



DEPARTMENT OF HEALTH CARE SCIENCES

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MEMORANDUM

TO: Sarah Miller, Canadian Environmental Law Association
FM: Jeffery Foran and Ann Jarrall, George Washington University, Washington, D.C.
 Burkhard Mausberg, Pollution Probe, Toronto, Ontario, Canada
 Sunset Workshop Project Staff
RE: Comments on Workshop Report
DT: January 14, 1993

Greetings! We are in the process of preparing the proceedings of the Sunset Workshop that you attended in Traverse City, Michigan on 23-25 September 1992. A draft report will be sent to you for your review during the week of 25 January 1993. Burkhard and Ann plan to be in your neighborhood during the week of 8-12 February and are wondering whether you may be available to visit with them. You are one of a representative group (government, industry, grass roots, academia, etc.) of attendees who will be asked for comments on the substance of the proceedings. The comments will go toward accuracy, adequacy of coverage of issues, formatting, appropriate or inappropriate conclusions, etc.

At the same time, we would like to brainstorm with you to get your perspective and ideas for follow-on steps toward developing and implementing Sunsetting in the Great Lakes basin. We feel that one shortcoming of the workshop, given the time constraints, was the little time and attention devoted to "recommended next steps" or "where do we go from here". These next steps could range from lobbying to regulatory or non-regulatory initiatives to direct citizen action and at what levels these activities should occur.

If the week of 8-12 February is impossible for you, there is the possibility that either Ann or Burkhard can visit with you the few days prior to that week or the few days after that week, depending on how the scheduling shakes out. We hope that you'll have the time and interest to manage the visit. If not, we would still be grateful for any written comments that you could send us.

Ylang Nguyen will contact you by phone no later than 19 January to schedule an appointment with you. If you have any questions, please call Ylang at 202-994-5178 or Ann at 202-994-7983. We look forward to our meeting and extend our thanks for making time to see us.

The First Bi-National Workshop on Sunsetting Hazardous Chemicals in the Great Lakes Basin

Workshop Proceedings

I. INTRODUCTION

Over 500 chemicals in the Great Lakes basin continue to cause serious threats to the health of the Great Lakes ecosystem and its human inhabitants. The Great Lakes Basin is recognized as a particularly sensitive ecosystem plagued by contamination with several persistent, bioaccumulative hazardous substances. An April 1991 report prepared by the Virtual Elimination Task Force (VETF) of the International Joint Commission (IJC), notes that ecosystem quality in the Great Lakes today is much improved from conditions 20 years ago. However, the report suggests that concentrations of many persistent toxic chemicals remain at unacceptable levels.

A variety of regulatory and non-regulatory initiatives has been mounted over the past two decades, but only marginal progress has been made toward addressing the problems caused by the discharge of toxic chemicals into the Great Lakes basin. The presence of persistent, bioaccumulative toxic substances continues to threaten ecological and human health. These substances and the lack of effective ability to control and eliminate them provide clear reasons for coordinated action by basin residents and others with an interest in protecting the region.

One emerging concept that may play an important role in achieving virtual elimination in the Great Lakes basin is an innovative hazardous chemical risk assessment and management process called "Sunsetting." Sunsetting was first proposed by Sweden as a mechanism for international cooperation in the elimination of certain hazardous chemicals. Sweden offered a "Sunset Chemicals Proposal" at the 14th joint meeting of the Organization for Economic Cooperation and Development (OECD) Chemicals Group meeting in May 1990.

The U.S./Canadian International Joint Commission (IJC) has defined Sunsetting in its Sixth Biennial Report as:

[a] comprehensive process to restrict, phase out and eventually ban the manufacture, generation, use, transport, storage, discharge and disposal of a persistent toxic substance. Sunsetting may require consideration of the manufacturing processes and products associated with a chemical's production and use, as well as of the chemical itself, and realistic yet finite time frames to achieve the virtual elimination of the persistent toxic substance.

The basic premise of Sunsetting is that some chemicals as well as processes and products associated with them must be eliminated through ban, phase-out, use restrictions, or substitution. This process has the potential to serve as an effective mechanism for achieving the virtual elimination mandate of the Great Lakes Water Quality Agreement.

The George Washington University, Washington, D.C. and Pollution Probe, Toronto, Ontario, Canada were awarded a research grant in 1991 by the C.S. Mott Foundation to develop a Sunset Process for the Great Lakes Basin. Phase I of the research activities has involved the development of a chemical screening and scoring process (based on specific quantitative criteria) to identify and classify chemicals, processes, and products as potential Sunset candidates. The second phase of the project is designed to work toward implementation of a comprehensive Sunsetting process in the Great Lakes basin.

