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Binational Toxics Strategy Stakeholder Forum November 16, 1998



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Final Draft Great Lakes Binational Toxics Strategy 1998 Progress Report

November 16, 1998

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USEPA and Environment Canada invite your comments on this draft report.

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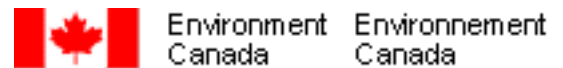
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Binational Toxics Strategy Stakeholder Forum November 16, 1998

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Stakeholders Forum [Agenda](#)

Note: The next Integration Group meeting will be held Tuesday, January 26, 1999, in Windsor, Ontario at the Cleary International Center. [Register here!](#)

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Presentations

- [David Ullrich](#), Acting Regional Administrator for Region 5 EPA
- [John Mills](#), Regional Director - Environment Canada
- [Chuck Fox](#), Assistant Administrator for Water - USEPA
- [Ian Smith](#), Coordinator, Water Policy Branch, Ontario Ministry of the Environment
- [George H. Kuper](#), Council of Great Lakes Industries
- [Vasudha Seth](#), Dofasco
- [Arthur E. Dungan](#), Chlorine Institute
- [Margaret Wooster](#), Great Lakes United

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We're interested in your [comments](#) on the Binational Strategy!



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Final Draft
Great Lakes Binational Toxics Strategy
1998 Progress Report



EXECUTIVE SUMMARY



Final Draft 1998 Progress Report
 Great Lakes Binational
 Toxics Strategy
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In early 1998, Environment Canada and the United States Environmental Protection Agency, in concert with a broad spectrum of stakeholders, began their collective efforts to implement the *Great Lakes Binational Toxics Strategy: Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes (Strategy)*. A variety of actions are now taking place at the federal, state, provincial, and local levels that seek to achieve the use and release reduction goals for the substances targeted by this Strategy: dioxins/furans, mercury, PCBs, hexachlorobenzene, benzo(a)pyrene, alkyl lead, octachlorostyrene, and a number of canceled or restricted pesticides (aldrin/dieldrin, chlordane, DDT, mirex, and toxaphene). The Strategy is designed to build on these actions, continue the momentum, and sustain the focus to maximize the benefits to the Great Lakes Basin ecosystem.

Implementation Plan

Using a collaborative process, the implementation plan for the Strategy has been built around the efforts of substance-specific workgroups. Seven workgroups have been formed to deal with the twelve targeted substances, grouping them according to chemical or industrial sector similarities. Comprised of representatives from environmental groups, local, state, provincial, and federal governments, industry, and tribes and First Nations, these seven workgroups are seeking to identify ways to virtually eliminate the targeted persistent toxic substances from the Great Lakes Basin. As was expected from the outset, each workgroup faces its

own challenges and is making progress toward its challenge goal at its own pace, within a prescribed implementation framework.

Substance-specific Workgroups

Each workgroup is following a "four-step process" for organizing its activities related to meeting the goals of the Strategy. The four steps include gathering information, analyzing current regulations, initiatives, and programs, identifying cost-effective options to achieve further reductions beyond those required by regulations, and implementing actions to work toward the goal of virtual elimination of the targeted substances. Some of the workgroups, although still in the initial stages of gathering information about baseline levels and sources of the substances, are also involved in identifying cost-effective options to achieve reductions.

The mercury workgroup continues to identify new options to achieve further reductions, but is also implementing specific activities leading to the goal of virtual elimination. Such activities include the recent signing of an agreement with the American Hospital Association to eliminate mercury from hospital waste, working with the chloralkali sector to reduce mercury releases, and working with the steel industry to reduce the use and release of mercury.

With the publication of both the Canadian and U.S. dioxin inventory updates this year, the dioxin/furans workgroup is assessing the implications of these inventories, as well as analyzing new developments and regulations that will affect current and future dioxin/furans emissions.

The PCB workgroup continues to promote the removal of PCBs from the environment through supporting Clean Sweep programs, and plans to analyze how new U.S. PCB regulations will affect the storage and release of PCBs.

The octachlorostyrene and the hexachlorobenzene/benzo(a)pyrene workgroups are focused on source identification and obtaining the involvement of key industries.

Documenting and understanding the effects of current environmental

loadings, fate, and transport have been the early emphasis of the pesticides and alkyl lead workgroups.

Communications and Outreach

As these actions are taking place, the two federal governments are working to facilitate communication among Strategy participants and to assist the workgroups with cross-cutting issues such as long-range transport of atmospheric pollutants from outside the Great Lakes Basin. A meeting was held on March 23, 1998, to kick off the implementation efforts of the Binational Strategy. A Binational Toxics Strategy list server and two web pages (www.epa.gov/bns and www.cciw.ca/glimr) have been created to encourage and facilitate communication between and with workgroup members. The USEPA web site also includes a discussion forum for the use of workgroup members. Because implementation efforts are focused primarily, but not solely, around substance-specific workgroups, in June 1998 stakeholders were invited to participate in a meeting of a separate workgroup called the Integration Group. This group met to discuss reporting mechanisms, recognition and incentive programs, sector-based approaches, long-range transport, sediments, and other issues outside the scope of the substance-specific workgroups.

The two governments are committed to providing progress reports on a regular basis, detailing the most recent efforts and achievements under the Strategy. This Progress Report is the first of these reports.



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Overview of the Binational Toxics Strategy Implementation



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1.0 INTRODUCTION AND BACKGROUND

What Is the Binational Toxics Strategy?

In keeping with the objectives of the 1987 Great Lakes Water Quality Agreement, on April 7, 1997, Canada and the United States signed the Great Lakes Binational Toxics Strategy: Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes, also known as the Binational Strategy, or BNS. The purpose of the BNS is to set forth a collaborative process by which Environment Canada (EC) and the United States Environmental Protection Agency (USEPA), in consultation with other federal departments and agencies, Great Lakes states, the Province of Ontario, tribes and First Nations, and Great Lakes Basin stakeholders, will work toward the goal of virtual elimination of certain targeted persistent toxic substances resulting from human activity in the Great Lakes Basin. The Strategy recognizes that the Great Lakes are an invaluable natural endowment for the residents, for the economy, and for many fish and wildlife species, and seeks to protect and ensure the health and integrity of the Great Lakes ecosystem.

The BNS provides a framework for actions to reduce or eliminate persistent toxic substances, especially those which bioaccumulate. It establishes reduction challenges in the time- frame 1997 to 2006 for 12 "Level I" persistent toxic substances:

aldrin/dieldrin

chlordane

DDT

mirex	toxaphene	alkyl-lead
benzo(a)pyrene)	dioxins and furans	hexachlorobenzene (HCB
mercury and compounds	octachlorostyrene (OCS)	PCBs

The Strategy also identifies "Level II" substances which have the potential to significantly impact the Great Lakes ecosystem through their use or release. The Level II substances include cadmium and cadmium compounds, 1,4-dichlorobenzene, 3,3'-dichlorobenzidine, dinitropyrene, endrin, heptachlor (+heptachlor epoxide), hexachlorobutadiene (+hexachloro-1,3-butadiene), hexachlorocyclohexane, 4,4'-methylenebis (2-chloroaniline), and pentachlorobenzene. The governments are encouraging the promotion and implementation of pollution prevention activities to reduce or eliminate Level II substances. USEPA and EC have agreed to periodically reconsider the substances addressed by the Strategy to determine whether any Level II substance should be placed on the Level I list, whether any new substances threatening the Great Lakes should be included on the Level I or Level II lists, and whether any other changes should be made.

The BNS acknowledges and builds on existing Canadian and U.S. regulatory programs that address the targeted substances. In addition, the Strategy aims to build on prior and existing pollution prevention and virtual elimination efforts in the Great Lakes area. In particular, the Canada-Ontario Agreement sets the framework within which all Canadian work related to the BNS takes place.

The Concept of Virtual Elimination

In the 1987 Great Lakes Water Quality Agreement (GLWQA), Canada and the U.S. agreed that "... the discharge of any and all persistent toxic substances be virtually eliminated," and agreed to work toward this end by developing programs and "measures for the control of inputs of persistent toxic substances including control programs for their production, use, distribution, and disposal..." In 1990, the International Joint Commission (IJC) urged the countries to develop and implement a comprehensive binational program to achieve virtual elimination of persistent toxic substances in the Great Lakes environment. As a result, both Canada and

the U.S., in their response to the IJC's Seventh Biennial Report on Great Lakes Water Quality, stated their intent to develop such a binational strategy to honor the agreements made in the 1987 GLWQA.

The BNS reaffirms each country's commitment to virtual elimination, as stated in the GLWQA, and outlines a framework by which the countries can work together to achieve this objective. Setting specific reduction challenges for the targeted substances, the BNS establishes interim quantitative reduction targets and timelines for achieving these reductions in order to track progress toward the virtual elimination of these substances. However, the BNS recognizes that it may not be possible to achieve total elimination of all persistent toxic substances, since some may be the result of natural processes and thus persist at background or "natural" levels. In addition, for technological or economic reasons, complete elimination may not be possible. In the case of naturally occurring substances, the anthropogenic sources of pollution will be targeted for reduction through life-cycle management so as to achieve naturally occurring levels. In all cases, virtual elimination is being sought through the most appropriate, common sense, practical, and cost-effective combination of voluntary, regulatory, or incentive-based actions, taking into consideration all feasible options. The challenges and actions outlined in the BNS are intended to represent significant milestones on the path toward virtual elimination.

Although the options for achieving virtual elimination include both regulatory and non-regulatory actions, the primary emphasis of the BNS is on pollution prevention and collaboration with stakeholders in support of voluntary initiatives.

IMPLEMENTATION OF THE BNS

Partnerships and the Role of Partners

USEPA's Great Lakes National Program Office (GLNPO) and EC have been leading the implementation of the BNS, with the assistance of two environmental non-governmental organizations (ENGOS) and one industry association. The ENGOS are the National Wildlife Federation (NWF) and Great Lakes United (GLU). The industry association is the Council of Great

Lakes Industries (CGLI). Other partners in the implementation effort include USEPA's Regions 2 and 3, various industry stakeholders, other ENGOs, and state, provincial, tribal, First Nations, and local, municipal, and regional government offices.

In June 1997, a meeting of Great Lakes stakeholders was convened by GLNPO and EC to review a draft BNS implementation plan. After review of stakeholder comments, a copy of the final implementation plan was sent to the Great Lakes stakeholders, along with a letter inviting participation in substance-specific workgroups formed for the purpose of achieving the reduction challenges for the Level I substances.

The responsibilities of and actions taken by EC and USEPA in leading the Strategy implementation effort include the following:

- Providing guidance in the implementation process by drafting a BNS Implementation Plan with input from stakeholders;
- Demonstrating leadership in the implementation process by coordinating public stakeholder meetings, substance-specific workgroup meetings, and an Integration Group meeting;
- Keeping the project on schedule by preparing to meet the challenge goals in the time frames required;
- Making the decision to delegate certain issues to the Integration Group, e.g. contaminated sediments and long-range transport;
- Providing administrative support by creating the BNS List Server, Web Pages, and Discussion Forum;
- Ensuring coordinated actions across government programs by contacting representatives of other toxics reduction efforts;
- Publicizing BNS implementation efforts by producing an outreach brochure/package and display to stimulate greater stakeholder participation;
- Reporting progress and successes, including this first Progress Report;
- Communicating recommendations to other governments and policy makers;
- Providing the logistical support for meetings, including the Stakeholder Forum, by scheduling times and locations and preparing agendas.

Substance-specific Workgroups

A kick-off meeting for implementation of the BNS was held on March 23, 1998 in Chicago. Seven workgroups were formed, one for each of the following targeted substance groups: PCBs, mercury, dioxins/furans, alkyl lead, octachlorostyrene, hexachlorobenzene/ benzo(a)pyrene, and the canceled or restricted pesticides. Each workgroup was led by EC and USEPA co-chairs, with facilitators available to guide discussions according to the four-step framework outlined in the BNS. The BNS implementation plan states that the workgroups are intended to be information-gathering, fact-finding, information-exchange entities which formulate ideas, suggestions, and options for reductions, and which present their findings to EC, USEPA, and the stakeholder community at-large. Thus, through the workgroups, stakeholders have the opportunity to submit ideas, suggestions, and comments to the governments and other decision-makers, who will then take action as appropriate. The workgroups are open to any interested stakeholder. EC and USEPA have encouraged balanced participation from a broad constituency, including tribes/First Nations, states, provinces, municipalities, environmental groups, industry, academia, and community groups.

Activities vary from workgroup to workgroup, depending on previous efforts and the status of the targeted chemicals. Representative actions include:

- Recruiting additional members from industry;
- Determining sources of the substance within and outside the Great Lakes, by economic sector;
- Within each source, identifying why and how the substance is used or released;
- Characterizing the sectors and/or facilities generating, releasing, storing, or using a substance;
- Determining environmental loadings and whether the substance is naturally-occurring or results from human use;
- Assessing long-range transport across states, regions and international borders;
- Analyzing current regulations and their impact on the presence of the substance;
- Identifying options for substitutions or new or modified processes;
- Recommending and implementing actions to be undertaken by

governments and stakeholders, particularly industry, that encourage progress toward the goal of virtual elimination.

As was expected from the outset, each workgroup faces its own challenges and is making progress toward its challenge goal at its own pace. Because the Strategy specifically challenges EC and USEPA to encourage and support voluntary programs by industry to reduce the generation, use, and/or release of targeted contaminants, the workgroups are encouraged to establish or continue partnerships with key Great Lakes industries to foster "cleaner, cheaper, smarter" ways of preventing or reducing pollution.

Integration Group

The need for a group to address organizational, administrative, process, and other cross-cutting issues was recognized by the stakeholders during the development of the BNS implementation plan. Therefore, a separate workgroup, called the Integration Group, was established under the BNS structure to address cross-cutting issues and to help the substance-specific workgroups focus on action and achieving results. Following the March 23, 1998, BNS kickoff meeting, the substance-specific workgroups referred the following issues to the Integration Group for consideration: long-range transport; contaminated sediments; incineration/ combustion issues; U.S.- Canadian BNS challenge goal consistency; workgroup recruitment; and public access to BNS information.

On June 19, 1998, the Integration Group was convened for the first time, with invitations to participate extended to Great Lakes stakeholders. Participants in this first meeting included 28 attendees from Canada and the U.S. Based on workgroup recommendations and their own identification of cross-cutting issues, members recommended focusing on the following topics:

- membership balance: targeting recruitment to ensure success by the substance-specific workgroups;
- reporting goals, mechanisms and tools to measure and inform the public about progress toward BNS challenge goals;
- using the World Wide Web and other communication tools to

- disseminate information about BNS-related efforts;
- strategies to address sources outside the Great Lakes Basin that are contributing to problems in the Great Lakes; and
- recognition/incentives programs: ways to encourage sources to go "beyond compliance" in order to achieve BNS goals;
- contaminated sediments as a consideration in implementing the BNS.

The Integration Group identified a number of options and concerns and asked the government agencies to follow up on these issues. The Integration Group expects to meet again once or twice a year, as issues arise.

