

draft Progress Report - December 15, 1999

Binational Toxics Strategy



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 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 BNS 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 Binational Strategy provides a framework for actions to reduce or eliminate persistent toxic substances, especially those which bioaccumulate. It establishes reduction challenges in the timeframe 1997 to 2006 for twelve "Level I" persistent toxic substances:

aldrin/dieldrin	alkyl-lead	benzo(a)pyrene
chlordane	DDT (+DDD+DDE)	dioxins and furans
hexachlorobenzene (HCB)	mercury and compounds	mirex
octachlorostyrene (OCS)	PCBs	toxaphene

The BNS 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), pentachlorobenzene, pentachlorophenol, tetrachlorobenzene (1,2,3,4- and 1,2,4,5-), tributyl tin, and PAHs as a group, including but not limited to: anthracene, benzo(a)anthracene, benzo(ghi)perylene, perylene, and phenanthrene. 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 BNS to determine whether: 1) any Level II substance should be placed on the Level I list; 2) any new substances threatening the Great Lakes should be included on the Level I or Level II lists; or 3) any other changes should be made.

The BNS envisions obtaining reductions through the "most appropriate, common sense, practical, and cost-effective blend of voluntary, regulatory, or incentive-based actions." The BNS acknowledges and builds on existing Canadian and U.S. regulatory programs that address the targeted substances. In addition, the BNS aims to expand prior and existing pollution prevention and virtual elimination efforts in the Great Lakes area. In particular, the federal Great Lakes 2000 Program and the Canada-Ontario Agreement Respecting the Great Lakes Basin Environment set the framework within which all Canadian work related

to the BNS takes place. And, in the U.S., BNS efforts are closely coordinated with USEPA's national strategy on persistent, bioaccumulative, and toxic substances, entitled "An Agency-wide Multimedia Strategy for Priority Persistent, Bioaccumulative, and Toxic (PBT) Pollutants," or PBT Strategy. The PBT Strategy provides for the use of a full range of USEPA tools to prevent and reduce targeted substances. BNS implementation is also coordinated with other international toxic reduction efforts to the maximum extent practicable.

The two governments are committed to providing progress reports on a regular basis, detailing the most recent efforts and achievements under the BNS. This 1999 Progress Report is the second of these reports. The first report contains a great deal of additional background information and can be found on the Internet at the BNS website, www.epa.gov/bns/.

Implementation

In early 1998, EC and USEPA, in concert with a broad spectrum of stakeholders, began their collective efforts to implement the BNS. A variety of actions are now taking place that seek to achieve the use and release reduction goals for the targeted substances. The BNS is designed to build on these actions, continue the momentum, and sustain the focus to maximize the benefits to the Great Lakes Basin ecosystem. The BNS uses three main avenues to work toward success: substance-specific workgroups, stakeholder fora, and an Integration workgroup, each of which is described further below.

The implementation plan for the BNS has been built primarily around the efforts of substance-specific workgroups. Seven workgroups have been formed to deal with the twelve Level I substances, grouping them according to chemical or industrial sector similarities. Composed 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 substances from the Great Lakes Basin. All interested parties are encouraged to become involved with these workgroups. The workgroups meet two times a year (in conjunction with the stakeholder fora), and also communicate more frequently via e-mail and conference calls. Highlights of workgroup progress over the last year follow this

section.

Stakeholder fora have been held in March and November of 1998 and in April and November of 1999 to allow an open, interactive, and participatory process for BNS implementation. Approximately 150 people on average have attended these fora. Another Stakeholder Forum, along with substance-specific workgroup meetings and an Integration workgroup meeting, is planned for May 16th and 17th, 2000, in Toronto. Because implementation efforts are focused primarily, but not solely, around the workgroups, in June 1998 stakeholders were invited to participate in a meeting of a separate workgroup called the Integration workgroup. Additional Integration workgroup meetings were held in January, April, August, and November 1999. This group meets to discuss issues relevant to, but outside the scope of, the individual substance-specific workgroups, such as: reporting mechanisms and process improvements, recognition and incentive programs, communications strategies, sector-based approaches, long-range transport, sediments, incineration, Level II substances, and other issues. The Integration workgroup has provided valuable input toward the resolution of several of these issues, and this information has been forwarded to the individual workgroups.

Substance-specific Workgroups

As noted earlier, the substance-specific workgroups are key to the success of the BNS. Each workgroup is following a "four-step analytical process" for organizing its activities related to meeting the BNS Challenge goals. 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 are still in the initial stages of gathering information regarding baseline levels and sources of the substances, while others have moved on to identifying cost-effective options to achieve reductions. Various workgroup highlights over the past year are presented below.

Workgroup Progress Highlights,

November 1998-November 1999

Mercury Workgroup**Workgroup Activities and the 4-Step Process**

The focus of the mercury workgroup has been on steps 3 and 4; the examination and implementation of reduction options, developing partnerships and commitments. Workgroup activities have included the following.

- In association with stakeholder meetings workshops have been held on specific areas, such as the utility sector and community based programs. In addition, a number of subgroups have been formed to provide continued exchange and program development.
- A draft report on U.S. Sources and Regulations (Stages 1 and 2) is available for public comment through December 30. See <http://www.epa.gov/bns/mercury/stephg.html>. This report will be finalized in 2000, and an "Options Report" (Stage 3) will also be drafted by Summer of 2000.
- A Canadian report on sources, regulations and programs will be also be available in the coming months.