II. THE FIRST BINATIONAL WORKSHOP ON SUNSETTING HAZARDOUS CHEMICALS IN THE GREAT LAKES BASIN

On September 23-25, 1992, representatives from U.S. and Canadian environmental organizations, academia, the scientific community, citizen groups, government, industry, and the media met in Traverse City, Michigan to discuss Sunsetting hazardous chemicals in the Great Lakes basin.

The workshop had the following objectives:

- 1) To disseminate and discuss information on Sunsetting (origins, history, application and implementation mechanisms, etc.);
- 2) To collect and share information on Sunset related activities in the Great Lakes basin;
- 3) To disseminate information and receive input on a proposed Sunsetting methodology, specifically on the chemical screening and scoring process developed by the GWU research staff to identify potential Sunset candidates;
- 4) To begin a discussion of whether and how a Sunsetting process should be implemented in the Great Lakes basin.

Sunsetting has been proposed as a component of comprehensive pollution prevention and risk reduction strategies. It was the intention of the workshop organizers to begin a general discussion of the relationship of Sunsetting to these broader concepts. To better understand these interrelated concepts, the workshop was intended, in part, to:

- 1) Develop a definition of Sunsetting;
- 2) Determine how to integrate Sunsetting with process changes and product substitutions;
- 3) Identify appropriate Sunsetting intervention points;
- 4) Determine whether Sunsetting should apply to whole families of chemicals;
- 5) Determine which intervention points merit regulatory action;
- 6) Determine how Sunsetting and Sunrising fit together;
- 7) Determine how to deal with data gaps and explore whether current legal requirements are adequate in acquiring data;
- 8) Determine who should have the burden of proof of the safety of a substance;
- 9) Factor in how socioeconomic impacts should be integrated into any decision-making process to ban or phase out a substance;
- 10) Explore the issues of timing, alternatives, technology-forcing, and an orderly transition from "dirty" to "clean" products;

- 11) Ensure the protection and safety of workers;
- 12) Propose laws that would initiate changes in products, product development, and whole facility planning; and
- 13) Identify the laws, institutions, and decision-making processes for implementing Sunsetting.

The workshop planning staff consisted of Jeffery Foran, Ph.D., Barbara Glenn, M.P.H., Ann Jarrell, Esq., Ylang Nguyen, and Manizha Barikzoy, B.S. from the George Washington University; Paul Muldoon, Esq., Burkhard Mausberg, B.S., and Fe de Leon from Pollution Probe; and Tim Eder, Esq. from the National Wildlife Federation. Funding for the workshop was provided by the George Gund Foundation, the Joyce Foundation, the C.S. Mott Foundation, and the Great Lakes Protection Fund.

III. WORKSHOP PROCEEDINGS

WEDNESDAY, 23 SEPTEMBER 1992 - KEYNOTE ADDRESS

**Gordon K. Durnil, Chairman, U.S. Section
International Joint Commission**

Mr. Durnil's address touched on several issues of relevance to Sunsetting hazardous chemicals in the Great Lakes basin. He discussed the role and responsibility of the IJC under the U.S.-Canada Great Lakes Water Quality Agreement (GLWQA). He also presented his personal views on the inter-relationship of economic growth and environmental protection. He discussed the progress of the U.S. and Canada in meeting their obligations under the GLWQA. He concluded with his own support for the Sunsetting concept and development of Sunsetting strategies for implementing the recommended action items detailed by the IJC in its Sixth Biennial Report. (See Appendix 2 for his presentation paper).

THURSDAY, 24 SEPTEMBER 1992

Background

After a brief welcome by workshop organizers, an overview of U.S. and Canadian Sunsetting activities was provided. The overview included discussion of the Great Lakes Initiative (GLI) which has been designed to establish uniform and protective Water Quality Standards by the States in the Great Lakes basin. The current draft of the Initiative does not call specifically for Sunsetting of chemicals, although future iterations of the GLI may include more specific strategies and timetables for chemical management including Sunsetting.

Other ongoing activities include a U.S. Senate bill (S. 1081) drafted by Senator Baucus, pending reauthorization of the U.S. Clean Water Act (CWA). This bill contains a proposal which would "trigger" review and action under Section 6 of the U.S. Toxic Substances and Control Act (TSCA). Section 6 of TSCA enables the EPA to ban, phase out, or initiate other control and management activities for hazardous chemicals. Specifically, S. 1081, among other things, would prohibit any discharge of eight listed toxic substances and trigger the use of TSCA Section 6 for any other substances that may pose an unreasonable risk to human health or the environment. The EPA Administrator could later add other substances to the original list of eight substances. Citizens would also be allowed to petition to add chemicals to the list. Any chemical for which discharge was prohibited would trigger a 90-day period for initiation of administrative or regulatory action by the EPA Administrator for such chemical. These provisions would also apply to the manufacture or use of new chemicals.

