REPORT OF THE NIAGARA RIVER SECRETARIAT RELATIVE TO THE STATUS OF COMMITMENTS UNDER THE NIAGARA RIVER DECLARATION OF INTENT

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1.0 INTRODUCTION

This report was developed by the Niagara River Secretariat (NRS) to brief the Niagara River Coordination Committee on the status of commitments made in the Niagara River Declaration of Intent (DOI) as part of the Niagara River Toxics Management Plan (NRTMP).

The report has two specific objectives:

1. to highlight important issues relevant to the DOI since the last update (NRTMP 1993) and the publication of the Four Party Progress Report on Reduction of Priority Toxics in the Niagara River (NRS *Ad Hoc* Work Group 1993); and,

2. to recommend actions and directions the Coordination Committee might take in addressing:

- o the 50% reduction commitment;
- o outstanding issues in meeting the DOI.

1.1 Niagara River Toxics Management Plan

The Niagara River Toxics Management Plan is composed of two parts: (1) a Four Party Work Plan, which establishes timetables and a set of specific activities to be undertaken, and (2) the Niagara River Declaration of Intent.

The first joint US/Canada agencies' report on environmental conditions in the Niagara River was published by the Niagara River Toxics Committee in 1984 (NRTC 1984). The NRTC report became the basis for developing the Four Party Niagara River Work Plan to reduce the inputs of toxic substances to the Niagara River.

Updates of plans to achieve these reductions have been published in 1988, 1990 1993 (NRTMP 1988; 1990; 1993). These updates include a revised Table of Commitments outlining Four Party and individual agency plans for meeting the Plan goals. Appendix I is the Table of Commitments. Appendix II presents a bibliography of Four Party and related committee and agency reports.

1.2 Declaration of Intent

The Niagara River Declaration of Intent (Appendix III) signed by the Four Parties on February 4, 1987 is the formalization of the process under the Niagara River Toxics Management Plan to achieve significant reductions in toxic chemical pollutants in the Niagara River. Within this broader objective, the Parties committed to a more specific goal of a 50% reduction in loadings of persistent toxic "chemicals of concern" from point and non-point sources in Ontario and New York, by 1996. The specific "chemicals of concern" were identified and agreed to by the Four Parties.

2.0 STATUS RELATIVE TO THE DOI

Appendix IV presents the status in meeting the original commitments under the 1987 Niagara River Declaration of Intent and identifies current gaps. The "Commitments" numbered 1 to 11 in this Appendix, are taken verbatim from the DOI. Four Party activities are identified separately from individual agency activities.

Specific issues related to the DOI are listed in the subsequent sections.

2.1 Issues

1. The Four Parties need to reach agreement on quantifying point and non-point loadings to the Niagara River.

Discussion:

While the NRS reached consensus that this is the highest priority gap, there is not consensus on the need to develop high confidence loadings data when considering the time and expense to do so. The U.S. position is that source identification and remediation may be a higher priority. Canadian position not?

2. The Four Parties recognize that there are limitations with the existing data in demonstrating reductions.

Discussions:

The NRS has reached consensus that limitations exist due to any of the following: limitations of existing data; lack of data and the frequency of monitoring.

Currently, the NRS is considering four potential solutions to resolving this issue: looking at existing data in new ways; investing in gathering additional data; exploring alternative but quantifiable ways of measuring progress (e.g., more extensive use of biomonitoring) for which there would have to be Four Party concurrence on what would be acceptable measures; and, examining alternate qualitative ways of measuring progress (i.e., pollution prevention and environmental stewardship) for which Four Party consensus would be required as to what indicators of success would be acceptable. Could cause delays.

To address how to document trends, USEPA has hired a contractor to evaluate existing data on loadings to the Niagara River to advise on:

i. How to efficiently identify total loads and point and non-point sources;

ii. How to efficiently document reductions, and what tools to use;

iii. Whether modelling can answer these management questions, and whether data is sufficient for modelling, and;

iv. What activities should be undertaken to answer questions the three questions noted above.

Status of this work?

The Four Party River Monitoring Committee has been charged with developing a trend analysis protocol for the upstream/downstream program. A proposal has been submitted to the NRS for consideration and funding.

After review and discussion of all relevant reports related to loadings, the NRS will be in a position to recommend required follow-up actions.

3.0 OTHER ISSUES RELATED TO THE DOI COMMITMENTS

Additional issues, related to DOI commitments, have been identified by the NRS and are summarized below.

1. The significance of dense non-aqueous phase liquids (DNAPL) and their impact on the Niagara River have yet to be quantified in a detailed manner.

2. The Parties should continue to carry out a review of state-of-the-art hazardous waste site cleanup technologies, including thermal destruction, bioremediation, and hydraulic containment. In particular, the Parties should consider undertaking a cooperative review of cleanup technologies for DNAPL in contaminated sediments, groundwater and soil.

3. Recent wet weather studies on the Toronto Waterfront by Ontario MOEE have shown that wet weather loads of organics and metals were orders of magnitude greater than dry weather loads. This may present a potential problem in some of the catchment areas within the Niagara River basin. Stormwater flow inputs need further consideration, to help determine sources.

4. All of the dry weather flow and a portion of the wet weather flow from the Falls St. Tunnel is being diverted to the Niagara Falls Waste Water Treatment Plant. Monitoring is currently being undertaken to characterize the water quality during wet weather events. The results of this exercise will determine if significant loads of some organics and metals occur during wet weather conditions to the Niagara River from this facility.

5. The Parties need to consider improving linkages between the NRTMP and the Canadian and United States Niagara River Remedial Action Plans, as well as other planning and implementation processes.

6. The status of the NRS committees (eg., Standards and Criteria, Fate of Toxics, Point Source, Non-point Source, Categorization, Public Involvement Committees/ Workgroups) and possible alternatives need to be discussed.