Reduction Activities

Chlor-Alkali Industry: This industry is the largest mercury user in the United States, and committed (in 1996) to reducing mercury use 50 percent by 2006. The industry reported this year that they have reduced mercury use 35 percent between 1995 and 1998.

Northwest Indiana Steel Industry: Bethlehem Steel Burns Harbor, Ispat Inland-East Chicago, and US Steel-Gary have produced a report, *Mercury Sources at Northwest Indiana Steel Mills*, inventorying mercury in purchased materials, use and inventory, and wastes. They are starting to work on reduction plans, under a voluntary agreement with USEPA, Indiana DEM, and Lake Michigan Forum.

Canadian Steel Mills: Steel mills in the Hamilton area have also developed and implemented plans to reduce the use of mercury containing equipment.

American Hospital Association (AHA): Under the Memorandum of Understanding between AHA and USEPA, twelve workgroups have been organized around different aspects of hospital waste reduction; these workgroups have prepared work plans, and are beginning to implement them.

Hospitals in Ontario: Preliminary results from a recent survey indicate that 85% of hospitals have initiated mercury reduction or waste diversion programs, with 50% of the hospitals reporting reductions greater than 50%.

The Association of Municipal Recycling Coordinators in Ontario: The Association is working with municipalities to develop and expand collection programs for household items containing mercury. 50% of the household hazardous waste programs in Ontario have the capability to collect these devices.

The Binational Toxics Strategy Mercury Web site: The web site has been significantly expanded and re-organized. Information is now provided by topic and sector. See <http://www.epa.gov/glnpo/bns/mercury/>

Progress Towards Challenge Goals

- U.S. Challenges. The U.S. challenge goal is to achieve by 2006, a 50% reduction in mercury use nationwide, and 50% reduction in aggregate of U.S. air emissions nationwide and releases to water in the Great Lakes Basin.

- Between 1990 and 1995, there was an estimated 25 percent reduction in U.S. mercury air emissions. Although estimates are uncertain, we are confident that there has been a significant decrease, particularly in incinerator emissions, and that these reductions have continued beyond

1995.

- Between 1995 and 1997, there was a 21 percent reduction in mercury use. The source of this use data, the U.S. Geological Survey, has stopped reporting mercury use statistics.

- Canadian Challenges. The Canadian challenge is to achieve a 90% reduction in releases from a 1988 base year by the year 2000. It is currently estimated that there is close to an 80% reduction.

Hexachlorobenzene/Benzo(a)pyrene Workgroup

Workgroup Activities and the 4-Step Process

Work on Steps 1 and 2 of the 4-Step Process has resulted in:

- Two draft reports, *Hexachlorobenzene (HCB): Sources and Regulations* and *Benzo(a)pyrene (B(a)P): Sources and Regulations*, were posted on the BNS web site November 1, 1999, for review and comment.
- A revised draft Ontario HCB inventory is expected to be shared with workgroup members in Fall 1999.
- A draft Ontario B(a)P inventory is being prepared.
- Additional efforts have been made to resolve disputed hexachlorobenzene emission levels from utility coal combustion and rubber tire manufacturing. A review of test data indicates that utility coal combustion does not appear to be a significant source of hexachlorobenzene. The Rubber Tire Manufacturing Association completed testing and is expected to report that HCB is not present at detectable levels in rubber tire manufacturing. Also, Health Canada is working with pesticide producers to determine and reduce HCB concentrations in pesticides.

The workgroup identified wood stove change-out programs and wood preservation workshops as cost-effective options to promote further reductions.

Reduction Activities

- Discussions have been held with the Canadian Institute of Treated Wood, the U.S. Wood Preservation Institute, and a representative of Vulcan Chemical Manufacturing (a manufacturer of wood preservation chemicals) to establish joint U.S./Canadian workshops for wood preservatives. Wood preservatives are a source of hexachlorobenzene when pentachlorophenol is used to treat wood. The purpose of these workshops would be to share information on improved technology and operating practices to encourage further reductions of hexachlorobenzene emissions.
- Dow affirmed its commitment to reduce HCB air and water releases by 75% by 2005.
- A U.S. manufacturer of chlorothalonil, a pesticide, improved its manufacturing process to reduce the content of HCB significantly, thereby reducing HCB emissions from pesticide manufacturing as well as pesticide application.
- Two utility companies in Ontario decided to eliminate the use of pentachlorophenol, which contains HCB as a contaminant, in treated utility poles.
- An amendment to lower the USEPA Toxics Release Inventory (TRI) reporting threshold for HCB to 10 pounds per year was finalized October 29, 1999, and becomes effective January 1, 2000. The reporting threshold for HCB (and PAHs) is also being reviewed under Canada's National Pollutant Release Inventory.
- A USEPA Air Toxics Rule for Pesticide Active Ingredient Production was finalized. The standards are expected to reduce emissions of hazardous air pollutants (HAPs) by 65% from baseline levels.
- USEPA MACT standards for municipal and medical waste incinerators and incinerators, cement kilns, and lightweight aggregate kilns burning hazardous waste will reduce HCB emissions from these sources.
- Work has continued on the establishment of wood stove change-out programs in Wisconsin, Michigan, and Ontario. In the U.S., there has been coordination with the Hearth Products Association, the Wisconsin Department of Natural Resources, and the Michigan Department of Environmental Quality to establish wood

stove change-out programs in specified areas within both Wisconsin and Michigan. The purpose of this program is to encourage replacement of older (pre-1988) wood stoves with newer ones which have only about 10 percent of the benzo(a)pyrene and particulate emissions. Kick-off meetings were held in August 1999, in Green Bay, Wisconsin, and Traverse City, Michigan. A pilot program was carried out in eastern Ontario for an eight-week period in January/February 1999 to replace "old" dirty woodstoves. Environment Canada is presently working with woodstove producers to launch a marketing campaign in fall/winter 1999/2000 to promote modern woodstoves.