Stakeholder Forum

EC and USEPA have agreed to convene a stakeholder forum to periodically assess progress made under the BNS. The BNS Stakeholder Forum, which is scheduled to meet twice a year, serves as a public forum to exchange information; to report progress, successes, impediments and suggested changes; to evaluate the status of Level I and Level II substances and refine the challenge milestones as necessary; and to discuss potential actions and future direction.

The first Stakeholder Forum, at which the governments will jointly report progress and assess the status of reduction efforts, will be held on November 16, 1998.

Cross-Cutting Issues

Long-Range Transport

In addition to the substance-specific challenges being undertaken by each of the workgroups, the BNS mandates a joint Canadian-U.S. obligation to:

Assess atmospheric inputs of Strategy substances to the Great Lakes. The aim of this effort is to evaluate and report jointly on the contribution and significance of long-range transport of Strategy substances from world-wide sources. If

ongoing long-range sources are confirmed, work within international frameworks to reduce releases of such substances.

Although the BNS does not set a time frame for reporting on the long-range transport of pollutants from world-wide sources, EC and USEPA are committed to the development of a long-range transport report. This report will ultimately be a formal assessment of long-range transport contributions of toxic chemicals to the Great Lakes, and will review options for joint U.S.-Canadian actions. An outline of this report is expected to be available in the Spring of 1999. Environmental context summaries prepared under the BNS will also describe the role of long-range transport in conveying toxic substances to the Great Lakes. In addition, USEPA and EC will continue to seek opportunities to advocate for action on long-range transport in national and international fora.

Contaminated Sediments

A joint Canadian-U.S. challenge similarly applies to contaminated sediments:

Complete or be well advanced in remediation of priority sites with contaminated bottom sediments in the Great Lakes Basin by 2006.

As with long-range transport, the governments recognize that the BNS alone cannot resolve all of the issues associated with contaminated sediments, and that the BNS must work to influence national and international policy on this issue. Although the substance-specific workgroups are not expected to focus on contaminated sediments in their individual reduction efforts, they have been asked to include sediments in their source assessments, and to describe the role of contaminated sediments in environmental context summaries prepared under the BNS. EC and USEPA intend to use the IJC's Sediment Priority Action Committee (SedPAC) as a forum to discuss progress, issues, options, and recommendations regarding contaminated bottom sediments. To improve communication on this topic, a link will be established between the BNS web site and USEPA Region 5's sediments web page.

USEPA staff involved in the BNS effort have met with the agency's Regional Sediments Team, and have developed strategic directions as well as ideas for a sediments information management system, currently under review by EC. In Canada, the evaluation of 250 innovative technologies for the safe handling and treatment of contaminated sediments has been documented in conjunction with the Great Lakes 2000 Cleanup Fund. The implementation of a computerized, searchable Sediment Technology Directory (SEDTEC) of 250 remediation technologies is also being promoted, on a pilot basis, in Canada and the cleanup of priority contaminated sediments is being pursued.

Contaminated sediment is also being addressed in Canada and the U.S. through Remedial Action Plans (RAPs) and Lakewide Management Plans (LaMPs). Over the last ten years, approximately \$500 million has been spent on 24 sediment remediation projects undertaken in 14 different Great Lakes Areas of Concern (AOCs). The subject of contaminated sediments and future remediation efforts will be discussed by EC and USEPA with the Integration Group at an upcoming meeting.

Level II Substances

The Strategy also explicitly defines a challenge for Level II substances: to promote pollution prevention and the sound management of these substances, as well as to increase knowledge of sources and environmental levels of these pollutants.

EC is committed to developing information on the occurrence, fate, and effects of organometal compounds, including tributyl tin, and to upgrading and improving public access to an existing import/export hazardous waste information database. In the U.S., control measures adopted as a result of the Clean Air Act for major source sectors, such as iron and steel and wood preservation, are expected to substantially reduce emissions of polycyclic aromatic hydrocarbons (PAHs).

Reporting/Communication

The governments are required to report progress on a regular basis. This is the first Binational Strategy Progress Report. Similarly, in order to assess progress toward meeting the BNS challenges, EC and USEPA are responsible for establishing a process for determining baseline release levels and loadings of targeted substances, based on best available data. The substance-specific workgroups are presently involved in this effort. In addition, the octachlorostyrene, alkyl-lead, and pesticides workgroups are in the process of preparing reports describing their efforts to meet the BNS challenge goals, all of which are expected to be completed in draft by December 1998. Individual activity and progress reports from each of the substance-specific workgroups appear in Section 2 of this Progress Report.

To improve the coordination of all participants in the BNS implementation effort, electronic communication was initially thought to be the most efficient and environmentally-friendly means of exchanging information. Because actual face-to-face meetings were anticipated to be infrequent, the BNS implementation plan recommended electronic communication channels to keep participants informed and to speed the implementation process. BNS web pages (www.epa.gov/bns and www.cciw.ca/glimr) were developed on the Internet to provide rapid, two-way information transfer while conserving paper and other resources. These web pages contain letters, minutes, documents, and relevant reports associated with the BNS and its implementation. A discussion forum for the exchange of information, ideas, and opinions on implementation issues can also be found at the web sites. In addition, a BNS List Server was created to communicate and send documents via e-mail.

However, this electronic communication system has been under-utilized, in particular the discussion forum. USEPA and EC staff and workgroup leaders are considering the best means of improving communication among BNS participants between scheduled meetings.

3.0 LINKAGE WITH RELATED EFFORTS

Lakewide Management Plans

In 1987 the Amendments to the 1972 Great Lakes Water Quality Agreement created the process for the development of Lakewide Management Plans (LaMPs) for Critical Pollutants in each of the Great Lakes. The LaMPs are intended to assess the critical pollutants as they relate to the impairment of beneficial uses of the Great Lakes, and to develop measures to restore beneficial uses where they have been impaired. The LaMP process embraces the concept of virtual elimination, and covers substances and sets reduction targets on a lake-specific basis. An effort is being made to coordinate LaMP and BNS efforts in order to produce a cohesive, unified program to address persistent bioaccumulative toxics pollutants in the Great Lakes area.

A LaMP for each of the Great Lakes is expected to be submitted to the IJC at four stages: 1) when definition of the problem is complete; 2) when chemical load reduction schedules are complete; 3) when remedial measures are selected; and 4) when monitoring indicates that the contribution of critical pollutants to impaired uses has been eliminated and beneficial uses restored. Each of the Great Lakes is in a different situation with respect to its LaMP. The Lake Superior LaMP is nearing completion of Stage 2 and about to embark on Stage 3. The Lake Michigan LaMP is nearing completion of Stage 1. The Lake Erie LaMP is in the middle of its Stage 1 efforts, the Stage 1 LaMP for Lake Ontario was finalized in May 1998, and Lake Huron has not yet begun the LaMP process.

Remedial Action Plans

The Great Lakes Remedial Action Plan (RAP) program originated from a 1985 recommendation made by the International Joint Commission's Great Lakes Water Quality Board and was formalized in the 1987 amendments to the GLWQA. The aim of RAPs is to restore beneficial uses in 43 Areas of Concern (AOCs) in the Great Lakes Basin. Through the RAP program, Canada and the U.S. are committed to cooperating with state and provincial governments to incorporate a systematic and comprehensive ecosystem approach to use restoration, and to ensuring that the public is consulted in all actions undertaken to develop and implement RAPs for all designated AOCs in the Great Lakes basin. As part of this process, critical pollutants are being addressed along with the need for reduction targets, which in turn is assisting in achieving the goals of the BNS.

GLNPO maintains information on the U.S. AOCs, including current RAP

status, scheduled meetings, progress and achievements, beneficial use impairments, research, publications, community involvement, and funding partners. Environment Canada provides updates on Canada's RAPs, including progress reports for the 17 Canadian AOCs in Lakes Erie, Huron, Ontario and Superior, and the connecting channels. These updates can be accessed via the Internet at www.cciw.ca/glimr.

Canada-Ontario Agreement

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) was established in 1994 to satisfy the requirements of the 1987 Great Lakes Water Quality Agreement (GLWQA). The COA provides the framework, within Canada, for systematic and strategic coordination of shared federal and provincial responsibilities for ecosystem management in the Great Lakes Basin. The agreement established priorities, targets, and schedules for environmental issues of concern in the Basin, identifying more than 50 targets to be achieved during the six-year term of the COA. These targets address three main objectives: to restore degraded areas, to prevent and control pollution, and to conserve and protect human and ecosystem health. The COA identifies Tier I and Tier II substances, along with their reduction targets. These substances and targets have been incorporated into the Challenge goals within the BNS.

Toxic Substances Management Policy (TSMP)

The Toxic Substances Management Policy outlines the Canadian federal government's approach to the management of toxic substances. The TSMP was developed to strengthen the protection of human health and the environment, and serves to provide guidance and an improved consistent approach to the assessment and management of substances by the federal government. The Policy presents a management framework based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative, and primarily the result of human activity (Track 1), and life-cycle management of other toxic substances including naturally occurring substances and substances of concern to prevent or minimize their releases to the environment (Track 2). In July 1998, a notice was issued under CEPA to put the following chemicals on Track 1: Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, PCBs, Polychlorinated dibenzo-p-

dioxins, Polychlorinated dibenzofurans, and Toxaphene.

PBT Strategy

The USEPA has developed a draft toxics reduction plan, entitled the Persistent, Bioaccumulative, and Toxic (PBT) Strategy. The aim of the PBT Strategy is to respond to the cross-media issues associated with PBT pollutants by going beyond the traditional single-statute approaches in order to reduce risks to human health and the environment from existing and future exposure to PBT pollutants. The initial focus of the PBT Strategy is the Level I substances of the BNS, but whereas the BNS primarily seeks voluntary reductions, the PBT Strategy intends to use the full range of USEPA tools to prevent and reduce releases of these substances. These tools include voluntary, regulatory, programmatic, remedial, international, compliance monitoring and assistance, enforcement, research, and outreach programs. The approach of the PBT Strategy is to coordinate efforts on the targeted substances among all USEPA national and regional programs.

Internationally, related efforts include a legally-binding protocol on persistent organic pollutants (POPs) negotiated in February 1998 by members of the United Nations Economic Commission for Europe (UNECE) under the Convention on Long-Range Transboundary Air Pollution (LRTAP). The objective of the LRTAP protocol is to control, reduce, or eliminate discharges, emissions, and losses of persistent organic pollutants. These include the substances targeted by the BNS. In June 1998, 55 member countries signed the LRTAP protocol. A second pact signed by the member countries will reduce emissions of lead, cadmium, and mercury below 1990 levels and phase out leaded gasoline.



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The United States and Canada each has a unique set of challenges laid out by the BNS. Many of the challenges are regional, and focus on activities in the great Lakes Basin; others call for national reductions in BNS substances. These challenges will be met by using what has come to be known as the Four Step Process, which is being followed by the substance-specific workgroups. Progress reports from each of the substance-specific workgroups follow.

The Four Step Process

For implementation purposes, the BNS specifies the following analytical four-step framework by which EC and USEPA will work in cooperation with their partners to virtually eliminate persistent toxic substances in the Great Lakes:

1. Gather Information
2. Analyze current regulations, initiatives, and programs which manage or control substances
3. Identify cost-effective options to achieve further reductions
4. Implement actions to work toward the goal of virtual elimination

In addition, EC and USEPA are committed to regular reports on progress as well as public recognition of successful efforts undertaken by any and all participants in the BNS process. Both governments are also committed to enlist key partners, municipalities, industries, product manufacturers, and others inside and outside the Great Lakes Basin to assist in meeting the BNS challenges, especially for those substances which may be entering the Great Lakes via long-range transport.

Report of the Mercury Workgroup

U.S. Challenge:

Seek by 2006, a 50 percent reduction nationally in the deliberate use of mercury and a 50 percent reduction in the release of mercury from sources resulting from human activity. The release challenge will apply to the aggregate of releases to the air nationwide and of releases to the water within the Great Lakes Basin.

Canadian Challenge:

Seek by 2000, a 90 percent reduction in the release of mercury, or where warranted the use of mercury, from polluting sources resulting from human activity in the Great Lakes Basin. This target is considered as an interim reduction target and, in consultation with stakeholders in the Great Lakes Basin, will be revised if warranted, following completion of the 1997 Canada Ontario Agreement (COA) review of mercury use, generation, and release from Ontario sources.

1. Actions to Date

The first stakeholder meeting of the Mercury Workgroup was held March 23, 1998. 57 individuals registered for the session, representing Canadian and U.S. industrial sources, utilities, environmental organizations, USEPA, and Environment Canada. Minutes of the meeting have been posted on the BNS web site (www.epa.gov/glnpo/bns).

U.S. Actions

In the U.S. the baseline used for this challenge is the most recent data available at the time the BNS was signed, which for mercury use is 1995, and for mercury emissions is 1990. A 21% reduction in mercury use was achieved between 1995-1997. Between 1990-95 an estimated 28% reduction in emissions was achieved.

- The Mercury Study Report to Congress has been released and contains the information used for setting these baselines for achieving challenge goals. Numerous federal and state regulations pertaining to mercury have caused a dramatic decline in mercury use. An initial documentation of sources and regulations has been prepared, and an update is planned.
- Products and recycling programs were discussed on a conference call May 5, 1998 and various participants volunteered for follow-up tasks.

Canadian Actions

- In Canada, the baseline used for this challenge will be 1988, in keeping with the Accelerated Reduction and Elimination of Toxics Program (ARET) baseline. A dramatic decline in mercury use and release has occurred in Ontario. Sources of mercury release, current regulations, initiatives and programs have been identified.
- A Health Care Memorandum of Understanding to voluntarily reduce and eliminate the use of mercury has been signed by six Ontario hospitals. Several additional hospitals have indicated that they will also be signing the MOU.
- Information and programs which have been developed to support mercury reductions in Ontario Healthcare facilities include:
 - a healthcare pollution prevention training program. More than 80 healthcare facilities in Ontario have received this training
 - a guide to sources and alternatives
 - Pollution Probe has prepared a cost of alternatives report
 - a web site has been developed to provide ongoing, current environmental information to healthcare facilities (<http://www.healthcare-environet.com>)

2. Specific Reduction Activities Underway/Progress Toward Meeting the Challenge

U.S. Progress

- USEPA and the American Hospital Association (AHA) signed a memorandum of understanding committing themselves to work together toward the virtual elimination of mercury from hospital waste, to provide education, and to develop a model waste management plan.

- The cooperation of three steel mills was secured through an agreement signed in September, 1998 by the Lake Michigan Forum, USEPA, IDEM, and three northwest Indiana steel mills. This includes providing an inventory of mercury in equipment and wastes and developing reduction plans.
- The Chlorine Institute, on behalf of its members, committed to reduce mercury use in the chlor-alkali industry by 50% from 1990-1995 levels. The goal is to reduce mercury usage by 80 tons per year by the year 2005. The first annual progress report detailing efforts made toward this commitment was released on May 8, 1998.
- USEPA has promulgated standards for municipal waste combustors and proposed standards for medical waste incinerators. USEPA is also developing rules for hazardous waste incinerators and cement kilns which burn hazardous wastes. Implementation of these rules should reduce mercury emissions from these sectors.
- The workgroup is gathering information that will be of assistance to those doing outreach to the public and to retailers about mercury thermometers and alternatives to their use.

