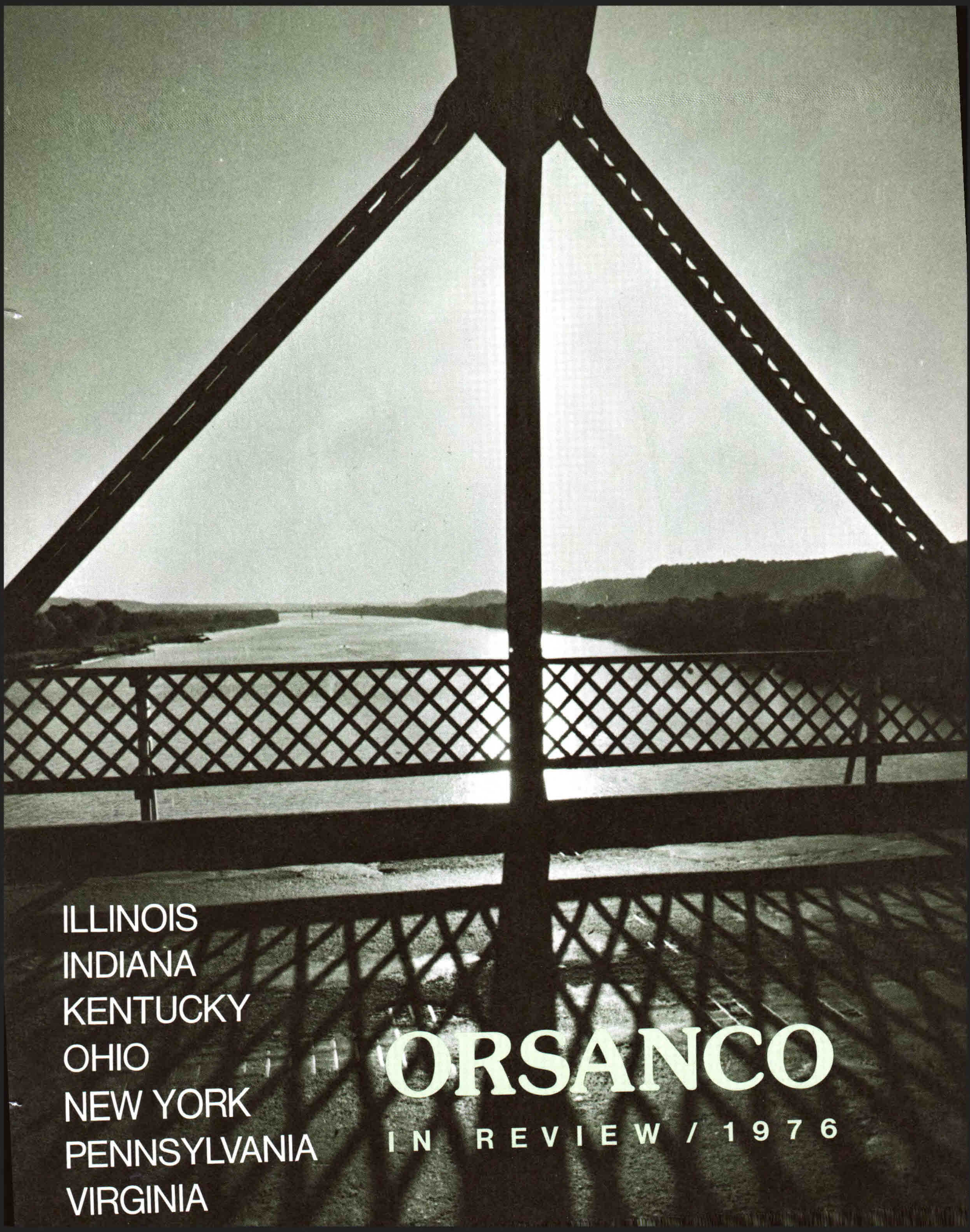

ORSANCO

IN REVIEW / 1976

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THE COMMISSIONERS OF THE OHIO RIVER VALLEY WATER SANITATION COMMISSION — AN INTERSTATE COMPACT AGENCY CREATED JOINTLY IN 1948 BY THE STATE OF ILLINOIS, THE STATE OF INDIANA, THE COMMONWEALTH OF KENTUCKY, THE STATE OF NEW YORK, THE STATE OF OHIO, THE COMMONWEALTH OF PENNSYLVANIA, THE COMMONWEALTH OF VIRGINIA AND THE STATE OF WEST VIRGINIA, WITH THE APPROVAL OF THE CONGRESS OF THE UNITED STATES — RESPECTIVELY SUBMIT THIS REVIEW OF THE ACTIVITIES OF THE COMMISSION IN 1976.

The Chairman's Message

The progress of ORSANCO is a tribute to the leadership of the eight member states and to the support of the citizenry of the Valley. From its inception, the Commission has recognized that a joint attack on water pollution is dependent upon state responsibility, state primacy, and the subtle interactions which take place among individual states and the federal government and between state governments and their constituencies. The Compact itself is a covenant. When the governors of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia affixed their signatures to the original legislation, they did not endorse an autonomous government agency which would act in their behalf but a finely honed agreement, founded upon mutual trust and respectful of state identity and interstate diversity. The Commission has, therefore, become a vehicle through which member states with a variety of economic and social orientations can fulfill their primary commitment to improve the quality of life within their jurisdictions by sharing in work toward interstate pollution control in Ohio River Compact District waters. The Commission has had continued effectiveness because federal and state interests have been served, and ORSANCO activities of 1976 have borne this out.

To cite an example, Commission representatives throughout the Ohio River Basin have long recognized that meaningful and applicable water quality criteria are a tool which directly abets the pollution control effort. Prior to the existence of ORSANCO, a number of states in the Ohio River Basin had not developed these, but no more than five years after the birth of the Commission, through discussion and closure in an interstate setting, every state in the Basin had instituted its set of criteria. For the most part, these have worked well within the jurisdictions of states, but there are still differences in state criteria for some shared reaches of waterways. The Commission thus recently instituted a task force composed of representatives from member states and the U. S. Environmental Protection Agency to resolve the conflicts and achieve uniform state standards for the Ohio River and compatible state standards for interstate streams throughout the Compact District. Since state representatives to the task force have dominion over the direction of its efforts, the resolution of criteria conflicts — an important outcome of the group's work this year — are much more assured of acceptability to each individual participating state.

Other important environmental matters — state management of national discharge permitting system and mine drainage control programs, a well-orchestrated regional appraisal of federal law which influences the course of environmental decisions at the national level, to name just a few — have been coordinated this year through the proper functioning of the interstate agency. The Commission has also served as a mechanism whereby representatives of water utilities who convene as ORSANCO's Water Users Committee cooperate in efforts to achieve better drinking water quality. This year, these water utilities have offered strong support and funds which are being complemented with a grant from the U. S. Environmental Protection Agency for a Commission project aimed at finding practical solutions to the problem of troublesome organic compounds in water treated for drinking. Both in letter and spirit, the project is a totally cooperative venture motivated by free choice and the concern of improving the health of the populace of this valley.

