

Draft Options Paper:

Virtual Elimination of PCBs



GREAT LAKES NATIONAL PROGRAM OFFICE
Binational Toxics Strategy

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I. INTRODUCTION

Polychlorinated biphenyls (PCBs) are a class of highly toxic chemical compounds that bioaccumulate in the environment. When PCBs are found at high concentrations (greater than 50 parts-per-million, or ppm) or when there is the potential for their discharge from water outfalls, they are one of the most tightly regulated and controlled group of pollutants in the United States. Yet despite existing controls, sufficient quantities of PCBs have been released into the environment over time to warrant the issuance of fish consumption advisories for all five Great Lakes. As a result of ongoing public health and environmental concerns, various local, state, regional, and national efforts are focusing on reducing PCB contamination in the Great Lakes.

Under the Great Lakes Water Quality Agreement of 1978 (WQA), the United States and Canada pledged to seek the virtual elimination of the discharge of persistent toxic substances to the Great Lakes. In 1993, EPA's Great Lakes National Program Office (GLNPO) launched its "Virtual Elimination Pilot Project" to meet this challenge, focusing its initial efforts on mercury and PCBs. As part of this project, EPA commissioned Ross & Associates Environmental Consulting, Ltd. to produce detailed background papers that describe the sources, uses, and regulations for each of these chemicals.¹ In addition, in 1995 Prime Minister Chrétien of Canada and President Clinton announced that the two countries would work together on a Binational Virtual Elimination Strategy, targeting a common set of toxic substances.² The Virtual Elimination Pilot Project has since been subsumed under the Binational Toxics Strategy project.

In September 1994, as part of the Virtual Elimination Project, EPA hosted a meeting for stakeholders where the Agency shared its initial findings on mercury and PCBs and offered participants an opportunity to make recommendations on ways to reduce the use and release of each chemical.³

An options paper on mercury was drafted first and released for public comment in 1995.⁴ This options paper discusses several reduction opportunities for PCBs, based on the suggestions of meeting participants. Section II reviews the overall approach of

¹ Ross & Associates Environmental Consulting, Ltd., *Polychlorinated Biphenyls Sources and Regulations: Background Information for the Virtual Elimination Pilot Project*. September 12, 1994; and Ross & Associates Environmental Consulting, Ltd., *Mercury Sources and Regulations: Background Information for the Virtual Elimination Pilot Project*. September 12, 1994.

² *Canada - United States Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes*, April 1997

³ See U.S. EPA, *Virtual Elimination Pilot Project: Briefing Packet for Meeting Participants*, September 21-22, 1994

⁴ Mercury reduction opportunities are included in a separate report. See U.S. EPA, *Draft Options Paper: Virtual Elimination of Mercury*, May 1995.

the Virtual Elimination Project, followed by a brief overview of PCB sources and regulations, in order to provide some background for new readers, and a discussion of trends in PCB disposal. Section III discusses specific options to reduce PCB contamination and accelerate disposal. A separate matrix includes a full menu of these recommendations. Section IV identifies a proposed framework to help stimulate additional reductions of PCBs.

As an “options” paper, this document does not recommend a specific path of action for EPA. Rather, it is designed to catalogue different ways to achieve virtual elimination goals, recognizing that EPA will still need to evaluate where its involvement could be most effective, and make strategic investments where appropriate. EPA has recently modified the PCB rules to help increase the pace of PCB disposal in the United States. The modifications, issued June 29, 1998, make major changes to the types of disposal options available and the items that fall under regulatory control.⁵

II. BACKGROUND INFORMATION ON PCBs

PCBs were produced from 1929 to 1977 and used in a wide range of applications (electrical transformers and capacitors, hydraulic systems, heat transfer systems, and carbonless copy paper, among others), owing to a rare combination of properties, including high dielectric constant (good insulator), low flammability, high heat capacity, low chemical reactivity, long-term resistance to degradation, and low acute toxicity. The Monsanto Company, the sole manufacturer of PCBs in the United States, produced 700,000 tons (1.4 billion pounds) of pure PCBs during this period. In the late 1970s, Monsanto voluntarily ceased the production of PCBs and EPA banned their manufacture, import, export, distribution in commerce, and use except under limited circumstances. EPA also restricted disposal options and required the phaseout of certain types of equipment that contain PCBs. The U.S. Department of Transportation also restricted transportation options. Recent estimates suggested that 141,000 tons (282 million pounds) of PCBs were still in service at the end of 1988, the last time a comprehensive inventory was conducted.⁶ Because PCBs have been banned from manufacture (although some authorized uses remain), the remaining pool of PCBs that will in due course require disposal is finite.