There are several ongoing efforts to integrate Sunsetting into national and international regulatory activities. Recent efforts have included incorporating toxicant use reduction and Sunsetting measures into the reauthorization of the U.S. Resource Conservation and Recovery Act. Toxicant use reduction and toxic chemical phase-out activities have also been initiated and implemented at several state and local levels. In Canada, an ARETS process (Accelerated Reduction or Elimination of Toxics) has been developed. The process relies on criteria for priority setting as well as for classification purposes.

The U.S.-Canada International Joint Commission endorsed the development and implementation of Sunsetting in its Sixth Biennial Report (1992) and called for Sunsetting PCBs, DDT, dieldrin, toxaphene, mirex, and hexachlorophene. The IJC also recommended that the use of chlorine and chlorine-containing compounds be Sunset.

Sunsetting Criteria and Framework Presentation

A prototype chemical assessment and identification process that included quantitative criteria was presented. The assessment and identification process has been developed by the staff at the George Washington University. The intention of this screening and scoring process is to identify chemicals that should be classified as potential Sunset candidates. The process for selecting the number of chemicals for screening and scoring, the nature and types of data used for screening and scoring, data sources, and specific triggers for classifying chemicals as Sunset candidates were presented. A detailed report on the chemical identification phase of the GWU project will be available to all workshop participants by March 1993.

Extensive discussion associated with quantitative issues and the role of criteria in toxic substance assessment, specifically in the context of a Sunsetting process, occurred throughout the workshop. The types of data relied upon (human, animal, reproductive studies, etc.), the selection and use of exposure and toxicity parameters, and the choice of endpoints used to screen the chemicals were all sources of inquiry. Other issues revolved around the scoring process and the use of qualitative and policy decisions in ranking the chemicals in the low, medium, and high hazard categories. For example, a "trigger" used in scoring (such as a 5,000 BAF), was a choice of endpoints based on policy and not science. A great deal of discussion also centered upon whether and how the process proposed by the GWU staff should incorporate information on the use and release of chemicals. Use and release information may provide a critical linkage between hazardous materials and associated products and processes. The Sunsetting criteria proposed by GWU presently incorporate consideration of chemical use and release information, although not on an industry- or product-specific basis.

A major limitation to any chemical screening and scoring system is the lack of data by which to assess chemicals. This problem was of great concern to most workshop participants. The burden for generation of data on chemical hazard was discussed and suggestions made for shifting the onus for generation of hazard data (or information on lack of hazard) to manufacturers and users of specific chemicals. This issue is discussed more fully in the GWU report.

It was noted that the proposed GWU criteria did not deal with the problem of chemical interactions or the effects of combinations of a multitude of chemicals. Biological harm may not necessarily be connected with one particular substance and, therefore, may not be assessed by the GWU system. Suggestions for assessing families of compounds as well as focusing Sunsetting activities on the basic components of hazardous chemicals such as chlorine were made to address this problem,

Several examples of product and process modification were presented that were designed to achieve virtual elimination or zero discharge of hazardous compounds. For example, a British Columbia (Canada) regulation had set a zero discharge goal for 1992 without relying upon an inherent technological base. A California mill had set a 1995 target as an absolutely chlorine free mill.

Finally, the importance of integrating a Sunrise concept with Sunsetting was raised. Discussion occurred on the usefulness of Sunsetting criteria developed by GWU to assess new chemicals, although identification of specific criteria or a minimum hazard database for new chemicals was not proposed at the workshop.

Panel Presentations - Economic, Legal, Labor/Social, and Political Considerations for Sunsetting

Panel Members: David Bennett, Canadian Labor Congress
Jack Weinberg, Greenpeace Great Lakes
Karen Palmer, Resources for the Future
J. William Owens, Procter & Gamble
(representing the American Paper Ind.)

David Bennett provided the Canadian Labour Congress (CLC) perspective on the general failure of pollution control initiatives. He noted that workers, who arguably suffer the most from pollution, were protected the least. A proposed CLC program would treat workers equally with their communities, physical environment, and ecosystems under a pollution prevention framework. The CLC supports hazard assessment systems that apply criteria to specific chemicals, however, such systems should not be obstructive to implementation of a comprehensive, nationally legislated pollution prevention program. The CLC has proposed that such a program would set reasonable deadlines as compared to a draconian program focused only on the worst chemicals.