7. The Parties need to establish a mechanism for reporting regularly to the International Joint Commission.

8. The Parties need to review the current public involvement strategy with the view of recommending revisions, if necessary.

4.0 RECOMMENDATIONS

1. The NRS should review all relevant reports on quantifying loads to the Niagara River and make appropriate recommendations to improve loading estimates to the Niagara River.

2. The NRS recommends that the River Monitoring Committee's proposed workplan and budget for the review and analysis of the ambient data base be approved by the NRCC.

3. The NRS recommends that the Non-Point and Point Source committees be reconstituted as work groups in order to review the potential solutions to measuring/communicating progress. A report is to be tabled with the NRCC recommending activities that can be carried out. It is anticipated that this report will outline what can be done in the context of:

   - resource implications;
   - policy implications;
   - target setting;
   - how proposed work will be used to reflect progress; and,
   - timeframe.

The NRS will develop specific terms of reference along with proposed

memberships.

4. The NRS will develop a Report (including public consultation) by March 1, 1995, that will:

   i - provide a status report on the existing Declaration of Intent, by reporting against the commitments of the U. S. and Canadian point and non-point plans;

   ii - idenfity unfulfilled commitments to be included in an amended Declaration of Intent;

   iii - recommend new commitments and objectives to be included in an amended Declaration of Intent;

   iv - recommend improvements to point and non-point source monitoring;

   v - recommend a process and structure for implementing a strategy beyond 1996, including the scope of a public involvement process.

   vi - recommend a Four Party approach to communicating information to measure progress, both for 1996 and beyond.

5. The NRS should sponsor technology transfer workshops to demonstrate new and emerging technologies applicable to hazardous waste landfill site remediation. These would result in the publication of a summary report if appropriate.

6. The NRS should regularly submit all NRTMP updates and progress reports to the IJC Regional Office in Windsor, Ontario.

Appendix I

Niagara River Toxics Management Plan

1993 Update

Table of Commitments

Status as of June 1994

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
A. Reduce the Loadings of Toxics Entering the Niagara River from Known Sources			
A-1 Point Sources			
A-1a Ensure that the Niagara Falls Wastewater Treatment Plant is treating all dry-weather flow from the Falls Street Tunnel.	EPA/DEC	Oct 1993 COMPLETED	This treatment will reduce NRTMP priority toxics by 70 to 100 percent from the largest point source contributor to the Niagara River.
A-1b Implement Ontario's Municipal/Industrial Strategy for Abatement (MISA)	MOEE		MISA affects wastewater treatment discharges. The program was expanded to include pollution prevention, prevention of cross-media transfer of toxics, and chemical bans and phase-outs.
A-1c Implement the US Great Lakes Water Quality Guidance			
- Publish final Guidance	EPA	Apr 1994	The Draft Guidance has been published and EPA is reviewing and responding to public comments. Bioaccumulation factors have been used in calculating criteria. New due date April 1995.
- Adopt proposed water quality criteria and controls	DEC	Apr 1996	Great Lakes states will have two years to adopt the proposed water quality criteria and controls that are consistent throughout the Great Lakes. NYSDEC will implement GLWQI antidegradation policies and procedures prior to the two-year deadline.
A-1d Reduce toxics from point sources identified in Activities B-1	EPA/DEC/ MOEE	As identified	

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
A-2 Non-Point Sources			
A-2a Prepare update of US waste site report	EPA/DEC	annually COMPLETED	The update will report on progress in remediating waste sites in the U.S. The report will also publish improved loading estimates, where data allow.
A-2b Clean up contaminated Welland River basin sediments	EC/MOEE	1994/95	A committee was formed to oversee clean-up. A technology demonstration project was successful. 1994 MOEE/EC study will delineate pockets of contamination for dredging.
A-2c Reduce toxics from non-point sources identified in Activities B-2	EPA/DEC/ MOEE	as identified	Refer to B-2.
A-2d Complete Erie County pesticide Clean Sweep program			
- Final report	Erie County	Dec 1993 COMPLETED	
- Evaluate for Great Lakes-wide program	Erie County EPA/DEC	Mar 1994 COMPLETED	
- Implement basinwide	EPA/DEC	to be determined	Strategy development is underway.
A-2e Conduct practice exercise for containing an emergency spill to the Niagara River	EPA/EC	Jun 1993 COMPLETED	Binational cooperative drill to test notification and tracking procedures.
A-2f Publish final new substances notifications regulations under CEPA	EC	Dec 1993 COMPLETED	This regulation requires pre-screening of new substances for their environmental or health effects prior to introduction into the marketplace. Completed April 6, 1994.

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
A-3 Upstream Loadings			
A-3a Encourage U.S. and Canadian agencies to establish programs to identify the sources of toxics loads to the Niagara River through Lake Erie	EC/MOEE EPA/DEC		The responsible agencies have met to discuss a Lake Erie LaMP.
- Report annually on progress in developing these programs	Four Parties	Jul 1994	

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
A-4 Pollution Prevention			
A-4a Continue US pollution prevention activities	DEC/EPA	continuous	Activities include multi-media inspections, the 33/50 voluntary initiative, conferences for industry, development of regulations for P2 planning, and training of pre-treatment inspectors of wastewater treatment plants.
- Report on multi-media inspections	EPA	Jul 1994	
- Report on 33/50 voluntary initiative	EPA	Jul 1994	
- Report on industry conferences	DEC	Jul 1994	
- Report on development of regulations for pollution prevention	DEC	Jul 1994	The Multi-Media/Pollution-Prevention Unit established in 1992 is developing regulations requiring industries to develop plans to reduce their generation of hazardous waste and releases of toxic substances to air, land and water.
- Report on P2 training of municipal pretreatment inspectors	EPA/Erie County	Jul 1994	
A-4b Continue Canadian pollution prevention activities	MOEE EC	continuous	MOEE's Pollution Prevention Office instituted a Pollution Prevention Pledge Program which calls for voluntary reductions of toxic discharges.
- Report progress	MOEE EC	annually	
A-5 Implement Public Awareness Program for Fish Consumption Advisories Targeting Particular Populations at risk	EPA/DEC	1993	Monroe County project completed. DEC funded to expand program to use innovative techniques basinwide.