- A USEPA MACT standard for coke ovens: charging, topside, and door leaks, has been promulgated and is projected to decrease B(a)P emissions to 815 lbs/yr. A second MACT standard for coke ovens, which applies to pushing, quenching, and battery stacks, has a year 2000 promulgation date and is also expected to reduce B(a)P emissions. In addition, there is a residual risk standard being developed under the MACT program for the entire coke oven operation to address remaining risks from coke ovens.
- USEPA MACT standards for petroleum refinery catalytic cracking units are scheduled to be promulgated in December 1999. The full-combustion requirements are likely to reduce B(a)P emissions from petroleum refinery catalytic cracking units.
- A reassessment of the USEPA Clean Water Act effluent limitations guidelines for the Iron and Steel Manufacturing Point Source Category is scheduled to be proposed in October 2000.
- An environmental management agreement (EMA) is being negotiated with Algoma Steel in Sault Ste. Marie, Ontario, to promote toxics reductions, including B(a)P. A similar EMA is already in place with the Dofasco steel mill in Hamilton, Ontario.
- A Strategic Options Report (SOR) has been finalized for the Canadian Iron and Steel sector, and implementation of the SOR recommendations are underway.
- An SOR has also been finalized for the Canadian Wood Preservation sector. A national audit and implementation of the SOR report recommendations will begin in April 2000. HCB and B(a)P reductions are expected from the implementation of findings and remedial actions resulting from audits of Ontario wood preservation facilities.
- The Ontario "Drive Clean" program was phased-in beginning in

April 1999. The program is expected to reduce smog-causing pollutants and B(a)P from the transportation sector.

Progress Toward Challenge Goals

- The draft Ontario HCB inventory reports a reduction in total estimated releases of HCB from 1988 to 2000 of 61% or 32.4 kg/yr. According to TRI reports, HCB releases to air and water in the U.S. were 425 pounds in 1997, compared to 1,592 pounds in 1990, a decline of 73%.
- The results of recent testing conducted at petroleum refinery catalytic cracking units in the U.S. as part of the MACT development process indicate that B(a)P emissions from this source category are very small-on the order of ~0.3 lbs/yr per catalytic cracking unit. By comparison, 1990 B(a)P emissions from petroleum refineries were estimated at 50,450 lbs in the 1993 Great Lakes Regional Air Toxics Emissions Inventory.

Concerns, Challenges, and Next Steps

Source inventories and determination of their significance remain significant challenges for the workgroup. Stack testing is needed for some of the suspect sectors to improve source inventories. International production and use is also a concern. HCB is used in the manufacture of fireworks in China, which may be imported to Canada or the U.S. Also, China and Russia have both stated their intent to continue using HCB, which may pose a problem for Canada and the U.S. due to the long range transport of HCB released to the atmosphere from these countries.

The workgroup's focus in the coming year will be to finalize the Steps 1 and 2 assessments, and continue to identify cost-effective reduction opportunities.

PCB Workgroup

Challenges

Canada's Challenge: Seek by 2000, a 90 percent reduction of high-level PCBs (>1 percent PCB) that were once, or are currently, in service and accelerate destruction of stored high-level PCB wastes which have the potential to enter the Great Lakes Basin, consistent with the 1994 COA (Canada - Ontario Agreement).

United States' Challenge: Seek by 2006, a 90 percent reduction nationally of high-level PCBs (>500 ppm) 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.

Workgroup Activities

PCB Reduction Commitment Letter: The PCB Workgroup drafted a letter for signature by senior Environment Canada and USEPA officials seeking commitments from targeted organizations to reduce their remaining PCBs. EPA Region 5's Regional Administrator sent letters to the three major automobile manufacturers in the U.S. (DaimlerChrysler, Ford, and General Motors) and to five major steel producers with facilities in the Great Lakes Basin (Bethlehem Steel, Ispat Inland, LTV Steel, National Steel, and U.S. Steel). All three automobile manufacturers responded and committed to not only meet the PCB reduction challenge, but go beyond it in terms of the amount of PCBs reduced and/or when the company would eliminate all of its PCB equipment. The letters to the steel producers were sent in late October, so they have not had time to respond as of this update. Environment Canada also sent PCB reduction commitment letters to six corporations in the automotive and iron/steel sectors. A response has been received from DaimlerChrysler indicating that they have met the Canadian PCB challenge. Responses from other corporations are also expected soon.

PCB Sources and Regulations Report: A re-draft of the PCB Sources and Regulations Background report, which covers Steps 1 & 2 of the Four-Step Analytical Process, was completed and posted on the BNS web site for public review. Comments on the report are due December 30, 1999. This report includes updated information regarding changes to U.S. PCB regulations, and new PCB data. The Step 1& 2 report was

also updated to include PCB sources and regulations in Canada.

