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Stormwater Workshop Series
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**Intergovernmental Cooperation and Public-Private Partnerships for
Water Quality Management in the Ohio River Valley – The ORSANCO
Experience**

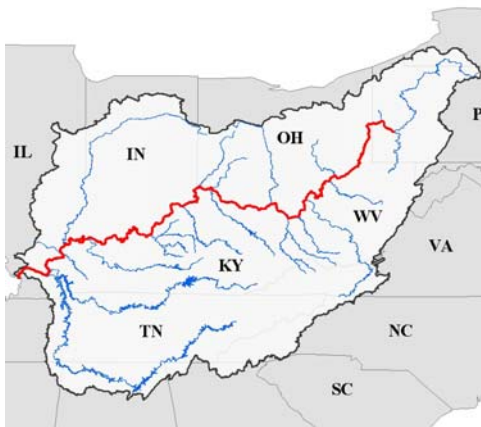
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The Ohio River and its Drainage Basin

The Ohio River is one of the nation’s “great rivers.” With its origin in Pittsburgh, Pennsylvania – by the joining of the Allegheny and Monongahela Rivers – the Ohio travels in a generally southwesterly direction for a distance of 981 miles. Its drainage basin spans 204,000 square miles and encompasses a portion of 14 states. In general terms, land use includes resource extraction (primarily coal), principally in the regions of western Pennsylvania, eastern Kentucky and southwestern Virginia, to large scale agriculture in the lower region states of Indiana, Illinois and Kentucky. Today, approximately 6% of the nation’s electrical generating capacity is situated along the Ohio and 5 million people drink Ohio River water. Commodities in excess of 220 million tons are transported via its navigation channel annually.

Of particular importance is the Ohio River flows through or serves as the boundary for 6 states.

The Ohio River and its Basin



The Rise of Water Pollution, its Impacts and the Campaign for Correction

In the early 20th century, and due to the growth of population centers and industry along its shores, its use for industrial transportation, and the proximity of energy resources, the Ohio became heavily industrialized to the extent it was termed “the country’s industrial aorta.” However, with such growth of industry and the population centers of Pittsburgh, Cincinnati, and Louisville, as well as a number of industry-reliant second tier cities such as Wheeling, Huntington, Portsmouth and Evansville, the Ohio became severely polluted. The pollution situation was so severe that epidemic scale outbreaks of illness began to occur among populations reliant on the river for drinking water supply.

In 1936, a Congressional resolution was adopted authorizing and encouraging the states in the valley to negotiate a regional approach to solve the problem and, in 1948, the Ohio River Valley Water Sanitation Compact was made effective with the signatures of the Governors of 8 states – Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia.

Features of the Compact

The Compact, in essence, is a pledge from one state to the other signatory states to cooperate in the study and control of pollution with the guiding principal being sewage and industrial wastes originating in one state does not injuriously impact the use of water by an adjacent or downstream state (i.e. the abatement of interstate water pollution).

ORSANCO

To implement the Compact, the states agreed to create the Ohio River Valley Water Sanitation Commission (ORSANCO). Comprising three Commissioners appointed by the respective state’s governors, and three Commissioners appointed by the President to represent the federal government, ORSANCO conducts a variety of programs in consonance with the Compact’s objectives and the duties and authorities granted to it therein. ORSANCO’s principal authorities are:

- Study the pollution problems of the Ohio Valley drainage within the signatory states (termed the Ohio River Valley Water Sanitation District) and report thereon.
- Recommend uniform state legislation aimed at eliminating interstate water pollution.
- Adoption of standards of treatment for discharges of pollution to interstate streams (in the District).
- Consultation with any party or entity with regard to pollution problems in the District.

ORSANCO maintains a modest staff (currently 26) at its headquarters in Cincinnati, Ohio which carries out programs as set by the Commission. Annual aggregate state funding to support operations is currently \$1.4 Million. The Commission also receives an annual Clean Water Act (Section 106) grant of approximately \$1.2 Million. These funds are routinely supplemented with those from governmental, utility and private sources to sponsor special projects.

