



INTRODUCTION

The Great Lakes Binational Toxics Strategy: *A Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances*¹ (GLBTS) was conceived in response to the International Joint Commission's (IJC) *1994 Seventh Biennial Report on Great Lakes Water Quality*. The IJC, an independent body of governmentally appointed commissioners with the responsibility to assist and evaluate U.S. and Canadian efforts under the Great Lakes Water Quality Agreement (GLWQA), called upon the two governments to "adopt a specific, coordinated strategy within two years with a common set of objectives and procedures for action to stop the input of persistent toxic substances into the Great Lakes environment." Signed in 1997, the GLBTS is an agreement between Canada and the United States to virtually eliminate persistent toxic substances from the Great Lakes environment.

Environment Canada (EC), the United States Environmental Protection Agency (USEPA), and stakeholders from industry, academia, state/provincial and local governments, Tribes, First Nations, and environmental and community groups have worked together toward the achievement of the Strategy's challenge goals of preserving and protecting an invaluable ecosystem, which comprises over 20 percent of all fresh surface water world-wide and over 80 percent in North America.

This past year saw the continued use and emissions reductions of key Level 1 persistent toxic substances under the auspices of the GLBTS. Of the seventeen reduction goals set forth for the twelve Level 1 persistent toxic substances in April 1997, ten have been met, three will be met by the target timeline date of 2006, and the remaining four will be well advanced toward meeting their targets by 2006².

ABOUT THIS REPORT

This report represents a comprehensive summary of activities and accomplishments under the GLBTS for the year 2004. Chapters 1-4 present highlights of the active Substance Workgroups for mercury, PCBs, dioxins/furans, and HCB/B(a)P respectively, including a review of major projects, and progress in source reductions toward each of the interim challenge goals on both sides of the

border. Chapter 5 provides a synopsis of the three Integration Workgroup meetings and the two semi-annual Stakeholder forums, including a summary of presentations, policy discussions and key decisions. Chapter 6 details the sediment remediation projects to date, including an estimate of volumes remediated or capped and the remaining volumes of contaminated sediments in specific Areas of Concern (AoC) in the basin. Chapter 7 presents a synopsis of the work being done in the field of Long Range Transport.

Chapter 8 reprises the 2002 annual report of a number of the environmental indicators of progress used by the GLBTS and their associated monitoring programs. Additionally, the activities normally listed under the chapter titled Partners at Work, found in previous annual reports, have been separated by substance and are now integrated into the appropriate substance chapters. A summary of highlights in each chapter is provided below.

Mercury

The US has met its national mercury use reduction goal of 50 percent, and currently stands at over 50 percent (1990 baseline). Progress toward the national mercury emissions reduction goal of 50 percent (1995 baseline) currently stands at 45 percent and should be met by 2006. Canadian progress towards a 90 percent (1988 baseline) reduction of releases into the Great Lakes basin is well advanced and currently stands at 83 percent.

PCBs

As of April 2004, Canada reported that 88 percent of high-level PCB waste had been destroyed versus a reduction target of 90 percent. This is up from 40 percent in spring 1998 when the work of the GLBTS commenced. The US EPA is currently compiling PCB disposal information for 2003. According to annual reports submitted to the US EPA by PCB disposers about 87,000 PCB transformers and 143,000 PCB capacitors were disposed of between the 1994 baseline and the end of 2002. While this represents reductions of 43.5 percent and 10 percent respectively, there are indications that the disposal rates are actually much higher.

¹ GLBTS Level 1 substances are mercury, polychlorinated biphenyls (PCB), dioxins/furans, hexachlorobenzene (HCB), benzo (a) pyrene (B(a)P), octachlorostyrene (OCS), alkyl-lead, aldrin, dieldrin, mirex, chlordane, toxaphene, and DDT. These are linked to/or have the potential to cause detrimental environmental impacts in the Great Lakes basin. These substances occur in the water, sediment, or aquatic biota of the Great Lakes ecosystem and exert, singly or in a synergistic or additive combination, a toxic effect on aquatic, animal, or human life. They represent the immediate priority for virtual elimination through pollution prevention and other actions that will phase out their use, generation or release in a cost-effective manner.

² Please see Appendix B for a list of reduction goal targets and current status.