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
A-6 Ensure NRTMP-RAP consistency			Remedial Action Plans (RAPs) provide a plan for provincial, state, and local activities.
A-6a Continue to liase with RAP teams and NRAC/PAC	DEC MOEE	continuous	NRAC has been disbanded, awaiting new appointments. IAC, therefore, in hiatus.
A-6b Report on progress of RAPs	DEC/MOEE	annually	

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
B. Identify Additional Sources of Toxics to be Targeted for Enforcement/Reduction Actions			
B-1 Point Sources			
B-1a Identify sources of toxics discharges to U.S. sewage treatment plants			
- Examine existing pretreatment data	EPA/DEC		DEC will reevaluate pretreatment program data for substances of concern and potential source identification. Expected completion March 1995.
- Develop a pilot project to identify specific sources of priority toxics to treatment plants using low-level detection limits.	DEC/EPA	Mar 1995	The objective is to better characterize point source discharges, using lower detection limits and moving up the waste stream to identify sources. Expected completion March 1995.
B-1b Determine if CSOs are a source of priority toxics to the Buffalo River	EPA	Dec 1993 COMPLETED	Estimates of CSO loadings from a pilot modeling project for the Buffalo River indicate that they are not a significant source of priority toxics. Inputs of PCBs, pesticides and PAHs were 0.01% or less of NOTL loadings; lead input was 0.09% of the 89/90 NOTL load.
B-1c Identify potential CSO system modifications to eliminate CSO inputs of toxics to the Buffalo River	DEC/ NR RAP	Mar 1994	The Buffalo Sewer Authority is revising its CSO model to assess capacity and identify potential for enhanced in-system storage. Expected completion Dec 1994.

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
B-2 Non-Point Sources			
B-2a Implement EPA/DEC Contaminated Sediment Program			
- Inventory and map sediment hot spots	DEC/EPA	Mar 1994	EPA and DEC will rank the hotspots for action-based decisions. Expected completion, Dec 1994.
- Prioritize the hot spots for action-based decisions	DEC/EPA	Mar 1994	" " " "
- Develop strategy to address hot spots	DEC/EPA	Mar 1994	" " " "
- Identify pathways to the contamination of sediments	DEC/EPA	Mar 1994	" " " "
- Evaluate the state policy on dredge material disposal	DEC/EPA	Mar 1994	" " " "
B-2b Identify any other hazardous waste sites that potentially require priority attention based on new information	EPA/DEC	ongoing	As an example, the Frontier Chemical site was identified as a priority site in 1992.
B-2c Continue biomonitoring programs to identify potential additional toxics for ambient monitoring	MOEE DEC	ongoing	MOEE biomonitoring carried out biennially along the Niagara River and in some tributaries.
B-2d Track down sources of toxics in tributaries	EPA/DEC	Dec 1993	The field component of the program is completed. Expected completion, March 1995.
B-2e Identify specific persistent toxic substances that are candidates for substance bans	EPA/DEC	Mar 1994	A report will give bases for ban, restrictions, etc. Expected completion, March 1995.

COMPLETED

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
C. Assess the Success of Programs to Reduce the Loadings of Toxics, Ensuring a Continuing Focus on Critical Inputs			
C-1 Reinvestigate the categorization of chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and arsenic	Categorization Committee		There are analytic problems in differentiating chrysene from another substance, and differentiating benzo(b)fluoranthene, benzo(k)fluoranthene from each other. Arsenic has natural as well as industrial sources.
C-2 Continue biomonitoring at remediation sites: waste sites, point sources, tributary mouths, etc.	MOEE DEC	ongoing	Biomonitoring will be used to confirm the effectiveness of cleanups.
C-3 Evaluate NRTMP-related programs and initiatives for meeting commitment goals	4-P	Jun 1994	The intention is to solicit additional guidance from experts in evaluation of existing data to answer management questions.

ACTIVITY/OUTPUT	RESPONSIBLE PARTY	COMPLETION DATE	COMMENT AND/OR STATUS
C-4 River Monitoring Committee Activities			
C-4a Prepare annual Upstream/Downstream reports	RMC	Annually COMPLETED	
C-4b Conduct the Fort Erie representativeness study - final report	RMC	 Apr 1995	This project, funded by EPA, is being conducted according to a Four Party workplan. DEC will do the statistical analysis. The final report will be a Four Party product.
C-4c Monitor for additional chemicals			
- Screen chemicals in Niagara River for potential addition to the upstream/downstream monitoring network	EPA	Dec 1993	
- evaluate list of chemicals measured in upstream/downstream network, and make recommendations for adjustments as necessary	Group B task force RMC COMPLETED	continuous	33 new chemicals were added to the list of 66 since 1987/88. Volatiles/chlorophenols analysis discontinued April 1993 due to non-detects. The NRS will evaluate the impact on the NRTMP.
C-4d Conduct field and lab audits	Groups A & B task force RMC COMPLETED	biennially	
C-4f Develop a method for trend analysis over the years for chemicals of concern	RMC COMPLETED	Dec 1993	

NRTMP
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DECLARATION OF INTENT

BY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENT CANADA

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ONTARIO MINISTRY OF THE ENVIRONMENT

RELATING TO

THE NIAGARA RIVER TOXICS MANAGEMENT PLAN

INTRODUCTION

The problems of toxic chemical pollution in the Niagara River have been well documented. Major investigations have identified existing and potential sources of toxic pollution along the River, as has work undertaken by the Parties to this Declaration, the International Joint Commission and, more recently, through the Niagara River Toxics Committee (NRTC) report of October 1984.

