Introducing

The Sunset Chemicals Project for the Great Lakes

A Project of
Pollution Probe

The objective of the Sunset Chemicals Project is to develop the process to phase-out and ban the most hazardous chemicals from the Great Lakes basin.

"It appears that the only chemicals to have declined significantly in the Great Lakes ecosystem are those whose production and use have been prohibited outright or severely restricted."

— U.S. Council on Environmental Quality, 1990

The Great Lakes are being Poisoned

Over the last two decades, scientists have documented extensive damage to wildlife and human health caused by toxic chemicals and other hazardous substances. And the destruction continues despite the billions of dollars spent by industry and governments on efforts to protect the environment. It is clear that traditional pollution abatement is not the answer.

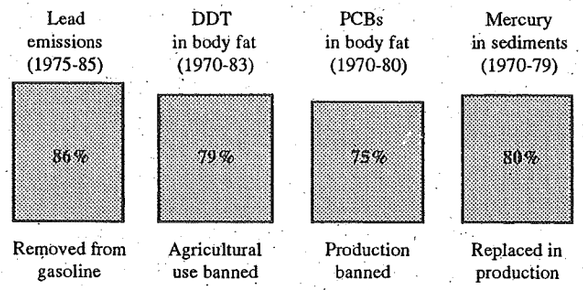
The emphasis must shift to pollution prevention. End-of-the-pipe solutions aren't good enough. The only environmentally sensible option for eliminating the worst toxic chemicals is to phase out and ban their use and release.

"Sunsetting" is 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 address the manufacturing process in which the chemical is used, as well as the chemical itself, and must be implemented according to firm deadlines.

The process of phasing out and banning a chemical is called "sunsetting". There are a number of good reasons for sunsetting the worst toxic substances:

* Sunsetting will protect and improve the quality of the environment (as can be seen in Table 1).
* The damage to wildlife and human health has continued despite efforts to control pollution (see Table 2). A new, more fundamental approach is required. Given the success of previous phase-outs, it seems only logical to expand the sunset idea to additional toxic chemicals.
* Over the last decade, the costs of environmental clean-ups have skyrocketed. Decontaminating the 43 most polluted areas around the Great Lakes will cost tens of billions of dollars, with much of the expense allocated to removing the worst toxic substances from the sediments. Significant future clean-up costs can be saved simply by banning the use of these chemicals.
* The Great Lakes Water Quality Agreement between Canada and United States promised citizens the zero discharge of persistent toxic substances into the Great Lakes basin.
* The deliberate release into the environment of toxic substances, such as pesticides, needs to be addressed.

Table 1
Improvements in U.S. Pollution Levels
Percent Decrease



Ref: Barry Commoner, "Failure of the Environmental Effort," *Environmental Law Reporter*, June 1988, v. 18, pp. 10195-99.

Some governments have already accepted the sunset concept. For example, the Ontario Ministry of the Environment has released a list of substances which the province wants to ban. Similarly, in recently proposed environmental laws, the U.S. Congress has recognized the need for bans. However, no jurisdiction has actually moved to ban, in a comprehensive way, the worst hazardous substances.

"It is not possible to remove a persistent toxic substance from a source completely once that substance has been produced. Nor is it possible to retrieve that substance completely once it has entered the environment. Therefore, the focus must be on preventing the generation of persistent toxic substances in the first place, rather than trying to control their use, release and disposal after they are produced."
International Joint Commission

Primary Elements of a Sunset Chemicals Process for the Great Lakes

The sunset concept is different from previous attempts to regulate persistent toxic chemicals. We no longer ask, "How much is too much?" Instead, this new approach says that for the most hazardous substances, "Any amount is too much!"

There are many ways chemicals can be sunsetted using a mix of financial, voluntary and regulatory incentives and penalties. As part of a three-year project, Pollution Probe is working to develop an effective sunset process for the Great Lakes basin.