A. VIRTUAL ELIMINATION PROJECT APPROACH

The Virtual Elimination Project focused on those ongoing, domestic uses of PCBs in the Great Lakes basin, in keeping with the Project’s overall objective of seeking opportunities to stimulate additional reductions through the management of avoidable costs. EPA divided potential sources of PCBs into three categories to help structure an approach for achieving additional reductions:

⁵ 63 FR 35384-35474, June 29, 1998

⁶ “The PCB Treatment and Disposal Market”, *E.I. Digest*, October 1993, p.27.

1. *Regulated items.* Transformers, capacitors, and other equipment are tightly regulated under the Toxic Substances Control Act (TSCA). However, there are no phaseout deadlines that require removal of these equipment. Therefore, owners of this equipment must be persuaded to voluntarily remove or decommission any equipment that still contains PCBs.

2. *Unrestricted uses.* EPA does not regulate all items that potentially contain PCBs. The most well-known example is fluorescent light ballasts, where the ballasts manufactured prior to 1979 contained small PCB capacitors. EPA does not regulate disposal of these items, although some states regulate disposal of large quantities of fluorescent light ballasts. Instead, EPA encourages proper disposal so that owners avoid potential future CERCLA liability. EPA's proposed rules would bring additional PCB-containing items under regulatory control.

3. *Unknown PCBs.* Matters of concern for unknown PCBs are PCB releases or uses that are unknown, as well as those PCB owners who are not aware of the presence of PCBs or of special management requirements for equipment that contains PCBs. The challenge is to identify these potential unknown items and educate potential owners about proper disposal of equipment containing PCBs.

Each of these categories sets up a different challenge for achieving virtual elimination objectives. Suggested actions to overcome these different challenges are described in Section III.

B. POTENTIAL SOURCES OF PCBs

The majority of PCBs were used in the dielectric fluids for use in transformers, capacitors, and other electrical equipment. However, some of the largest direct releases to the environment have come from the use of PCB hydraulic fluids (e.g., in metal casting machines), since many hydraulic systems were designed to leak slowly to provide lubrication. Although PCBs are no longer produced in the United States, and no longer used deliberately in manufacturing processes or added to equipment, they are still found in older commercial and industrial equipment (transformers, capacitors, older fluorescent lamp ballasts) that was produced before the manufacture of PCBs were banned. PCBs are also produced incidentally from some chemical processes that involve carbon, chlorine, and elevated temperatures.

EPA has estimated that up to 200 chemical processes have the potential to inadvertently generate low concentrations of PCBs. EPA reviewed the potential risks associated with PCB releases from these processes and ranked them as having either a high, medium or low risk potential. Of the 200 chemical processes, 70 were ranked as having high potential risks associated with releases but the Agency concluded that such risks were minimal due to the low quantity of PCBs actually released to the environment, and that the cost of banning those processes far outweighed any potential risks. Instead of banning those processes, EPA added certification, recordkeeping, and reporting requirements to facilities that inadvertently generate and

PCBs and also imposed specified regulatory concentration limits for air and water releases ⁷ and in final products.

C. REGULATORY OVERVIEW

PCBs are regulated primarily by TSCA, which has one section devoted solely to PCBs. TSCA regulations define how PCBs may be used, what disposal options are available, and how PCB owners must keep track of their equipment which contain PCBs. Developing options to enhance PCB disposal requires a basic understanding of the current regulatory structure, including the barriers that might inhibit the virtual elimination of PCBs.

Under TSCA, all uses of PCBs are banned unless they are specifically allowed by EPA in one of three categories:

1. *Totally Enclosed Activities*: Those activities that result in “no exposure to humans or the environment,” such as distribution in commerce of certain intact, non-leaking electrical equipment. No authorization is needed for these activities.

2. *Authorized Uses*: Those uses, including transformers and capacitors, that EPA authorizes specifically by rule, based on a finding that such uses will not pose an unreasonable risk of injury to human health or the environment. These are non-totally enclosed uses.