Numerous studies and investigations undertaken over the years have contributed significantly to the understanding of the complex problems in the river. They have also led to the implementation by the jurisdictions of a wide range of control programs and other measures to reduce the burden of toxic chemicals in the River.

The United States Environmental Protection Agency (EPA), Environment Canada (DOE), the New York State Department of Environmental Conservation (NYSDEC) and the Ontario Ministry of the Environment (MOE) - herein referred to as the Parties - have each identified their respective various programs and activities underway or planned on the Niagara in their responses to the recommendations of the Niagara River Toxics Committee. The Parties continue to undertake activities leading to the reductions of toxic chemical pollutants in both countries in accordance with existing laws and regulations which continue to evolve and which may not be similar in approach.

Under Article II of the Great Lakes Water Quality Agreement of 1978, the governments of Canada and the United States agreed to make a maximum effort to develop programs, practices and technology necessary to eliminate or reduce, to the maximum extent practicable, the discharge of pollutants into the Great Lakes System. This Article also states the policy of the Parties that the discharge of toxic substances in toxic amounts be prohibited and that the discharge of any or all persistent toxic substances be virtually eliminated.

While there are other sources of contamination, the Niagara River is a major contributor of toxic chemical pollutants to Lake Ontario. Public concern over toxics problems in the international waters of the Niagara River and Lake Ontario calls for the unified and collective efforts and will of the four Parties to protect and improve the quality of this valuable resource. Complementary actions carried out in both countries to address these problems include:

- Remedial Action Plans for Areas of Concern identified by the International Joint Commission (IJC);
- United States and Canadian Great Lakes Five Year Strategies;
- Canada-Ontario Agreement on Great Lakes Water Quality;
- Ongoing environmental programs in each jurisdiction.

PURPOSE

The purpose of this Declaration is to ensure that a management strategy is adopted which enables the Parties to move in a directed and coordinated manner toward the objective of achieving significant reductions of toxic chemical pollutants in the Niagara River in accordance with timetables and specific activities. The Parties commit themselves to using the authority provided by their domestic laws and regulations to this end. This is consistent with the goal of virtual elimination of toxic discharges, as agreed upon in 1978 by the Governments of the United States and Canada under the Great Lakes Water Quality Agreement.

In October 1986, the Parties released the first edition of a four-party Work Plan which establishes timetables and a set of specific activities to be undertaken. This Declaration in conjunction with that document, together form The U.S. - Canada Niagara River Toxics Management Plan, hereinafter referred to as the The Plan.

THE PARTIES DECLARE THEIR INTENT TO:

Adopt and implement The Plan as a dynamic and evolving framework within which the United States and Canadian agencies will cooperatively take appropriate steps leading to a significant reduction in toxic chemical pollutants from point and non-point sources to the Niagara River, in a manner consistent with federal, state and provincial laws.

In so doing, and in order to achieve the goals of The Plan as stated in this Declaration of Intent, the Parties will:

1. Jointly establish a common basis for identifying, assessing and quantifying toxic chemical loadings into the Niagara River;

   Individually identify and establish priorities for control measures to reduce loadings;

   Individually implement chemical pollutant control activities in the Niagara River;

   Individually and jointly monitor and evaluate the success of control activities.

2. Take into account applicable water quality and drinking water standards and set as a target a reduction level of 50% for

persistent toxic chemicals of concern* from point sources in Ontario and New York by the year 1996. This achievement will depend on the progressive evolution of technologies, permits, standards, laws, and regulations in both countries.

3. Report by July 1987 and each year thereafter on progress made in identifying and quantifying loadings of toxic chemical pollutants originating from non-point sources in Ontario and New York. To this end, the Parties will work towards achieving a reduction of at least 50% of persistent toxic chemicals of concern* by the year 1996 taking into account siting issues, technology available, laws and regulations.

4. Establish an improved system of monitoring to ensure the effectiveness of all monitoring programs and schedules.

5. Enforce laws and regulations to ensure the maximum reductions in loadings. In general, point source control measures will be based upon the application of existing best available technology and the results of scientific evidence of environmental degradation. The Plan will be updated to reflect developments in these areas.

6. Use The Plan as a means of alerting the jurisdictions to those chemicals for which reductions are not occurring, so that appropriate corrective actions can be taken.

7. Review and update The Plan on an annual basis. As part of the review a progress report will be published and public input sought. The report will include an implementation schedule proposed for the coming year, the results of monitoring, a list of actions undertaken with respect to point and non-point sources, updated information on chemicals of concern, and scientific evaluations of new and developing technologies relevant to the program.

8. In 1988 and annually thereafter, review and report in depth (based to the maximum extent possible on existing Parties' reporting requirements) on the state of new and emerging technologies applicable to hazardous waste landfill site remediation with particular emphasis on such techniques as the excavation, removal, and on-site destruction of contaminated material.

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* A mutually agreed upon list of persistent toxic chemicals of concern will be developed from:

i) NRTC Group I and II lists of chemicals of concern;

ii) IJC Water Quality Board's 1985 list of "Critical Pollutants";

iii) Results of point and non-point source monitoring activities underway.

9. Submit The Plan and progress reports to the International Joint Commission as part of the Commission's Remedial Action Plan program for the Great Lakes.