Small Quantity Owners: Two additional PCB workshops were held in the Greater Toronto Area in the spring of 1999. The workshops were a collaborative effort between Environment Canada, the Provincial Ministry of the Environment, and PCB disposal contractors. Both workshops were attended by approximately 90 in-service and in-storage PCB owners. The workshops provided a very focused arena for the exchange of information on PCB management, decommissioning, and destruction.

U.S. PCB Transformer Registrations: The new PCB Transformer Registration Database shows that there are 18,714 transformers registered and in-use in the U.S., containing a total of 108,625,659 pounds of PCBs. The 1994 baseline of 200,000 estimated transformers containing high-level PCBs is higher than the reported 1998 database total. Although reductions of PCB transformers have occurred since 1994, the reductions alone may not account for the difference between the 1994 baseline and the number of transformers in the registration database. While the database provides the best existing and current information on the number of PCB transformers remaining in use, it has not been thoroughly quality controlled. In addition, the figures do not include registrations submitted after the initial development of the database and they do not include PCB transformers which were not registered. The PCB workgroup will evaluate the differences between the 1994 baseline and the 1998 database.

PCB Phasedown Program: Representatives of EPA, Region 5, and EPA's Office of Enforcement and Compliance Assurance met with the region's major utilities to discuss the PCB Phasedown Program. The Phasedown Program, currently a pilot project with utilities in Region 5, is designed to encourage the reduction of PCBs by providing an incentive for facilities to commit to removing their remaining PCB equipment. Incentives include public recognition and consideration of the PCB removal efforts during settlement of enforcement actions. As this program is being finalized, utilities in the region continue to take efforts to phasedown PCB transformers and capacitors.

Cook County (Illinois) PCB and Mercury Clean Sweep: The waste collection component of the Cook County (Illinois) PCB and Mercury

Clean Sweep pilot program began in October 1999 with a pickup of light ballasts containing PCBs, fluorescent lamps, lights and batteries from a park district in Cook County. This collection event was preceded by a mailing of brochures announcing and describing the Clean Sweep program to approximately 6,000 potentially participating businesses, organizations, and associations in the county. A web site (www.erc.uic.edu/cleansweep) was established containing a description of the program and information on PCBs and mercury, and a hotline number (1-888-SWEEP-22) was established for potential participants. The program provides PCB and mercury recycling or waste disposal at reduced costs until the end of 1999 for small businesses and local governments in Cook County, Illinois.

Digitalization of PCB Information: In order to facilitate the distribution of information to PCB owners, Environment Canada has updated and digitized its PCB Bulletin. In this format, current PCB regulatory and destruction information can be readily distributed upon request.

Database Upgrading: Environment Canada continues to upgrade its National PCB database. The upgrades will improve the information management capabilities of the database in several ways, including enhancement of report-generating functions and tracking capabilities.

Four-step Analytical Process

The PCB Workgroup is currently focusing on Steps 3 and 4 of the Four-step Process (identifying options to achieve further reductions and implementing actions to achieve reductions). Specific accomplishments achieved to date under Steps 3 and 4 are discussed above.

Progress Towards Challenge Goals

USEPA fully expects that the U.S. challenge for PCB reductions will be met by 2006. Significant reductions have already been and continue to be made, as learned from discussions with the utility, steel, and automotive industries, and based on required removal of PCBs as negotiated during settlements of cases involving violations of regulations and based on continued activities at permitted storage and disposal facilities. The 1998 PCB Transformer Registration Database shows that there are 18,714 PCB transformers currently registered and

in-use in the U.S. Although this represents a reduction of over 90% of the PCB transformers from the 1994 baseline, the relation of the current inventory according to the PCB Transformer Registration Database to the 1994 baseline and the U.S. challenge will be evaluated.

In Canada, over 50% of the high-level PCBs (>1 percent PCB) and about 23% of the low-level PCBs have been destroyed compared to the 1988 baseline, consistent with the Canada - Ontario Agreement (COA).

Needs For Success

Overall, continued stakeholder participation is key to realizing success in the reduction of PCBs. The PCB workgroup needs continued commitment from stakeholders to actively participate in workgroup discussions and continued exchange and evaluation of PCB information, particularly on issues involving: long-term planning for the phase out of PCBs, management options, incentives, and the benefits of PCB reduction.

Stakeholders can also begin, continue, or increase their active involvement with PCB reduction efforts, should they own PCBs, or with outreach or support efforts, should they not own PCBs. In addition, as applicable, stakeholders can collect, compile, summarize, and report on PCB environmental measuring and monitoring data (of fish, water, sediment) and can support or develop ideas for the commercialization of new or alternative disposal technologies.

Dioxins/Furans Workgroup

Workgroup Activities and the 4-Step Process

Meetings: At the April 27, 1999, BNS Stakeholder Forum in Toronto, the workgroup met to provide a status update on various dioxin/furan initiatives, to discuss sources and sectors, and to identify opportunities for workgroup actions to proceed with the BNS four-step analytical process. The Canadian Inventory, finalized in February 1999, was reviewed, and the status of the U.S. Inventory was discussed. Council of Great Lakes Industries' (CGLI's) efforts to identify voluntary

candidates for stack testing at iron sintering and electric arc furnaces were discussed. Presentations were made on the proposal to lower the threshold for dioxin reporting to USEPA's Toxics Release Inventory (TRI) and the multi-stakeholder consultations being held for the addition of various substances (including dioxins/furans) to Canada's National Pollution Release Inventory (NPRI). The workgroup decided to organize a discussion of dioxin/furan sources and sectors by first ranking them in approximate order of priority.