Jack Weinberg provided an overview of the Greenpeace perspective on zero discharge. He discussed the IJC's definition and adoption of Sunsetting and cautioned that if the IJC's goals for implementing Sunsetting were not possible, a minimal goal should be agreed upon. A minimal goal would ensure that Sunsetting did not become a tool for undermining the consensus expressed in the "Zero Discharge Statement of Principles" and did not offer a framework for attacking the IJC's specific Sunsetting recommendations in its Sixth Biennial Report. He provided a critique of the GWU chemical assessment process and stressed the importance of focusing on industrial processes in any Sunsetting program. He concluded that the pollution prevention goals of the GLWQA would not be achieved until Canada and the U.S. implemented a program of Sunset permits for the industrial processes responsible for persistent toxic contamination of the ecosystem.

Karen Palmer's presentation centered on the role that economics plays in two major aspects of environmental policy: setting goals for environmental policy and designing a mechanism for achieving those goals cost-effectively. She contrasted incentive-based and command-control approaches to toxicant regulation. She noted the guidance that economics could provide in designing and implementing any future Sunset regulations including identification of appropriate regulatory instruments, design of optimal phase-out processes, determining impacts if the ultimate date for a phase-out should change, and defining the scope of geographic and jurisdictional application. In toxic substance regulation, economics could assist in setting economically efficient goals for regulatory policy. For a chemical assessment process, economic analysis could help to identify positive net benefit approaches to prioritize chemicals for regulation.

J. William Owens addressed the subject of eliminating bioaccumulative and persistent compounds in effluents from the paper industry, especially with regard to the use of chlorine and chlorine compounds during bleaching of pulp. His presentation detailed the progress toward, and results of eliminating dioxin. He provided laboratory and mill data, compared the similarity of remaining effluent compounds to the vast array of existing natural organochlorines, and reviewed the findings of an environmental conference on pulp mills held in Sweden in 1991. He concluded by stating that the technical means exist to virtually eliminate (although not totally ban) bioaccumulative and persistent organochlorine compounds from the pulp and paper industry using the principles of pollution prevention. Technological controls

were being installed at a rapid rate throughout the industry, however, he urged development of a better understanding of the natural background and sources of organochlorines.

The full text of each paper presented by panel members is included with this report.

General Discussion

A substantial portion of the afternoon of 24 September was devoted to a general discussion of the Sunsetting concept. Ken Geiser of the Toxics Use Reduction Institute (Lowell, Massachusetts), presented a summary of ongoing TUR activities. He described Sunsetting as an emerging idea, and that all concerned were still in the process of developing the details. He then facilitated development of an issues list for hazardous chemical management (including Sunsetting). Such a list may provide a framework for development and implementation of a comprehensive chemical management program. The issues list included:

- 1) Identifying and setting priorities on materials, production, and technology (consumption patterns);
- 2) Creating goals and definitions;
- 3) Establishing the role of a criteria list;
- 4) Developing use trees and policy interventions for specific chemicals, families, and processes;
- 5) Reviewing legal authority and the role of government;
- 6) Developing an information base to remedy the lack of information available;
- 7) Exploring how to sunrise safe alternatives;
- 8) Defining how Sunsetting chemicals fits within other environmental goals (a life cycle context) including examining what is being traded when it is replaced;
- 9) Factoring social variables into the screening/scoring system to address processes, production, and chemicals;
- 10) Adjusting the focus to processes and not individual chemicals;
- 11) Defining a geographic scope; and
- 12) Developing a range of strategies.

There was some discussion on the issue of whether virtual elimination measures should be implemented through regulatory or non-regulatory approaches. Industry participants believed that existing pollution prevention laws had been generally well received, and in some cases had forced changes in production and processes associated with hazardous chemicals. However, some participants questioned the need for any regulation, citing ARETS and government-industry cooperative ventures as examples of successful voluntary cooperation. For example, the automotive industry is in the process of voluntarily implementing initiatives to phase out some toxic chemicals, and numerous companies are participating in the U.S. EPA's 33/50 program to reduce emissions of hazardous chemicals. Another example

(provided during the second day of the workshop) cited the effort of Louisiana Pacific, a pulp and paper mill in California, which had pledged to set 1995 as a target for having absolutely chlorine-free pulp (ACF). Louisiana Pacific will have to develop a market for ACF pulp since there was no guarantee that consumers would purchase ACF pulp. Activities to assist Louisiana Pacific in meeting its pledge have been initiated by community groups.

A concern was expressed that mandatory bans and phase-outs would lead to a "free-for-all" by lawyers with little benefit for industry or society. If any legal framework were put in place to implement Sunsetting, it would have to be supported by a strong technical basis. Further, it would have to address the constraints that are faced by industry such as their responsibility to shareholders. The Massachusetts pollution prevention law, in its third year of successful implementation, was cited as a good example for providing good statutory signals to industry on what goals to meet and how to meet them.