10. Adopt the following goals for each component of The Plan:

a) River Monitoring

- determine the toxic chemical loadings to the Niagara River from Lake Erie (input);
- determine toxic chemical loadings from the Niagara River to Lake Ontario (output);
- determine toxic chemical loadings from sources along the Niagara River by comparing the difference between the output from the river and input from the river from upstream sources (input-output differential river monitoring identified by the NRTC);

Attempts will be made to determine the loadings with sufficient confidence to measure the effectiveness of the control programs.

b) Point Sources

- determine toxic chemical loadings from industrial and municipal facilities;
- estimate allowable toxic chemical loadings from industrial and municipal sources as provided in regulatory specifications;
- estimate reduction of toxic chemical loadings as a result of implemented control measures and scheduled reductions based on planned control measures;
- implement remedial and control programs so as to achieve the maximum possible reduction of toxic chemical loadings to the Niagara River;

c) Non-Point Sources

- estimate toxic chemcial loadings from tributaries and leaking hazardous waste disposal sites;
- estimate reductions in toxic chemical loadings as a result of implemented control measures, and scheduled reductions based on planned control measures;

- implement remedial and control programs so as to achieve the maximum possible reduction of toxic chemical loadings to the Niagara River. In addition, on all sites, excavation, removal and destruction of contaminated material will be considered as a means of eliminating contaminants to the river.

d) Chemicals of Concern

- identify and maintain a list of chemicals of concern (as determined by the NRTC, with further monitoring, research and priorities established by the IJC Water Quality Board) within the Niagara River ecosystem and promote the establishment of uniform environmental and human health criteria for those chemicals.

e) Technical and Scientific Cooperation

- carry out research, technical and scientific programs to assist the four jurisdictions in addressing the problems of the Niagara Frontier.

f) Communication Plan

- present information and scientific reports to the public, and seek their input to The Plan.

g) Organization and Implementation

- establish and maintain a management structure to ensure that the implementation of The Plan is effectively monitored.

h) Reporting

- update The Plan annually and issue status reports at the beginning of each calendar year.

11. Initiate activity on a Lake Ontario Toxic Management Plan which will be similar in content and scope to the Niagara River Toxics Management Plan and compatible with IJC activities. The Lake Ontario document will be completed by January 1, 1988.

Executed this 4th day of February, 1987

For the United States
Environmental Protection Agency

Mr. Lee Thomas
Administrator

For Environment Canada

The Honourable Tom McMillan
Minister

For the New York State Department
of Environmental Conservation

Mr. Henry G. Williams
Commissioner

For the Ontario Ministry of the
Environment

The Honourable Jim Bradley
Minister

Appendix 4

FOUR PARTY ACTIVITIES TO MEET COMMITMENTS OF THE DECLARATION OF INTENT

COMMITMENT	AGENCY ACTIVITY
1. Jointly establish a common basis for identifying, assessing, and quantifying toxic chemical loadings into the Niagara River.	
4 Parties	o River Monitoring Committee, "Analytical Protocol for Monitoring Ambient Water Quality at the Niagara-on-the-Lake and Fort Erie Stations" - updated regularly (last updated in November of 1992). o 4-Party report, "Categorization of Toxic Substances in the Niagara River," compares the levels of 76 substances found in ambient water and fish tissue against U.S. and Canadian standards, criteria and guidelines, and places them in agreed upon categories. o A "Framework for the Niagara River 50% Reduction Progress Report" - adopted by the 4-Parties in 1989. The 1993 Progress Report determined that existing data collection programs cannot meet the requirements of the Framework.
Individually identify and establish priorities for control measures to reduce loadings. Individually implement chemical pollutant control activities in the Niagara River.	
EC	See specifics under 10b. and 10c.
MOEE	
EPA	
NYSDEC	

Individually and jointly monitor and evaluate the success of control activities.	
4 Parties	Niagara River Ad Hoc Workgroup, "Progress Report on Reduction of Priority Toxics in the Niagara River". Also see agency specifics under 4, 10b and 10c.
2. Take into account applicable water quality and drinking water standards and set as a target a reduction level of 50% for persistent toxic chemicals of concern* from point sources in Ontario and New York by the year 1996. This achievement will depend on the progressive evolution of technologies, permits, standards, laws, and regulations in both countries. * A mutually agreed upon list of persistent toxic chemicals of concern will be developed from: i) NRTC Group I and II lists of chemicals of concern. ii) IJC Water Quality Board's 1985 list of "Critical Pollutants"; iii) Results of point and non-point source monitoring activities underway.	
4 Parties	The Four Parties have selected 18 toxic chemicals of concern based on exceedances of water quality, drinking water, or fish tissue standards, criteria or guidelines. The 50% reduction commitment for point sources has been applied to the 10 of those for which there is evidence of significant Niagara River sources. See more details, 10d.

3. Report by July 1987 and each year thereafter on progress made in identifying and quantifying loadings of toxic chemical pollutants originating from non-point sources in Ontario and New York. To this end, the Parties will work towards achieving a reduction of at least 50% of persistent toxic chemicals of concern (see above) by the year 1996 taking into account siting issues, technology available, laws and regulations.	
4 Parties	o Technical committee report released, "Nonpoint Source Committee Report to the Niagara River Secretariat," September 1989. o Development of a comprehensive report on non-point source loadings was first listed as a commitment in the 1990 Update of the NRTMP - this was addressed by the 1993 Progress Report which cited the need to focus initially on load reduction and identification of sources. o Despite difficulty of drawing firm conclusions because of incomplete data bases, the 4 Parties have committed to work towards achieving a 50% reduction of NRTMP toxic chemicals by the year 1996. (See 10c. for details)

4. Establish an improved system of monitoring to ensure the effectiveness of all monitoring programs and schedules.	
EC	Environment Canada maintains ambient water monitoring stations at the headwaters and mouth of the Niagara River, using state-of-the-art 4-Party protocols. These protocols are under continual review and are updated as needed. The 4 Parties are currently engaged in a study to determine whether the water drawn at the upstream station at Fort Erie is representative of Lake Erie inflow.
MOEE	Biomonitoring is used to identify sources of contamination and to determine the effectiveness of remediation at waste sites and other hot spots. The Municipal Industrial Strategy for Abatement (MISA) includes an enhanced point-source monitoring program that is proving useful in collection of Niagara River data.
NYSDEC	Biomonitoring used to determine the effectiveness of remediation at waste sites and tributaries.