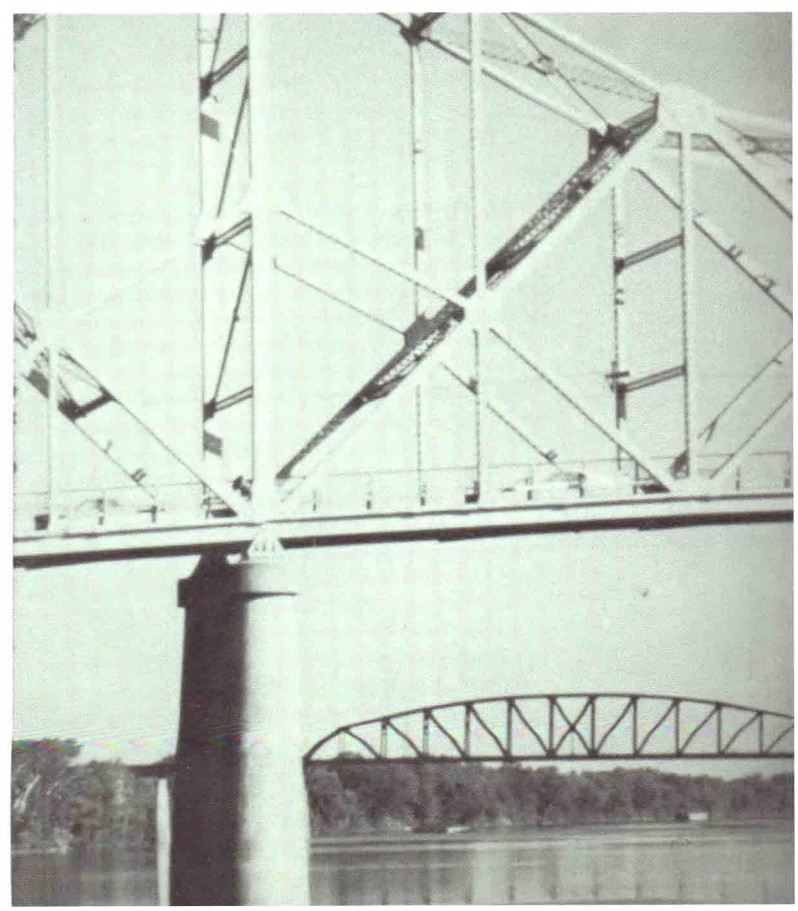
On the technical level, the Commission's expanded surveillance program has, this year, been further tuned to respond to changing needs. The program has now begun to offer specific evidence of newer regional pollution problems and the mechanism of forum is facilitating state recognition and correction of these as they occur, where they occur — locally.

In this way, the Commission continues to encourage citizens who are committed to a healthier environment in their own vicinities and to foster the guiding principle that government serves best, the less remote from, the more directly in touch it is with local problems, local needs.

Streamlining to Meet New Challenges

River clean-up is a many-faceted task, and approaches to the complex problems which the task poses must be kept flexible, attuned to the fluid nature of the river itself. As a Commission mandated since 1948 to work toward pollution abatement in the thousand-mile-long Ohio River and its major tributaries, ORSANCO has witnessed a changing river and scrutinized the changing ecosystem supported by its waters. The Commission has seen steady improvement in aspects of water quality which plagued citizens of the Ohio River Valley and were recognized threats to the life of the river at least thirty years ago. Dissolved oxygen levels, once too low to maintain aquatic life, have risen as a result of the construction of wastewater treatment works. Work toward the control of acid mine drainage, initiated in 1950 through the Commission and by concerned Compact states, has revived sections of river once devoid of life. Although the ecosystem is slow to recover, it now supports a population of pollution-sensitive fish. These are examples of progress, evidences of healing streams. They suggest that a focus upon the basics of water quality has met with some success. Despite the fact that fundamentals must not be forgotten, the Commission's attention to these can now begin to shift from the more aggressively corrective to the preventive mode, freeing greater energy for tackling new challenges and focusing upon present realities of pollution which either the state of technology or the immediacy of control problems blocked during the first two decades of ORSANCO's existence.

But what *are* the challenges — what *are* the present realities of pollution control in 1976? Synthetic compounds, organic chemicals, pesticides, perhaps once thought to be relatively innocuous or of little threat to the environment because of their limited manufacture and use, have, through the expansion and application of technology, been pinpointed as detrimental to the ecosystem. Trace elements, known to be toxic but previously observed in such consistently miniscule concentrations in Ohio River water that they were not considered hazardous, are being found in excess of acceptable limits. In addition, upgraded treatment facilities and disinfection practices have not diminished some water quality problems. High bacteria counts in the Ohio River, for example, come from diffuse, rather than localized sources. Stormwater runoff from city streets and farms is a suspected carrier. This problem, known as nonpoint source pollution, is particularly perplexing and difficult to control, since its elimination cannot be accomplished via conventional, point source methodology. Rather, control of the problem requires the effecting of a multiplicity of measures related to the management of urban, rural, and agricultural practices, as well as product use and control, and the technology base for attacking the problem is, at this time, limited. Therefore, besides an ongoing review of the "basics" of water quality and the related status of treatment works in the Ohio River region, this volume will delineate what the eight Compact states, working in forum with the U. S. Environmental Protection Agency and other environmental agencies, have done during 1976 to address currently challenging environmental issues and to tailor and recast ORSANCO programs to intensify the regional assault upon the valley's pollution control problems.



Assessment of Stream Conditions

Comparative studies of fish species distribution completed for the Ohio River show that pollution-sensitive species of fish are becoming more widely distributed and have moved into areas of the Ohio where they had not been observed in the past. These studies confirmed the improvement in basic environmental conditions for aquatic life, in pH and dissolved oxygen levels, and indicate that, in general, water quality in the entire Ohio River was sufficient for the protection and propagation of fish and other aquatic life. However, dissolved oxygen levels did fall below the stream standard — daily average not less than 5 mg/1, no value less than 4 mg/1 — at several ORSANCO electronic monitor stations on the Ohio during two critical summer months, July and August, and a high percentage of these violations occurred at monitor locations on the 250 mile stretch of the Ohio from Cincinnati to below Louisville.

Secondary treatment facilities reduce major discharges of oxygen-demanding wastewater materials which hamper the respiration of fish. The construction of such facilities is at or near the completion phase in metropolitan areas from Cincinnati to below Louisville, and necessary additional wastewater treatment works are under construction at four major plants serving seventy-eight communities in the Ohio River District. These should substantially diminish dissolved oxygen problems in Ohio River waters.

Water quality was generally suitable, after treatment, for use as a public and industrial water supply source during 1975, but combined and storm sewer discharges, as well as urban and rural run-off resulted in bacteria levels which exceeded state standards for primary (body contact) recreation and public water supply. Total and fecal coliform bacteria counts were found to be in violation of applicable recreation standards at all sampling locations throughout the summer and fall recreation season, despite the installation of both municipal and industrial treatment facilities to meet the 1970 ORSANCO pollution control standards and the 1977 effluent requirement (Best Practicable Treatment) of the Federal Water Pollution Control Act (PL 92-500). These facilities treat those water quality parameters affected by point source discharges to the Ohio River. Bacteria levels, on the other hand, are heavily impacted by nonpoint sources.