ORSANCO; an Illustrious History

ORSANCO is known worldwide for its accomplishments in and approach to river and watershed management. In the 1950s (prior to the adoption of the Clean Water Act), ORSANCO undertook key research and environmental engineering which continues to serve as a foundation for today's science and practical methods. Principally, this included development of stream criteria, establishment of monitoring programs, and delineation of best available technologies (BAT) for treatment of sector wastes. This research and technology evaluation provided the basis for its regulatory discharge standards, first established in 1951.

Within its first 10 years, monitoring programs were in place and data acquired that were unsurpassed worldwide. Of particular note, the world's first river-length robot monitoring and data logging/telemetry system was established that provided hourly measurements of field parameters (dissolved oxygen, pH, temperature, specific conductance).

Further, ORSANCO carried out a "Clean Streams Campaign" which served to promote societal change in thinking necessary for local support of construction of sewerage collection and treatment facilities. The success of this effort resulted in ORSANCO receiving the 1963 Outstanding Civil Engineering Achievement Award (American Society of Civil Engineers) for "the most effective large-scale water pollution abatement program ever undertaken in the Western Hemisphere." Among the citations was one by the Izaak Walton League, who observed "The success in the Ohio Valley is an example to the entire nation of the effectiveness of regional coordination of pollution control...."

Shifting Focus – the 1970s

In part due to the establishment of the Clean Water Act, ORSANCO began to shift its programs away from research on stream quality criteria and BAT (as the newly created USEPA would now assume this mission). With the establishment of the suite of new federally mandated programs, such as National Pollutant Discharge Elimination Program (NPDES), the need for coordination grew. Also, the post World War II growth in chemical production and use introduced new risks for contamination at drinking water utility intakes. In 1978, an Ohio River Early Warning Organics Detection System (ODS) was placed on line which serves as a sentinel for the detection of certain compounds. The ODS, like the robot monitoring system of the 1960s, was a first of its kind.

Still, the Commission did not sacrifice its core responsibilities. In 1970, its discharge regulations were amended to require secondary level treatment for sewage discharges and the equivalent for industry; two years before it became the national baseline. Monitoring programs were maintained and appropriately expanded and research on emerging concerns, such as the production of trihalomethanes in water treatment processes, produced important contributions to science.

Staying Responsive to Today's Issues

Interestingly, in the 1970s and 1980s, questions began to arise as to the continued usefulness and possible duplicative nature of interstate compact commissions. The context of these questions was the arise of the USEPA, its 10 regions, and the strong and comprehensive nature of national clean water law and programs in the U.S. Nevertheless, the coordinating function of interstate agencies was considered valuable and, to the contrary, the existence of interstate forums serves to eliminate duplication of effort. In the specific case of ORSANCO, monitoring programs for the Ohio and lower reaches of its major tributaries, which had been assigned to the commission, has proven to be clearly more effective economically and technically than an approach whereby states would individually monitor its portion of shared waters. Moreover, ORSANCO's role in spill response – serving as the agency that provides constant monitoring for organic chemicals, and as the means for interstate communication and the facilitator of inter-utility communications - was also recognized as invaluable and a function that only ORSANCO could effectively provide.

Today, interstate agencies are considered highly needed and valued. As base-line technological wastewater treatment has been installed, it is commonly recognized that continued progress in water quality improvement now requires integrated watershed-based approaches. Much of the nature of water quality impairment is wet weather-based and implementation of federal programs, such a Section 303 of the Clean Water Act, which requires a determination of total maximum daily loads (TMDLs) and associated strategies to reach assigned pollutant loading targets, have become much the program focus for federal and state agencies.

Moreover, requirements in other statutes, such as the source water protection provisions of the federal Safe Drinking Water Act (SDWA), require river/watershed-based management approaches.

Finally, and specific to the Mississippi River Valley, addressing the annual hypoxic zone on the Gulf of Mexico, strategically, calls for actions at a multiple large basin scale never before undertaken.