Dioxins/Furans

The US and Canada have made significant progress towards reaching their respective emission reduction goals of 75 percent and 90 percent. The US projects a 92 percent reduction in nation-wide releases of dioxins and furans by the end of 2004, and Canada, which currently stands at 84 percent, expects to meet its target by 2005, consistent with its commitment under the Canada-Ontario Agreement with Respect to the Great Lakes Basin Ecosystem.

HCB/B(a)P

Canadian reductions in HCB and B(a)P emissions are well advanced at 62 percent and 45 percent respectively against a 90 percent challenge goal (1988 baseline). US emissions reductions are also well advanced against unspecified reduction goals, with a 52 percent overall reduction in HCB releases and a 74 percent reduction in B(a)P releases.

Integration Workgroup Meetings/ Stakeholder Forums

The Integration Workgroup met three times in 2004: twice in Toronto (June 18th and October 7th), and once in Chicago (December 1st). The Workgroup focused its activities this year on the implementation of the General Framework to Assess Management of GLBTS Level 1 Substances. Draft assessment reports were presented on OCS and Dioxin/Furans at the October 7th meeting as pilots for the application of the General Framework. A full management assessment review of all Level 1 substances will be conducted in 2005 to evaluate and recommend next steps for the GLBTS.

The two Stakeholder Forums held this year were highlighted by keynote addresses from Robert Telewiak, Vice President of Environment, Health and Safety at Noranda, Inc., on environmental performance at Noranda/Falconbridge; and, from Dr. Dan Meyer of the American Dental Association on Best Management Practices for dental amalgam.

Sediment Challenge

In Chapter 6, an update is provided on the efforts of the US EPA and EC to remediate contaminated sediments from the Great Lakes basin. In the US, over 975,000 cubic yards of sediment were remediated in 2003 from eight sites around the Great Lakes, and since 1997, more than 3.4 million cubic yards of sediments have been remediated. In 2004, the US EPA also conducted integrated sediment assessment surveys at eight sites around the Great Lakes. In Canada, 9,800 cubic metres of sediment contaminated with GLBTS Level 1 substances such as mercury, HCB and OCS was remediated by Dow Chemical Canada Inc, from the St. Clair River adjacent to its industrial plant site in Sarnia, Ontario. This is in addition to continued work on the assessment of mercury accumulation at sites in the St. Lawrence River (near Cornwall), Thunder Bay and the Peninsula Harbour.

Long Range Transport Challenge

Chapter 7 provides an update on the work being done in Canada and the US to improve the understanding of the atmospheric science of toxic pollutant transport. Described within this chapter are the activities being undertaken to improve the Global/Regional Atmospheric Heavy Metals Model (GRAHM), as well as a summation of the research being done in the area of Progresses in Numerical Investigations of Long-range Transport of Toxaphene Emitted from the United States Soils to the Great Lakes Basin (J. Ma, Air Quality Research Branch, Meteorological Service of Canada, EC).

Environmental Indicators of Progress

The work of the GLBTS towards the virtual elimination of persistent toxic substances in the Great Lakes has long been supported by the works of the Great Lakes monitoring community. Chapter 8 presents data for environmental levels in the Great Lakes basin of GLBTS Level 1 and 2 substances in air and sediments, and in indicator species such as the Rainbow Trout, the Walleye, Lake Trout and Herring Gull eggs.

Looking Ahead

This year, 2005 presents interesting opportunities and challenges for the GLBTS. With a full review of the GLBTS Level 1 substances to be completed by 2005, and with a clearer understanding of the effectiveness of the GLBTS as a beyond compliance voluntary multi-partnership effort for the virtual elimination of Level 1 substances in the Great Lakes, the parties to the Strategy are looking forward to the next phase of the Strategy beyond 2006.

Chemicals of emerging concern continue to play a growing role in the development of environmental policy on both sides of the Great Lakes. Many of these contaminants have been in use for decades, such as brominated flame retardants (BFRs) and polychlorinated brominated diphenyl ethers (PBDEs), but evidence of build up in environmental media and biota, and potentially toxic effects have only come to light in the past few years.

The United States and Canada are currently planning to conduct a comprehensive review of the Great Lakes Water Quality Agreement (GLWQA). The ongoing success of the GLBTS as a beyond compliance voluntary multi-partnership effort, and the specter of new challenges on the horizon may present an opportunity for a new role under a revised GLWQA.

The continued success of the GLBTS will depend, in large part, on the continued commitment, diligence and creativity of all concerned. Working with our stakeholders and with national and international fora, the United States and Canada look forward to continuing the mission of the GLBTS well into the future.