3. *Exemptions*: May be granted for uses that are not considered totally enclosed activities or are not authorized specifically by EPA (see number 2 above) if the Agency determines that the activity would not result in an unreasonable risk and that the applicant has made good faith efforts to develop a substitute. There are no current exemptions for use in place.

The disposal options, recordkeeping and labeling requirements, and other regulatory requirements for allowed PCB uses are based on the concentration of the PCBs present in a given item. Under TSCA, EPA has developed three categories for PCB electrical equipment based on the concentration of PCBs as expressed in parts-per-million (ppm):

1. *Non-PCB items*: Items where the PCB concentration is less than 50 ppm. Generally, these items are unregulated.

2. *PCB-contaminated electrical equipment*: Contains PCBs in concentrations between 50 - 500 ppm. These items have some recordkeeping and disposal requirements, along with specifications for storage and spill, cleanup, and notification.

3. *PCB-transformers and capacitors*: Contain PCBs in concentrations greater than 500 ppm and both have the most stringent restrictions including requirements for marking,

⁷ 49 FR 28179-28181, July 10, 1984.

recordkeeping, cleanup, notification and location, as well as limited disposal options. PCB transformers have additional requirements for inspection and registration.

In this structure, the regulatory burdens and management requirements are more stringent for items with higher concentrations of PCBs. Regulations define the procedures for reclassifying equipment to a lower PCB concentration. PCB concentrations may not be diluted to meet a lower concentration level to avoid disposal requirements .

EPA has recently finalized a comprehensive modification of the PCB regulations. The final rules -- known as the "Disposal Amendments" -- were issued on June 29, 1998.⁸ Section III of this report includes a discussion of some of these changes that are designed to address many of the current barriers to PCB removal.

In light of the fact that major regulatory revisions have recently been issued, the reduction opportunities included in this paper are designed to encourage behavioral changes that could accelerate the proper disposal of PCBs. Many changes in the new rules are designed to close gaps in existing regulations and offer greater disposal alternatives, both of which would help meet the goals of virtual elimination.

D. TRENDS IN PCB DISPOSAL

PCB disposal has continued at a steady pace since EPA began tracking disposal quantities and volumes in 1990. Through the Annual Reports submitted by commercial storage and disposal companies, EPA is able to calculate the volume of PCB wastes and the quantity of transformers, capacitors, and other PCB items stored and disposed of annually. Information is available on annual disposal between 1990 - 1994.

Volume of PCBs. From 1990 - 1994, 7.5 billion pounds of PCB waste were disposed of at TSCA-permitted facilities. In 1994 alone, a total of 1.85 billion pounds of PCB waste were disposed of in TSCA disposal facilities. This volume represents the greatest annual amount of waste disposed of since EPA began tracking this information. On a total volume basis for the four reporting years, 90% of the PCB waste was bulk waste, most likely from remediation activities. The other 10% of waste came from PCB containers, transformers, capacitors and article containers. Since the disposal estimates are based on the total weight of the PCB-containing items or "bulk" materials, the actual amount of disposed PCBs cannot be accurately determined.

Capacitors. The 1988 inventory found 1.8 million large PCB capacitors with PCB concentrations greater than 500 ppm remaining in service. Between 1990 - 1994, the U.S. disposed of a total of 320,000 capacitors, with over 100,000 capacitors being disposed in 1993. Based on the 1988 inventory and the average disposal rates of PCB capacitors as reported in the annual reports, an estimated 1,473,000 PCB capacitors remained in service in 1994.

⁸ 63 FR 35384-35474

Transformers. Over 125,000 transformers have been disposed of since 1990, although annual disposal quantities have decreased from the 30,000 disposed of in 1990. According to a 1988 inventory, 20,842,000 askarel and mineral oil transformers were in service. Of this total, 108,000 askarel transformers contained PCBs well over 500 ppm. Of the 20,734,000 mineral oil transformers remaining in service, approximately 1,825,000 contained PCBs with concentrations between 50 ppm and 500 ppm, and 250,000 contained PCBs in concentrations greater than 500 ppm. Based on the 1988 inventory and the average disposal rates of PCB transformers (askarel transformers and mineral oil transformers containing greater than 500 ppm), as reported in the annual reports, an estimated 200,000 PCB transformers remained in service in 1994.