ORSANCO is engaged in all of the challenges noted above. With respect to TMDLs, it is serving as the technical resource, performing monitoring and modeling for the states and USEPA who then issue the TMDL. Currently, a bacteria TMDL is underway that is, to date, the largest TMDL in the nation. In this project, the modeling analysis is being conducted by EPA consultants with ORSANCO providing the in-stream data and

coordinating efforts to acquire point source (Combined Sewer Overflows) discharge information.

ORSANCO is serving as the means to assure the SDWA Source Water Protection Program is implemented efficiently for the 29 water intakes along the Ohio. A common delineation protocol has been agreed upon and employed and a template designed that provides a common framework for conducting inventories and risk analysis. ORSANCO is currently conducting a series of meetings of water utilities and upstream dischargers to discuss the Source Water Program's requirements.

The Gulf of Mexico Program calls for the establishment of sub-basin committees that serve to develop their respective nutrient reduction strategies. ORSANCO is serving as the convener/secretariat for the Ohio Basin Subcommittee and regularly represents the Ohio Basin States before the meetings on the Nutrients Reduction National Task Force.

Setting the Agenda and Program Design/Implementation - Collaboratively

Setting ORSANCO somewhat uniquely apart among interstate compact commissions, and other governmental agencies at all levels, is the extent to which inclusiveness and collaboration/cooperation is practiced in its operations.

The Commission itself sets the tone. One of the three state Commissioners is, ex-officio, the director of the state EPA, while the others represent various backgrounds and expertise, ranging from industry to academia to utility administrators to environmental interest NGOs. One of the three Presidentially appointed Commissioners is customarily the Regional Administrator of either EPA Region III, IV or V. Thus, at this, the Commission's highest level, the leaders of the agencies (local, state, federal) are at the table as are the plural interests.

In addition, an extensive network of committees and subcommittees is maintained comprising state and federal experts in the principal areas of water quality management, such as monitoring, stream criteria, biological water quality and regulatory standards. Committees are also in place that focus on certain specific programs, as are committees representing river user interests - currently drinking water utilities, POTWs and the power industry. Through this interacting and hierarchal structure, practical issues are identified, options weighed and consensus is sought on programmatic approaches and cooperative undertakings often emerge. Representative examples follow:

Organics Detection System (ODS) - This system comprises a partnership between local water supply utilities and ORSANCO. ORSANCO owns the analytical equipment (gas chromatography) and provides system level management and equipment service. The local utilities provide laboratory space and daily analyses of samples. Sampling stations are strategically located at 12 water treatment plants and three industries. This represents a cooperative partnership between ORSANCO and local utilities and private interests.

Monitoring and Assessment - ORSANCO's Monitoring Strategy and Biological Water Quality Subcommittees, comprising state and EPA experts, routinely meet to debate and decide on best programs that ORSANCO carries out. ORSANCO performs trends assessments on the data and develops the required biennial water quality assessment under Section 305(b) of the Clean Water Act. The methodologies for the assessments are approved by these committees and subsequently by the Commission.

Regulations and Stream Criteria – ORSANCO's regulatory requirements are updated every three years. This process is conducted under the oversight of a committee of the Commission and involves the input of numerous other committees, such as the Stream Criteria Subcommittee and the POTW, Power, and Public Interest Advisory Committees.

An example of a very specific issue is Ohio River Temperature criteria. ORSANCO convened a temperature workgroup comprising state and EPA experts and experts from the power industry to assess the current science (status and needs) as relates to the need for a change to ORSANCO's stream criteria and its translation to discharge requirements.

Fish Consumption Advisories – As part of its monitoring programs ORSANCO annually collects fish and arranges for contaminants analyses. The data is then supplied to the states who issue consumption advisories as necessary. The Commission has been working with the multiple agencies in the states toward resolving conflicts in fish consumption advisories that exist along the Ohio River. In each state there can be up to 3 agencies and even internal disagreements exist! Through this intra and interstate working dialogue over many years, the states currently appear to be on a threshold of adopting a common data assessment protocol.