5. Enforce laws and regulations to ensure the maximum reductions in loadings. In general, point source control measures will be based upon the application of existing best available technology and the results of scientific evidence of environmental degradation. The Plan will be updated to reflect developments in these areas.	
EC	Canada uses its Canadian Environmental Protection Act (CEPA) and MISA program. Under CEPA, a new substances regulation has been announced which will require the pre-screening of substances for their environmental and health effects prior to their introduction into the market place. MISA is being expanded to include new industrial sectors and categories of controlled substances.
MOEE	
EPA	The U.S. uses its NPDES permitting program to limit or ban the point source release of toxic chemicals. The proposed Great Lakes guidance will place more stringent controls on persistent toxics, and put into place anti-degradation measures. The U.S. negotiated a legal agreement for the treatment of the Falls Street Tunnel CSO discharge at the NFWWTP's active carbon treatment system. The Superfund and RCRA programs regulate waste site remediation.
NYSDEC	
6. Use the Plan as a means of alerting the jurisdictions to those chemicals for which reductions are not occurring, so that appropriate corrective actions can be taken.	
4 Parties	The Parties individually and jointly use the Plan, subsequent updates, meetings and RAPs to alert many jurisdictions, potentially responsible parties, municipalities and the public to chemicals for which reductions are not occurring to enable appropriate corrective actions.

7. Review and update The Plan on an annual basis. As part of the review a progress report will be published and public input sought. The report will include an implementation schedule proposed for the coming year, the results of monitoring, a list of actions undertaken with respect to point and non-point sources, updated information on chemicals of concern, and scientific evaluations of new and developing technologies relevant to the program.	
4 Parties	The 4 Parties issue both Progress Reports and Plan Updates. The Progress Reports present the results of monitoring and recent information on chemicals of concern. They are to be issued each year following the 1993 Progress Report. The NRTMP Updates present progress in meeting the plan commitments, and schedule new commitments. It has been updated in 1988, 1990 and 1993 with interim status reports in intervening years. This reporting cycle will be maintained in future years.
8. In 1988 and annually thereafter, review and report in depth (based to the maximum extent possible on existing Parties' reporting requirements) on the state of new and emerging technologies applicable to hazardous waste landfill site remediation with particular emphasis on such techniques as the excavation, removal, and on-site destruction of contaminated material.	
EPA NYSDEC	The EPA and DEC Superfund and RCRA programs issue reports on new and emerging technologies for the remediation of hazardous waste sites. Site remediations in effect are reexamined every 5 years to confirm that they are still protective of human health. The annual DEC/EPA hazardous waste site reports detail technology applications at US site.
9. Submit The Plan and progress reports to the International Joint Commission as part of the Commission's Remedial Action Plan program for the Great Lakes.	
4 Parties	Individually, the Four Parties have submitted reports to the International Joint Commission (IJC), which in part include the NRTMP, but we have not to date formally submitted a Four Party status report.

10. Adopt the following goals for each component of The Plan:

10a. River Monitoring

- determine the toxic chemical loadings to the Niagara River from Lake Erie (input);
- determine toxic chemical loadings from the Niagara River to Lake Ontario (output);
- determine toxic chemical loadings from sources along the Niagara River by comparing the difference between the output from the river and input from the river from upstream sources (input-output differential river monitoring identified by the NRTC);

Attempts will be made to determine the loadings with sufficient confidence to measure the effectiveness of the control programs.

RMC for the 4 Parties	River Monitoring - A major program under the NRTMP for assisting in the determination of loadings for selected toxic chemicals. Completed activities: - Prepared the list of analytical parameters to be investigated. (also ongoing) - Validated the monitoring methodology to be used. (also ongoing) - Established procedures for revising and updating methodologies. - Developed written sampling, analytical and quality control procedures for Ft. Erie and Niagara-on-the-Lake stations (Operations Manual). - Agreed on interpretation of the existing data (12/84-3/86) at Ft. Erie and Niagara-on-the-Lake stations ("Upstream/Downstream Niagara River Monitoring Data. 1984-1986.") - Reported on the interpretation of river monitoring data from 1986/87 through 1990/91. Each annual report documents the Niagara River differential load for each chemical monitored. - Determined what additional monitoring activities should become part of the Four Party jurisdictional data base. The RMC recommended that agencies continue existing biomonitoring programs as a supplement to ambient monitoring, though it cannot be used to quantify toxic reductions. The NRS recommends biomonitoring be used to evaluate effectiveness of remedial measures. Future Action: The RMC will develop a methodology for a qualitative time-trend analysis to improve 4-Party assessment of toxics loadings reductions.

4-Parties (NRS)	- Published a "Framework for 50% Reduction Progress Report" (Nov 1989) establishing the statistical criteria and confidence limits to attempt to determine trends in loadings reductions so as to ascertain the effectiveness of control programs. In January 1993, the Niagara River Ad Hoc Workgroup published the "Progress Report on the Reduction of Toxics in the Niagara River" which concluded that because data collection programs were not specifically designed to measure 50% reduction, trends could not be reported with confidence. The Workgroup recommended that the 4 Parties presently report on actions at sources, and source loadings and ambient levels of toxic chemicals until the data bases improve. - Current Action: Fort Erie Representativeness Study: The 4 Parties are conducting comparative sampling and analysis to determine whether the water at the upstream sampling station accurately represents Lake Erie inflow.
EC	Evaluation report, "The Niagara River, Lake Ontario and the Niagara River Toxics Management Plan (NRTMP)," Williams, Kuntz, El Shaarawi.