Canadian Progress

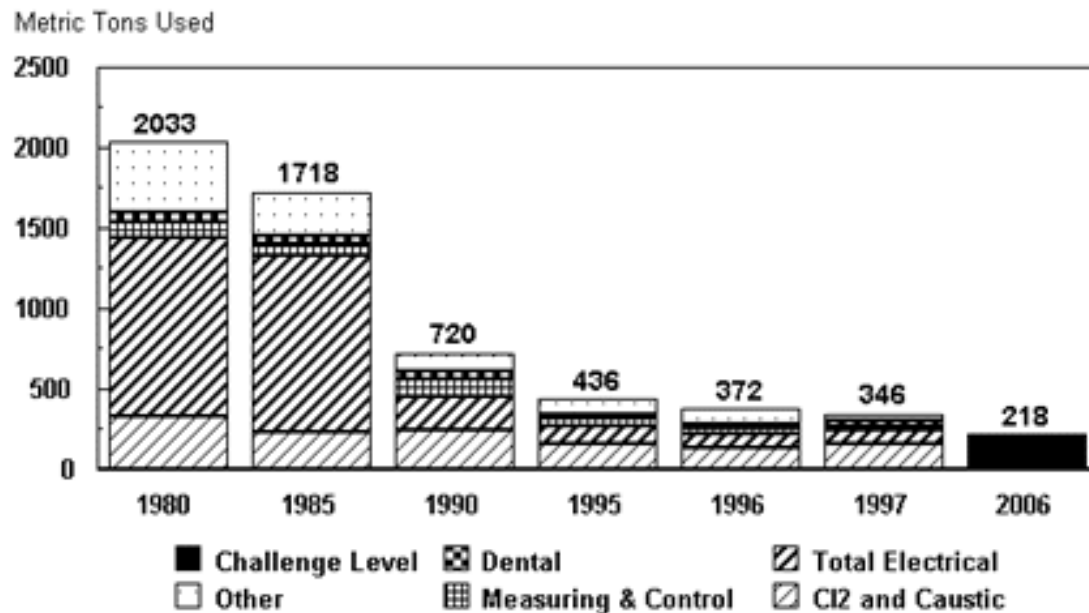
- Pollution Probe is investigating reductions options for the electrical products sector in Ontario.
- Environment Canada is gathering information concerning fever thermometer consumer behaviour in Ontario.
- A workgroup (Ontario Dental Association, Environment Canada, Ontario Ministry of the Environment, Regional Municipality of Hamilton- Wentworth) is developing a Best Management Practices Manual for Ontario Dental Offices.

3. Next Steps/3-6 Month Action Plan

- Identify major drugstore chains and other retail outreach candidates, and develop an outreach strategy to promote take-back programs and discourage sales of mercury thermometers. A subgroup will develop materials to assist with local outreach efforts.
- A conference for the Utility sector is planned for November 17, 1998, to focus on practical, near-term contributions regarding mercury devices, energy conservation, fuel switching, and green marketing.
- Update the U.S. sources and regulations paper.

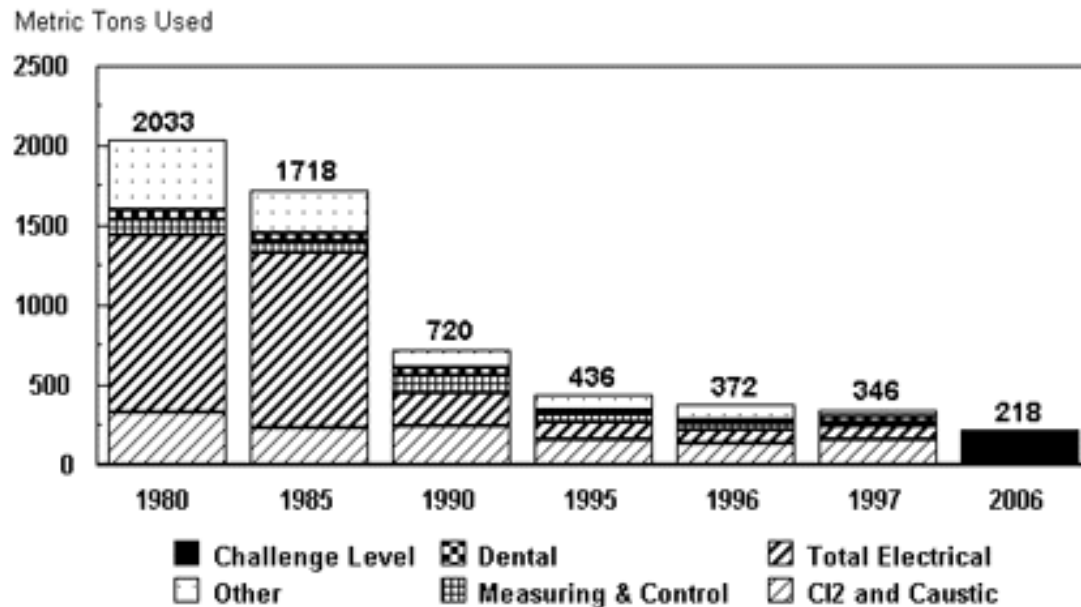
- Implementation of the Ontario Dental Best Management Practices Manual.
- Obstacles encountered include: coordinating with numerous ongoing activities and organizations, staffing all potential projects, and coordinating with a large workgroup.

U.S. Mercury Use: 1995 Baseline, 2006 Challenge



Sources: USGS Minerals Yearbooks, Stephen M. Jasinski, in *Resources, Conservation and Recycling* 15 (1995), 145-179.

U.S. Mercury Use: 1995 Baseline, 2006 Challenge



Sources: USGS Minerals Yearbooks, Stephen M. Jasinski, in *Resources, Conservation and Recycling* 15 (1995), 145-179.

Report of the PCB Workgroup

U.S. Challenge:

Seek by 2006, a 90 percent reduction nationally of high-level PCBs (>500ppm) used in electrical equipment. Ensure that all PCBs retired from use are properly managed and disposed of to prevent accidental releases within or to the Great Lakes Basin.

Canadian Challenge:

Seek by 2000, a 90 percent reduction of high-level(>1 percent PCB) that were once, or are currently, in service and accelerate destruction of stored high-level PCB waste which have the potential to enter the Great Lakes Basin, consistent

with the 1994 COA.

1. Actions to Date

The first stakeholder meeting of the PCB Workgroup was held March 23, 1998, and was attended by 27 individuals representing USEPA, Environment Canada, the Region 5 states of IL, MI, MN, and WI, CGLI, GLU, environmental organizations, utility industry, steel industry, automotive industry, waste water treatment plants, and waste disposal industry. Minutes of the meeting have been posted on the BNS web site.

An electronic mailing list for exchanging information and streamlining communication among workgroup members was created. This list was used to follow-up on action items from the stakeholder meeting.

The workgroup sent a memorandum to the Integration Group requesting that it address how contaminated sediments should be dealt with under the Binational Strategy. The memorandum noted that contaminated sediments are a source of contamination for many different Level I and II substances, not just PCBs, and recommended that the Integration Group, rather than a substance-specific workgroup, should address the contaminated sediments issue.

A PCB reduction outreach plan outlining a process for seeking and obtaining commitments to reduce PCBs in electrical equipment was drafted by the Workgroup.

A draft PCB Options Paper on the "Virtual Elimination of PCBs was posted on the USEPA Internet site for review and comment. The paper addresses Step 3, "identify cost effective options to achieve further reductions," of the Binational Strategy's four-step virtual elimination process.

2. Specific Reduction Activities Underway/Progress Toward Meeting the Challenge

U.S. Activities/Progress:

USEPA will continue to consider and pursue incentives for facilities to commit to

removing all of their remaining PCB equipment under the Region 5 PCB Phasedown Program. Such incentives include public recognition and enforcement/compliance strategies

The major utilities in the Great Lakes Basin continue to remove high-level PCBs (those >500 ppm) in electrical equipment from use on a voluntary basis.

As part of the U.S. Automotive Pollution Prevention Project, Chrysler Corporation, Ford Motor Company, General Motors Corporation, and the American Automobile Manufacturers Association continue their pollution prevention efforts, which started in 1991, to phase out "Great Lakes Persistent Toxic Substances," including PCBs.

USEPA finalized amendments to Federal PCB regulations. The PCB Disposal Amendments, published 6/29/98, require registration of PCB transformers, aim to reduce disposal costs through reduced administrative requirements for, and self implementation of, certain activities, including the decontamination (of equipment and materials) and disposal of PCBs.

Canadian Activities/Progress:

Small Quantity PCB Owner Outreach Program - 1998 was undertaken in the Province of Ontario in the Spring of 1998 to heighten PCB holders' awareness of PCB decommissioning/destruction options.

The City of Toronto Household Hazardous Waste Initiative involves sharing the progress of the City of Chicago PCB/Mercury Clean Sweep Project.

The Municipal Electrical Association Outreach Program involves informing members of the 276 public utilities in the Province of Ontario of the BNS challenges and the PCB decommissioning/destruction options.

The Ontario Mining Association Outreach Program involves informing members of the 46 ore producers in the Province of Ontario of the BNS challenges and the PCB decommissioning/destruction options.

Renewal of Canadian Environmental Protection Act is designed to expand citizen participation and to expand federal enforcement capabilities

3. Next Steps/3-6 Month Action Plan

Post, comment, and finalize the report on PCB sources and regulations. This addresses Steps 1 & 2 of the Binational Strategy's four-step virtual elimination process (Identify Sources & Regulations).

Finalize and begin implementation of PCB outreach plan, obtaining PCB reduction commitments from sector-specific targets.

Update national data/baseline of PCB electrical equipment through 1997.

Collect data on reductions of PCB electrical equipment from participants in PCB Phasedown Program and track progress of the reductions. Continue the program and expand it nationally.

Identify additional activities to achieve PCB reductions.

Finalize PCB Options Paper, and subsequently the report for Step 3 of the four step analysis (Identify Options for Reduction).

U.S. Challenge:

Seek by 2006, a 75 percent reduction in total releases of dioxin and furans (2,3,7,8-TCDD toxicity equivalents) from sources resulting from human activities. This challenge will apply to the aggregate of releases to the air nationwide and of releases to the water within the Great Lakes Basin.

Canadian Challenge:

Seek by 2000, a 90% reduction in releases of dioxins and furans, from sources resulting from human activity in the Great Lakes Basin, consistent with the 1994 COA. Actions will focus on the 2,3,7,8- substituted congeners of dioxins and

furans in a manner consistent with the federal Toxic Substances Management Policy.

1. Actions to Date

The first stakeholder meeting of the Dioxin/Furan Workgroup was held March 23, 1998, and was attended by 27 individuals representing Canadian and U.S. industrial sources, environmental organizations, USEPA, and Environment Canada. Minutes of the meeting have been posted on the BNS website.

Canada and the U.S. each released their inventories of dioxin sources. An initial review of the U.S. inventory (1998 Inventory) was completed to compare the information to what was presented in the 1994 Reassessment document. The final Canadian inventory, originally released as a draft in April 1998, is expected to be released as a final document in November 1998.

A comparison of sources within the U.S. 1998 Inventory and the Canadian Inventory was completed. The sources identified, as well as the relative ranking of these sources, is similar within the two inventories. There are differences in the overall levels of emissions from certain sources between the U.S. and Canada. This can be largely attributed to differences in activity levels for these sources between the two countries. These differences are to be discussed by USEPA and EC.

In comparing the U.S. and Canadian inventories, two studies were reviewed that estimated dioxin source emissions (U.S. Estimate Commoner and U.S. Estimate Thomas/Spiro). The 1998 Draft Inventory covers more potential emission sources than any of the other published emissions estimates. The relative ranking of sources is similar among all emissions estimates within the four inventories. The estimate levels within the Commoner and Thomas/Spiro documents may not be directly comparable to the U.S. 1998 Inventory, because these estimates do not reference a time frame and may include estimates prior to the implementation of incineration pollution measures. The U.S. 1998 inventory uses a 1995 baseline reference year for emission levels which takes into account reductions due to the implementation of incineration pollution control measures.

On Sept. 15, 1998, staff from USEPA Region 5 met with Tom Murray of the national PBT Strategy and Dwain Winters, the Reassessment Leader, to discuss working cooperatively with the PBT Strategy and the Dioxin Reassessment Team

to develop a coordinated approach to dioxin reductions and to meet the challenge goal. The results of this meeting will be shared with the workgroup and Environment Canada at the November 1998 Stakeholder meeting.

2. Specific Reduction Activities Underway/Progress Toward Meeting the Challenge

U.S. Activities/Progress

The baseline for this challenge will eventually be based on the 1987 reference year in the final 1994 dioxin reassessment. The draft inventory released this year reveals that many of the source areas have shown substantial reductions in emissions over the time period from 1987 to 1995, and additional sources have been identified.

Further review of the 1998 Draft Inventory is underway to help identify areas or sectors that could be targeted as part of an action plan for the reduction of dioxin/furans. Reassessment of this inventory, which is currently undergoing peer review, shows dramatic reductions in known sources and significant uncertainty in some suspected sources.

USEPA is collecting data on suspected significant sources of dioxin that were not adequately characterized in the Draft 1998 Inventory.

USEPA has promulgated standards for major source municipal waste combustors and will finalize standards for medical waste incinerators and for minor source municipal waste combustors. Implementation of these standards is anticipated to reduce releases of dioxins from these sectors by more than 75 percent by 2006.

In the U.S. most major sources are currently addressed through Clean Air Act Maximum Available Control Technology (MACT) standards.

USEPA promulgated a final Pulp and Paper Cluster Rule that will significantly reduce releases of dioxin from pulp, paper, and paperboard mills.

Canadian Activities/Progress

In accordance with the 1994 Canada-Ontario Agreement (COA) Respecting the

Great Lakes Basin Ecosystem, the Canadian baseline for the challenge is 1988, which estimated 217 g TEQ/year of releases in the province of Ontario. The 1998 Canadian inventory estimates 73 g TEQ/year of releases for Ontario point sources, and projects 49.6 g TEQ/year of releases in 1999. Much of the reductions achieved are attributable to the Pulp & Paper sector after federal regulations were imposed.

In Canada, a Level of Quantification (LOQ) protocol is being finalized. The LOQ is defined as the lowest concentration that can be quantified with a specified degree of confidence. Any measurement below the LOQ may not be reliably quantifiable. The LOQ should therefore be used as a benchmark in developing targets and timelines in addition to considering the socio-economics and available technology for the priority sectors under consideration to assist in reaching the long term objective of virtual elimination.

