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To the Government of Canada
   Government of the United States
   Government of the State of Illinois
   Government of the State of Indiana
   Government of the State of Michigan
   Government of the State of Minnesota
   Government of the State of New York
   Government of the State of Ohio
   Government of the State of Pennsylvania
   Government of the State of Wisconsin
   Government of the Province of Ontario

The Great Lakes Water Quality Agreement, which entered into force on April 15, 1972, provides in Article IX that “The Parties shall conduct a comprehensive review of the operation and effectiveness of this Agreement during the fifth year after its coming into force.” The International Joint Commission has assisted in the implementation of the Agreement in accordance with Article VI and has submitted reports annually to the Parties and to the State and Provincial Governments concerning progress toward the achievement of the water quality objectives. In its Fourth Annual Report, dated September 16, 1976, the Commission stated it would prepare a special report setting forth the Commission’s views on various provisions of the Agreement for consideration by the Governments in their comprehensive review. This report is submitted in fulfillment of that undertaking.

In the preparation of this report, the Commissioners have consulted with the Co-Chairmen of the Great Lakes Water Quality Board and of the Research Advisory Board, as well as the senior staff of its Great Lakes Regional Office and of its Secretariats at Ottawa and Washington. While there was a remarkable degree of consistency in the comments and suggestions put forward by those consulted, which is reflected in this report, the assessment and recommendations expressed in the report are those of the Commission itself, arrived at after careful deliberation and in light of almost five years of experience with operations under the 1972 Agreement. The report does not attempt to deal with every aspect of the Agreement but rather concentrates on those aspects with which it has some responsibility.
Introduction

The general concept reflected in the Agreement has proven to be sound. Basically it provides for agreement on specific water quality objectives for the boundary waters, with each country committed to developing and implementing the programs and other measures required in its territory to achieve those objectives, and with provision for coordination where the programs interface. Achievement of the agreed objectives is very relevant to the obligation of Governments in Article IV of the Boundary Waters Treaty that boundary waters shall not be polluted on either side to the injury of health or property on the other.

The Agreement provides a strong basis not only for dealing with existing water quality problems of the Great Lakes, but also a base and a framework from which to proceed to deal with the future pollution problems that will inevitably arise in the Basin.

While the high hopes of 1972 for quick results in cleaning up existing pollution and preventing further deterioration of water quality have not all been realized and there have been public expressions of disappointment, much has been achieved and the stage is set for continued progress towards the goals of the Agreement. Both countries are committed to, and have major programs underway for, municipal sewage treatment and phosphorus removal facilities. Industrial pollution control has shown some progress and the emphasis is shifting now to monitoring, surveillance and enforcement of legal requirements. Some nearshore waters have shown noticeable improvement in quality and phosphorus loadings have been reduced, although the agreed loading targets have not been achieved. Legislation for controlling toxic contaminants has been enacted in both countries, although not yet implemented. Whether or not this legislation is adequate to protect the environment from all known and future adverse effects of toxic contaminants is still to be determined. Surveillance activities have been expanded to the point where the existing water quality conditions are much better known and this permits more effective consideration of necessary remedial measures. The general public is also better informed concerning the condition of the waters and the status of pollution control in the Lakes.

While much remains to be done to restore the water quality of the Lakes and to deal with emerging problems that threaten their future, the Commission believes that the necessary programs and other measures can be implemented without any substantial changes in the Agreement itself. While some suggestions for amendment of the Agreement are included in the paragraphs that follow, most of the Commission’s comments relate to operations under the Agreement as presently constituted.

It should be emphasized that the problems that lie ahead are both short-term and long-term in nature. Effective municipal and industrial waste treatment and phosphorus removal facilities are still a short-term priority. The problems involved in reducing pollution from diffuse sources such as atmospheric fall-out and various land-use activities will require more time for solution but are none the less important.

Finally, the Commission believes that the fundamental principles of non-degradation and enhancement of water quality where required should continue to be the basis of the Agreement.