Wrap-up

A brief summary of the day's activities and discussions was provided. Broad differences in understanding of the Sunsetting concept, and rationale for the concept, were apparent. The discussion of tactical approaches during the workshop had forced thoughtful questions which led to discussion of mechanistic issues, policy/implementation issues, economic and social considerations, industry perspectives on Sunsetting, and a host of other issues. Consensus was not reached on whether and how to implement a Sunsetting process in the Great Lakes basin or on how a Sunsetting activity should be structured. However, the activities of 24 September did provide an opportunity to generate discussions on Sunsetting between a variety of stake holders in the Great Lakes basin. Further, there was some recognition among workshop participants that comprehensive chemical management was critical for the protection of the Great Lake ecosystem and that opportunities exist to implement progressive chemical management activities in the basin. Reaching agreement upon the nature of management activities and on how they should be implemented remains a formidable challenge.

FRIDAY, 25 SEPTEMBER 1992 - Environmentalist Forum

Definitions

(workshop notes provided by Pollution Probe)

Although the goal of the Environmentalist Forum was to begin discussion on implementing Sunsetting in the Great Lakes basin, the participants began the day with a more fundamental discussion of Sunsetting including its definition and the role of criteria in identifying Sunsetting candidates. Definitions of Sunsetting were centered on those developed by the IJC and by Whalstrom. This discussion produced an array of views. Many participants agreed that there were numerous useful definitions of Sunsetting, including those of the IJC and Whalstrom, although there was no perfectly clear definition. Many acknowledged that the IJC definition was the most comprehensive one available, but that it was limited in some respects since the definition considered only persistent toxic chemicals for Sunsetting. Some felt also that the IJC definition would need revision to include a multi-media approach and that, in some cases, a provision should be made for substances which are not persistent but are still toxic or potentially hazardous to the environment. Another definitional issue concerned the need for further elaboration of the term Sunset "process". Presumably, "process" includes chemical identification and assessment which are referred to in the Whalstrom definition and in the GWU chemical screening and scoring process.

A definition should also mention the relationship between Sunsetting and "virtual elimination" as well as with the concept of sustainable development. Several participants also felt that a definition should include a Sunrise component which would pair phasing out a chemical with bringing in a safer alternative chemicals or processes. However, other participants commented that the definition and assessment processes would not be the same for Sunrising and Sunsetting and that it may be necessary to address the Sunrise concept separately. Finally, some participants felt that a focus solely on chemicals (rather than on processes and products) was inappropriate since chemical-to-chemical substitution was relatively rare.

From the number of informative, constructive, and useful comments raised on the IJC's definition of Sunsetting, it was clear that further study and considerable work lay ahead for future IJC revisions of the definition.

The Focus of Sunsetting

There was ample discussion on the relationship of Sunsetting to other hazardous chemical management activities. It was generally acknowledged that Sunsetting was a process to reach the goal of zero discharge. It was suggested that a systematic framework could be established with the goal of achieving virtual elimination and zero discharge, with Sunsetting serving as one mechanism or component of a process to achieve the goal of zero discharge. Important within any established process is recognition of the discharge of hazardous compounds via manufacturing and production processes; therefore, achieving zero discharge/virtual elimination must focus on processes instead of individual chemicals or on both processes and individual chemicals.

Data, Burden of Proof, and the Role of Criteria

There was extensive discussion on the role of criteria in Sunsetting chemicals during the environmentalist's forum. Several participants expressed the view that the use of scientific criteria was one method for identifying Sunset chemicals and that criteria were part of a comprehensive process and not exclusive of other decisions and actions. Supporters of criteria suggested that criteria could serve as a starting point to evaluate the characteristics of hazardous chemicals. Other complementary approaches may include "use trees" which enable prioritization of different chemical uses and examination of networks of chemicals. There may still be the need for an initial list of chemicals, perhaps provided through a criteria driven process.

It was suggested that the use of criteria (as opposed to ad hoc selection of chemicals) would prevent getting "bogged down" as had occurred under many existing regulatory systems. Supporters of criteria suggested that adoption of a "weight-of-evidence" approach, as proposed by the IJC, may also be useful. This approach would mean that at a certain point, data were sufficient to prompt regulatory or other management actions.

Some participants suggested that the use of Sunsetting criteria provided an opportunity for examining a larger array of chemicals. Once criteria are set, they should apply to the whole universe, not just a small number of chemicals, and to all aspects of a chemical's life cycle (manufacture, use, storage, etc.) The role of criteria will probably evolve over time, and it may open Sunsetting to a wider agenda including development of a Sunrise process. In discussing the possible adoption and use of the GWU chemical assessment process to screen and score a large universe of chemicals, it was stated that even if adoption of the GWU process took 10 years, having such a process in place was better than

spending 10 years pushing for the ban of one or only a few chemicals. However, establishing acceptance of the GWU process in the regulatory arena would be arduous and very time consuming, and concurrent pursuit of Sunsetting individual chemicals may be necessary.