10b. <u>Point Sources</u> - Determine toxic chemical loadings from industrial and municipal facilities. - Estimate allowable toxic chemical loadings from industrial and municipal sources as provided in regulatory specifications. - Estimate reduction of toxic chemical loadings as a result of implemented control measures and scheduled reductions based on planned control measures. - Implement remedial and control programs so as to achieve the maximum possible reduction of toxic chemical loadings to the Niagara River.	
4 Parties	Point Source Committee report on compliance monitoring and estimated toxic chemical loadings from 1986/87 to 1988/89, "Niagara River Point Source 50% Reduction Progress Report," September 1990. Revised point source estimated loadings for 1986/87 to 1989/90 presented in the Niagara River Ad Hoc Workgroup report, "Progress Report on Reduction of Priority Toxics in the Niagara River", January 1993.
MOEE	Canadian point source plan: Outlined in: "Update Report: Reduction of Toxic Chemicals from Ontario Point Sources Discharging to the Niagara River 1988", and "Priority Toxic Chemicals of Concern from Ontario Point Sources Discharging to the Niagara River, in June 1989, and updated and reissued in 1993. The updated report includes a description of calculations for point source loadings. - Enforcement actions taken when necessary. All MOEE control orders have been met. - Staged institution of Municipal-Industrial Strategy for Abatement, a technology-based effluent limitation for each industry supplemented with a water quality-based limitation. The program was expanded to include pollution prevention, prevention of cross-media transfer of toxics, and chemical bans and phase-outs.

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MOEE	Canadian point source plan: Outlined in: "Update Report: Reduction of Toxic Chemicals from Ontario Point Sources Discharging to the Niagara River 1988", and "Priority Toxic Chemicals of Concern from Ontario Point Sources Discharging to the Niagara River, in June 1989, and updated and reissued in 1993. The updated report includes a description of calculations for point source loadings. - Enforcement actions taken when necessary. All MOEE control orders have been met. - Staged institution of Municipal-Industrial Strategy for Abatement, a technology-based effluent limitation for each industry supplemented with a water quality-based limitation. The program was expanded to include pollution prevention, prevention of cross-media transfer of toxics, and chemical bans and phase-outs.

MOEE	Data to determine point source loadings continuously collected under compliance monitoring programs: MOEE's IMIS and MISA programs. All MOEE control Orders have been met. Estimated allowable loadings addressed in "Update, Toxic Chemical Loadings From Atlas Specialty Steels," November 1986. Loadings estimated in the June 1989 and July 1993 reports.
EPA and DEC	U.S. point source plan: Outlined in: DEC/EPA Interim report, "Reduction of Toxic Inputs to the Niagara River from Point Sources," June 1989, identifies how the 50% commitment will be met. - SPDES enforcement actions taken when necessary. - Implementation and enforcement of pretreatment programs at POTWs. - Litigation with the City of Niagara Falls for the treatment of dry-weather flow from the Falls Street Tunnel, identified as responsible for greater than 50% of the loadings of NRTMP priority chemicals from all point sources in the Niagara River basin. EPA and DEC reached a settlement with the city in March 1993, and the NFWWTP began treating the flows on schedule on October 18, 1993. This will reduce NRTMP toxics by 70 to 100 percent from the largest point source contributor to the Niagara River. Other steps being taken: - Multi-media inspections at facilities known to discharge NRTMP toxics in order to develop pollution prevention plans. - Pilot project: Pollution prevention training of municipal pretreatment inspectors in Erie County. - Great Lakes Guidance: EPA published the draft Guidance for all Great Lakes states to adopt consistent and rigorous standards for bioaccumulative toxics. Included antidegradation measures. - Evaluation of CSOs in the Buffalo River to determine the significance of this source.

NYSDEC	Data to determine point source loadings continuously collected under DEC's SPDES compliance monitoring program. Control programs in U.S. are in NYSDEC permits. Estimated allowable loadings addressed in DEC annual point source loadings reports 1986-87 through 1989-90: - Appendix C: Toxic chemical loadings from the 10 major point sources are compared to permitted loadings. - Tables 4.1 - 4.6: Present permit compliance information and show toxic chemical loadings reductions over the years. Loadings estimated: - Baseline 1986/87 loading presented in "Comparison of 1981-82 and 1985-86 Toxic Substance Discharges to the Niagara River," August 1987. - Annual loadings presented in "Toxic Substance Discharges From Point Sources to the Niagara River" for the years 1986-1987 through 1989-1990.

10c. <u>Non-Point Sources</u> - Estimate toxic chemical loadings from tributaries and leaking hazardous waste disposal sites; - Estimate reductions in toxic chemical loadings as a result of implemented control measures, and scheduled reductions based on planned control measures; - Implement remedial and control programs so as to achieve the maximum possible reduction of toxic chemical loadings to the Niagara River. In addition, on all sites, excavation, removal and destruction of contaminated material will be considered as a means of eliminating contaminants to the river.	
4 Parties	In the absence of independently measured non-point source loadings, the Four Parties have estimated the magnitude of the non-point source loadings to the Niagara River by subtracting estimated point-source loadings as derived from compliance data from the ambient differential loadings as derived from river monitoring data. The 1993 Progress Report on reduction of toxic chemical loadings to the river cited the need to focus initially on activities to produce load reduction and identification of sources.

MOEE and EC	Waste Sites: - The MOEE report, "Potential Contaminant Loadings to the Niagara River from Canadian Waste Disposal Sites", January 1991 estimates that no loads of NRTMP priority toxics comes to the Niagara River from Canadian waste sites. Low loadings of all toxic chemicals (estimated 12 kg./day) confirmed in follow-up study in July 1993, "Preliminary Assessment, Contaminant Loadings from Ontario Based Landfills." More extensive sampling is planned at landfills to verify the existence of trace levels of HCB, Tetrachloroethylene, Hg, and Lead. - Improvements have been made at all waste sites to reduce the potential for contaminant migration. Tributaries: - The July 1993 report, "An Environmental Evaluation of the Lower Welland River" analyzed water and sediment quality. - The July 1993 report, "Chemicals of Concern in Niagara River Tributaries" presents the number of detections of NRTMP toxics in a survey of the 13 Niagara River tributaries. Sediments: - Contaminated sediments to be removed in the near term from both the Welland River and Lyons Creek (PCBs). - Under the Great Lakes Cleanup Fund in partnership with Atlas Specialty Steels, EC and MOEE carried out a Welland River contaminated sediments removal and treatment demonstration project.