The nonpoint sources of pollutants are considered to be major determinants for other water quality characteristics after point source control facilities are completed in keeping with Commission-state standards as well as with federal law. Although direct urban and rural run-off to the Ohio River may have localized effects upon water quality conditions associated with nonpoint source pollution, especially in and adjacent to the major metropolitan areas, the most pervasive impact will be manifested from the discharges of the major and minor tributaries, because approximately 95 percent of the more than 2,000,000 square mile Ohio Basin drainage area lies within tributary basins.

Trace metals and chemicals may adversely effect aquatic life and public water supply, and standards for these parameters vary from state to state and differ according to water use. Applicable standards for barium, cadmium, chromium, nickel, selenium, silver and zinc were met 100 percent of the time at all Ohio River monitoring locations. However, standards for arsenic, copper, lead and mercury were exceeded in one to three samples (about two percent of all analyses) from several sampling locations. Applicable Illinois, Ohio, Pennsylvania and West Virginia standards for phenolic materials, and Illinois and Pennsylvania total iron and total manganese standards were exceeded in a significant number of samples from stations in these states. Cyanide levels frequently exceeded both Ohio and West Virginia standards at sampling sites in the first 150 miles of the Ohio River.

Nitrogen and phosphorus compounds are important nutrients which control the growth of plankton and aquatic vegetation. Although no significant problems related to these constituents occurred during 1975, it is interesting to note that fluctuations in nutrient levels are influenced directly by discharges of some of the major tributary streams. The nutrients, as well as dissolved solids and mineral constituents, may therefore be linked to sources other than the Ohio River.

Focal Points in Water Quality Nonpoint Source Pollution

The term "nonpoint source" indicates that the origins of a pollutant are diffuse and intermittent in nature and cover a large area. This type of pollution occurs to such an extent that an abatement program for the Compact District is desirable if national water quality goals for aquatic life and recreation are to be met by 1983. Thus, in 1976, a report addressing the issue was developed. It recommends methods and practical techniques for identifying the problem in order to assist Compact states and their respective local water quality management agencies in effectuating controls.

The report establishes that the pollutants in question reach the stream either directly in stormwater run-off or indirectly from combined sewer overflow during periods of increased precipitation, and that the specific land areas most directly involved are put to agricultural, silvicultural (the cultivation of trees), construction and mining, as well as urban use.

In agricultural areas, particularly crop and pasturelands, soil erosion contributes sediment to the stream. Sediment itself may unbalance the ecosystem while carrying with it a host of pollutants — nutrients, pesticides, organics, chemicals, and bacteria.

In areas where trees are grown for commercial use, timber harvesting is likely to disrupt surface soil, contributing to erosion and increasing the sediment load. Surface run-off from such areas also conveys the pesticides and fire retardant chemicals used in forest management to the stream.

Mining operations create both physical and chemical water pollution problems — increased sediment loads, particularly from strip-mined areas, as well as iron salt and sulfuric acid drainage. In areas where construction of any kind is taking place, soil erosion is prevalent, thus adding to the sediment load.

The urban run-off problem involves three types of discharges — combined sewer overflow, surface run-off through separate storm sewers, and sanitary sewer overflows caused by stormwater infiltration.

The report also provides a breakdown of land use in the Ohio Basin. Forty-eight percent of Basin lands are classified as agricultural, thirty-nine percent as silvicultural, and five percent as urban.

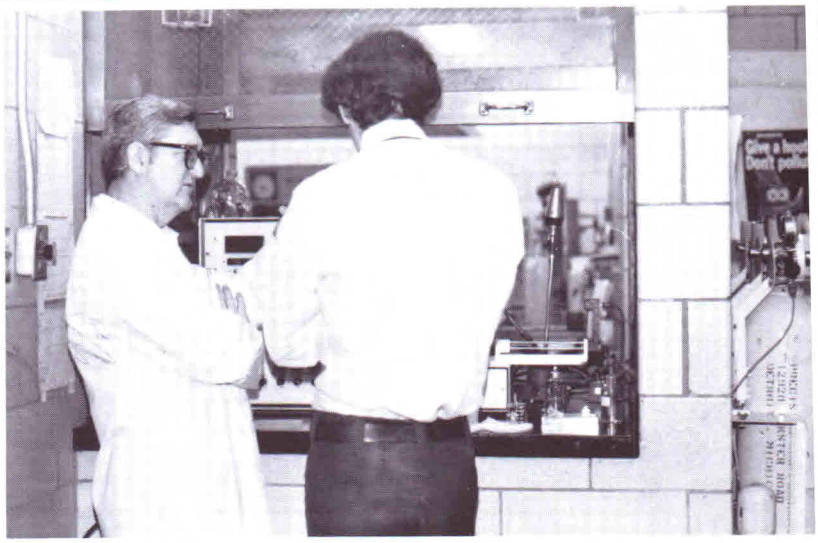
Photograph courtesy of U.S. Department of Agriculture Soil Conservation Service: Indiana

▲ *Pollutants from urban areas commonly enter the stream in stormwater run-off and in overflow from combined sewer systems.*

▲ *Pesticides and herbicides dusted on crops may reach the stream by means of storm- water run-off, sedimentation or direct spray drift.*

Construction and Mining activities displace soil and pollutants, which eventually wash into river systems. ▶

Representatives of water utilities convene as the Water Users Committee to make plans for reducing the organics in drinking water.



At the Cincinnati Waterworks, Organics Project personnel discuss the operation of a total organic carbon (TOC) analyzer with the waterworks staff.

Organics

The observation of trace organics in Ohio River water treated for drinking has been a troubling one both for the public in general and for water pollution control agencies in particular. Certain of the organic substances are known or suspected to be carcinogens. While the trace levels presently reported are not considered immediate health hazards, they may be significant from the standpoint of long-term human consumption. In 1973, the Commission, with the aid of U. S. Environmental Protection Agency funds and under a contract with Carnegie-Mellon laboratories, initiated a limited study to detect, identify, and determine the persistence of trace organic materials in the Ohio River.

Because the initial examination of samples collected at five major Ohio River water treatment plants revealed that some fifteen new methychloride extractable organic constituents form in the drinking water treatment process both before and during chlorination, it was determined that the issue required additional exploration. During 1976, representatives from water utilities throughout the Ohio River Valley collectively committed $200,000 which the Federal Environmental Protection Agency matched with grant monies, in sponsorship of a two-year coordinated study aimed at developing practical methods for removal of the organic compounds during the treatment process. The relationship between variations in the type as well as the concentration of organic compounds will be explored, and the influence of current treatment practices on the presence of organics in potable water will be evaluated. Modifications in the treatment process will also be developed, applied, and adjusted to make for more efficient removal of the organics from drinking water.

In addition, the project will assist Compact state and federal agencies in the development of policies and regulations relating to the control of point and nonpoint sources of organic pollutants and water treatment practices.