Other participants felt that criteria should play no role in Sunsetting chemicals since the data used to establish criteria were forever challengeable; thus, the use of a criteria system would have the potential for paralysis by analysis. Participants opposed to criteria also suggested that criteria may become the focal point of the Sunsetting process, detracting from the pursuit of bans or phase-outs of hazardous chemicals, processes, or products. Criteria may, in fact, be used as a "red herring" - to develop a "wait until" list.

Some participants stated that criteria, as proposed by the GWU, failed to address chemical, process, and product substitution. There was further concern that criteria were not workable in a regulatory environment because there were too many assumptions to be agreed upon (e.g. how and where to set triggers). Participants who did not necessarily oppose the use of criteria in theory felt that criteria may not be broadly applicable because of data limitations. A partial resolution to this problem may come from industries willing to open their files and make private data available to fill in existing data gaps. Finally, some participants opposed to criteria strongly suggested that there was a need to move political will to Sunset chemicals without a criteria system.

Regulatory Issues

The issue of legal authority was raised as an important consideration for implementing a Sunset process. In discussing past bans and phase-outs of chemicals, it was noted that many were actually restricted uses and not complete bans. For example, the U.S. incrementally eliminated lead in gasoline through long, difficult regulatory proceedings. However, lead has not been banned in the U.S. and continues to be an critically important human health hazard. In most cases, immediate action on chemical bans has only been accomplished for clearly established harm such as damage to stratospheric ozone from CFCs (see the GWU report on rationale for existing ban and phase-outs under TSCA).

Under existing regulatory and legislative process, it has been difficult to mobilize political will to accomplish bans or phase-outs. Mobilizing and empowering individuals to become involved in Sunsetting hazardous chemicals will be necessary if any strategy is to be successful. It may also be necessary to address industry's programmatic resistance to regulation. This may be possible via implementation of Sunsetting through innovative approaches that include economic and market incentives.

Some participants expressed concern that existing Canadian and U.S. Federal legislation that could be potentially used to achieve Sunsetting of hazardous chemicals was not being implemented. Although Sunsetting may be implemented through statutes such as the U.S. TSCA and the Canadian Environmental Policy Act (CEPA), substantial amendment may be necessary to realize such implementation. The U.S. Toxic Substances Control Act (TSCA) has been termed "the sleeping giant of federal regulation" although it has resulted in regulatory inaction because of lack of political will to aggressively implement Section 6. Its failure also stems from the burden to show conclusively that a chemical has caused an adverse effect or poses an unreasonable risk to human health or the environment. TSCA also requires that less economically burdensome alternatives to bans or phase-outs be applied where ever possible. Similar problems may exist with the Canadian Environmental Policy Act (CEPA).

Some participants felt that, rather than developing a national approach to Sunsetting through TSCA or CEPA, the IJC might be the most appropriate entity for implementing Sunsetting in the Great Lakes basin, particularly because it already possesses binational power and authority. A few participants felt that the IJC should be given even further authority to implement (and enforce) a Sunsetting protocol for hazardous chemical management in the Great Lakes basin.

Geographic Scope

The focus of existing Sunsetting activities, including development of criteria by the GWU, has been on the Great Lakes basin. Several participants suggested that, although the IJC was an important institution for keeping the idea of "Sunsetting" alive, the idea would not stay alive if centered only around the Great Lakes basin. Since the IJC had endorsed the concept, it should work toward promoting it internationally.

The Great Lakes may, however, serve as an important "laboratory" for implementation of a Sunsetting process. As part of this laboratory experiment, it will be important to show that Sunsetting is feasible and valuable, and that it will not result in loss of jobs for thousands of workers or cause other adverse economic or social impacts.

Sunsetting Strategies

To supplement the IJC's endorsement of Sunsetting, fostering support of the concept will require strategizing with other sectors. Some participants felt that movement toward implementing Sunsetting should occur through the IJC as a bi-national coordinating authority. However, the momentum established by the IJC could be lost without a comprehensive strategy to bring about widespread acceptance and adoption of Sunsetting in the basin. Such a strategy must be supported by the public and the scientific community to secure legitimacy and widespread acceptance for implementing a Sunset process.

Another strategy would seize on the opportunity that the IJC has provided in recommending the Sunsetting of chlorine and chlorinated compounds in its Sixth Biennial Report. A focus on "key" (chlorinated) chemicals could form the basis for an initial strategy. As part of this strategy, responsible companies could be approached in a forthright, open manner to sunset one chemical such as dioxin or lead.

Regardless of the nature and structure of a strategy for Sunsetting, all of the following will likely be necessary to ensure its successful implementation: Community involvement, focused legislative efforts, efforts to address liability, litigation, negotiations with industry (and other chemical users), considerations of economic and social impacts, and development of regulatory and non-regulatory enforcement mechanisms.