In Canada, the Federal/Provincial Task Force on Dioxins/Furans is coordinating the national approach towards virtual elimination of dioxins and furans. The Task Force is recommending that the priority sectors that are to be identified in the final inventory should be addressed via the federal/provincial Canada-Wide Standards process. In late 1998, the Task Force will invite priority sectors to participate in stakeholder working groups to develop targets and timelines for the prevention and reduction of dioxins and furans. These targets and timelines may then be used for the development of Canada-Wide Standards, which are implemented by the federal and provincial governments within the bounds of their jurisdiction. This provides an excellent opportunity to develop a coordinated Canadian approach to reduce dioxins/furans consistent with the Binational Toxics Strategy challenge.

3. Next Steps/3-6 Month Action Plan

In preparation for the November 16, 1998 Stakeholder Forum, compile information for the Workgroup to review addressing concerns raised in the November 1997 meeting.

Create a draft work plan that targets actions for source areas requiring information based on input from USEPA's Dioxin Reassessment leader.

The Dioxin/Furan Workgroup's focus may include: assistance to regulated sectors in compliance, waste minimization, and options for reductions; voluntary efforts with unregulated sources such as copper smelting or imported textiles; and

coordination of data gathering for suspected sources.

In late 1998, the Federal/Provincial Task Force on Dioxins/Furans will commence negotiations with priority sectors for the development of targets and timelines under the Canada-Wide Standards process for dioxins/furans. The Canadian Co-lead will participate to negotiate reductions within the Great Lakes Basin.

Consider forming ad hoc sub-committees based on sectors and activities.

Improve workgroup diversity.

U.S. Challenge:

Seek by 2006, reductions in releases that are within, or have the potential to enter, the Great Lakes Basin of hexachlorobenzene (HCB) and benzo(a)pyrene (B(a)P) from sources resulting from human activity.

Canadian Challenge:

Seek by 2000, a 90 percent reduction in releases of HCB and B(a)P from sources resulting from human activity in the Great Lakes Basin, consistent with the Canada Ontario Agreement (COA).

1. Actions to Date

The first stakeholder meeting of the HCB/B(a)P Workgroup was held March 23,

1998, and was attended by Canadian and U.S. industrial sources, environmental organizations, USEPA, and Environment Canada. Minutes of the meeting have been posted on the BNS web site.

Follow-up has been done with specific companies (on a one-on-one basis) to determine details of both past and present reduction plans.

Outreach is being carried out by the Council of Great Lakes Industries to increase awareness regarding the BNS among Great Lakes industries, and also to collect information related to the industrial releases for the Level I substances.

U.S. Actions

To obtain present HCB emission levels and information regarding activities to reduce HCB emissions, outreach letters have been sent to U.S. facilities reporting 1996 (the latest year for reporting) HCB releases to USEPA's Toxics Release Inventory (TRI). These facilities include manufacturers of agricultural chemicals, alkalies, and chlorine.

The USEPA's Final Report of Emission Inventory Data for Section 112(c)(6) Pollutants, released in April 1998, lists the source categories for national estimated HCB emissions: utility coal combustion (30%), chlorinated solvents production (25%), pesticides manufacture (20%), tire manufacturing (19%), and pesticides application (6%). Total HCB emissions are estimated at 2.3 tons per year.

The Great Lakes Regional Air Toxic Emissions Inventory Report (RAPIDS emission information for states and provinces contiguous to the Great Lakes), released in August 1998, lists the source categories for estimated B(a)P point and area source emissions: residential wood combustion (46%), petroleum refining (41%), blast furnace and steel mills (8%), and other sources (5%). Total B(a)P emissions are estimated at 60.8 tons per year. The report does not quantify HCB emissions and provides no information on HCB sources.

Canadian Actions

An Ontario Inventory of key HCB point and area source emissions lists the following categories: pesticide use (69%), cement manufacturing (16%), wood preservation/use of preserved wood (5%), and waste incineration, including solid

waste, sewage sludge, hazardous waste and hospital wastes, (6%). Total HCB emissions are estimated at 34 kg/yr.

An Ontario Inventory of key B(a)P point and area source emissions lists the following categories: iron & steel (35%), wood preservation/ use of preserved wood (27%), petroleum refining (9%), residential wood combustion (12%), vehicles (6%) and open burning (6%). Total B(a)P emissions are estimated at 18000 kg/yr.

Ontario facilities reporting to the Canadian National Pollution Release Inventory (NPRI) were specifically requested to include all HCB and B(a)P use and release information for reporting year 1998.

In 1998, Health Canada prepared a technical report on "Persistent Environmental Contaminants and the Great Lakes Basin Population: An Exposure Assessment, 1998." This report describes the assessments of human exposure to eleven priority contaminants including B(a)P and HCB.

2. Specific Reduction Activities Underway/Progress Toward Meeting the Challenge

U.S. Activities/Progress

As a result of regulations (Synthetic Organic Chemical Manufacturing Industry (SOCMI) Hazardous Organic NESHAP (National Emission Standard for Hazardous Air Pollutants) and operational changes at certain pesticide and chlorinated solvent manufacturing facilities, there has been about a 90% reduction in total air HCB emissions since 1990. A currently proposed air toxic standard for pesticide active ingredients will require about 90% control and further reduce HCB emissions when finalized.

Communication with a rubber tire manufacturing industry association representative has begun and discussions concerning HCB reductions are planned. There are about 50 U.S. tire manufacturing facilities, and a presumptive Maximum Available Control Technology (MACT) standard has been developed in cooperation with the Rubber Manufacturers Association to control hazardous air pollutant (HAP) and particulate matter (PM) emissions.

There are no identified controls and very limited testing for utility coal combustion. HCB emissions will be discussed with utilities.

The fluid catalytic cracking units (FCCUs) have been identified as the source of B(a)P emissions at petroleum refineries, and a proposed MACT standard is anticipated to reduce hazardous organic pollutant emissions from FCCUs by 65% from this source category, although the exact effect of this MACT standard on B(a)P emissions is not yet known. There is also potential for voluntary reductions via improved combustion.

Efforts will be made to work with petroleum refineries and steel mills. Although there has been about a 65% reduction in coke oven B(a)P emissions, further MACT reductions are scheduled and an attempt will be made to obtain additional voluntary reductions.

A water monitoring plan to assess the contribution of B(a)P emissions from steel mills, especially from contaminated groundwater from coke ovens, will be developed.

A current USEPA regulation mandates low-emission (80% reduction in emissions) combustion systems in space-heating appliances, such as wood-burning stoves, built after 1990. To reduce B(a)P emissions from residential wood combustion, an attempt is being made to perform joint public outreach/education with the Masonry Heaters Association, who have a web page to educate consumers about proper techniques for burning wood cleanly.

Canadian Activities/Progress

A Strategic Options Process (SOP) with multiple stakeholders (consultative groups representing federal and provincial governments, industry, and non-governmental organizations) is being used to develop management options for HCB.

To date investigations (stack testing of coal-powered generating facilities by Ontario Hydro) have not detected HCB emissions from this sector.

The use of Pentachlorophenol (and hence the microcontaminant HCB present in Pentachlorophenol formulations) within the Canadian wood preservation industry decreased by 58% since the early 1990s.

Communication with the Ontario Tire Dealers Association and the Rubber Association is underway in an effort to estimate HCB release from this sector.

Health Canada is carrying out an analytical study to determine the current concentrations of HCB in pesticides that will provide updated information on the significance of HCB releases from the pesticide sector.

The Canadian Portland Cement Association has been contacted to discuss more recent stack testing results which suggest reduced HCB release levels from this sector.

An information search is underway to identify source categories and quantify Canada's HCB inventory for the Great Lakes. An initial draft report is expected by January 1999, and a similar search will be conducted on B(a)P.

A Federal/Provincial Task Force has been established to develop an inventory of sources of releases of dioxins and furans, and HCB, and to develop an action plan consistent with the objective of virtual elimination as per the Toxic Substances Management Policy (TSMP). A draft inventory has been prepared and is in the process of being reviewed and finalized.

Significant action has been taken and is continuing to be taken by the Iron & Steel Sector to reduce B(a)P releases, in particular from coking operations. A memorandum of understanding has been signed with one of Ontario's 4 integrated mills, Dofasco - Hamilton, to reduce B(a)P releases from coking operations, and a facility-based pilot project is underway at one mill, Algoma - Sault Ste. Marie, to promote toxic reductions.

Ontario is implementing a "Drive Clean" program aimed at reducing emissions of smog-causing pollutants from passenger cars, trucks and buses in Ontario. This program is also expected to reduce B(a)P releases from the transportation sector.

B(a)P/HCB contaminated sediments: The Algoma slip in Sault Ste. Marie has been dredged and 20,000 cubic metres of sediments removed, and a section of the Thunder Bay Harbour was dredged to remove 1,500 cubic metres of sediment in 1997 and another 10,000 cubic metres in 1998.

A Strategic Options Process is also being used to identify, evaluate and recommend options for reducing the release of toxics from the Steel Manufacturing and the Wood Preservation Sectors; both sectors are identified as key B(a)P source categories.

A pilot project with stakeholders (wood stove manufacturers, users) is underway

to encourage the change-over from older technology to newer technology stoves.

3. Next Steps/3-6 Month Action Plan

Complete outreach to significant HCB emitters and transfer, as appropriate, any reduction technologies to similar facilities.

Review emissions information on newly identified major HCB sources.

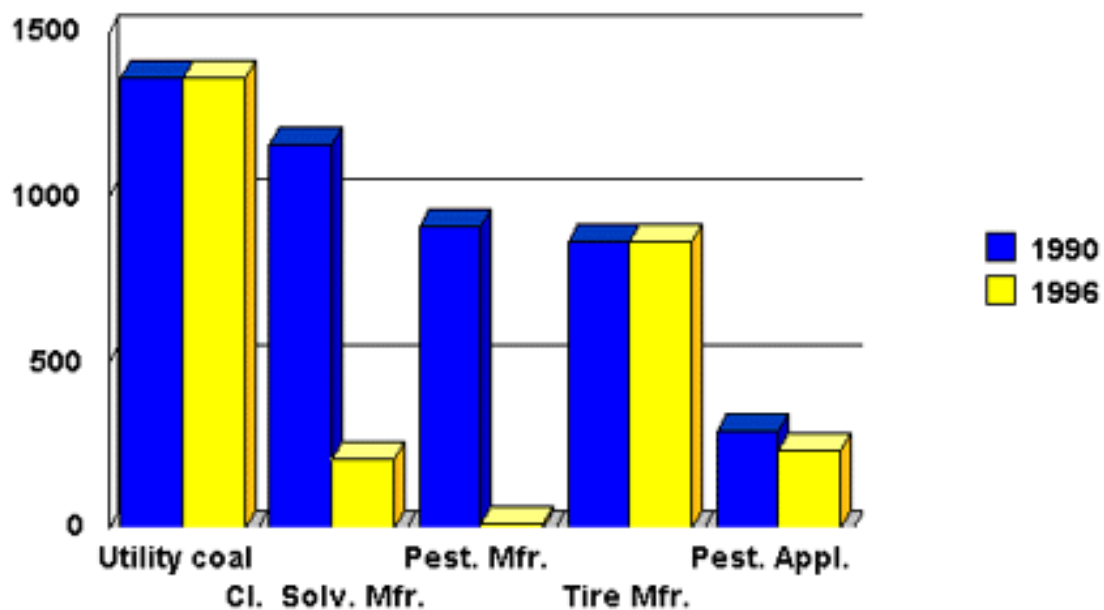
Investigate the discrepancy noted between the U.S. and Canadian HCB inventories with respect to the utility (coal) sector.

Seek voluntary reductions in B(a)P in coke oven emissions from refineries and steel mills.

Evaluate National Toxics Inventory, which will be available soon for point sources, to ensure all significant sources of HCB and B(a)P are considered.

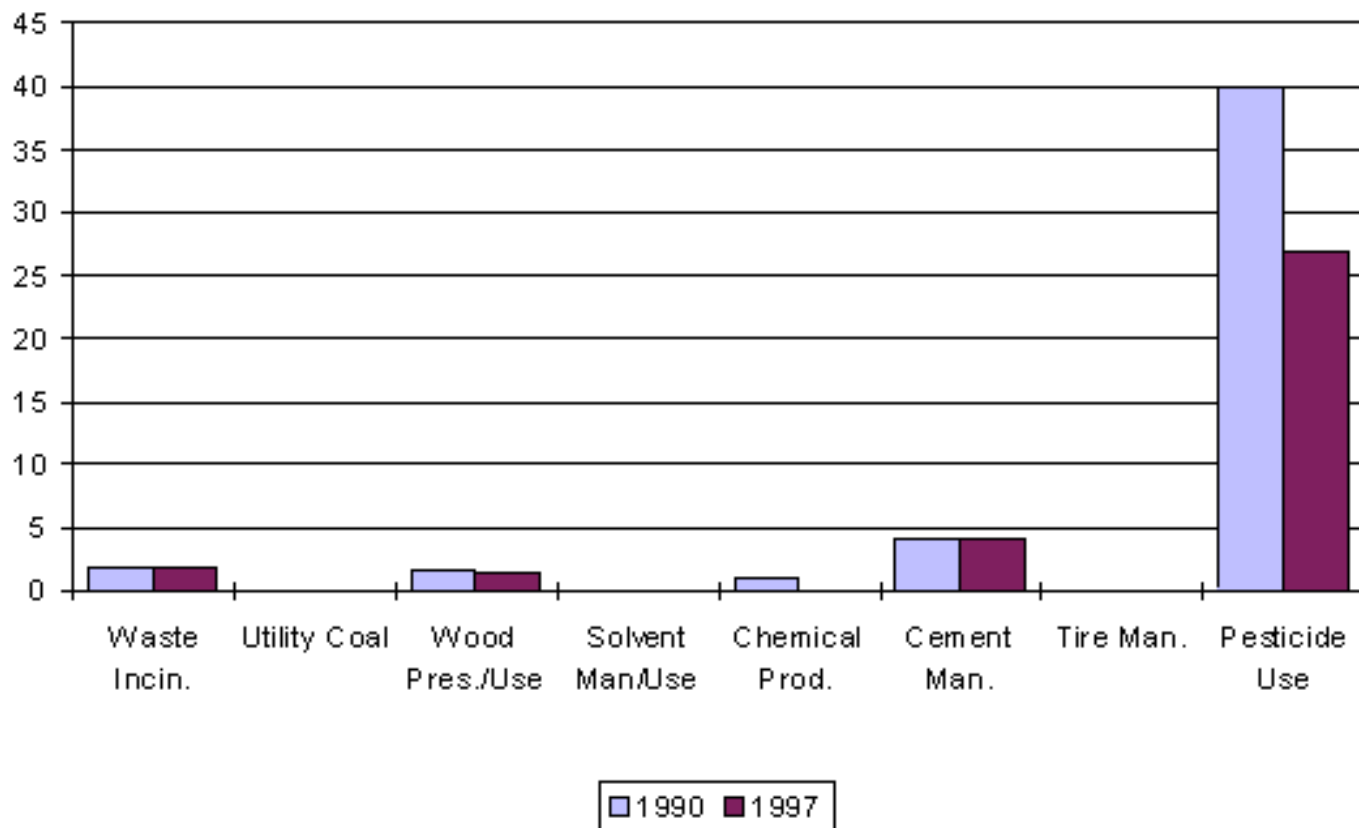
Resolve discrepancy between petroleum refinery B(a)P emissions in Section 112(c)(6) Inventory and RAPIDS report.