Biological Sampling — Update

During the fall of 1976, a fish sampling study was conducted in cooperation with signatory state and federal agencies in order to assess levels of pollution and the general state of the ecosystem in Ohio River waters. Samples were collected at eleven lock and dam sites along the entire length of the Ohio main stem. Analyses of the samples were conducted at the laboratories of the U. S. Food and Drug Administration (FDA) of the Department of Health, Education and Welfare to detect levels of trace metals, pesticides, and PCBs (polychlorinated bi-phenyls) in fish flesh. The Channel catfish, common to the Ohio River, was the species focused upon for purposes of the laboratory investigations. These revealed that although no undue concentrations of trace metals such as mercury were detected, levels of the pesticide chlordane were of concern and the PCBs (polychlorinated bi-phenyls), a group of toxic chemicals used for a variety of industrial purposes, were found accumulated in excess of the FDA tolerance limits, 5 parts per million (PPM) in edible portions of the catfish collected at six of the sampling locations selected for the study.

SAMPLING SITES ON THE OHIO	PCB LEVELS
1. Dashields (near Pittsburgh, Pa.)	9.7 PPM
2. Pike Island (near Wheeling, W. Va.)	6.0 PPM
3. Hannibal (near Moundsville, W. Va.)	4.4 PPM
4. Belleville (near Marietta, O.)	6.8 PPM
5. Gallipolis (southeastern O.)	4.4 PPM
6. Meldahl (near Cincinnati, O.)	16.6 PPM
7. Markland (near Louisville, Ky.)	6.4 PPM
8. McAlpine (Louisville, Ky.)	20.8 PPM
9. Cannelton (near Tell City, Ind.)	1.4 PPM
10. Uniontown (near Evansville, Ind.)	2.6 PPM
11. Smithland (near Paducah, Ky.)	1.2 PPM

For purposes of comparison, samples of Ohio River water were also tested at each location where fish were sampled. In all instances, the chemicals in question were not detected in the water. Fish, on the other hand, are known to be efficient concentrators of the pollutants and thus are of chief concern.

After being taken from lock chambers, fish are differentiated according to species so that the general composition of the biological community can be determined and trends in water quality can be assessed through an examination of species distribution.

Biologists examine fish for signs of contamination.

Additional Surveillance

In 1974, the Commission approved the augmentation of the ongoing electronic and water utilities data reporting system and endorsed a manual sampling program so that data could be collected for key water quality constituents which may not be efficiently handled through an electronically telemetered system. The initial collection of data for these constituents, in addition to the outcome of biological sampling efforts and findings of the U. S. Environmental Protection Agency, have prompted the Commission to initiate increased field surveillance which includes the analysis of radioactivity, pesticides, herbicides and sediment.

Radiological data is important for assuring the continuity of acceptable background levels of radioactivity and for providing the foundation for evaluations of future activities. Dissolved radioactive particle activity and isotope levels are being analyzed.

Pesticides and **herbicides,** some of which have accumulated in the edible portions of Ohio River catfish, are toxic substances which contaminate the river in a number of ways. They may be present in stormwater run-off from treated land, they may reach streams in spray drift, or they may be washed directly into streams when spray equipment is cleaned. Their toxic properties may persist in nature, making them detrimental to aquatic and human life. Sampling for pesticides and herbicides has been undertaken at locations in the surveillance network, and subsequent efforts will reflect the results of analyses, as well as the findings of the U. S. Environmental Protection Agency.

Sediment both absorbs and adsorbs many pollutants — pesticides, PCBs and heavy metals, for example — which thus become part of the bottom deposits of the stream and may enter the food chain as a result of ingestion by bottom-feeding fish or via other aquatic life organisms. Sediment samples are being collected from key locations in the manual sampling network.

The map and table indicate locations of current mainstem and tributary surveillance sites — points from which ORSANCO collects stream quality data. These are identified as robot monitor stations, manual sampling sites, water user stations (stations situated at water treatment plants), or combined data collection locations.

★ **robot monitor stations**

■ **manual sampling sites**

● **water user stations**

▲ **combined data collection locations**

OHIO RIVER STATIONS	MILE POINT
▲ South Heights, Pa.	15.2
▲ East Liverpool, Oh.	40.2
● Toronto, Oh.	59.1
● Weirton, W. Va.	62.2
● Steubenville, Oh.	65.3
● Yorkville, Oh.	83.6
■ Pike Island, W. Va.	84.2
▲ Wheeling, W. Va.	86.7
▲ Shadyside, W. Va.	102.4
● Moundsville, W. Va.	111.0
● Natrium, W. Va.	119.4
▲ Willow Island, W. Va.	161.8
● Parkersburg, W. Va.	183.7
■ Belleville Dam, W. Va.	203.9
● New Haven, W. Va.	241.6
▲ Addison, Oh.	260.0
▲ Gallipolis Dam	279.2
▲ Huntington, W. Va.	306.9
■ Kenova, W. Va.	315.8
● South Point, Oh.	318.0
▲ Greenup, Ky.	341.0
● Portsmouth, Oh.	350.0
■ Meldahl Dam, Oh.	436.2
▲ Cincinnati, Oh.	462.8
▲ North Bend (Miami Fort), Oh.	490.0
■ Warsaw, Ky.	528.1
● Madison (Clifty Creek), Ind.	559.5
▲ Louisville, Ky.	600.6
▲ West Point, Ky.	625.9
▲ Cannelton Dam	720.7
★ Hawesville, Ky.	728.4
▲ Evansville, Ind.	791.5
▲ Uniontown, Ky.	846.0
▲ Joppa, Ill.	952.3

OHIO RIVER TRIBUTARY STATIONS	Miles from sampling station to confluence of tributary with Ohio River	Mile at which tributary enters Ohio River
▲ Allegheny River at Oakmont, Pa.	13.3	0.0
● Allegheny River at Wilkinsburg, Pa.	8.8	0.0
● Monongahela River at Charleroi, Pa.	42.6	0.0
▲ Monongahela River at South Pittsburgh, Pa.	4.5	0.0
▲ Beaver River at Beaver Falls, Pa.	5.3	25.4
● Muskingum River at Philo, Oh.	66.8	172.2
● Muskingum River at Beverly, Oh.	28.0	172.2
■ Muskingum River near Marietta, Oh.	5.8	172.1
● New River at Glen Lyn, W. Va.	193.9	265.7
● Kanawha River at Cabin Creek, W. Va.	74.3	265.7
▲ Kanawha River at Winfield, W. Va.	31.1	265.7
★ Kanawha River at Pt. Pleasant, W.Va.	1.8	265.7
▲ Big Sandy River at Louisa, Ky.	20.3	317.1
■ Scioto River at Lucasville, Oh.	15.0	356.3
■ Little Miami River at Cincinnati, Oh.	3.4	463.4
▲ Licking River at Covington, Ky.	4.5	470.3
▲ Great Miami River at Elizabeth Oh.	5.5	491.1
■ Green River near Spotsville, Ky.	41.3	784.5
▲ Wabash River at New Harmony, Ind.	51.5	848.0
■ Cumberland River near Grand Rivers, Ky.	30.6	922.6
▲ Tennessee River at Highway 60 near Paducah, Ky.	6.0	935.0