Dioxin: A Case Study

Subsequent to the broad discussion of Sunset strategies, a question was addressed to the group on how to ban a specific chemical. It was agreed by many of the participants to address a case study for implementing a chemical ban and dioxin was selected as the candidate chemical.

In Sunsetting dioxin, the following considerations and activities will be important.

The social and economic impacts that would be caused by any phase-out including the number of jobs lost/jobs created and other potentially disruptive factors.

On the technical level, the sources of dioxin would need to be identified and alternative processes and products identified (dioxin is not intentionally produced or used in manufacturing processes of in products). For example, dioxin produced through incineration may be prevented through elimination of PVCs from the incineration process, particularly as development of appropriate substitutes are found. If alternatives were available, timelines could be tailored for their phase-in. Other sources for dioxin, including pulp and paper mills, should also be targeted.

Local grass roots groups should be mobilized. Simultaneous legislative efforts should be mounted in coordination with the activities of local environmental groups. Public involvement should include video releases and newsletters as part of a broad public education campaign. The key would be to link up all mobilization efforts.

A national campaign targeting key states would also be necessary. Either new legislation or revision of existing legislation may need to be drafted in some cases. Tight communications networks (modems, computer network conferences, etc.) would be required to support a national campaign. Key players would need to be identified in business, environmental, and other constituencies. "Winners" in the business community (those which have mounted responsible care type programs or other reduction/elimination activities) should receive widespread recognition.

To obtain the resources to promote Sunsetting of dioxin and other compounds, funding would have to be sought from the Great Lakes Protection Fund, other foundations, appropriate government agencies, as well as donations that occur from increasing public awareness of the problem. Lobbying efforts should be directed at the most easily identifiable and the largest volume sources. Success in achieving reductions for large volume sources would build a base for controlling other sources.

Ultimately, a coordinated, binational approach for implementation of Sunsetting of dioxin and other compounds may be enhanced through participation of the IJC. Implementation and enforcement activities may require empowerment of the IJC. This could occur through legislative approaches, incorporating Sunsetting in existing bi-national agreements and statutes or in new laws and regulations, to grant IJC the authority to develop and issue rules (even if these were non-binding) to implement Sunsetting.

Ongoing Sunset Activities by Workshop Representative Organizations

The workshop participants were requested to provide brief summaries of their ongoing efforts that were relevant to Sunsetting hazardous chemicals in the Great Lakes basin. See Appendix 3 for these summaries.

Needs and Opportunities

Workshop participants developed an inclusive (but not consensus) summary list of what they viewed as future areas for action on Sunsetting. These included:

- Networking (1200 names)
- Support by grass roots organizations
- Visual effects and presentations
- Coordination of foundation support
- Use of one state as a case study for Sunsetting
- Development of working groups to distribute chemical use profiles
- Revision of existing programs for "Ban"
- Support of the IJC
- Sunsetting of non-union organizations
- Development of an information base and data on safe alternatives
- Definition of the appropriate context for Sunsetting
(i.e. process/products/chemicals)
- Development of a sunrise process
- Determination of whether targets or lists should be established
- Ensuring that plans do not undercut the role of criteria

EVALUATIONS

A total of seventy-one people (63 invited participants and 8 Workshop staff) attended the Sunset Workshop. Nineteen evaluation forms were received from the invited attendees and most of the comments received were positive in nature.

Most evaluators believed that the presentation on Sunsetting concepts and dissemination of information on criteria was useful and informative. The analytical approach taken by the GWU research staff on their proposed chemical screening and scoring system was praised. One participant felt that the GWU system was a concrete proposal for how chemicals could be prioritized for action. A few commentators felt that the workshop goals and progress towards them could have been more clearly delineated. One attendee thought that the "fact" presentations should have been kept to a minimum, and instead have been included in pre-meeting handouts.

Some commentators suggested that the panel discussion was interesting. Another comment stated that the workshop had been a "good opportunity to focus on a particular activity which would not only support the IJC but also had the potential to achieve the goal of zero discharge." One attendee commented that the workshop had presented "substantive results for a new approach." Another liked its "practical policy orientation."

One criticism of the criteria discussion was the lack of presentation on the "broader context" for how the criteria would be used. This context should have addressed the more frequent questions on the relationship of criteria to source reduction, processes v. chemicals, families v. individual chemicals, and the relationship between effluent and inputs.

A common criticism of the workshop format was the lack of small group sessions (with appropriate distribution of representatives), that would have enabled more feedback from the workshop

participants. There was little time to discuss the issues raised or gather ideas about how they should be addressed.