Containers. EPA also tracks “article containers” (containers that hold PCB-containing items) and “PCB containers” (containers that hold oils or other PCB-contaminated material). While it is not possible to determine what is in these containers, some variability in the rate of disposal can be attributed to regulatory provisions that required phaseout of certain PCB equipment, which would have resulted in increased disposal of drained PCB oils. For example, the 4.8 million PCB containers disposed of in 1991 was 30 times the total quantity disposed of in any other reporting year. This may be attributable to transformer owners opting to reclassify or remove their units from service rather than install the enhanced electrical protection required on certain types of PCB transformers in 1990 and 1991. Such actions would have generated a large volume of oil, most of which would have been containerized.

The disposal data indicate that owners are continuing to remove PCBs from service, and that PCB disposal increases when regulatory incentives or disincentives make disposal more attractive than ongoing use. EPA’s challenge in the Virtual Elimination Project is to address the pace at which this disposal is occurring, and to identify creative ways to increase that pace absent mandatory phaseout deadlines.

III. OPTIONS TO ACCELERATE REDUCTIONS OF PCBs

Regulations alone will not bring about the virtual elimination of PCBs. All existing regulatory phaseout deadlines have expired for mandating the removal of PCBs from service. Therefore, the PCB regulatory framework must be augmented by discretionary actions such as targeted compliance monitoring, and enhanced by voluntary actions to increase the pace of PCB removal. EPA will need to create opportunities that encourage owners of PCB-containing equipment to remove PCBs from service, even though such actions may not be required by regulation. This section identifies a framework for developing such reduction opportunities.

A. CREATING AVOIDABLE COSTS

The Virtual Elimination Project was built around the “pollution prevention equation” which describes how opportunities to achieve additional reductions of any substance occur when avoidable costs are created in one or more of the following situations:

- ◆ Increased **input costs** which could be avoided by changing feedstocks;
- ◆ Increased **regulatory costs** which could be avoided by generating less waste;
- ◆ Increased **public concern/public pressure** as compared to increased public support from polluting less;
- ◆ **Alternatives** that make pollution prevention (or appropriate waste management) less expensive.

This general model is easily modified to accommodate a virtual elimination strategy for PCBs (see **Table 1**). Because there are no current exemptions in place for new uses of PCBs, the cost of new inputs does not factor into the equation. However, by concentrating on regulatory costs, public concern, and alternatives, EPA has several opportunities to create avoidable costs and shift burdens to encourage faster phaseout of PCBs. EPA can help create avoidable costs within the current regulatory structure in the following ways:

1. **Regulatory Costs:** Increase the costs associated with keeping PCBs in use by (1) focusing compliance monitoring activities and subsequent enforcement actions (if warranted) on companies that have not phased out PCBs; and/or (2) reducing regulatory costs for those companies that take extra steps to reduce PCBs.

2. **Public Concern:** (1) Increase public awareness of facilities that have PCBs remaining in use; and/or (2) support and recognize companies that voluntarily reduce PCBs.

3. **Lower Cost of Disposal Alternatives:** Help make requirements for disposal alternatives less expensive so that the cost of PCB removal and disposal is lowered.

B. OVERCOMING BARRIERS TO VIRTUAL ELIMINATION OF PCBs

Under the current regulatory structure, certain barriers limit EPA's ability to achieve virtual elimination goals. At the September 1994 stakeholder meeting, participants identified several of these barriers. One is the lack of deadlines to phase out remaining uses. In other cases, EPA may not be aware of the full range of potential PCB uses or sources, due to the varied ways in which PCBs were used in the past. Finally, high disposal costs do not encourage timely storage and disposal. **Table 2** highlights the major barriers to achieving virtual elimination of PCBs.

Meeting participants suggested several ideas that could help overcome some of the identified barriers. **Appendix A** lists these ideas in a table that links reduction ideas to the barriers they would potentially help surmount. Where the recommendations address more than one barrier, they are listed more than once. Some of these reduction ideas have also been suggested in other forums, such as the *Lake Superior Pollution Prevention Strategy*.

Reduction ideas fall into two general categories:

1. *Education-related activities* that focus on using public education to encourage proper disposal of PCBs and to obtain a more complete inventory of remaining PCB sources and uses; and

2. *Incentives* that would help encourage PCB owners to increase the pace of PCB disposal by increasing the cost of keeping PCBs in service, or by allowing companies to avoid certain costs by removing PCBs from service.