The Ohio River Valley Compact District On-Stream Information Network

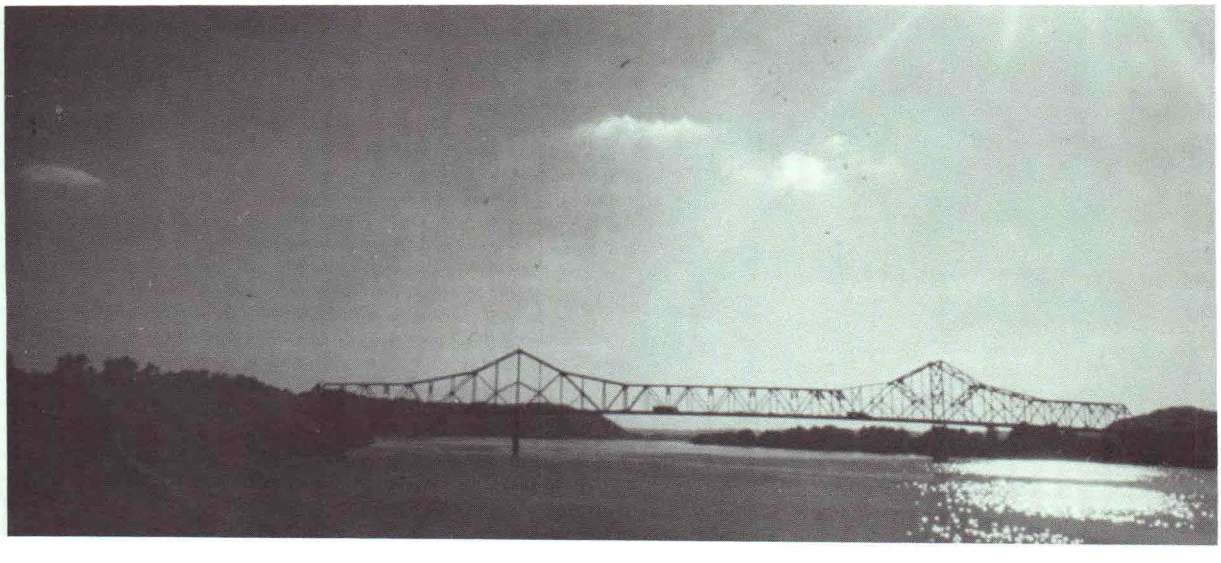
ORSANCO – An Intergovernmental Forum

The Ohio River Basin is one of the most productive land areas in the United States. It is a complex, interactive unit, a matrix of large industries, cities, prospering farms, vast natural fuel reserves. The Ohio River system itself is a central resource which fosters the ongoing productivity of the Basin. It is used for transportation, consumed in large quantities, and receives treated wastes from industries and municipalities, as well as the wastes from agricultural activities and the run-off from urban areas. Since all activities which make for a thriving River Basin are dependent upon the health of a river system, all uses to which Ohio River waters are put must be measured against a total impact upon water quality, viewed from a cooperative regional perspective. For the agency empowered to treat the river in its entirety, there is a major mission — that of engendering inter-jurisdictional and inter-agency alliances and action which result in Basin-wide environmental improvement.

Planning Assistance

The Commission role in water quality management and planning is a logical extension of its long-standing and comprehensive data collection and analysis activities. Because of its work in information-gathering, ORSANCO has a lead role in developing the water quality control aspects of the Level B Study, a detailed investigation which prioritizes localized water resources planning needs for the Ohio River main stem. The work is being accomplished in coordination with the Ohio River Basin Commission (ORBC), the regional planning agency established under the Water Resources Planning Act. Data from the ORSANCO water quality monitoring network is being used to develop an assessment of water quality from point and nonpoint sources which will determine where criteria are currently being exceeded and what future impacts might be felt from present and projected quality conditions in the Ohio River region. With respect to nonpoint source pollution, the effects of urban run-off, mining, and agricultural activities are being evaluated to provide an estimate of their contributions to the overall pollution load. The work is scheduled for completion in 1977.

Ohio River Main Stem, a report compiled annually, is a detailed examination of current and future water quality conditions. It is prepared for Illinois, Indiana, Kentucky, Ohio, Pennsylvania and West Virginia in partial fulfillment of the provisions of Section 305(b) of Public Law 92-500, and as such, it provides the states with an additional tool for use in the planning process.



Committees and Task Forces: Interstate – Interagency Coalitions

An Ad Hoc Working Group on Mine Drainage was established by the Commission during 1976. The group includes representatives from natural and environmental resources divisions of the eight Compact states as well as from the U. S. Corps of Engineers, the Appalachian Regional Commission, and the Environmental Protection Agency. Because seventy percent of the nation's known bituminous reserves are located within the Ohio River Basin and the national trend is toward coal as a principal energy source, continued region-wide attention to mining and its relationship to water quality is a necessity. The intergovernmental work group is thus reviewing mine drainage problems, specifically as they relate to areawide planning (208) and other nonpoint source pollution programs. They are working toward the formulation of specific recommendations for state and regional programs to control pollution resulting from past and current mining activities and toward the development of pre-mining planning requirements to minimize future water quality problems.

The NPDES (National Pollutant Discharge Elimination System) Coordinating Committee was established by the Commission in recognition of the various problems which arise when permitting and subsequent enforcement authority within the system is in some instances delegated to a state and in others, administered by the U. S. Environmental Protection Agency. Since the Ohio River is a major boundary stream geographically linking states and EPA regions, there is a need for consistency in tailoring and applying NPDES requirements, and ORSANCO is in a unique position to provide a conduit for coordinating the system. Through the NPDES Committee, federal and state representatives work in concert to resolve problems and clarify responsibilities for administering the system, compare discrepancies in various guidelines applicable to discharges, successfully incorporate newly established pollutant limits into permits, and, when appropriate, effectuate a smoother transfer of a federally administered permitting program into state hands. As the Committee is also a means to scrutinizing the overall effectiveness of the system, 1976 has been its pivotal year. With the approach of the 1977 deadline for the installation of municipal and industrial treatment facilities to meet Best Practicable Control Technology as stipulated in PL 92-500, careful assessment of progress was called for.

Because it was agreed that delays in the availability of adequate grant monies have resulted in municipal construction lags and in many instances, both municipal and industrial treatment facilities under construction would not be in operation by the July 1, 1977 deadline, the committee proposed and the Commission adopted a resolution for transmittal to the Congress and the President of the United States. The resolution strongly recommended for a realistic extension of time frames on a case-by-case basis.

The Ad Hoc Committee on Water Quality Criteria Conflicts was established by the Commission in 1972. Its primary purpose, that of developing a consistent set of criteria and minimum conditions applicable to the entire Ohio River main stem and to interstate reaches of tributaries, was largely fulfilled in 1976. The conditions, adopted and recommended as official ORSANCO policy, are being reviewed for acceptance by appropriate state agencies. The criteria for interstate waterways within the Ohio River Basin will enable state and regional entities to coordinate plans for water quality improvement more efficiently and consistently. The committee itself will continue to develop recommendations as necessary and to provide ongoing review of the application of adopted criteria.