Reductions in U.S. HCB Emissions (lbs/yr) from 1990 to 1996, by Source Category



Source: Toxics Release Inventory and Section 112(c)(6) Report.

Reduction in Canadian HCB Emissions, kg/yr, from 1990 to 1997, by Sector Category.



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Final Draft Great Lakes Binational Toxics Strategy 1998 Progress Report

ACTIVITIES BY PARTNERS

November 16, 1998



Final Draft 1998 Progress Report
Great Lakes Binational
Toxics Strategy
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PART III

Activities by Partners

[Binational Activities](#)

[Canadian Activities](#): Building Blocks Toward Virtual Elimination

[Canadian Activities](#): Reductions Achieved

[U.S. Activities](#)

PART III Activities by Partners

The following section describes a diverse array of activities that have been undertaken by local, industrial, non-profit, Tribal, First Nation, State, Provincial, or Federal entities in the Great Lakes Basin and which are responsive to the goals and objectives of the Binational Toxics Strategy (BNS). The activities represented here were not necessarily initiated as a result of the BNS, and may have started while the BNS was still in the development stage.

The activity reports included for the U.S. were submitted by a wide variety of stakeholders in response to a July 27, 1998 letter sent by David A. Ullrich, Acting U.S. National Program Manager for the Great Lakes. The letter solicited descriptions of activities being undertaken that support the Binational Strategy. In Canada, the activities represent a wide variety of

activities that may have been developed to fulfill National programs or Canada-Ontario Agreement goals, but which are responsive to the goals of the Great Lakes Water Quality Agreement as a whole, and therefore are linked to meeting the challenges of the BNS. The USEPA and EC make no assurance of the accuracy of these summaries. Please call the contacts, where listed below, for more information on individual projects.

BINATIONAL ACTIVITIES

Atmospheric Deposition: Characterization of Deposition of Toxic Pollutants to the Great Lakes

This project is being undertaken as part of the continuing efforts of the International Air Quality Advisory Board (IAQAB), under the direction of the International Joint Commission, to characterize the sources and amounts of atmospherically deposited toxic pollution to the Great Lakes. Of particular interest are the contaminants identified in the Great Lakes Binational Toxics Strategy. This particular project has five components for each pollutant investigated:

- the collection and evaluation of available U.S. and Canadian emissions inventory information;
- the development of transfer coefficients, using an atmospheric transport and dispersion model, which characterize the contribution to Great Lakes deposition arising from unit emissions from each potentially relevant source region;
- the combination of the emissions inventories with the transfer coefficients to estimate the ambient concentrations and deposition fluxes to the Great Lakes;
- evaluation of the overall results by comparison against measurements of ambient concentration and deposition fluxes; and
- the use of the modeling results -- if the above evaluation shows that they may be reasonably valid -- to characterize the relative importance of different emission sources and source regions to Great Lakes deposition.

Canadian Activities: Building Blocks Toward Virtual

Elimination

Mercury: Pollution Prevention Initiatives Launched in Ontario Hospitals

The *Mercury Pollution Prevention in the Health Care Sector Workshop* took place in April of 1996 and was attended by 60 representatives from health care associations, hospitals, government, and suppliers of health care products. This workshop examined the effects of mercury on human health, presented examples of mercury pollution prevention case studies, and reviewed some alternatives to mercury-containing products/devices. The *Health Care Memorandum of Understanding* (MOU) to voluntarily reduce and eliminate the use of mercury in hospitals was signed at this workshop by: Centenary Health Centre; Hospital for Sick Children; The Toronto Hospital; Environment Canada; Ontario Ministry of Environment and Energy; the Health Care Environment Network (HCEN); and Pollution Probe. Each of the current hospital signatories developed their own strategy and policy for reducing and eliminating mercury.

The MOU signatories and other hospitals have formed the Ontario Mercury Health Care Steering Committee to encourage information sharing and to promote the elimination and reduction of mercury-containing products in the health care sector. Since the original signing of the MOU, it has been expanded to encourage hospitals across Ontario to sign on. Orillia Soldiers' Memorial Hospital and North York General Hospital have since signed the MOU, and several additional hospitals have indicated that they will also be signing on. Hospitals in Ontario, together with Pollution Probe, recognized the need to develop cost information on mercury-free products to assist with the process of reducing mercury use. The *Mercury in the Health Care Sector: the Cost of Alternative Products* report, funded by Environment Canada, compares the costs of some commonly-used mercury-containing equipment with mercury-free alternatives and outlines some of the hidden training, disposal, administrative, health, and environmental costs associated with the use of mercury containing products. Several hospitals have recently reported progress in achieving significant reductions of mercury in their respective operations. For example, all three of the major hospital signatories (Toronto Hospital, Hospital for Sick Children, North York General Hospital) have reported significant reductions through:

- the complete replacement of all fluorescent lamps with new low-mercury lamp types;
- the elimination of mercury-containing laboratory chemicals;
- the replacement of blood pressure monitors with alternative types; and,
- the elimination of mercury-containing batteries.

Benzo(a)Pyrene: Dofasco (Hamilton, Ontario) Signs Environmental Agreement with Environment Canada

In November 1997, Dofasco signed an Environmental Agreement with Environment Canada and the Ontario Ministry of the Environment which consolidates the objectives of all of Dofasco's environmental programs, and sets aggressive targets in the areas of air, water, and waste management. This voluntary agreement, which expires in 2005, allows the company greater flexibility while committing to achieve performance beyond compliance with environmental laws and regulations. With respect to polycyclic aromatic hydrocarbon (including benzo(a)pyrene) emissions, Dofasco has committed to a 30% reduction from its cokemaking operations by the end of year 2000, and a 50% reduction by the end of 2005.

Alkyl Lead: Canada Introduces Legislative Changes

The Canadian challenge for reduction of alkyl lead under the auspices of the Binational Toxics Strategy was for Canada to seek by the year 2000 a 90% reduction in the use, generation or release of alkyl lead from 1988 levels. As a result of legislation in Canada in 1990 banning the lead content of motor vehicle fuel Canada will meet its target of 90% reduction by the year 2000. Although this target will be met, Canada is continuing to examine what other sources of alkyl lead exist, in the hopes of engaging these other sources in a voluntary reduction plan.

Canadian Activities: Reductions Achieved

PCBs: Inco Limited Initiates Cleanup

Inco Limited, a mining company, has recently completed its PCB cleanup at its Port Colborne, Ontario, nickel refinery. The refinery was started in 1919. The cleanup, started in the mid-1980's, included:

- destroyed 45,280 L of low level liquid PCB's 50-1900 ppm (sodium/salt process) July 1989;
- destroyed 16,600 L of low level liquid PCB's 2-115 ppm (sodium/salt process) October 1990; and
- destroyed 6356 L of low level liquid PCB's 115 ppm (sodium/salt process) January 1991.

The company reports that, since 1995:

- Capacitors, ballasts and PCB clean-up debris, with a net weight of 11,900 kg PCB were destroyed in January 1996
- Inco's Port Colborne Refinery PCB storage site was declared an historical site by the Ontario Ministry of Environment
- The Port Colborne Refinery is PCB free (no liquids or equipment containing >49 ppm PCB).

Contact: Bruce Conard, Inco, 416/361-7938

PCBs: Ontario Hydro

Ontario Hydro, headquartered in Toronto, Canada, is one of the largest utilities in North America in terms of installed generating capacity. Using 1994 as a baseline, Ontario Hydro had a total of approximately 7,700 metric tonnes of both in-service and in-storage PCB materials. To date, approximately 1,900 metric tonnes of PCB wastes or 24.7% of the total inventory has been destroyed. Destruction numbers have been limited by delays at the destruction site. The company target is to destroy approximately 81% of the total PCB inventory by the end of 2005 and to be PCB free by the end of 2015.

Contact: John Hall, j.a.hall@hydro.on.ca

PCBs: Geon Canada, Inc. Removes PCBs

Geon Canada, Inc., a producer of vinyl resins and compounds, began a project to remove PCBs in 1992. PCBs found in insulating fluid in electrical transformers were removed from service from the Geon Canada, Inc. sites in Niagara Falls, ON and Shawinigan, PQ, stored at Niagara Falls facility of Geon Canada, Inc., and subsequently destroyed by licensed Canadian contractors. The company reports that approximately 220 kg of PCBs have been safely destroyed with a remaining 10 kg of high-level PCBs to be safely destroyed in September 1998.

Contact: Tim Patterson, 440/930-1367

Dioxin and Furans: Canadian Pulp & Paper Sector Reports Reductions

The Canadian Pulp & Paper sector has achieved 99% reductions of dioxins and furans releases. Compared to 1988 national releases of 450 g/yr TEQ (Toxicity equivalency factors as measured relative to 2,3,7,8-TCDD) from this sector, national releases in 1997 were reduced to <5 g/yr. In Ontario, 1995 dioxin and furan discharges from this sector were <0.35 g TEQ (1997 data currently unavailable).

Dioxin and furan releases from point-sources across all Canadian sectors achieved a 54% reduction from 1990 baseline levels of 827 g TEQ. In Ontario, 1998 total point-source releases of 73 g TEQ have been estimated, representing a 66% reduction from the 1988 baseline releases of 217 g TEQ. Most of Ontario's reductions are attributed to the Pulp & Paper sector.

These reductions were primarily achieved through implementation of the Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations, which required mills that used chlorine and chlorine dioxide in pulp bleaching operations to implement measures to prevent the formation of dioxins and furans. The regulation prohibits the discharge of dioxins and furans in measurable quantities. The regulations came into full effect for Canadian pulp and paper mills on January 1, 1994. Also contributing to this reduction was the 1992 Pulp and Paper Mill Defoamer and Woodchips

Regulations which prohibit the use of a defoamer containing more than 40 ppb of dibenzofuran or 10 ppb of dibenzo-para-dioxin, or the use of any woodchips made from PCP-treated wood to manufacture pulp.

Hexachlorobenzene: Dow Chemical Canada Advances (Sarnia Site) River Separation Project

In 1989, the Sarnia Site committed to a River Separation Project to eliminate spills and harmful discharges to the St. Clair River by the year 2000. Major projects being undertaken as part of this initiative include: installing new sewers, separating sewer systems, building containment facilities and using reduce, reuse, recycle techniques to better manage water usage. During 1997, approximately \$1.46 million was spent on River Separation Projects.

Since the River Separation Project was announced in 1989, daily discharges of organic chemicals of concern have been reduced - from an average of 8 kilograms per day, to an average of 0.2 kilograms per day in 1997 - a reduction of 97 percent.

In addition, to stop trace amounts of historical contamination (such as the BNS-targeted substance hexachlorobenzene) from a former landfill site on Scott Road from reaching the St. Clair River, the Sarnia Site continued work on an environmental improvement project. The three-year project includes: a 700-foot long sheet pile wall installed in October 1996, a new municipal sewer and a 2,000-foot sheet pile wall which was completed in 1997, and a cap for the landfill site which is to be completed in 1998. In July 1997, after completion of the sewer, the water entering the drain contained no traces of contamination.

As a result of the aforementioned actions, the Dow (Sarnia) facility reports that its releases of HCB and OCS have been eliminated.

Benzo(a)Pyrene: Stelco Hilton Works (Hamilton, Ontario) Announces Operations Upgrade

On November 14, 1997, Stelco announced an aggressive program to upgrade the coke making operations at its Hilton Works site in Hamilton. The first step in this program was the construction and startup in December 1995 of the first Canadian Pulverized Coal Injection facility. This facility allowed Stelco to idle three of its five coke oven batteries and reduce its dependence on coke for blast furnace ironmaking, resulting in a 40% decrease in particulate, VOC's and PAH (including B(a)P) emissions from the coking operations.

In the next phase, begun in 1995, the #7 coke oven battery was refurbished. This phase, expected to be completed by the end of 1998, will provide Hilton Works with a long-term quality coking facility. The final phase involves a full review of the viability of refurbishing the #6 coke oven battery. Unless it has been refurbished, the #6 battery is not to be operated beyond December 1999.

PAH-Contaminated Sediments: Remediation at Three Sites

The Algoma slip in Sault Ste. Marie has been dredged and 20,000 m³ of sediments containing high levels of PAHs (including B(a)P) removed and confined in an approved disposal facility. Dofasco, under its Environmental Agreement signed in November 1997 (see above), has also committed to using all reasonable efforts to address contaminated sediments in its boat slip in Hamilton. In addition, a section of the Thunder Bay Harbour is being dredged to remove contaminated sediments (historical sediment contamination at the Northern Wood Preservers site containing elevated levels of B(a)P), with 1,500 m³ of sediment removed in 1997 and another 10,000 m³ to be removed in 1998.

U.S. ACTIVITIES

Mercury: Bethlehem Steel Burns Harbor, Ispat Inland, Inc., Indiana Harbor Works, U.S. Steel Gary Works, Lake Michigan Forum, IDEM, EPA Agree to Reduce Mercury Use

On September 15, 1998, three northwest Indiana steel mills—Bethlehem

Steel Burns Harbor, Ispat Inland Inc. Indiana Harbor Works, and U.S. Steel Gary Works—signed a voluntary agreement with the Lake Michigan Forum, U.S. Environmental Protection Agency (EPA), and the Indiana Department of Environmental Management (IDEM) to reduce the use of mercury at their facilities. The mills are interested in responding to the growing concern about mercury in the environment and intend to develop a clean sweep/pollution prevention initiative to inventory, recycle, and substitute to the greatest extent practicable mercury at their facilities. To accomplish this, the mills have agreed to inventory mercury in equipment, materials, in storage, and in waste streams at their northwest Indiana facilities. The effort will result in facility-specific reduction plans that will detail pollution prevention activities through equipment substitutions, purchasing practices, recycling, better management, and employee education. The companies signed the agreement as part of the Lake Michigan Primary Metals Project, a pollution prevention effort initiated by the Lake Michigan Forum—a stakeholder group that provides input to EPA on the Lake Michigan Lakewide Management Plan.

Mercury: EPA, American Hospital Association Agree on Waste-Cutting

On June 25, 1998, EPA and the American Hospital Association (AHA) signed a memorandum of understanding committing themselves to work together to significantly cut hospital wastes by 2005. The agreement envisions the virtual elimination of mercury-containing hospital wastes and a one-third reduction in total hospital wastes by 2005. Signing the accord for EPA were Dr. William H. Sanders III, Director of EPA's Office of Pollution Prevention and Toxics, and David A. Ullrich, Acting Administrator of EPA's Region 5 Office. Chief Operating Officer Dr. Jonathan T. Lord signed for the AHA.

EPA and AHA intend to co-sponsor a series of national waste management seminars for hospitals. EPA will also distribute as many as 300 copies of the software program, "Mercury in Medical Facilities," developed with EPA assistance by Purdue University. The agreement also covers: obtaining and reviewing industry information on pollution prevention efforts; developing model plans for cutting chemical wastes; and investigating pollution prevention opportunities for ethylene oxide and persistent,

bioaccumulative, and toxic pollutants.