EPA NYSDEC	Waste Sites: - The EPA/DEC report, "Reduction of Toxics Loadings to the Niagara River from Hazardous Waste Sites in the United States, November 1989, and its revision in March 1993 provide: 1) identification of sites with the greatest potential to contribute priority toxics to the river, 2) the status of implementation and control programs, and 3) estimates potential toxic chemical loadings to the Niagara River and projected loadings reductions as a result remediation programs. EPA and DEC expect to release an update incorporating chemical-specific loadings estimations in early 1994. The agencies examine the option of using excavation, removal and destruction of contaminated materials for remediating all sites. - Multi-media inspection at operating waste sites are identifying P2 opportunities. - The DEC report, "Dioxins and Furans in Fish Below Love Canal, New York," NYSDEC, Division of Fish and Wildlife, Albany, NY, August 1993, meets part of the commitment to document improvements. Tributaries: - EPA and DEC have estimated loadings for the Buffalo River and Gill Creek for toxics of concern. - Control measures have been implemented at tributaries associated with waste sites such as Gill Creek (8,000 cu yds sediment removed), Bloody Run Creek (29,000 cu yds sediment removed), and Pettit Flume (in progress). Gill Creek remediation eliminated 20% of the load from the Niagara River to Lake Ontario. The Four Parties use biomonitoring to evaluate the effectiveness of remedial measures at tributaries. - The current U.S. action plan emphasizes source trackdown in tributaries, using toxic detection tools that can be installed along the length of the tributary. Sediments: - EPA has assessed core samples from hot spots in the Buffalo River, and demonstrated a new treatment technology in its program to develop cost-effective assessment tools and remediation (ARCS). - DEC and EPA have instituted a sediment data collection, mapping, and strategy development program for the Niagara River basin.

10d. Identify and maintain a list of chemicals of concern (as determined by the NRTC, with further monitoring, research and priorities established by the IJC Water Quality Board) within the Niagara River ecosystem and promote the establishment of uniform environmental and human health criteria for those chemicals.	
4 Parties	- Compilation of MOEE and DEC water quality criteria regulatory guidelines was completed, October 1987. - Master list of persistent toxic chemicals in the Niagara River was accepted by the Coordination Committee, November 1987 - Chemicals of concern subject to the 50% reduction required in the Declaration of Intent identified, March 1988. - Comprehensive report issued by the Standards and Criteria Committee, March 1990, comparing the standards and criteria of the 4 agencies, judging their adequacy for the NRTMP, and recommending plans for criteria development where necessary. - Updated categorization of toxic substances (418 chemicals) in the Niagara River based on data collected between 1976 and 1989 completed, June 1990. - Ongoing: Review of recent data for candidates to the list of chemicals subject to 50% reduction commitment (Niagara River Secretariat). This activity was included in the January 1993 report, "Progress Report on Reduction of Priority Toxics in the Niagara River".
NYSDEC	- October, 1987 report,"Niagara River Biota Contamination Project: Flesh Criteria for Protection of Piscivorous Wildlife", presents newly developed criteria to protect fish-eating birds and animals.

10e. Carry out research, technical and scientific programs to assist the four jurisdictions in addressing the problems of the Niagara Frontier.	
4 Parties	- International Symposium on Toxics in the Niagara: A Shared Challenge, February 1987. - Point Source Monitoring Technical Workshop, January 1988 - Hydrogeology Technical Workshop, May 1988 - Zero Discharge Seminar, September 1987 - Fate of Toxics Committee submittal to the NRS, "Modeling Transport and Exposure of Substances in the Niagara and Lake Ontario," Parkerton and DiToro, September 1990. - Niagara River/Lake Ontario Tributary Monitoring Experts Meeting, August 1992. - Ongoing: Screen chemicals on the Niagara River for potential addition to the Upstream/Downstream network. EPA lead: report expected December 1994.
MOEE	Ongoing biomonitoring and point source programs.
EPA	- The 1990 Lake Ontario TCDD study was used to develop modelling charts that predict effect of levels of input on bioaccumulation in fish. - A regional groundwater model was developed, "Simulated Three-Dimensional Ground-Water Flow in the Lockport Group, A Fractured Dolomite Aquifer near Niagara Falls, New York," USGS, 1993.
NYSDEC	Ongoing biomonitoring and point source programs.

10f. Communication Plan - present information and scientific reports to the public, and seek their input to The Plan.	
4 Parties	The NRS communication plan provides for: - Public meetings on release of Updates and Progress Reports. - Availability of documents and fact sheets prior to public meetings. - Assignment of lay members to technical committees. - Placement of technical documents in repositories for public access.
10g. Organization and Implementation - establish and maintain a management structure to ensure that the implementation of The Plan is effectively monitored.	
4 Parties	The management structure consists of three layers: - Coordination Committee (ultimate decision making). - Niagara River Secretariat (implementation planning and monitoring). - Committees (technical guidance and input).

10h. Reporting - update The Plan annually and issue status reports at the beginning of each calendar year.	
EC	Note: same as 7.
MOEE	
EPA	
NYSDEC	
11. Initiate activity on a Lake Ontario Toxic Management Plan which will be similar in content and scope to the Niagara River Toxics Management Plan and compatible with IJC activities. The Lake Ontario document will be completed by January 1, 1988.	
4 Parties	In 1989 the Four Parties implemented a Lake Ontario Toxic Management Plan (LOTMP). Updates and progress reports were completed and released to the public in 1991 and 1993. A Lakewide Management Plan for critical pollutants is in the first stage of development (identification of impaired beneficial uses and designation of critical pollutants). This is also a commitment under the Great Lakes Water Quality Agreement.