Impacting National Direction

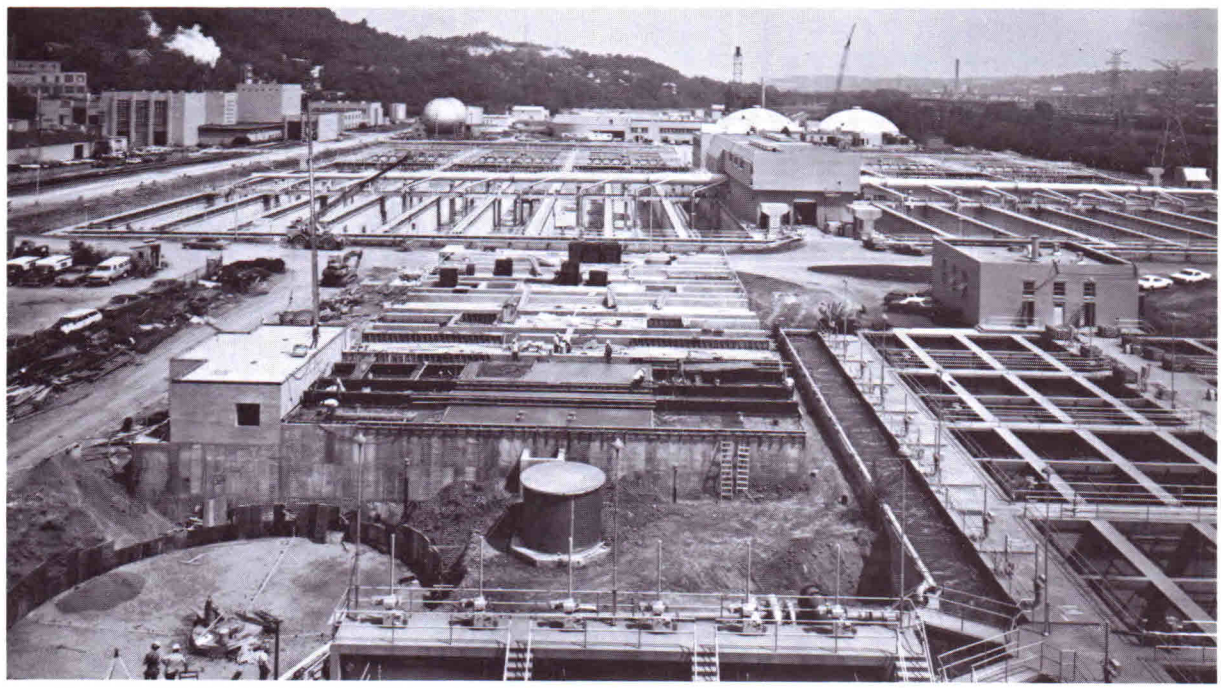
The National Commission on Water Quality (NCWQ), brought into being by Federal Water Pollution Control Act (PL 92-500) to evaluate the technological, economic, social and environmental effects of the goals of the Act, has studied its initial effects upon the Ohio River Basin. In January of 1975, at a Washington, D. C. hearing of the NCWQ, Wesley Gilbertson, then Chairman of the Commission, articulated the Commission viewpoint regarding PL 92-500. Emphasizing the gestation period which occurs before plans become the realities of water quality improvement, he pointed out that "we are still dealing with the preliminaries rather than the main events insofar as PL 92-500 is concerned." In keeping with a focus upon the realities, a series of practical recommendations were offered before the National Commission.

The recommendations called for a reconsideration of certain clauses in the federal act, stronger reinforcement or clarification of others, and amendments which would either accelerate the fund allocation process or further define the roles and responsibilities of agencies involved in environmental improvement. Strong emphasis was placed upon the need for extending the 1977 deadline on the basis of the individual case or class of cases, and the feasibility of achieving the 1985 no-discharge goal was questioned in some cases, the advisability, in others. Cooperation and negotiation in addition to litigation were pressed as hallmarks in pollution control programs, and it was advocated that language be added to the federal law in order to accent this attitude.

Inclusively affirmed was the need for an energetic thrust toward solidifying the federal-state partnership in environmental improvement efforts. The goals — increased state participation and authority in the federal decision-making process and the encouragement of mutual state and federal accountability.

There has been continued interest on the part of the Executive Director and Commissioners in maintaining appropriate follow-up with federal agencies and Congress regarding these recommendations.

Photograph courtesy of Cincinnati Metropolitan Sewer District



The Millcreek Wastewater Treatment Plant, scheduled for completion in 1977, will be serving the Cincinnati area. It includes secondary treatment and final clarification.

The Status of Treatment Works

During 1976, existing facilities have been upgraded in 37 communities in the Compact District, and new plants have been completed in 47 communities.

New facilities are under construction in seven communities, and improved treatment works are being constructed in 145 communities. The new or upgraded facilities, when completed, will serve a sewered population of approximately 2.6 million of the 12.9 million sewered population in the Compact District.

Improvements in existing treatment works are required, however, in 752 additional communities, and 217 communities with a total population of 358,400 are not currently provided with treatment.

STATUS OF MUNICIPAL AND INSTITUTIONAL WASTEWATER CONTROL FACILITIES – JULY, 1976

Number of communities (top) and population served (bottom).

STATUS	ILL.	IND.	KY.	N.Y.	OHIO	PA.	VA.	W. VA.	TOTAL	% OF TOTAL
Control currently acceptable	53 311,500	122 715,200	136 609,400	3 13,100	54 304,600	281 2,067,000	80 132,400	77 313,200	806 4,466,400	41.8 34.6
Treatment provided, improvement needed	32 75,100	134 1,402,500	34 163,800	13 90,700	285 2,264,100	153 1,016,300	57 371,900	57 371,900	752 5,458,800	39.0 42.3
Treatment provided, improvements under construction	4 11,600	15 191,400	58 681,500		56 1,624,600	12 69,400			145 2,578,500	7.5 20.0
New treatment plants under construction		2 4,900				5 31,300			7 36,200	0.4 0.3
No treatment, construction not started		31 37,100	1 1,400	1 1,500	18 21,000	84 163,400	12 9,200	70 124,700	217 358,400	11.3 2.8
Total	89 398,200	304 2,351,100	229 1,456,100	17 105,300	413 4,214,400	535 3,347,400	136 216,000	204 809,800	1,927 12,898,300	
Improvements completed	5 8,200	4 61,900	2 16,000		17 170,200	8 21,600		1 1,600	37 279,500	
New plants completed			3 16,000		3 3,900	3 9,500	38 3,800		47 18,800	

STATUS OF INDUSTRIAL WASTEWATER CONTROL FACILITIES – JULY, 1976

	ILL.	IND.	KY.	N.Y.	OHIO	PA.	VA.	W. VA.	TOTAL	% OF TOTAL
Control currently acceptable	40	127	129	19	161	242	123	254	1,101	61.1
Control Facilities inadequate, improvements in progress	5	18	15	3	29	5	8	26	109	6.1
New Control facilities under construction							1		1	0.0
Control facilities proveded improvements needed	5	87	2	15	130	137	115	100	591	32.8
Number of industries	50	232	146	37	320	390	247	380	1,802	10.0
Completed improvements or new facilities	2	4		3	16	3	15	10	53	

In 1976, 1,101 of the 1,802 industries which currently discharge wastewater to streams in the Compact District were in compliance with state requirements for acceptable control facilities.