For the most part, the options recommended by meeting participants emphasize additional activities that would complement existing and potential regulatory programs. In addition to these reduction ideas, the table lists the general regulatory changes that could potentially stimulate additional PCB reductions. These changes are discussed further in Section C below.

To implement many of these ideas, EPA will need to use discretion to help encourage additional PCB reductions. The overarching goal is to help PCB owners recognize why it is in their best interests (and that of the general public) to dispose of PCBs more rapidly than required by regulations alone.

C. NEW PCB RULES

EPA's TSCA revisions will hopefully change the underlying incentives for companies to accelerate PCB reductions. The goal of these revisions is to "provide flexibility in addressing the disposal of PCBs...while still providing protection from unreasonable risk of injury."⁹ Although these rules do not impose mandatory phaseout deadlines, they alter the allowable disposal options, the types of items that fall under regulation, and the allowable time limits for disposal, among other changes. For example, EPA provides for additional flexibility in disposal options for remediation and other bulk wastes, which comprise the largest portion of PCB wastes disposed of annually. These changes could substantially increase the volumes - and lower the per unit cost - of PCB waste disposal through economies of scale.

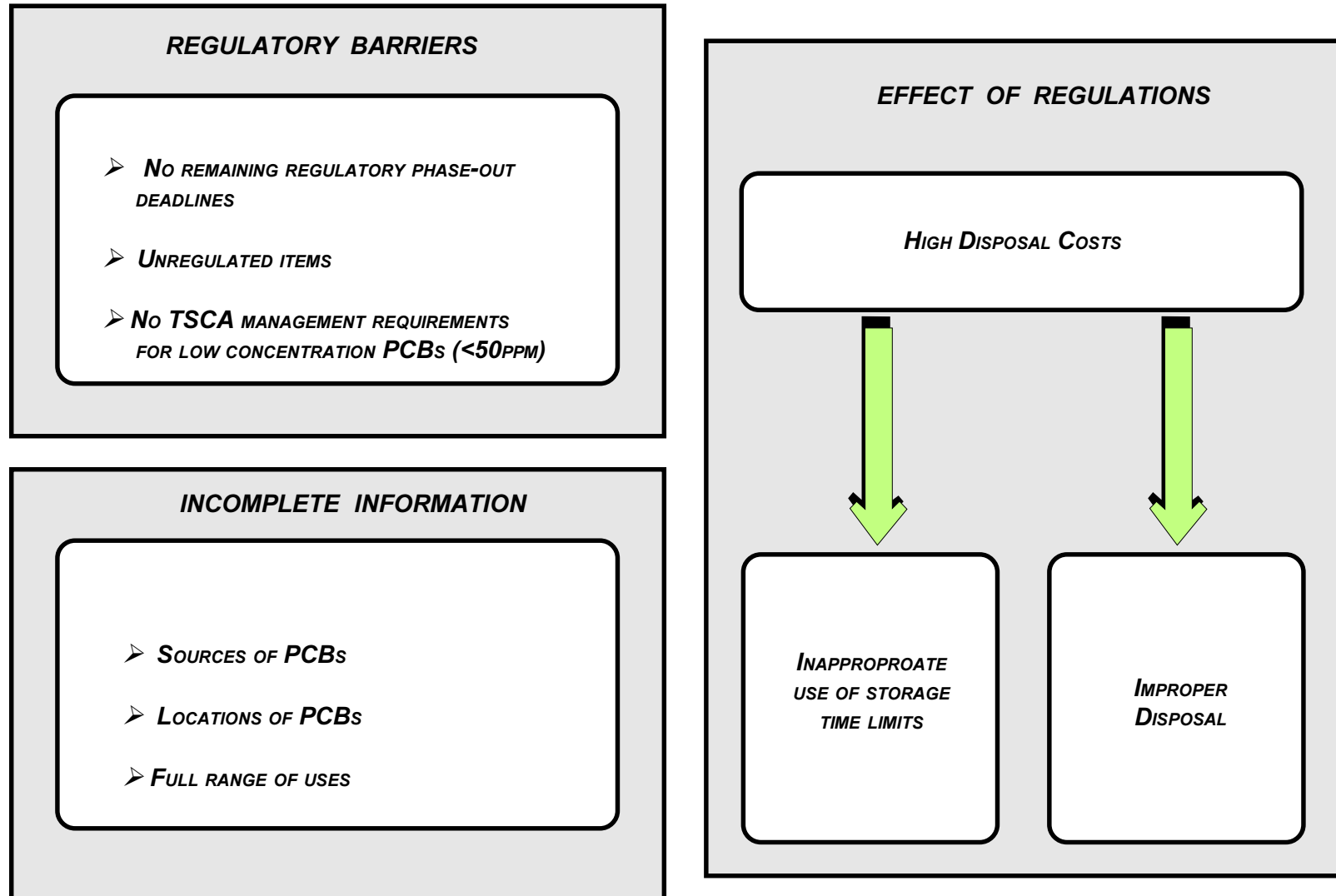
EPA has also clarified the intent of its storage rules to help close the loophole that results in indefinite "storage for reuse" instead of the one-year limit on storage for disposal. EPA has also required all owners of PCB-transformers (those with dielectric fluid \geq 500 ppm) to register their transformers with EPA.