The following sections of the report contain the Commission’s views with respect to specific aspects of the operation and effectiveness of the Agreement. The various items are arranged generally in the sequence in which they appear in the Agreement itself.

Water Quality Objectives

The general and specific water quality objectives included in the Agreement and its Annexes form the basis for the management of the shared water resources of the Great Lakes. These objectives were designed to restore water quality in the Great Lakes System.
The Commission will soon be forwarding to the Governments recommendations concerning the revision of some of these objectives and the establishment of other new objectives which, if accepted, will become part of the Agreement as provided in Articles III and XII. The proposed objectives have been designed to protect the most sensitive beneficial uses of the waters. Although this concept may be just an extension of the principles underlying the existing objectives, the Commission feels that it clarifies the definition of the Agreement’s goal of “restoring” water quality. The development of such new concepts reflects the improved perception of Great Lakes water quality which has emerged as a result of experience in implementing the Agreement.

That different concepts can be developed within the framework of the Agreement says much for the flexibility of its provisions concerning water quality objectives. This flexibility must be preserved.

Difficulties were encountered in formulating the new and revised water quality objectives due to inadequate information on the effects of certain pollutants on public health and the environment. It is clear that in recent years research into these aspects has not kept pace with rapid over-all development in the Basin because the necessary research seems to have been accorded low priority. A great deal more attention should be devoted to this research so that well-founded water quality objectives may be established. Once established, these objectives would be the basis for more effective early identification of potential water quality problems.

**Toxic Substances**

Toxic substances, e.g. heavy metals and persistent organic contaminants, may well be the most serious problem Governments face in ensuring future beneficial uses of the Great Lakes. They pose serious threats to water quality, the fishery, human health, and the ecosystem in general. Too little is known of the identity of these substances, their sources, amounts present, characteristic forms and behavior, and their effects. Control and monitoring programs are imperative, but research is urgently required to permit both the early identification of such substances and the establishment of appropriate water quality objectives.

The Commission recommends that the Governments make it a matter of the highest priority to undertake jointly, with the assistance if desired of the Great Lakes Water Quality Board and Great Lakes Research Advisory Board, a special program to assess the problem of persistent toxic contaminants in the Great Lakes with a view to developing and implementing programs for their control. It is especially urgent that early warning mechanisms be developed to identify new chemical substances that might present risks to health and the environment if discharged into the waters of the Great Lakes Basin.

The Commission is aware that legislation for the control of toxic substances has now been enacted in both countries but has not yet been implemented. The Commission urges the Governments to implement this legislation as quickly and as comprehensively as possible.

**Public Health Aspects**

There is a growing concern for the lack of available information on adverse effects various pollutants, both organic and inorganic, may have on the public health. In some areas where information is available, however, there are differing opinions among the jurisdictions as to the seriousness of their effects in relation to public health. A case in point has been the discovery of Mirex in Lake Ontario.

The Commission therefore recommends that the Governments give urgent attention to what can be done by them to strengthen all pollution control efforts undertaken in the Great Lakes Basin during perhaps the next five years to protect the public health.
For instance, the Commission considers radioactivity a major potential threat to public health and intends to monitor developments closely. The Governments are urged to complete their consideration of refined radioactivity objectives as soon as possible.

Target Dates

Since December 31, 1975, the Great Lakes Water Quality Agreement has been without a time frame against which progress in the implementation of programs as provided in Article V can be measured.

It is the Commission's considered view that the Governments should at the very least set general time frames for the development and implementation of remedial measures for those 63 problem areas that have been identified in the Water Quality Board's Fourth Annual Report, and such other problem areas as may be identified in the future. General time frames should also be set for dealing with other pollution concerns, i.e. toxic contaminants, air pollutants, combined and storm sewer problems, nutrients, etc. where practical and feasible.

The Commission also suggests that a number of specific target dates can be identified for the uncompleted municipal and industrial projects. They may well be those that are currently being used by the respective control agencies for enforcement purposes, but there are obvious advantages in having such targets agreed as acceptable to the Parties.