Upgrading of existing facilities is underway at 109 plants and was completed at 53 plants. Improved control facilities are needed at 591 industrial facilities in the Compact District.

Degree of Treatment by Basin – July 1, 1976

Basin	No. Treatment	Primary & Intermediate	Secondary & Higher	Total
Allegheny				
A No. of Communities	49	60	82	191
B No. of Plants		31	67	98
C Population	102,400	337,000	373,600	813,000
Monongahela				
A No. of Communities	63	34	92	189
B No. of Plants		25	67	92
C Population	146,900	263,900	447,700	858,500
Beaver				
A No. of Communities		30	66	96
B No. of Plants		19	48	67
C Population		397,400	349,000	746,400
Little Kanawha				
A No. of Communities	2		7	9
B No. of Plants			6	6
C Population	1,200		10,000	11,200
Hocking				
A No. of Communities	1	3	7	11
B No. of Plants		3	7	10
C Population	2,100	7,200	79,700	89,000
Muskingum				
A No. of Communities	6	18	81	105
B No. of Plants		17	75	92
C Population	11,300	49,600	602,800	663,700
Guyandot				
A No. of Communities	2	5	7	14
B No. of Plants		5	7	12
C Population	1,200	9,600	10,800	21,600
Big Sandy				
A No. of Communities	15	7	33	55
B No. of Plants		7	33	40
C Population	23,600	15,900	42,600	82,100
Scioto				
A No. of Communities	6	3	60	69
B No. of Plants		3	47	50
C Population	3,700	13,700	949,500	966,900
Little Miami				
A No. of Communities			26	26
B No. of Plants			26	26
C Population			739,500	239,500
Licking				
A No. of Communities			14	14
B No. of Plants			26	26
C Population			239,500	239,500

Basin	No. Treatment	Primary & Intermediate	Secondary & Higher	Total
Great Miami				
A No. of Communities	1	3	77	81
B No. of Plants		3	68	71
C Population	500	8,500	929,900	938,900
Kentucky				
A No. of Communities		3	25	28
B No. of Plants		3	26	29
C Population		25,900	191,100	217,000
Salt				
A No. of Communities			18	18
B No. of Plants			17	17
C Population			98,000	98,000
Green				
A No. of Communities		1	28	29
B No. of Plants		1	28	29
C Population		1,600	136,800	138,400
Wabash				
A No. of Communities	33	15	262	310
B No. of Plants		15	254	269
C Population	32,000	56,100	2,216,700	2,304,800
Cumberland				
A No. of Communities		2	26	28
B No. of Plants		2	26	28
C Population		5,400	97,400	102,800
Tennessee				
A No. of Communities	5	15	46	66
B No. of Plants		15	46	61
C Population	7,100	24,200	85,200	116,500
Ohio				
A No. of Communities	5	166	153	324
B No. of Plants		78	71	149
C Population	11,000	1,943,800	1,611,800	3,566,600
Minor Tributaries				
A No. of Communities	14	22	111	147
B No. of Plants		16	111	127
C Population	18,400	76,600	385,700	480,700
Total				
A No. of Communities	227	418	1,282	1,927
B No. of Plants		272	1,108	1,380
C Population	387,700	3,316,400	9,184,000	12,888,100
Percent of Total				
A No. of Communities	11.8	21.7	66.5	
B No. of Plants		19.7	80.3	
C Population	3.0	25.7	71.3	

Administrative Highlights

Commission

The Commission is compqsed of three representatives from each of the states signatory to the Compact and three representatives of the United States Government. Commissioners receive no salary but are reimbursed for expenses incurred while performing Commission activities.

Joseph E. Quinn, Commissioner representing the State of Indiana since 1948, passed away in June, 1976. Mr. Quinn served as Chairman from 1949 to 1950.

■ Ralph C. Pickard was elected by the Commission to succeed Wesley E. Gilbertson as Chairman.

■ Arnold L. Mitchell was reelected Vice Chairman.

■ Ned E. Williams was elected Secretary of the Commission. Mr. Williams succeeded Dr. Ira L. Whitman as Ex officio Commissioner from Ohio.

■ Albert J. Brooks was reelected Treasurer of the Commission.

■ Dr. Richard H. Briceland replaced Dr. Joyce C. Lashof as Illinois Ex officio Commissioner in accordance with an Act of the Illinois Legislature transferring designation from the Director of Public Health to the Director of the Illinois Environmental Protection Agency.

■ Richard S. Engelbrecht and Daniel Malkovich were appointed by Governor Dan Walker as members of the Commission representing the State of Illinois.

■ Peter A. A. Berle replaced Ogden R. Reid as Ex officio Commissioner from the State of New York.

■ Lyle W. Hornbeck resigned his Commission post as representative from the State of New York. Originally appointed in 1961, Mr. Hornbeck served as Chairman in 1970.

■ Rolland E. Kidder was appointed by Governor Hugh L. Carey as Commissioner representing the State of New York and replacing Joseph R. Shaw. Mr. Shaw served with the Commission for fifteen years and was Chairman from 1963-1964.

■ Warren L. Braun, by appointment of Virginia Governor Mills E. Godwin, Jr., succeeded Thomas R. McNamara to the Commission.

■ Millard B. Rice was appointed by Governor Godwin to succeed Ray Edwards as Commissioner from Virginia.

■ Kenneth B. Rollins received gubernatorial appointment to succeed Denis J. Brion as Commissioner from Virginia.

■ Jack E. Ravan, U. S. Environmental Protection Agency Regional Administrator from Region IV, received Presidential appointment as Federal Commissioner to succeed Francis T. Mayo, former Environmental Protection Agency Regional Administrator, Region V.

Honorarium

■ Edward J. Cleary was distinguished by the Commission through his designation as Executive Director and Chief Engineer Emeritus.

Staff

■ Leonard McDonough joined the staff as Manager of Data Processing, replacing David A. Dunsmore who resigned and Donna M. Carroll was reassigned to Data Processing as Computer Operator, replacing Alice L. Gosney who resigned to accept other employment.