Conference calls: In a series of four conference calls held between June and October 1999, the Dioxin/Furan Workgroup continued discussion of dioxin sources and sectors begun at the April 27, 1999 meeting. The group discussed dioxin issues concerning open burning, agricultural and regional burning, cement kilns, diesel engines, utility coal combustion, landfill fires and PCP-treated wood. The workgroup also discussed several remaining sectors, but has primarily focused on municipal waste combustors (MWC) and medical waste incinerators (MWI). The status of current regulations for MWC and MWI in both the U.S. and Canada, as well as uncertainties associated with MWC/MWI emission estimates, were presented and discussed. Other significant issues presented and discussed during workgroup conference calls included: material separation issues, the effects of chlorine in the feedstock, and ongoing P2 efforts.

Action Items: The workgroup has maintained an ongoing list of action items which pertain to information gathering efforts as well as other tasks that will eventually be applied to outreach and promoting reductions efforts. Significant commitments made include gathering more information on open burning and rural waste disposal, investigating options for disposal of PCP-treated utility poles, investigating outreach which may encourage voluntary emission testing at secondary copper smelters, and drafting outreach materials/informational pamphlets on open barrel burning. The group has recently begun to shift focus from Step 1 (baseline information collection, information exchange) to Steps 2 and 3 of the 4-step process. In order to move ahead with evaluation of the effectiveness of existing regulatory and programmatic control (i.e., Step 2) and the identification of sources/opportunities/strategies for additional reductions (i.e., Step 3), the group has developed a "decision tree" process to help the group identify and prioritize future workgroup activities. In the short

term, the group intends to use this process to identify the top five priorities for the workgroup to focus on.

Reduction Activities: U.S.

- New Source Performance Standards and Emission Guidelines for Small Municipal Waste Combustion Units were proposed in August 1999 under Section 129 of the Clean Air Act Amendments (CAAA). Based on 1990 emissions data, these rules would reduce dioxin emissions from small MWC by at least 97 percent.
- The Federal Plan to implement the Emission Guidelines for existing Hospital/ Medical/Infectious Waste Incinerators (HMIWI) was proposed in July 1999 under Section 129 of the CAAA. The proposed Federal Plan covers those emission sources for which a State or Tribal entity does not have an approved plan in effect by September 15, 1999. The Emission Guidelines for HMIWI are anticipated to reduce dioxin/furan emissions from the HMIWI category by about 96 percent.
- The Final Standards for Hazardous Air Pollutant for Hazardous Waste Combustors were promulgated on September 30, 1999. The final MACT-based standards will apply to approximately 172 hazardous waste incinerators and cement kilns and lightweight aggregate kilns that burn hazardous waste as a fuel, and are expected to reduce dioxin and furan emissions from this source category by about 70 percent. This rule was developed by EPA's Office of Solid Waste under the joint authority of Section 112 of the CAA and RCRA.
- Once fully implemented, all three incinerator-related air toxics rules combined (i.e., those applying to large and small MWC, HMIWI, and Hazardous Waste Combustors) are expected to provide reductions of 95% for dioxin.
- Most other major sources of dioxins/furans in the U.S. (as assessed by the 1998 Inventory) are being addressed as the individual Clean Air Act Maximum Available Control Technology (MACT) Standards are implemented.
- USEPA is continuing to collect data on suspected significant sources of dioxin that were not adequately characterized in the Draft 1998 U.S. Inventory.

Reduction Activities: Canada

- The Canadian *Dioxins and Furans and Hexachlorobenzene Inventory of Releases* was finalized and released in January 1999. The Inventory identified 22 sectors that released 290 g TEQ/y (Toxic Equivalency) of dioxins and furans into the atmosphere in 1997, which is projected to fall to 199 g TEQ/y in 1999. The Inventory is not complete for emissions of dioxins and furans to soil, and work is ongoing by other bodies to complete this work.
- The Canada-Wide Standards (CWS) for Dioxins & Furans Development Committee was established in January 1999, and is focusing its efforts on the most complete component of the 1999 *Inventory of Releases*: anthropogenic sources of releases of dioxins & furans to the atmosphere. The CWS will focus on the top dioxin/furan sectors in Canada: **Municipal Waste Incineration, Residential Wood Combustion, Iron Sintering, Salt-laden Wood Combustion, Electric Arc Furnace Steel Manufacturing** (note that the sectors in bold are also the top sectors in Ontario, representing 70-80% of the dioxin/furan emissions in the Canadian portion of the Great Lakes Basin). Final Canada-Wide Standards, which will establish reduction targets and timelines, are anticipated for the Spring of 2000. The CWS Development Committee is examining three possibilities for a numerical value that will be the Canada-Wide Standard reduction target. One possibility is to fix "virtual elimination" as the CWS, as this is the goal of the Track 1 designation of dioxins and furans. A second possibility is to develop a specific stack emission concentration limit for each sector as the CWS that would fall short of, but contribute to, the ultimate goal of virtual elimination. A third possibility is to establish a national emissions reduction target, based on the 1999 *Inventory of Releases*, as the CWS. On November 25, 1999, the Dioxins & Furans Development Committee held a multistakeholder meeting in Toronto. The purpose of this national meeting was to have stakeholders from the various sectoral groups offer advice on the form and content of the CWS package for Ministerial approval in Spring 2000, to identify or clarify cross-sectoral issues, and to provide comment on the critical path to be followed between now and Spring 2000.