The most common substantive criticism was the lack of resolution, clarity, and time spent on the implementation aspects of Sunsetting and what "next steps" should follow. A few believed that industry should not have been excluded from the second day's proceedings, although a few also suggested that industry should not have participated during the first day. A few attendees also thought that both government and industry were under represented. One participant questioned the participation of "academics" in the second day session since it was characterized as a strategic planning sessions for environmentalists.

It was suggested that there was a noticeable void of what was going on at the federal level: pollution prevention, the 33/50 program, and the MVMA in Michigan and Canada. It was suggested that Ontario government representatives should have presented their program since it was fairly well developed. Some felt that having the second day's session limited to proponents of Sunsetting promoted an open dialogue.

Generally, it was felt that the workshop helped to identify pieces of the Sunset process, although the Sunrise aspect remains unexplored and undeveloped. Most commentators also agreed that the workshop brought together a variety of influential stake holders which resulted in a formative and progressive dialogue on Sunsetting in the Great Lakes basin.

Appendix 1
List of Workshop Participants
(to be included with the final report)

Appendix 2
Presentation Papers
(to be included with the final report)

APPENDIX 3 SUMMARIES OF ONGOING GREAT LAKES BASIN ACTIVITIES

Citizens for a Better Environment were working on a state law to ban chemicals using the Great Lakes list with the AFL-CIO in Wisconsin. The law would ban specific substances, not chemical use profiles, after discussion with labor.

Greenpeace would be conducting a workshop on Sunsetting chlorine as an industrial feedstock.

Community-Right-to-Know was tracking regulations toward use of data and would disseminate its newsletter to all attendees.

National Wildlife Federation was working on development of rules for the EPA's Great Lakes Water Quality Initiative which should be published in draft by late fall or early winter. The early initiatives did not accomplish zero discharge. In Round II, these initiatives needed revisions to establish concrete timelines.

Canadian Auto Workers were working with the U.S. government to implement a pollution prevention strategy at Chrysler, Ford, and GM. The process included educating workers and providing access to information on automotive plant operations. A November 25, 1992 workshop would center on a dialogue to coordinate activities.

National Environmental Law Center had been working in New Jersey to ban incineration and push the state toward recycling, however, the decision may be overturned in 1993.

Lake Michigan Federation was working on programs to prevent dumping of priority toxics into sewage systems.

Toxics Use Reduction Institute was preparing a report on the feasibility of chemical restrictions to be presented as legislation. A five stage Sunset/-Sunrise process would be added to the Massachusetts TUR law. A 1989 trust fund had already been established that required any user of 33/50 chemicals to report and pay fees on the use of any listed chemical.

The Center for Clean Products and Technology, University of Tennessee, was reviewing EPA's risk assessment criteria and developing their own criteria for safe substitutes for priority toxic chemicals. The Center serves as a clearinghouse for how products are used.

The Atlantic State Legal Fund was working on a case where Kodak was targeted as a major discharger of toxic substances into the Great Lakes. Kodak's permit was up for renewal, and this would be an opportunity for Kodak to acknowledge that the GLWQA exists.

WasteWatch engages in educating consumers on consumer products. They were currently focusing on the area of household hazardous waste and revision of RCRA to include the impacts of small quantity generators (0-100 kg generation was not regulated).

Greenpeace, Washington, D.C. was working on chlorine use in the pulp and paper industry. In addition, the organization was working on a bill that would require reporting of uses of the EPA list of Sunsetting candidates. A bill under the RCRA reauthorization included provisions on workers'

compensation (fines would be imposed for workers displaced by any Sunsetting process). The bill also addressed incineration issues, e.g. free analysis of local incinerator materials. Greenpeace was also working to require the GSA to procure chlorine free paper and to look further at the dry cleaning industry. Any Superfund, Safe Drinking Water, or Clean Water Act reauthorizations in the upcoming year, represented omnibus vehicles for Sunsetting amendments.

The World Wildlife Fund was also continuing its work on revising TSCA to employ use analyses, criteria, and timetables.

The National Wildlife Federation, Washington, D.C. was mostly active in clean water issues including amending the CWA to incorporate Sunsetting provisions for eight chemicals that were bioaccumulative. The NWF had adopted a watershed focus.

The Ecology Center, Michigan was working on an automotive agreement between EPA, state and environmental groups, and workers. Michigan was the lead state in eliminating toxics in the Great Lakes ecosystem. The Center was trying to follow up on the IJC recommendations to eliminate persistent, toxic substances in Windsor, Sarnia, and the Lake Huron Area. There were toxics use reduction legislative efforts. A law was passed in Michigan to ban school incineration. Waste incineration should be addressed for the entire Great Lakes region. The Center was working on making breast milk a public health issue under a Health Banner project. This banner of toxic threats to women's and children's health would be targeted toward public health officials.