Phosphorus

Annex 2 of the Agreement set out "anticipated" loadings for Lakes Ontario and Erie. These loadings were based upon the prevailing knowledge of total loadings to the Lakes combined with load reductions expected to result from phosphorus control programs. Similarly, Appendix I, adopted on November 21, 1973, set out anticipated loadings for Lakes Superior and Huron.

It is a major source of concern to the Commission that these reductions have not in fact been achieved because of delays in the construction of treatment plants as well as inefficient operation of those which have been completed.

It has also become evident that the loadings of phosphorus to the Great Lakes are significantly greater than was originally thought because of the contributions from atmospheric fallout, non-sewered population, land drainage and lake sediments. Since these sources are not easily controlled, any early reduction in loadings (and thereby in eutrophication) must be achieved by improved municipal and industrial control programs. The Commission is, therefore, convinced that the completion and efficient operation of municipal and industrial treatment facilities must be pursued with renewed vigor, particularly at Detroit and Cleveland.

The Commission is also strongly of the opinion that strict limitations on the phosphates content of detergents used in the Great Lakes Basin would be of great assistance in the achievement of reduced phosphorus loadings to the lakes, and all jurisdictions in the Basin are urged to establish such restrictions. The Commission cautions, however, that the "builders" used as substitutes for phosphates in detergents must be carefully evaluated to ensure that they do not themselves endanger public health and the environment.
In order to control phosphorus loadings from diffuse sources in the longer term, the Governments should undertake to identify the magnitude of these inputs and to develop control strategies.

Finally, the Commission recommends that Annex 2 of the Agreement be reviewed in the light of current knowledge and updated.

Pollution From Land Use Activities

It is expected that the studies presently being conducted under the Reference on Pollution from Land Use Activities will result in recommendations of major importance. Some of these recommendations may well require changes or additions to the Agreement to permit their effective implementation. The technical studies are scheduled for completion in 1978, with public hearings and submission of the Commission’s report to Governments to follow as soon as possible thereafter.

In the interim, any failure to meet the Water Quality Objectives that is attributable to land use activities will be drawn to the attention of the Governments in the Commission’s reports.

Land Use Planning

The Commission has been informed that planning agencies in the Basin have not always recognized the general and specific water quality objectives of the Agreement as internal constraints on development. This situation must be remedied to avoid further water quality deterioration resulting from population growth, resource development and increased water use. Therefore, the Commission recommends that the Governments give consideration during the course of their review to measures that may be taken to increase the effectiveness of land use planning at all levels of government as it relates to water quality in the Great Lakes.

The Commission is not presently involved in reviewing plans and policies for future land use developments and often does not receive advance information about them, although they may have important implications for water quality of the Great Lakes. The Commission recommends that the Governments agree to provide information to the Commission as early as possible in the planning stages, on any projects and programs which represent a major change in land use in the Basin and which, if implemented, may adversely affect boundary waters quality. The Commission could then disseminate such information to all jurisdictions in accordance with Article VI of the Agreement.

Funding

The Commission has been informed that the procedures being followed in financing activities under the Agreement have, in some instances, resulted in delays in the allocation of necessary funds. The Commission recommends that the Governments review these procedures and, wherever possible, revise them to minimize such delays. One revision that might be considered is that the Great Lakes Basin activities of the various agencies in each country under the Agreement be included as a line item in their respective budgets, rather than in various categories under the national programs as at present. This would recognize the Great Lakes as a unique bi-national resource which merits national attention, and would facilitate the administration of the agencies’ Great Lakes programs.
Joint Activities Envisaged by the Agreement

A considerable number of “joint activities” are envisaged by the Agreement and the several Annexes, but in most cases the agencies responsible for carrying them out are not specified and no provision is made for informing the IJC as to the progress or results of the activity. Consequently, with regard to those activities, it has been difficult or impossible for the Commission to discharge its responsibilities under Article VI of the Agreement to collate, analyze and disseminate information on the operation and effectiveness of the programs and other measures, to tender advice to Governments, to provide assistance in coordination of the joint activities and to assess their effectiveness. What little information has been obtained indicates that progress in the joint activities has been slower than expected. In no case has any joint activity been carried to completion and the results communicated to the IJC.