In addition, the Development Committee was seeking advice on how to approach the development of CWS for lesser sources identified in the *Inventory*.

- Environment Canada is engaged in ongoing discussions and consultations with the Regional Municipality of Hamilton-Wentworth to encourage actions that will reduce emissions of dioxins/furans and other toxics from their Solid Waste Reduction Unit (SWARU). The SWARU incinerator accounts for most of the dioxin/furan releases from the municipal waste incineration sector in Ontario.
- An Ontario steel manufacturing facility, which uses Electric Arc Furnace (EAF) technology, has volunteered to undergo stack testing to help evaluate the significance of this sector as a source of dioxins/furans. This testing will fill a data gap that has been identified in both the 1999 *Inventory of Releases*, and the *Strategic Options Report for the Steel Manufacturing Sector* (an initiative under the Canadian Environmental Protection Act).
- Environment Canada undertook a pilot-scale woodstove changeout program and clean burning education campaign in Eastern Ontario between January and March, 1999. Eight workshops on clean burning techniques were attended by over 500 people . Also, over 100 woodstoves were changed over to the newer technology EPA-rated woodstoves. In the fall of 1999, a national "point-of-purchase" campaign was launched. This campaign seeks to influence consumers with educational materials, at the point-of-purchase, to select the less polluting new technology woodstoves instead of the older technology woodstoves that are still being manufactured and sold. A woodstove stack testing program has also been established to quantify potential reductions of dioxins/furans attributable to the new technology woodstoves, and to identify whether dioxins/furans are associated with the particulate fraction of emissions.

Progress Toward the Challenge Goal

Based on the 1998 Draft Inventory, the United States is clearly on track to meet the BNS challenge goal by 2006. Additional reductions are

expected as full compliance with existing and scheduled regulations on dioxin releases are met. However, a quantitative estimate of where the U.S. stands with regard to the challenge goal is still dependent upon new information that may be included in the Final Inventory. The Inventory is expected to be finalized by early summer 2000.

To date, a reduction of 76% has been achieved relative to the 1988 Canadian baseline. Much of the reductions achieved are attributable to the Pulp & Paper sector after federal regulations were imposed.

Concerns, Challenges and Next Steps

One of the primary concerns of the dioxin/furan workgroup has been the issue of limited resources and the resulting need to prioritize sources, which will be the target of workgroup reduction efforts. These efforts have been hindered due to limitations in emissions data. For sources for which emission estimates exist, prioritization has been limited by the uncertainties associated with either the emission factor estimates or activity levels. Other sources lack any quantified emission estimate. In addition, easily available data on the prevalence of sources/sectors specifically within the Great Lakes Basin are generally lacking.

In response to these challenges, the workgroup plans to follow the decision tree process it has developed to set priorities based on the best information available, identify cost-effective reduction opportunities, initiate actions by the BNS workgroup, and promote information sharing and outreach.

Octachlorostyrene Workgroup

Workgroup Activities and the 4-Step Process

OCS Reports: On December 31, 1998, a report entitled *Draft Great Lakes Binational Toxics Strategy Octachlorostyrene (OCS) Report: A Review of Potential Sources*, as well as USEPA's draft Preliminary Findings with respect to the OCS Challenge, were posted on the BNS web site, www.epa.gov/bns/. Notice of the availability of these documents was also made in the Federal Register with comments

requested by March 1, 1999. Comments were received from eight parties. In addition, CGLI submitted a report entitled *Octachlorostyrene and Suggested Industrial Sources-A Report to the Great Lakes Binational Toxics Strategy OCS Workgroup* on March 10, 1999. These comments and CGLI's report are currently under review. A revised draft OCS Ontario inventory prepared by Environment Canada was also shared with the workgroup.

OCS in Fish Data: A data summary of the spatial and temporal trends in OCS concentrations in sport fish within the Great Lakes and interconnecting channels was prepared by the Ontario Ministry of the Environment's Sport Fish Contaminant Monitoring Program. This summary was provided to the OCS workgroup in May 1999. In general, OCS levels in lake trout fish have declined substantially since the 1980's and, in many cases, are now near or below detection limits. Draft OCS data from the "National Study of Chemical Residues in Fish," USEPA 1992, was also tabulated and shared with the workgroup by e-mail.

Proposed TRI Rule: An amendment to add OCS to the U.S. Toxic Release Inventory reporting at a 10-pound reporting threshold was finalized October 29, 1999, and becomes effective January 1, 2000.

Concerns, Challenges, and Next Steps

The primary obstacle to progress continues to be the lack of an emissions inventory for OCS. Other obstacles include the fact that OCS is not routinely monitored in atmospheric emissions or in waste water effluents and that, although OCS is known to be very resistant to metabolic degradation and extremely lipophilic (very high bioaccumulation potential), only limited toxicity information exists. The challenge for the workgroup is to formulate an approach for addressing OCS that can be based on information that is currently available. Options discussed to date include 1) assessing potential OCS sources through the use of an accepted analytic process, such as the "decision tree" previously discussed by the workgroup, 2) linking OCS reduction efforts to reduction efforts focused on dioxin and HCB, or 3) focusing on obtaining additional environmental monitoring data which can be used to assess the need for further action.