STEP 1
Development of a Screening System to Identify Target Chemicals

As a first step, a Sunset Chemicals Process must identify the most hazardous chemicals using a screening system, complete with objective criteria, to judge the candidate chemicals. Pollution Probe teamed up with scientists at the George Washington University who are developing a screening system which includes the following criteria:

* the chemical is a potential human health hazard causing cancer, birth defects or other damage to body organs or systems;
* the chemical poses a threat to non-human life and ecosystems;
* the chemical is persistent and/or found pervasively throughout the environment; and
* deleterious amounts of the chemical are introduced into the environment.

Table 2
Traditional pollution controls have not protected the wildlife of the Great Lakes basin

	Population decline	Reproduction effects	Eggshell thinning	Wasting	Gross defects	Tumors	Target organ	Behavioral changes	Generational effects
Bald eagle	X	X	X	X					X
Beluga whale	X		NA		X	X	X		
Caspian tern	X	X		X	X		X	X	X
Chinook salmon	NA	X	NA			X	X		
Common tern	X			X			X	X	
Cormorant	X	X	X	X	X		X	X	X
Forster's tern	X	X	X	X	X		X	X	X
Heron	X	X		X	X				
Herring gull	X	X	X	X	X		X	X	X
Lake trout	X	X	NA	X				X	X
Mink	X	X	NA	X			X		
Osprey	X	X	X						
Otter	X		NA						
Ring-billed gull	X		X	X			X		
Snapping turtle	X	X		X	X		X		X

X — Observed effects reported in the literature. NA — Not applicable.
Ref: T.E. Colburn et al, *Great Lakes, Great Legacy?*, The Conservation Foundation and The Institute for Research on Public Policy, 1990, pg. 148.

STEP 2

Development of a Sunset List

Based on the screening criteria developed, a list will be prepared that prioritizes the specific chemicals, classes of substances, and industrial processes that will be targeted for phase-out. Classes of substances are included since chemicals of similar molecular structure often exhibit similar toxic effects; banning only the worst members of a particular class will result in little environmental benefit. Industrial processes are included since toxic chemicals may be produced and released into the environment as unintentional wastes or by-products of a particular process. Dioxins are a good example; processes which produce dioxins should be designated for phase-out and replaced with safer alternatives.

STEP 3

Implementation of the Process

Once the sunset list has been generated, various implementation schemes must be examined, including:

* identifying which laws, regulations and agreements can be used or must be developed;
* setting specific timetables for phase-outs and bans (forcing industries to develop low-risk alternatives);
* setting quantifiable interim reduction targets; and
* developing a compliance mechanism for ensuring that the required phase-outs are being implemented.

STEP 4

Development of a "Sunrise" Process

Pollution Probe also plans to develop a "Sunrise" process. This involves applying the screening system to all new commercial chemicals, raw materials, intermediaries and final products. Those parties producing, importing or using a new chemical must demonstrate that the substance does not threaten the health of wildlife or people. The burden of proof for meeting the sunrise criteria should be borne by the manufacturers and importers, not by government agencies or the public-at-large.

Public Outreach and Consultation

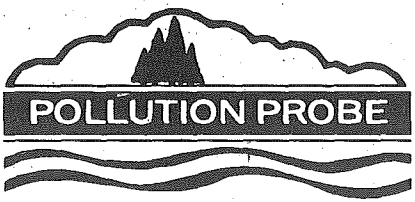
These four research components form the pillars of the Sunset Chemicals Project. A final report will summarize the research findings, and Pollution Probe will then publicize the findings through an outreach campaign.

The success of the Sunset Chemical Process will depend on the

cooperation and support of all the stakeholders in the Great Lakes basin. These include: federal, provincial and state representatives from jurisdictions on both sides of the border, chemical users and producers, academics and scientists, environmental groups, and concerned members of the public. Pollution Probe will hold several workshops and conferences bringing together all interested parties to fine tune and fully implement the sunset process.

About Pollution Probe

In its diligent efforts to ensure the health of Canadians and the protection of the environment, Pollution Probe has become one of Canada's most respected environmental organizations. Since its founding in 1969, this non-profit charitable foundation has worked with the country's leading scientists, government officials and industry experts to devise practical solutions to the pressing environmental issues of the day. Pollution Probe has conducted ground-breaking research, published studies and undertaken major education programs on the subjects of pollution prevention, hazardous waste management, acid rain, water quality, and dozens of other issues.



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