Mercury: Michigan Hospital Association Promotes P2

EPA Region 5 recently awarded a matching funds grant to the Ecology Center of Ann Arbor to promote pollution prevention (P2) in the health care industry in partnership with the Michigan Hospital Association. The project will focus on mercury reduction in SE Michigan. The award was made through the Environmental Justice P2 Grant program competition.

Mercury: WI DNR Supports Hospital Outreach Effort

In 1998, the Wisconsin Department of Natural Resources provided information encouraging mercury reduction to state hospitals and clinics. "Mercury-Free: What's In It for Me," was included with the annual medical waste report that hospitals must complete for the state. This outreach effort was the result of interaction and cooperation between two different bureaus within DNR. While hospitals are not required to report on mercury reduction efforts underway, two chose to do so.

Mercury: WLSSD Undertakes Amalgam Recycling Initiative

Western Lake Superior Sanitary District (WLSSD) in cooperation with the Northeast District Dental Society has developed recycling procedures for materials containing amalgam particles. Amalgam contains mercury which, if disposed of in solid or medical waste or rinsed to the sewer, could be released to the environment. The first annual amalgam recycling report showed that approximately 522 pounds of waste material containing amalgam was collected for recycling. Eighty eight percent of dental practices responded to the survey conducted by the WLSSD. The Minnesota Dental Association also supports amalgam recycling.

Contact: Tim Tuominen, Pollution Prevention Chemist, WLSSD, 218/722-3336

Mercury: Great Lakes Dental Mercury Reduction Project

In 1998, the Western Lake Superior Sanitary District (WLSSD) will initiate the Great Lakes Dental Mercury Reduction Project with funding from the Great Lakes Protection Fund. This project will build on the success and experience of the WLSSD and its partners in the dental profession, as well as the successes that have occurred in other Great Lakes states. The partners in this project will be waste management professionals and representatives from state or local dental associations from all states bordering the Great Lakes. The project will emphasize cooperation between dental professionals and waste managers and will focus on sharing successes, devising strategies, and setting priorities. The workgroup will identify practical mercury-reducing opportunities and identify practices that can be duplicated across all the Great Lakes States.

Contact: Tim Tuominen, Pollution Prevention Chemist, WLSSD, 218/722-3336

Mercury: Chlorine Institute Reports Progress on Mercury Reduction Initiative

The Chlorine Institute has provided to USEPA its first annual report detailing the chlor-alkali industry's progress towards meeting a voluntary commitment to reducing mercury use 50 percent by 2005. The report includes descriptions of numerous activities undertaken to help identify reduction opportunities, and also provides data on preliminary reductions achieved in 1996 and 1997. According to the report, the chlor-alkali sector's use of mercury fell by approximately one-quarter during 1996 and 1997. The Chlorine Institute's report, however, advises not to over-interpret data from this limited time span as "mercury usage can be highly variable in any given time period . . ." The Chlorine Institute's report can be viewed at:

<http://www.epa.gov/bns/bnsmerc.html>

Mercury: Center for Clean Air Policy Launches Mercury Bank Project

The Center for Clean Air Policy announced in 1997 that it would participate in the Minnesota Mercury Contamination Reduction Initiative (MCRI) effort to build support for establishing a mercury bank in that state. The Center is slated to introduce the bank option at the MCRI kick-off meeting in July and will be a key player in helping to shape policy initiatives on the Advisory Council. The bank option is modeled after and improves upon the greenhouse gas emission registry contained in section 1605(b) of the Energy Policy Act of 1992. With mercury, a bank to reward early actions will help encourage early reductions and focus attention on the problem. The Center will also form a workgroup consisting of stakeholders and experts to design elements of a mercury bank. The MCRI is a long-term, comprehensive process expected to result in the implementation of selected policy options for controlling mercury in Minnesota.

Contact: Stacey Davis, Center for Clean Air Policy, 202/408-9260

Mercury: Wisconsin Communities Initiate Mercury Reduction Projects

Mercury releases to municipal sanitary sewer systems by hospitals, dental offices, schools, universities, laboratories, other facilities, and homes are largely unregulated. The Wisconsin Department of Natural Resources is working with seven communities to develop and implement mercury reduction programs targeted to these diverse wastewater sources. The programs are designed to educate the population about the impacts of and alternatives to mercury use, collect mercury and mercury products, and provide information about and/or coordinate transporting the mercury to a contractor for recycling.

Contact: Kristin Churchill, Wisconsin DNR, 608/267-7603

Mercury: Indiana Department of Environmental Management (IDEM) Launches Statewide Mercury Awareness Program

IDEM's Mercury Awareness Program is a state and local partnership

dedicated to "investigating and identifying commercial uses of mercury, researching potential pollution prevention options, and developing and implementing outreach strategies for significant sources." Beginning in October 1998, IDEM will initiate a state-wide effort to collect and recycle household items containing mercury. The effort will be led by the Regional Household Hazardous Waste Task Force, a consortium of 35 southern Indiana solid waste management districts, and will involve other solid waste management districts and communities.

Contact: Paula Smith, IDEM, 317/233-6663

Mercury: Michigan Mercury Pollution Prevention (M2P2) Task Force

The M2P2 Task Force was convened in August 1994 and, since that time, has been active in numerous mercury pollution prevention efforts across Michigan. A few of the Task Force's efforts include:

- Michigan Department of Environmental Quality (MDEQ) has funded a household hazardous waste collection program in 22 counties across Michigan—approximately 200 pounds of mercury have been collected;
- the M2P2 Task Force's Automobile Subgroup identified 23 uses of mercury in automobiles;
- approximately 16,000 hard copies and 33 electronic copies of the "Merc Concern" brochure have been distributed state-wide;
- a Mercury Pollution Prevention Home Page (accessible from the MDEQ Environmental Assessment Division Pollution Prevention Section Home Page) has been developed; and
- outreach materials describing mercury threats and disposal options have been distributed to science teachers.

As part of M2P2, MDEQ, Michigan Department of Agriculture, Michigan Farm Bureau, Michigan Department of Community Health, Michigan Milk Producers Association, Independent Cooperative Milk Producers Association, and Michigan State University also collaborated on a dairy farm mercury manometer collection pilot project from two counties. Within the two counties, a total of 16 of 18 manometers were replaced; 12 pounds of mercury were collected for disposal.

Contact: Joy K. Taylor, Air Quality Division, Toxics Unit, 517/335-6974

Mercury: Pennsylvania Department of Environmental Protection P3ERIE Program

P3ERIE is a voluntary pollution prevention program composed of DEP, businesses, civic organizations, and educational institutions in the greater Erie community. Their mission is "to build support for pollution prevention by developing and implementing a public education campaign and practical projects to reduce the amount of mercury and other persistent toxins that are used and released to the environment in the greater Erie community, especially the Lake Erie watershed." To date, P3ERIE has accomplished the following:

- collected 1,245 pounds of elemental mercury during a 1998 Earth Day event;
- distributed 9,000 brochures regarding mercury pollution prevention;
- worked to encourage northwest Pennsylvania's largest hospital, Hamot Medical Center, to become mercury-free;
- conducted energy efficiency workshops at the Northwest Pennsylvania Manufacturer's Association; and
- implemented an active pollution prevention program for school laboratories.

Contact: Edward F. Orris, Project Manager, Office of Pollution Prevention and Compliance Assistance, PDEP, 814/332-6075

Mercury Indicators Projects

In order to evaluate progress towards the zero discharge goal in the Lake Superior basin, baseline information is needed on indicators of releases of the nine designated chemicals. The Minnesota Pollution Control Agency (MPCA) is working on two projects to 1) establish a baseline for five mercury indicators and 2) encourage the use of low mercury feedstock chemicals, such as caustic soda. Currently, wastewater treatment plants in

the Minnesota portion of the basin have agreed to collect sludge samples, which the MPCA will analyze for mercury. The other indicators will be investigated after the sludge monitoring is finished. The feedstock chemicals project includes the compilation of a list of licensed boiler operators, who would be expected to use caustic soda. The agency is also investigating the availability of different grades of caustic soda in the upper Midwest.

Minnesota Mercury Reduction Initiative Underway

The MPCA is working with a group of Minnesota stakeholders in the development of a comprehensive mercury reduction strategy. The stakeholders are involved through an advisory council which will provide recommendations to the state government on mercury reduction options. Teams of staff and stakeholders are working on reduction strategies and the criteria by which to rank them. The agency will use the council's advice as one source of information when considering a mercury reduction initiative. The MPCA may develop regulations or recommend legislation as a result.

Mercury: WLSSD Mercury Zero Discharge Pilot Project

Western Lake Superior Sanitary District (WLSSD), the largest wastewater treatment facility discharging to the Lake Superior watershed, is supporting the goal of zero discharge of persistent bioaccumulative toxics by developing a multimedia mercury zero discharge pilot project with hospitals, clinics, educational institutions, laboratories, and dental practices. WLSSD hopes this program will not only test the theory that prevention at the source is more cost-effective than end-of-pipe treatment, but will also ultimately result in the virtual elimination of mercury discharges from these specific business types. In some instances reduced discharge through recycling, on-site treatment, or better management practices may be an interim goal. The specific activities will include documentation of the sources of mercury for the specific business types.

Contact: Tim Tuominen, Pollution Prevention Chemist, WLSSD, 218/722-

3336

**Mercury: Detroit Water and Sewerage Department (DWSD)
PCB/Mercury Minimization Program**

Consistent with its ongoing efforts to work with its customers to pilot pollution prevention programs, the DWSD has undertaken a number of special programs to effectively control mercury in hospitals, dental practices, industrial laundries, laboratories, and households. DWSD has initiated an Atmospheric Deposition Study, made revisions to its Local Limits Ordinance, and established an Education/Outreach Program for the general public. The program helps identify current uses of mercury, identify and encourage use of mercury-free alternatives, explore ways to reduce mercury use, coordinate and/or encourage proper disposal practices, and evaluate the effectiveness of voluntary activities to date. In one project under this program, the DWSD developed and coordinated a six-month Bulk Mercury Collection Program in cooperation with the Michigan Dental Association, the National Wildlife Federation, the Michigan Department of Environmental Quality, and the U.S. EPA. More than 400 dentists took advantage of the program, contributing about 1,350 pounds of raw mercury.

Contact: Beverly Ingram, DWSD, 313/964-9390

Mercury: Blueprint for Mercury Elimination

With support from the Great Lakes Protection Fund, the Western Lake Superior Sanitary District (WLSSD) has conducted a Mercury Zero Discharge Project to identify and eliminate sources of mercury to its wastewater treatment plant. The results of the project have been compiled in a Blueprint for Mercury Elimination, designed for use by other wastewater treatment plants in developing and implementing their own mercury reduction programs. It includes information on sources of mercury, successful reduction strategies and case studies, and suggestions for implementing a program. As a result of this project, WLSSD initiated or strengthened pollution prevention partnerships with industries, educational

facilities, hospitals, and dentists in its service area and demonstrated that significant mercury reductions in municipal wastewater discharges can be achieved through cooperative partnerships with industry, public education, and disposal facilities.

To date, the Blueprint for Mercury Elimination has been disseminated to over 800 wastewater treatment plants throughout the Great Lake States and Canada. In addition, over 1200 Blueprints have been sent to pretreatment coordinators, government units, environmental agencies and other interested parties throughout the Great Lake States, Canada, and the rest of the United States. The work begun under the Mercury Zero Discharge Project continues with support from the U.S. EPA Great Lakes National Program Office.

Contact: Tim Tuominen, Pollution Prevention Chemist, WLSSD, 218/722-3336

Mercury: EPA Reviews Land Disposal Regulations

U.S. EPA's Waste Treatment Branch (WTB) of the Office of Solid Waste (OSW) is currently writing an Advanced Notice of Proposed Rulemaking (ANPRM) that is set to be released in December 1998. It will request information that could lead to revision of the Land Disposal Restriction (LDR) standards for mercury containing wastes in the Code of Federal Regulations (40 CFR Part 268). One area that the ANPRM will specifically examine is the effectiveness of incineration (IMERC) and retorting (RMERC) in the treatment of high mercury (>260 ppm) wastes. EPA is concerned that IMERC, which does not destroy, extract, or immobilize mercury, may actually be increasing potential environmental hazards by releasing mercury vapor to the atmosphere. The ANPRM will also request data on alternatives to IMERC and RMERC, including stabilization technologies. This in-depth look at the current LDR mercury regulations will ensure that OSW is doing its part to keep mercury out of the Great Lakes and other impacted waterbodies.

Mercury: Bell Atlantic Mercury Collection Project

Bell Atlantic, a provider of telecommunication services, has instituted a project to collect all mercury relays and switches from old telecommunication equipment. The effort is ongoing with no expected end date. The collected electrical devices are sent to a mercury smelter that safely separates the mercury from the metal casings. On an annual basis, Bell Atlantic collects more than 50,000 pounds of switches and relays containing mercury.

Contact: Harlan Pincus, 212/338-6605

Mercury: Consumers Energy Company Undertakes Mercury P2 Initiative

Consumers Energy Company, a Michigan electrical and gas energy and energy services company, began a Mercury Pollution Prevention Initiative in 1996. Mercury is contained in coal used in fuel and is used in plant equipment. The company took action to identify its mercury sources, estimate the total quantity of mercury use, review existing disposal practices, and investigate future management options and costs. The program has heightened awareness of mercury concerns in the company and presented options for use of non-mercury containing equipment. It has also reduced the use of equipment containing mercury and associated stock inventory. In 1996, the program recorded a 231 pound reduction of elemental liquid mercury; in 1997, an additional reduction of 171 pounds was reported.

Contact: Patrick Zombo, Consumers Energy, 517/788-0647

Mercury Reduction Project for the Greater Milwaukee Area

This project is a joint effort of the Pollution Prevention Partnership, Milwaukee Metropolitan Sewerage District, and Wisconsin Department of Natural Resources. The project has already produced a Mercury Source Sector Assessment Report to help identify important "source sectors," to set priorities for developing cooperative mercury education, technical

assistance, and collection programs, and to develop an effective mercury reduction program.

Mercury: Community Mercury Reduction Project

As part of the Lake Superior Alliance Sustainable Basin Project, the Central Upper Peninsula Sierra Club was awarded a grant to develop a Community Mercury Reduction Project. Through this grant, the Marquette Community Mercury Reduction Task Force was formed. The Task Force developed recommendations related to: sampling; public education; outreach; ordinances; small businesses; and its own continued efforts. In June 1998, the Marquette Area Wastewater Treatment Facility submitted a grant to EPA Region 5 requesting support to implement the Task Force's efforts to achieve a regional mercury mass balance, continue education and outreach, and implement community mercury reduction activities. The project is designed to be transferrable to other communities in the Great Lakes Basin.

Contact: Curt Goodman, Assistant Superintendent, W/WWTP, City of Marquette, MI, 906/228-0485

Mercury: Mercury Information Sheet

Greenpeace Native Lands Campaign and the Indigenous Environmental Network collaborate on several environmental issues. Together, they have produced an information sheet on mercury contamination, its sources and effects.