The Commission believes that the delays in some of the joint activities may be attributed to the fact that the Agreement does not specify either the agencies responsible or the procedures by which they should pursue the activity. In consequence, the agencies concerned have resorted to various ad hoc arrangements and committees which operate independently of the other joint activities and joint institutions established under the Agreement.

The Commission recommends that the Parties not establish any additional joint institutions related to the Agreement that would operate in isolation from or outside the ambit of the International Joint Commission. The Commission also requests the Parties to confirm or correct its understanding that the responsibilities and functions of the Commission under Article VI of the Agreement relate to all aspects of the Agreement, including the joint activities undertaken by or on behalf of the Parties.

The Commission is mindful of its responsibility for provision of assistance in the coordination of the joint activities envisaged by the Agreement. There has been no request for such assistance and some of the activities may have progressed to a point where assistance would not be helpful. However, the Commission is willing to assist in any necessary coordination of the joint activities, by establishing either a special board or a committee of the Great Lakes Water Quality Board. Such board or committee would be given responsibilities related especially to the joint activities and the provision of information and advice thereon to the Commission.

Surveillance and Monitoring

The Commission has on several occasions in the past emphasized to the Governments the need to implement a comprehensive water quality surveillance and monitoring program to provide the information necessary to identify water quality issues, to assess the achievement of water quality objectives, and to relate achievement or non-achievement of the objectives to a particular cause. The Commission reiterates the need for adequate surveillance and monitoring of water quality and the Governments are again urged to ensure long-term funding in support of the International Great Lakes Surveillance Program which was recommended to the Governments on August 27, 1976.

Joint Institutions

The Commission has established the Great Lakes Water Quality Board, the Research Advisory Board, and the Regional Office as provided for in Article VII of the Agreement. These institutions have been essential to the Commission's operations under the Agreement, and the Governments are urged to continue the excellent and effective support for their activities. Recently the Commission approved a change in operational procedures of the Research Advisory Board. These changes will enable the Board to involve the research community more directly in the specific problems with which the Commission is dealing, and thereby strengthen the Board's capacity to serve as principal research advisor to the Commission.
Implementation of the Agreement

The Commission reported to the Governments in its Fourth Annual Report on Great Lakes Water Quality that “progress in implementing the terms of the Agreement has been generally slow, uneven, and in some cases disappointing”. Notwithstanding this assertion, the Commission does recognize that the concerted efforts of the Governments have in fact resulted in many successes since 1972. The Commission feels that continued efforts over at least the next five-year period are vital to the ultimate success of the Agreement. The Governments are therefore urged to renew their commitment expressed in Article X, to seek necessary legislation, funding, and the cooperation of the State and Provincial Governments.

Public Information

Many of the recommendations which the Commission makes under the Agreement, if implemented, would have significant social and economic impacts on residents of the Basin. The Commission has therefore attempted to better inform the public on Great Lakes water quality issues and to provide opportunities for public comment. For instance, the Commission’s annual meeting with its Great Lakes Water Quality and Research Advisory Boards is now open to the public, and the Water Quality Board has recently established a policy of meetings with the public.

The Commission believes that the value of a well informed public should be recognized by the Governments in their implementation of the Agreement.

Signed this 17th day of February 1977 as the International Joint Commission’s special report for consideration by the Governments of Canada and the United States in their comprehensive review of the operation and effectiveness of the Great Lakes Water Quality Agreement.

Henry P. Smith III
Chairman, United States Section

Maxwell Cohen
Chairman, Canadian Section

Charles R. Ross
Victor L. Smith

Bernard Beaupré
Keith A. Henry