Alkyl-Lead Workgroup

Workgroup Activities and the 4-Step Process

United States

Work on Steps 1, 2, and 3 of the 4-Step Process has resulted in the posting of a U.S. report entitled "Great Lakes Binational Toxics Strategy Alkyl-Lead: Source, Regulations, and Options" to the Binational Strategy's website, www.epa.gov/bns . Public comments on the report are being solicited.

The U.S. Co-Chair of the Work Group is participating in the development of the U.S. Environmental Protection Agency's National Action Plan for Alkyl-Lead, which incorporates the Great Lakes Binational Toxics Strategy challenges for alkyl-lead.

Canada

Working within the framework of the 4-step process, Canada released a report entitled "Alkyl-lead an Inventory Study: Sources, Uses and Releases in Ontario." This report was distributed at the last stakeholders meeting on April 27, 1999. The report verifies that Canada has exceeded its challenge to meet 90% reduction in the use, generation, and release of alkyl-lead. This report is available on the Binational Toxics Strategy website, www.epa.gov/bns .

Progress Toward the Challenge Goals

United States

The United States has met the Binational Strategy Challenge of confirming no-use of alkyl-lead in automotive gasoline. This is documented in the report "U.S. Challenge on Alkyl-Lead: Report on Use of Alkyl-Lead in Automotive Gasoline," available online at www.epa.gov/bns .

The remaining portion of the U.S. BNS Strategy Goal, "Support and encourage stakeholder efforts to reduce alkyl-lead releases from other sources," has been incorporated into the Alkyl-Lead National Action Plan Developed by the USEPA PBT Alkyl-Lead Workgroup.

Canada

Canada has exceeded its challenge to meet 90% reduction in the use, generation, and release of alkyl-lead. The report "Alkyl-lead an Inventory Study: Sources, Uses and Releases in Ontario" documents this. The report is available on the Binational Toxics Strategy website, www.epa.gov/bns .

Reduction Activities

United States

On September 8, 1999, representatives from the USEPA PBT Alkyl-Lead Workgroup (including the U.S. Co-Chair of the Binational Toxics Strategy Work Group) held an initial consultation via conference call with representatives from the National Motor Sports Council, NASCAR, NHRA, SCCA, CART, and TOSCO (76 Racing Gas), to initiate discussions on the issues related to a voluntary phase-out of leaded racing gasoline.

A Draft National Action Plan for alkyl-lead was developed by the USEPA PBT Alkyl-Lead Workgroup and distributed to stakeholders for review in August. This National Action Plan identifies three areas to support reduction activities: international efforts, voluntary initiatives and stakeholder involvement, and further research.

Canada

Sources, uses and releases of alkyl-lead in Ontario decreased over 98% from 1988 to 1997. The two primary remaining sources of alkyl-lead in Ontario are aviation gasoline and leaded motor gasoline for use in competition vehicles. In 1997, aviation gasoline and leaded motor gasoline comprised only 0.2% and 0.05% respectively, of Ontario's gasoline mix, relative to total motor gasoline.

Concerns, Challenges and Next Steps

The USEPA National PBT Strategy will assume leadership in the United States for implementing the actions outlined in the National Action Plan for Alkyl-Lead, and therefore the remaining U.S. Binational Toxics Strategy alkyl-lead challenge. This includes coordination of stakeholder efforts to reduce any remaining alkyl-lead releases.

A challenge in achieving further reductions in the aviation sector is the lack of safe alternatives to replace alkyl-lead in aviation fuel. Research is underway in the United States, but it is likely to take another 8 to 10 years before an acceptable alternative will be developed. Canada is tracking developments in the aviation sector. Canada is also addressing recommendations from the report "Alkyl-lead an Inventory Study: Sources, Uses and Releases in Ontario."

In Canada, competition vehicles are currently exempted from the Canadian *Gasoline Regulations*, which ban lead in fuel. Prior to the expiration of the exemption in 2002, consultations will be held with the competition sector. These consultations will be coordinated with parallel United States efforts.

Because of the national scope of the remaining reductions and the ongoing national reduction initiatives, regular meetings of the Binational Toxics Strategy Alkyl-Lead Work Group will no longer be held. However, the Work Group may be called together for special meeting or workshops, as appropriate. Information about new technologies, developments, regulations or further reductions in alkyl-lead will be reported through regular Binational Toxics Strategy mechanisms, including stakeholder meetings and the Binational Toxics Strategy website, www.epa.gov/bns.

Pesticides Workgroup

Workgroup Activities and the 4-Step Process

Meetings and Activities: At two stakeholder fora, April 1999 in Toronto and November 1999 in Chicago, the workgroup met to provide a status

update on Level I pesticides issues and to discuss possible next steps on the Level II pesticides.

Pesticides Report: On December 31, 1998, a draft report addressing the BNS challenges for chlordane, aldrin/dieldrin, DDT, mirex, and toxaphene was published and posted on the BNS web site, www.epa.gov/bns/. This report, entitled the *Great Lakes Binational Toxics Strategy Pesticides Report*, included discussion and analysis of: previous and existing uses and sources of the pesticides in the basin; environmental pathways and trends of the pesticides, loadings estimates, short and long-term fate, ecological and human-health risks presented by known and suspected pesticide hot spots and reservoirs; U.S. regulation of the Level I pesticides; and current programs to collect and recycle existing stockpiles. Notice of the availability of this document was made in the Federal Register with comments requested by March 1, 1999. Comments have been received and reviewed, and the report is being revised to incorporate these comments, as well as present options for implementing management actions.