Today's Initiatives

ORSANCO's current agenda is truly an overflowing plate. The examples of activities are merely representative and do not cover the breadth of services provided to the states, river users and the nation. This past February 10-12, 2009, the Commission held its 193rd meeting. Among the items on its agenda not cited above were:

- Reports from one state to the other states on the status of its dischargers and other interstate water quality issues.
- Approval of proposed changes to its effluent regulations for public comment.
- Status of an Ohio River Recreational Use Survey (this study is being conducted in support of refinements to the Commission's "Wet Weather" water quality standards).
- Development of nutrient criteria for the Ohio River and water quality trading.

- Results of a comparison study on sampling methods used by ORSANCO and USGS.
- Efforts to secure federal target funding for refurbishments to the Organics Detection System.
- Reports and recommendations from the Advisory Committees representing water treatment utilities, POTWs and the public interest.

And in the Future?

ORSANCO has remained viable and healthy because of its ability to react quickly to the challenges of the day and provide relevant services. At its February meeting, a scenario planning workshop was held whereby the future (as would relate to ORSANCO) is “visioned” and strategies are developed responsive to a matrix of futures. The futures were described as ORSANCO retaining or expanding its scope with or without adequate resources. Under all scenarios visioned, the common strategies for ORSANCO were identified as:

Communication – Is needed to assure recognition and collaboration. Coordination is considered a most valuable service. Excellence in coordination will serve to strengthen image.

Revenue Enhancement – Diversifying revenue streams to guard against budgetary shortfalls and interruptions to programs requiring continuity.

Data Sharing and Management – ORSANCO relies heavily on creating useful information for stakeholders. Pursue value added information cost effectively.

Cooperation and Collaboration – Pursue opportunities to collaborate with non-governmental organizations, member and non-member states, universities, agriculture community and other stakeholders.

Right-Sizing Technology – Appropriate leveraging of technology is important under good as well as challenging times.

Most importantly however, it was agreed that the expansion of the current scope of ORSANCO to engage in water *quantity* issues in the basin should be explored (policy alternatives to achieve this outside to a change in its Compact should be first considered).

The above workshop results suggest that ORSANCO will continue to be looked to for innovation, collaboration, products and enhanced watershed management functions.

ORSANCO as a Model

ORSANCO’s effectiveness stems from many factors. It was created by a formal commitment entered into state and federal law (the Compact) and signed by the states’ highest political official. Its Commissioners are appointed by the Governors and

President and, as such, represent them. ORSANCO is provided resources such that it can provide meaningful services to its stakeholders. Its board of Commissioners is a mix of government and public and private expertise (Note: While a Commissioner may be employed by an industry or utility, the appointee represents the Governor and his/her respective state or the United States and not the employer).

Finally, the states have formally committed their cooperation and are thus answerable to each other in what they are and are not doing relative to that commitment.

ORSANCO, in its essence is an independent but multi-jurisdictional agency. It represents the states collective but no state individually. Such a model can be employed at any level of government or for multiple levels of government. As an example, approximately 20 years ago, the grouping of small cities comprising the urban Mill Creek Watershed (165 square miles) in Cincinnati created the Mill Creek Watershed Council (MCWC) via an agreement among them. Each signatory appoints representatives to the Council and they share in its operating expenses. ORSANCO was used as a model for this organization. The MCWC has been very effective over the years and, over time, has solidified itself as a useful mechanism for joint action.

At this point in this nation's history of environmental stewardship, mechanisms for cooperation and collaboration are often necessary among political jurisdictions for joint stewardship of shared resources. They serve to maintain focus, reduce expenses and avoid duplication. Their agenda is driven by consensus of the participants and, if properly operated, can engage all interests in a way that initiatives can be broadly supported. This facilitates action and progress.

Finally, such a multijurisdictional approach will be hampered or enhanced based on the solemn nature of the enabling document (Compact vs. Memorandum of Cooperation or other agreement document) and resources provided. In ORSANCO's case, resources are provided at a level that enables it to be assigned significant tasks (such as monitoring) that, otherwise, the states would have to undertake at greater expense.

The ORSANCO approach has proven to be effective and is commended to the citizens, utilities, businesses and government of Michigan as one to be studied.