatic life or otherwise detrimental to legitimate water uses as specified in Article I of the Ohio River Valley Water Sanitation Compact.

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 S. O'Brien
WILLIAM S. O'BRIEN,
Secretary of State



COMMONWEALTH OF KENTUCKY

By Earle C. Clements
EARLE C. CLEMENTS,
Governor
Henry Ward
HENRY WARD,
Commissioner
Earl Wallace
EARL WALLACE,
Commissioner

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



STATE OF OHIO

By Thomas J. Herbert
THOMAS J. HERBERT,
Governor
Frederick B. Bly
FREDERICK B. BLY,
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



STATE OF NEW YORK

By Thomas E. Dewey
THOMAS E. DEWEY,
Governor
Martin F. Hilsinger
MARTIN F. HILSINGER,
Commissioner
Charles B. McCabe
CHARLES B. MCCABE,
Commissioner
Herman E. Hillerboe
HERMAN E. HILLERBOE,
Commissioner

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



STATE OF ILLINOIS

By Dwight H. Green
DWIGHT H. GREEN,
Governor
C. W. Kelsen
C. W. KELSEN,
Commissioner
J. J. Woltmann
J. J. WOLTMANN,
Commissioner
Roland R. Cross
ROLAND R. CROSS,
Commissioner

Attest: Edward J. Barnett
EDWARD J. BARNETT,
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
Brady Hammond
BRADY HAMMOND,
Commissioner

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

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.



COMMONWEALTH OF PENNSYLVANIA

By James H. Duff
Governor
Herbert P. Song
Commissioner
E. A. Holbrook
Commissioner
Norman W. Vaik
Commissioner

Attest: C. M. Morrison
Secretary of the Commonwealth



STATE OF INDIANA

By Walter F. Latta
Governor
L. E. Bursey
Commissioner
Blanche A. Poole
Commissioner
Joseph L. Quinn
Commissioner

Attest: 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.