Level II Pesticides: Much has been done to address the Level I pesticides in both the U.S. and Canada. The workgroup is investigating options for moving on to address some of the Level II pesticides listed in the Binational Strategy.

Reduction Activities

- In the U.S., the Persistent, Bioaccumulative and Toxics (PBT) Strategy has been developed to prevent and reduce releases of PBT pollutants. This nationwide effort will apply the full range of EPA tools to prevent and reduce releases of PBT substances, with an initial focus on the BNS Level I substances. Under the PBT Strategy, a national action plan is currently being developed which will outline priority activities to reduce risks to human health and the environment from existing and future exposure to the Level I pesticides.
- A rule to lower the USEPA Toxics Release Inventory (TRI) reporting threshold for aldrin/dieldrin to 100 pounds per year and, for chlordane and toxaphene, to 10 pounds per year was finalized October 29, 1999, and becomes effective January 1, 2000.
- USEPA is currently conducting research to better understand

exposure pathways for some of the Level I pesticides, including chlordane exposure from residential sources/indoor house dust and various sensitive subpopulations. EPA's Office of International Activities (OIA) is initiating a study to monitor the levels of selected persistent organic pollutants (POPs), including chlordanes, DDT and DDE, and toxaphene in umbilical cord blood and maternal blood of eight primary indigenous groups of coastal Alaska, and the Office of Research and Development (ORD) is planning to conduct a three-year study investigating the exposures and risks to young children from several POPs, including aldrin, dieldrin, - and - chlordane, and DDT/DDE.

- On September 24, 1999, USEPA Administrator Carol M. Browner issued a press release announcing EPA's proposal to phase out "mixing zones" in Great Lakes to reduce bioaccumulative chemicals of concern (BCCs). The proposal would prohibit new discharges of BCCs, including chlordane, DDT, and mirex into mixing zones in the Great Lakes Basin and would phase out the use of existing mixing zones for BCCs in the Great Lakes Basin over 10 years.

Progress Toward Challenge Goals

The Canadian Challenge report was issued in 1997, concluding that the Challenge for Canada has been met.

The final U.S. Challenge report is in preparation to include Steps 1 through 4. Concerning regulatory status, all U.S. registrations have been canceled. Possible sources of Level I pesticides that might enter the lakes include remaining stocks, contaminated sites, other inadvertent releases, and air deposition. Trajectories indicate that long-range transport via air is possible.

Status of Water Quality Relative to Level I pesticides: The most recent concentrations of the Level I pesticides in the Great Lakes water are included in the forthcoming U.S. Challenge report. Two conclusions relative to water quality are most important:

- The present lake water concentrations are all well below published drinking water standards by more than 200 fold. Hence

human consumption of drinking water does not cause drinking water restrictions.

- The Great Lakes Initiative Guidelines are exceeded for dieldrin, DDT and toxaphene. These guidelines are set to account for the bioaccumulative nature of these compounds, which are based upon the concentration likely to be achieved in fish for human consumption based upon uptake by the fish directly from the water and through its food chain. Although lake water concentrations are now quite low, fish advisories based upon these compounds are still required.

The bioaccumulation potential is illustrated in the report by the data for toxaphene in Lake Superior Lake Trout. While the toxaphene concentration in Lake Superior water is 1.12 ng/l, the concentration of toxaphene in Lake Superior Lake Trout is 4.9 ppm, some four million fold higher.

Has the U.S. met the Challenge? All Level I pesticide uses have been canceled. Production facilities within the U.S. have been closed. Purposeful and inadvertent releases have not been identified. Releases from contaminated sites and stockpiles are still possible, but likely to be small. Drinking water levels are within regulated concentration ranges. Physical parameters indicate that further reduction in water concentrations will be slow. Inputs and outputs come close to balance. The U.S. has met the principal intent of the Challenge, even though the statement "no longer use or release" cannot be confirmed as long as stockpiles and contaminated sites exist.

The processes available for further reductions in the Level I pesticides in the U.S. are in place and on-going, and include:

1. Remediation of sites with contaminated soils and sediments under the Superfund Program. Clean-ups at a former DDT manufacturing site in St. Louis, Michigan and toxaphene contamination at a former manufacturing site in Georgia are examples of on-going work.
2. Clean Sweeps by the States to continue the removal of stored stocks.
3. National efforts (PBT Initiative) to reduce long-range domestic air emissions that can deposit in the Great Lakes.

4. POPs Initiative to reduce international sources of long-range atmospheric transport.

5. Continued support for monitoring (IADN) to follow progress and trends.

Future Activities

As mentioned earlier, Stakeholder fora, workgroup meetings, and Integration workgroup meetings are planned for May 16th and 17th, 2000, in Toronto. The BNS will also continue to coordinate with EPA's national PBT Strategy in the development of national action plans for the Level I substances.

The main focus of the BNS effort over the next year will be to form additional partnerships like those developed under the mercury, PCB, and HCB/B(a)P workgroups. Another goal is to show progress among the workgroups in moving ahead in the four-step analytical process, documented in chemical-specific reports summarizing conclusions and actions related to each step of the process. It is also hoped that concrete numerical information will be developed to demonstrate progress with respect to the BNS Challenge goals (e.g., how the actions being taken translate into actual toxics reductions).

Get involved, and help us meet our goals! For contact information, and our web site address, see below.

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This Page created September 02, 1999

Revised: January 05, 2000

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