Mercury: Battery Industry

In 1984 and 1985, the battery industry accounted for approximately 55% of the total United States consumption of mercury, according to the U.S. Bureau of Mines. Industry-wide initiatives have been taken to decrease the presence of mercury in batteries and battery related mercury contributions

to municipal solid waste. New technologies have been introduced which control gassing (which can lead to leakage and possible ruptures) in batteries without the use of mercury. These technologies include: (1) removing or decreasing impurities which cause gassing; (2) using other formulations to suppress gasses and; (3) redesigning the batteries to allow gases to escape at faster rates.

Mercury batteries, which use mercuric oxide as an electrode material, have been replaced by alternatives, such as zinc air batteries, except for a few non-household specialty uses. When alternatives are not available, battery manufacturers provide information so that the battery user can send the used batteries to a properly licensed collection site for recycling or proper disposal.

As a result of these initiatives, the battery industry reports that the United States battery industry's 1994 consumption of mercury was 99.41% less than its 1984 consumption rate (29,700 flasks in 1984, one flask = 76 pounds, to 174 flasks in 1994.) During this same time period, annual sales of alkaline batteries in the United States increased 150%.

Mercury: Wisconsin Sponsors Mercury Manometer Replacement Program

Beginning in the Fall of 1998, WI Department of Natural Resources, the University of Wisconsin, and the University of Wisconsin Extension Program will replace mercury-containing manometers to Wisconsin farmers in the Great Lakes basin. This program is funded by a grant from the U.S. EPA Great Lakes National Program Office and is patterned after a similar program in Minnesota.

Contact: Kristin Churchill, Wisconsin DNR, 608/267-7603

Mercury: Wisconsin Electric Surveys Mercury-Containing Equipment In Operating Power Plants

The company's Fossil Operations staff began a resurvey of equipment in its

power plants in May, 1998. The term resurvey is used because the company initiated a purge of mercury containing equipment at its power plants more than 10 years ago and by 1994, the purge was largely complete. A review of hazardous waste records from the early 1980's suggests that several thousand pounds of mercury were collectively removed from these facilities.

The resurvey results compiled to date suggest that WE's major power plants contain low amounts of mercury. It is suspected but not yet verified that WE's four power plants constructed before the mid-1970's contain mercuric switches and thermometers, but little else in the way of mercury-containing equipment. The four power plants constructed since the mid-1970's (total megawatts installed-approximately 2,075) typically contain less than one pound of elemental mercury per plant in a variety of switches and thermostats.

Contact: Dave Michaud, Wisconsin Electric, 414/221-2187

Mercury: Thermostat Recycling Corporation Initiative

In December 1997, the Thermostat Recycling Corporation (TRC) launched a program to recycle mercury-switch thermostats in nine states, including Indiana, Michigan, Minnesota, Ohio, and Wisconsin. The TRC is a private corporation established by thermostat manufacturers, Honeywell, General Electric, and White-Rodgers. Under the program, heating and cooling contractors can drop off old mercury-switch thermostats at participating wholesalers. The wholesalers will collect the thermostats in protective bins provided by TRC and send them to TRC's recycling center where the switches will be removed and forwarded to a mercury recycler. TRC reports that it has processed 50 pounds of mercury in the program's first six months.

Contact: Ric Erdheim, Acting Executive Director, TRC, 703/841-3249

Mercury: Thermostat Recycling in Wisconsin

Wisconsin DNR is partnering with electric utilities through the Thermostat Recycling Corporation (TRC), community clean sweeps, household hazardous waste collection facilities, and other means to promote recycling and replacement of mercury-switch thermostats. Two of the state's six major utilities have included promotional materials with customer bills and/or on their web sites. TRC reports that, since November 1997, 932 thermostats have been collected; 69 recycling bins have been issued; and 9.7 pounds of mercury have been reclaimed.

Contact: Kristin Churchill, Wisconsin DNR, 608267-7603

Mercury: Niagara Mohawk Power Corporation

Niagara Mohawk Power Corporation, an investor-owned electric and gas utility providing energy to 1.5 million residential, commercial and industrial customers, is committed to the virtual elimination of the use of mercury in its service territory and has established a goal of replacing all mercury containing gas regulators. Since 1995, the company reportedly has committed considerable resources to the elimination of mercury in its systems. The company reports that it has reduced the number of mercury containing gas regulators from approximately 37,500 to approximately 600. The company also reports that it has achieved the U.S. BNS Challenge for Level I substances and that these results surpass the 50 percent reduction target of the Binational Toxics Strategy in the deliberate use of mercury.

Contact: A.Chris Read, Environmental Analyst, Niagara Mohawk, 315/428-3631

Mercury: Lighting Industry Pushes for Design and Manufacturing Advances

The lighting industry has made significant investments in manufacturing process and new lamp designs to continue to drive down mercury content in lamps. These investments have reportedly reduced the average mercury content of a four foot lamp from 48.2 mg in 1985 to 22.8 mg in 1994. The lamp industry expects to drive mercury content below 12 mg/lamp by the

year 2000.

Contact: National Electric Manufacturers Association, 703/841-3200

Mercury: Electric Utility Industry

The amount of coal used by non-utility industry is being reduced through the further electrification of industry throughout the country. Efficient electrical use opportunities are matched and marketed to non-utility coal users to replace coal processes. For example, many efficient electric arc furnaces have replaced basic oxygen furnaces in steel manufacture. The industry estimates that a reduction of more than 15 tons of emitted mercury for commercial and industrial boilers has already resulted.

Contact: Dennis Leonard, 313/235-8714

Mercury: DTE Energy/Detroit Edison Just-in-Time Arrangements

In response to a 1997 request by the state to reduce storage and eliminate the need for mercury instruments that could be replaced cost-effectively with non-mercury instruments, Detroit Edison, Michigan's largest electric utility, employed just-in-time arrangements for instrumentation and mercury with a supplier. The project will end in December 1998. One ton less mercury is now stored at Detroit Edison facilities.

Contact: Dennis Leonard, 313/235-8714

Automobile Pollution Prevention Project

Chrysler Corporation, Ford Motor Company, General Motors Corporation, and the American Automobile Manufacturers Association joined forces in 1991 to form the US Automotive Pollution Prevention Project (or, Auto Project). The project began as a partnership, with the U.S. EPA (Great Lakes National Program Office) funding the Michigan Department of

Environmental Quality (DEQ) to launch the project. Now, the auto industry itself is leading the project and making great progress in reducing pollution at the source.

The focus of the project is a group of "Great Lakes Persistent Toxic Substances" (GLPTSs), including Mercury and PCBs. After the first four years, the project has expanded from a concentration on the Great Lakes to a national effort. A similar effort was launched in Canada in 1992. Ford Motor Company, for example, continues on the path to global phase-out of PCB containing transformers. The results of their efforts were tabulated in 1996, discovering 26% of all PCB transformers had been removed.

An integral part of this ongoing effort is the 70 pollution prevention case studies (not all of which pertain to BNS substances) that have been developed by the auto companies. The case studies are available at: <http://www.deq.state.mi.us/ead/p2sect/auto/>

The American Automobile Manufacturers Association will track emissions of both Binational Toxic Strategy Level I and Level II substances through the U.S. Auto Pollution Prevention Project. EPA Region 5 remains strongly involved through the Auto Project Advisory Group (APAG) which also includes representatives from trade associations, higher education, technology centers, public interest groups, a foundation, and state governments.

"This provides an example of how a flexible and cooperative industry partnership can reconcile and achieve mutual environmental and economic needs in a globally competitive marketplace."

Mercury: General Motors Corporation

Using environmentally conscious design and manufacturing principles, General Motors Midsize & Luxury Car Group (MLCG) facilities replaced mercury switches with ball-type switches used in underhood lamp activation in their 1998 Cadillac and Buick models. The company reports that this change resulted in an estimated elimination of 1,500 pounds of mercury a year from underhood switches. It has been estimated that the mercury contained in underhood and trunk lamp switches accounts for 87%

of mercury usage in automotive applications. This amounts to 12.2 million mercury switches containing a total of 8.5 metric tons of mercury per year. MLCG has already eliminated all mercury switches in the trunk lamp activation and replaced these with trunk-ajar switches.

Mercury: Chrysler Corporation

Chrysler Corporation instituted a project to modify product specifications to: eliminate mercury from equipment; decommission mercury-containing equipment; and evaluate the alternative for blood pressure measurement equipment. The project has resulted in mercury being removed from 20 engineering equipment specifications. The company reports that 1000 pounds of decommissioned mercury were collected in the first year. Mercury-free alternatives to sphygmomanometers were also identified.

Mercury: Chrysler Corporation

Chrysler has participated in discussions with the Michigan Mercury Pollution Prevention Task Force about mercury use within its facilities and products. The company had discovered in 1995 that mercury is used in underhood switches of certain current models. Chrysler has worked with the American Automobile Association to develop a common approach to identify and remove the mercury switches.

Mercury: Ford Motor Company

Ford Motor Company reports that it has worked since 1995 to identify feasible alternatives for all mercury switches in all models worldwide and to introduce mercury-free designs in all identified applications as soon as practicable.

Mercury and PCBs: American Electric Power

Since 1987, AEP has voluntarily removed PCBs from its transmission and distribution equipment, including about 4,000 PCB-filled and mineral oil-filled transformers, 15,000 PCB substation capacitors, and 860 other PCB items. AEP's Project Good Turn encourages customers in Ohio, Indiana, and Michigan to turn in second, older working refrigerators and freezers for recycling CFCs and scrap metal, incinerating PCB capacitors, and safe disposal of mercury. AEP reports that it has already recycled more than 40,000 units containing a total of more than 1,000 pounds of PCBs and 80 pounds of mercury.

Mercury and PCBs: Consumers Energy Company Launches Replacement Lighting Program

In 1996, Consumers Energy Company launched the "Bottom Line Solutions" replacement lighting program for commercial and industrial customers. The program allows customers to increase their business' lighting while reducing operating and future disposal costs. The new fixtures have efficient, low-mercury lights and non-PCB ballasts.

Mercury and PCBs: Ojibwa Health Study

Ojibwa Health Study investigators are researching the effects of mercury and PCBs on human health. For this study, walleye are being harvested from various lakes by the Great Lakes Indian Fish and Wildlife Commission. As well, lake trout and whitefish are being collected from Lake Michigan, Lake Huron, and Lake Superior by the InterTribal Fisheries Assessment Program. Fish collected for the study are sent to the University of Wisconsin-Superior to be analyzed for environmental contaminants.

Mercury and Hexachlorobenzene: The Dow Chemical Company

In support of the Binational Toxics Strategy, The Dow Chemical Company has set a goal for the company to reduce air and water emissions of

hexachlorobenzene and mercury compounds by 75 percent by 2005.

Contact: Werner Braun, Dow Chemical Company, 517/636-6151

PCBs: Chrysler Corporation

A PCB elimination program was undertaken at Chrysler Corporation's North American U.S., Canadian and Mexican facilities. The company reports that it has eliminated all 500 PCB transformers and all but 50 of 10,000 capacitors to date. The company estimates that all Chrysler facilities will be PCB-free by the end of 1998.

PCBs: Bethlehem Steel Corporation Works to Reduce PCBs at Burns Harbor Division

Bethlehem Steel has evaluated the risks associated with the continued use of PCBs and has decided to embark on a voluntary program to replace all uses of PCBs within its plant. The program's goal is to virtually eliminate the use of PCBs at its Burns Harbor Division by 2000. The company reports that, as of July 1, 1998, it has achieved the following reductions:

- the number of operating and stored PCB transformers has been reduced by over 70% and the amount of PCB-based oil at Burns Harbor has been reduced by almost 80%;
- the number of operating and stored PCB-contaminated transformers has been reduced by more than 99% and the amount of PCB-contaminated oil at Burns Harbor has been reduced by more than 99.9%;
- the number of large operating and stored PCB capacitors has been reduced by 80% and all others are scheduled to be removed by 1998; and
- 100% of drums containing PCB-based oil have been removed from the facility.

Contact: Douglas Bley, 219/787-2712

PCBs Cleanup: Willow Run Creek, MI

General Motors, Ford Motors, Wayne County, Ypsilanti township, Ypsilanti Community Utilities Authority, and University of Michigan have joined together pursuant to a formal agreement with the Michigan Department of Environmental Quality in a project to remove and entomb approximately 150 tons of PCBs that are present in surface water sediments previously residing in the Willow Run Creek (tributary to the Huron River—Belleville Lake, and Lake Erie). Most of the removal occurred in 1997; closure of the onsite TSCA-approved landfill constructed solely for these materials is expected later in 1998.

Contacts: Vicki Katko and Dowe Persons, MDEQ, 517/780-7690

PCBs: Goodyear Tire and Rubber Company

Goodyear Tire and Rubber Company, which produces tires, synthetic rubber and ground rubber products, began a project in 1993 to eliminate PCB transformers. To date, 165 transformers have been eliminated in the United States including 27 in the Great Lakes. As a result of the project, Goodyear reports, 15 plants in the U.S. and two plants in Canada are PCB-free. PCBs are being removed from additional plants based on risk evaluation.

Contact: Dave Berkebile, 330/796-5055

PCBs: Cleaning up "Unnamed Tributary to Ottawa River"

The site of what was once called the "Unnamed Tributary to the Ottawa River," is located within and is owned by the city of Toledo, Ohio. It was considered to be one of the worst PCB contaminated waterways in Ohio and the primary source of PCB contamination to the Ottawa River, a major tributary to Maumee Bay. Severe industrial pollution within the Maumee River Basin resulted in the Maumee Bay being listed as an Area of

Concern (AOC) in 1985 by the International Joint Commission (IJC).

In September 1996, U.S. EPA's GLNPO provided Ohio EPA with grant funding for the Unnamed Tributary remediation project. A condition of the grant was to form partnerships with local governments and PRPs to remediate the Unnamed Tributary. Ohio EPA met with officials from the City of Toledo, GenCorp, Blasland, Bouck and Lee, U.S. EPA/GLNPO and the U.S. Fish and Wildlife Service, to discuss and plan remedial strategies necessary to complete the project. In November 1997, the Ohio EPA issued an Administrative Order on Consent for the remediation of PCB contamination in the Unnamed Tributary and on site remediation activities were completed in June 1998. By the end of the project, 16,000 tons of contaminated sediment were excavated and sent to a TSCA-approved landfill for disposal. Demobilization and site restoration were completed in August 1998. The project was completed at a cost of approximately \$6 million dollars. According to David Ullrich (Acting Administrator, U.S. EPA, Region 5) "Dollar for dollar, pound for pound, this is the best cleanup I have ever seen."

PCBs: NORA Launches Clean Sweep

In January 1998, the National Oil Recycler's Association (NORA) submitted a proposal to plan and implement a PCB Clean Sweep focusing on PCB-contaminated used oil and wastewater. In the fall of 1998, Region 5 funded the feasibility portion of the plan with Coastal Environmental Management funds at the recommendation of the Lake Erie Team's Regional Team Manager. NORA sent a flyer announcing the feasibility study in an attempt to obtain feedback and to identify incentives for participation.