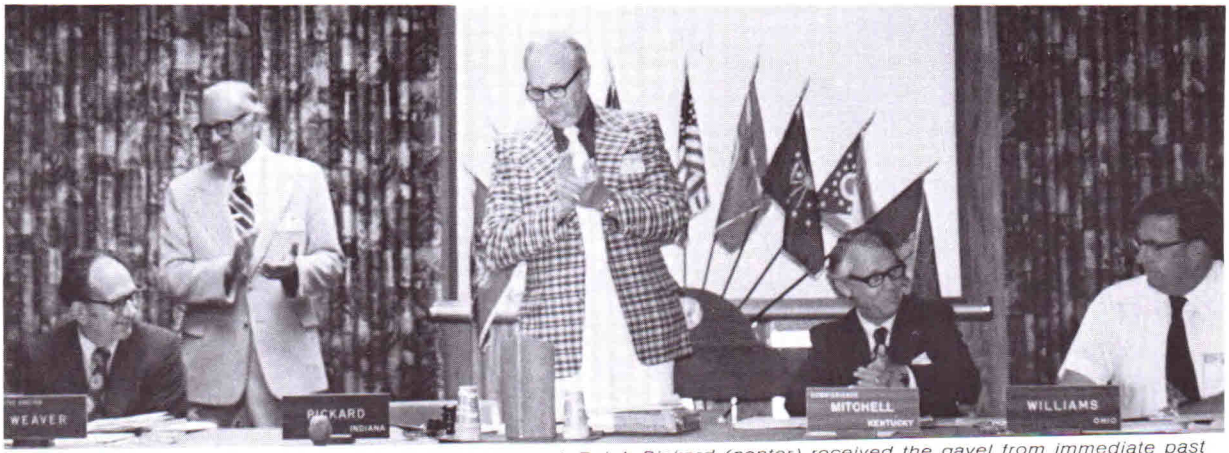
■ Peter A. Tennant joined the Technical Services staff as Water Resources Engineer.

■ Bill G. Razor was appointed Principal Investigator and Richard J. Miltner, Project Engineer for a two-year study project "Organic Constituents in the Ohio River and Associated Water Supplies".

■ Lorraine M. Hahn and Ruth A. Lustman joined the Surveillance staff as Laboratory Technicians assigned to the Pittsburgh Regional Laboratory of the Pennsylvania Department of Environmental Resources.

■ Russell A. Brant, Geologist, and Robert L. Laugel, Programmer/Analyst, resigned to accept other employment.

■ Karyn L. Colyer joined the staff as Secretary/Receptionist.



September, 1976 — New Commission officers installed. Ralph Pickard (center) received the gavel from immediate past Chairman Wesley Gilbertson (standing, left) Vice Chairman Arnold Mitchell is seated right center and Secretary Ned Williams is seated at right. Executive Director Leo Weaver is seated at far left.

Financial Report

The following information relative to revenues, expenditures, and statement of resources was extracted from the Annual Audit Report of Wm. H. Mers & Co., Certified Public Accountants for the year ended June 30, 1976.

OHIO RIVER VALLEY WATER SANITATION COMMISSION
STATEMENT OF REVENUES AND EXPENSES PAID
FOR YEAR ENDED JUNE 30, 1976

Revenues:		
From signatory states:		
State of Illinois	$ 18,900.00	
State of Indiana	69,788.00	
Commonwealth of Kentucky	78,000.00	
State of New York	3,975.00	
State of Ohio	96,112.00	
Commonwealth of Pennsylvania	54,825.00	
Commonwealth of Virginia	12,825.00	
State of West Virginia	40,575.00	
Total from signatory states		$375,000.00
From U. S. Environmental Protection Agency (Grant by authority of Federal Water Pollution Control Act)		273,159.00
Other revenue:		
Interest earned on bank deposit	$ 8,040.15	
Sale of publications	189.67	
Miscellaneous	3,000.00	
Total other revenue		11,229.82
Total revenues		659,388.82
Expenditures:		
From current year funding	$640,604.65	
From prior year funding	29,359.49	
Total expenditures		669,964.14
Excess of expenditures over revenues		$ 10,575.32

STATEMENT OF RESOURCES AT JUNE 30, 1976

Cash:		
Central Trust Company	$ 19,603.31	
On hand	200.00	
		$ 19,803.31
Deposits:		
American Airlines	$ 425.00	
Ohio Bureau of Workmen's Compensation	$ 238.00	
		663.00
Accounts receivable:		
U. S. Environmental Protection Agency	$ 21,686.44	
Signatory states	6,275.00	
Advances for employees: Travel advances	1,050.00	
		29,011.44
		49,477.75
Less:		
Excess of advances over expenses of U. S. Geological Survey Grants entitled Characteristics of Subsurface Formations for the Storage or Disposal of Wastewater		10,349.59
Available resources before encumbrances at June 30, 1976		$ 39,128.16
Available resources before encumbrances at June 30, 1975	$ 49,703.48	
Less excess of expenses paid over revenues	10,575.32	
Available resources before encumbrances at June 30, 1976		$ 39,128.16
Less unexpended encumbrances		None
Available resources after encumbrances at June 30, 1976		$ 39,128.16

*ORSANCO Staff**

Leo Weaver — Executive Director & Chief Engineer
William L. Klein — Assistant Executive Director
Albert J. Brooks — Office Manager
Jessica Barron — Information Specialist
Janice Squires, Karyn L. Colyer — Secretaries

SURVEILLANCE PROGRAM
A. D. Sidio — Manager
John Donnelly — Head, Data Acquisition Engineering
Thomas Lux — Surveillance Specialist
Glenn White — Surveillance Specialist
James Taft — Surveillance Specialist
June E. Schlueter — Secretary

TECHNICAL SERVICES
Robert J. Boes — Manager, Assistant Chief Engineer
Majid Chaudhry — Environmental Engineer
Peter A. Tennant — Water Resources Engineer
Jane Renaldo — Secretary

DATA PROCESSING
Edward L. McDonough — Manager
Richard Smith — Senior Analyst
Donna Carroll — Computer Operations

PROJECT: ORGANIC CONSTITUENTS IN THE OHIO RIVER AND ASSOCIATED WATER SUPPLIES
Robert J. Boes — Project Director
Bill G. Razor — Principal Investigator
Richard J. Miltner — Project Engineer
Robert Kroner — Consultant, Chemist
**As of January, 1977*

credits:
Ray Loos — Art

regulatory agencies of the signatory states

ILLINOIS
Environmental Protection Agency
State of Illinois
2200 Churchill Road
Springfield, Illinois 62706
(217) 525-5467

INDIANA
Indiana Stream Pollution Control Board
1330 West Michigan Street
Indianapolis, Indiana 46206
(317) 633-4420

KENTUCKY
Department of Natural Resources
Capital Plaza Tower
Frankfort, Kentucky 40601
(502) 564-3410

NEW YORK
Environmental Health Services
NYS Department of Environmental Conservation
50 Wolf Road
Albany, New York 12201
(518) 457-7362

OHIO
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216
(614) 466-2390

PENNSYLVANIA
Department of Environmental Resources
P.O. Box 2351
Harrisburg, Pennsylvania 17120
(717) 787-2666

VIRGINIA
State Water Control Board
P.O. Box 11143
Richmond, Virginia 23230
(804) 770-2241

WEST VIRGINIA
Division of Water Resources
Department of Natural Resources
1201 Greenbrier Street
Charleston, West Virginia 25311
(304) 348-2107

ORSANCO
414 Walnut Street
Cincinnati, Ohio 45202
(513) 421-1151

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