A follow-up telephone survey will be conducted, and the final report will summarize PCB generators' interest in participating in a PCB clean sweep. Throughout the project, NORA has worked closely with the RCRA and TSCA program staff. To date, NORA has completed preparation of a computer database identifying potential sources of PCBs to the oil recycling industry in Region 5, which has been adversely impacted by PCBs in commerce. Some of the individual sources or source types were identified by reviewing TSCA manifest discrepancy and unmanifested waste reports at Region 5 offices. NORA has issued a press release and also established

contacts with Region 5 states' PCB regulatory programs.

Contact: Sue Brauer, USEPA, 312/353-6134 and Tony Martig, USEPA, 312/353-2291

PCBs: Cook County PCB/Mercury Cleansweep Partnership

The Cook County Cleansweep Partnership project was developed as a voluntary initiative to educate and motivate small business operators, particularly electrical and demolition contractors in Cook County, Illinois, to manage and dispose of mercury and PCB bearing equipment in an environmentally responsible manner through:

1. Education: developing training programs and materials for small businesses and local regulatory agency field personnel in identification, safe handling, transport and disposal practices,
2. Telephone Hotline: establishing a telephone number to assist in the identification, safe handling, transport and disposal of mercury and PCB bearing material and equipment, and
3. Disposal Assistance: arranging assistance for small business operators in Cook County for the environmentally safe disposal at reduced costs through a licensed local hazardous waste management firm.

The education and outreach began in the summer of 1998 with focus groups and a booth at the "Electric 98" trade show in October 1998. Bids by local hazardous waste management firms have been submitted and are being reviewed for the disposal assistance component.

PCBs: Bell Atlantic

Bell Atlantic, a provider of telecommunications services, has found PCBs above regulatory action levels in 56 electrical transformers purchased from others. PCBs that had leaked from the windings contaminated a silicon-based dielectric fluid in the transformers. Bell Atlantic contracted with a company to replace the contaminated dielectric fluid containing PCBs with

a new fluid. The process enables the company to replace only the dielectric fluid, not the transformer units. Over the past three years, PCB levels in the transformer have been significantly reduced. PCBs are safely collected and incinerated at a hazardous waste incinerator. The project is expected to be completed in 1999.

Contact: Harlan Pincus, 212/338-6605

PCBs: ComEd Equipment Replacement Program

ComEd replaced more than 2,469 PCB capacitors with more efficient units at large substations in 1996. ComEd also took more than 10,000 obsolete or damaged transformers out of service in 1996. The majority of these were repaired at ComEd's technical center or sold to a transformer repair facility, which fixes and resells them. In addition, 260 transformers that were found to be contaminated with oil containing PCBs were sent to a vendor which decontaminates the components. This allowed them to be reclaimed as raw material for new products. Any transformer mineral oil coolant found to be PCB-contaminated was also decontaminated by another vendor, enabling it to be reused as a coolant or fuel. In 1996 alone, over 84,000 gallons of oil were treated in this manner. Since 1980, ComEd has removed 98% of its PCB-filled transformers and 78% of its PCB-filled capacitors. Thirty-five percent of these equipment removals were voluntary.

PCBs: Utilities Report on PCB Phasedown Efforts

In an effort to reduce one potential source of PCBs, Region 5 EPA approached 12 of the major utilities in the Great Lakes Basin (Great Lakes Utilities) in 1983 and asked for their commitment to voluntarily phase-down their remaining PCB electrical equipment (e.g., PCB transformers and PCB capacitors). This effort is referred to as the PCB Phasedown Program. While considering EPA's request, the 12 Great Lakes Utilities conducted a study of the utility industry in Region 5.

Since 1994, all of the participating utilities have either removed, replaced, or retrofitted some of their transformers. A recently-conducted phone

survey indicated that, although the utilities are continuing to find new PCB transformers through their testing programs, they are continuing to phasedown PCB transformers and have reduced PCB capacitors by 27%. Based on the success of the Great Lakes Utilities Phasedown, EPA Region 5 may next attempt to obtain similar phasedown commitments from other owners of electrical equipment, including other utilities and cooperatives, industrial facilities, and commercial buildings. The utilities in the Phasedown Program may also expand their efforts to look at ways to reduce mercury use and release.

PCB Decommissioning at Minnesota Power

According to Minnesota Power's voluntary decommissioning schedule, the company will have decommissioned between 28 to 39 metric tons of high concentration PCB fluids in capacitors between 1994 and 1998 and retrofitted about 130 kilograms of PCBs in transformers between 1993 and 1998.

PCBs: Northern Indiana Public Service Co. Advances Toward Virtual Elimination Goal

Northern Indiana Public Service Co. (NIPSCO) continued to make progress on its 1994 commitment to EPA to virtually eliminate PCBs in its electrical system by 2005. In 1997 NIPSCO sampled and analyzed 591 pieces of electrical equipment and removed or retrofilled 308 pieces of electrical equipment known or suspected to contain PCBs. NIPSCO has now removed 94% of the PCBs present in the electrical system at the onset of the PCB regulations.

PCBs: Niagara Mohawk Power Corporation Equipment Replacement/Retrofit

Niagara Mohawk Power Corporation, an electric and gas utility, began replacing or retrofitting all high level PCB equipment in 1986. The company

has reduced the number of PCB transformers from approximately 649 to 3. The remaining three will be addressed by 1999. In addition, the company reports that it has eliminated 29,700 PCB capacitors. Through its action, Niagara Mohawk also reports having surpassed the Binational Toxics Strategy challenge of a 90 percent reduction of high level PCBs used in electrical equipment. Niagara Mohawk Power Corporation is committed to the virtual elimination of the use of PCBs in its service territory and reports having achieved the U.S. BNS Challenges for Level I substances

Contact: A.Chris Read, Environmental Analyst, Niagara Mohawk, 315/428-3631

PCBs: Consumers Energy Company Conducts Equipment Inventory

Consumers Energy Company, a Michigan company which provides electrical and gas energy, reports that as of January 1997, less than 1.5 percent of the company's transformers and capacitors contained more than 500 parts per million of PCBs--out of more than a half-million pieces of electrical equipment. In 1997, the company hired a summer intern for a project to estimate the company's electrical equipment inventory associated with PCB-containing mineral oil. The project provided a better understanding of progress made in reducing PCB use and an updated estimate of the current status of PCB use. The company is now able to focus reduction efforts regarding specific PCBs and PCB-contaminated equipment.

Contact: Donald Fobes, 517/788-2083

DDT/Contaminated Sediments: Velsicol Site Cleanup, Pine River, St. Louis, MI

U.S. EPA Region 5 and MDEQ recently began preliminary work under removal authority to remove DDT-laden sediments from the Pine River in St. Louis, MI. EPA is currently preparing the sites and putting infrastructure in place. The Agency plans to first dredge and dispose of DDT-contaminated materials (totaling about 22,000 cubic yards) from the most

heavily contaminated areas. The Agency will follow up this work by removing an additional 238,000 cubic yards of materials and instituting a continual cleanup program. The site was formerly owned by Velsicol, who negotiated themselves out of cleanup responsibilities in the early 1980s.

Contact: Beth Reiner, USEPA, reiner.beth@epa.gov

Pesticides: The Green Thumb Project

The Green Thumb Project is an educational, pollution prevention program that demonstrates alternative lawn/turf management practices. The Green Thumb Project started as a bi-national pilot program in 1995. Four cities were chosen to take part: Sarnia, Ontario; Toronto, Ontario; Milwaukee, Wisconsin; and Duluth, Minnesota/Superior, Wisconsin. During the past three years, the Green Thumb Project has worked with several hundred individuals and organizations including groundskeepers, homeowners, business, schools, universities and churches. In 1997, 42 individual homeowners in Duluth, MN and Superior, WI participated as Green Thumb demonstration sites.

The Green Thumb Project is coordinated by the Environmental Association for Great Lakes Education, (EAGLE) with support from the Western Lake Superior Sanitary District, (WLSSD) and the Great Lakes Aquatic Habitat Fund, sponsored by Tip of the Mitt Watershed Council. More information about the Green Thumb project activities, including information about the "Great Lakes and Great Lawns" video and guidebook, are available through the

Green Thumb Project. Their web site is:

<http://www.cp.duluth.mn.us/~lakes/grthumb.html>.

Contact: The Green Thumb Project, 218/726-1828

Pesticides: Michigan Promotes Clean Sweep Program

The Michigan Department of Agriculture's (MDA) Clean Sweep Program for

pesticide disposal was initiated in 1990. The program, although aimed at agriculture, serves anyone who has old, banned, unregistered or otherwise unusable pesticides. Participants in the past have included farmers, golf course managers, nursery and greenhouse operators. Since its initiation, the program has disposed of more than 250 tons of unusable materials.

MDA funds initiated the program, and in the years following, the U.S. EPA became a significant partner through grants and cooperative agreements with the Michigan Department of Environmental Quality. The unusual partnerships have made the program one of the most successful in the country.

In 1996 MDA started converting from a single annual regional collection to permanent year-round facilities. County Michigan State University Extension office can provide application forms to interested parties. The Extension office will give tips on how to package banned pesticides safely for transportation or can help make arrangements to have them picked up at the location.

Contact: Michigan Department of Agriculture, 517/335-6529

Pesticides: Ohio Department of Agriculture Collection Program

In September 1997, Ohio Department of Agriculture collected 110,000 pounds of unwanted or unusable pesticides in the Great Lakes Basin, approximately 4,000 pounds of which were persistent, bioaccumulative, and toxic chemicals.

Pesticides: Minnesota Waste Pesticide Sweeps

Waste pesticide collections were conducted by the Minnesota Department of Agriculture in the Lake Superior region in 1992, 1994 and 1996. The Department collected over 16,400 kilograms of waste pesticides, including at least 826 kilograms of DDT, 1,600 kilograms of 2,4,5-T, 100 kilograms of chlordane and 140 kilograms of mercury seed treatment. A fourth sweep is being carried out in 1998.

2,3,7,8 TCDD and 2,3,7,8 TCDF: Pulp and Paper Industry

The pulp and paper industry reports that, since 1988, it has dramatically reduced the generation and release of 2,3,7,8 TCDD/TCDF from pulp bleaching operations. The industry's 1996 data show that none of the five U.S. mills located within the Great Lakes Basin reported effluent 2,3,7,8 TCDD or 2,3,7,8 TCDF concentrations above the U.S. EPA minimum level of 10 parts per quadrillion (ppq).; i.e. these mills have virtually eliminated these Binational Toxics Strategy Level 1 compounds from their effluents.

2,3,7,8 TCDD/TCDF releases from the other process vectors (e.g., wastewater treatment plant sludges and product pulp) have been similarly reduced. At Basin mills, 2,3,7,8 TCDD levels in both sludge and pulp are not measurable at EPA minimum levels of 1 part per trillion (ppt). 2,3,7,8 TCDF was detected in sludge at two of the Basin mills; but, sludge test results calculated on a combined 2,3,7,8 TCDD/ TCDF TEQ basis, are still below 1 ppt, a value equal to the 2,3,7,8 TCDD minimum level. 2,3,7,8 TCDF levels in pulp were measurable at only one Basin mill. Again, when calculated on the 2,3,7,8 TCDD/TCDF TEQ basis, the pulp values are below 1 ppt.

According to industry representatives, mills within the Great Lakes Basin match or exceed percent release reductions made nationally by the industry's more than 100 mills.

Contacts: Jerry Schwartz, American Forest & Paper Association, 202/463-2581 and Bill Gillespie, NCASI, 919/558-1990

Dioxin: Western Lake Superior Sanitation District (WLSSD) Zero Discharge Project

As part of its Zero Discharge Project efforts, WLSSD has developed "Safe Solutions: Eliminating Dioxin from Medical Wastes." This brochure identifies chlorinated products often used by the health-care industry, identifies those with non-chlorinated alternatives, and discusses disposal

options.

Binational Strategy, Generally: National Wildlife Federation

The National Wildlife Federation (NWF) has promoted the reduction and virtual elimination of Binational Toxics Strategy substances for several years. NWF utilizes a broad range of activities and tools such as hosting workshops, convening special task forces, distributing action alerts and publishing reports and articles on timely topics to educate the public regarding important water quality issues. Some examples of the most recent work of NWF that we hope will result in successful achievement of the goals of the Binational Toxics Strategy (BNS) are described below.

- In 1997, NWF published several reports of particular relevance to the BNS: one on mercury pollution prevention in the healthcare industry; another on sources of mercury to air in Ohio; and a third that is a community guide for mercury pollution prevention at wastewater plants. A fourth report, a critique of governmental progress under the Great Lakes Water Quality Agreement, was recently published in *The Toledo Journal of Great Lakes' Law, Science, and Policy*.
- In April 1998, NWF sponsored a meeting to explore the relationship between air pollution and water pollution and to help foster collective action between clean air and clean water activists.
- NWF works to recruit people and organizations with perspectives that were not well represented in the earlier stages of drafting the Binational Strategy to participate in its implementation. Some examples of these new constituencies are occupational health and safety experts, environmental justice advocates, and many of the major labor unions.
- NWF has been working in conjunction with Great Lakes United to facilitate and support participation of representatives of traditionally involved environmental non-governmental organizations (ENGOS). We have been working together to provide briefing materials for BTS meetings, convening conference calls, and generally organizing the travel for and input from these people.

- As a member of the Lake Superior Binational Forum, NWF plays a significant role in shaping the Forum's recommendations for addressing dioxin, mercury and toxaphene contamination by the pulp and paper industry. If these recommendations are accepted and implemented, they are expected to result in considerable reductions in releases of these pollutants.
- NWF has also been utilizing its national magazines, National Wildlife and International Wildlife to promote greater understanding of the BNS substances of concern. Feature articles on PCBs and Toxaphene have appeared recently, as well as project updates in these magazines.
- NWF is working with EPA and state officials to promote the establishment of total maximum daily loads (TMDL) for mercury in regional watersheds.
- NWF hopes to make progress with expanding activity through its pilot projects and collaborations with industry, e.g., the steel or utility industries, to advance the BNS. NWF also expects to work more closely with faith-based organizations and youth and through its Campus Ecology® program to expand its community efforts. These constituents can play important roles in the success of locally-based projects. Possible examples of new participants are the National Council of Churches, the Evangelical Environmental Network, and organizations based at Great Lakes regional colleges and universities through our Campus Ecology® program

Atmospheric Deposition: EPA Conducts Outreach and Educational Activities

Since the Binational Toxics Strategy was signed, several EPA offices have taken action to support BNS efforts. Office of Air Quality Planning and Standards has developed numerous fact sheets pertaining to atmospheric transport of BNS substances. Among these is a fact sheet on the Medical Waste Incinerator final rule, the Utility Air Toxics Report to Congress, national emissions standards to control hazardous air pollutants (HAPs) emitted from pulp and paper mills, and a summary of findings from the second Great Waters Report, Deposition of Air Pollutants to the Great Waters. In addition, EPA's Offices of Water and Air and Radiation have initiated a joint project to develop a water quality-based total maximum

daily load (TMDL) allocation for mercury.

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