⁹ 59 FR 62790, December 6, 1994.

TABLE 1: USING THE POLLUTION PREVENTION EQUATION TO OBTAIN PCB REDUCTIONS

<p>INCREASE COST OF INPUTS</p>	<p>INCREASE REGULATORY COST</p>	<p>INCREASE PUBLIC CONCERN</p>	<p>DECREASE COST OF ALTERNATIVES</p>
<p>(NOT APPLICABLE)</p>	<ul style="list-style-type: none"> ➤ FOCUS COMPLIANCE MONITORING ON FACILITIES THAT HAVE PCBs ➤ PROVIDE BENEFITS WHEN PCB REDUCTIONS OCCUR 	<ul style="list-style-type: none"> ➤ INCREASE PUBLIC PRESSURE TO ENCOURAGE COMPLIANCE TO REDUCE PCBs ➤ REWARD OR PROVIDE POSITIVE PUBLICITY FOR PCB REMOVAL 	<ul style="list-style-type: none"> ➤ SUPPORT INNOVATIVE TECHNOLOGY ➤ DEVELOP "CLEAN SWEEPS" AMNESTY PROGRAMS ➤ ESTABLISH LESS COSTLY DISPOSAL REQUIREMENTS

TABLE 2: BARRIERS TO VIRTUAL ELIMINATION



IV. A PROPOSED FRAMEWORK FOR PCB REDUCTIONS

EPA's ability to incorporate avoidable costs into its discretionary actions will enable companies that reduce their PCBs beyond what is specifically required by regulation to be rewarded for doing so. PCB reduction opportunities cover four areas:

1. Supporting regulatory changes;
2. Supporting existing PCB reduction efforts;
3. Targeting grant funds for PCB reduction efforts; and
4. Expanding the scope of the Virtual Elimination Project.

1) Supporting proposed regulatory changes: EPA's modifications to the PCB rules are designed to provide substantial cost-savings for PCB disposal, offer flexibility in disposal options, and close some of the gaps in existing regulations. EPA anticipates that the revisions will potentially save industry between \$4B - \$5B annually.¹⁰ For example, the rules will provide self-implementing disposal options for large volume PCB wastes, and clarify the one-year storage limit to restrict the "storage for reuse" activity. Many of these changes will help advance virtual elimination objectives.

2) Supporting existing PCB reduction efforts: Great Lakes stakeholders can support the existing PCB reduction efforts that have been established at several levels to encourage PCB reductions. These efforts take many forms and range from regional efforts such as the Lake Superior Pollution Prevention Strategy and the Lakewide Management Plans (LaMPs) to national efforts like the proposed disposal amendments. EPA Region 5 also has a PCB Phasedown Program which is designed to encourage more rapid removal of PCBs from utilities. This program may be expanded to cover additional industrial sectors.

In addition to these ongoing efforts, and independent of the Virtual Elimination project, EPA has recognized the need to create incentives for accelerated PCB removal. EPA developed a draft strategy (PCB 2000) in 1993 which provided a framework for phasing out PCBs, largely through voluntary initiatives and targeted enforcement actions. Though not formally adopted by EPA, the EPA Regional offices around the nation are free to implement portions of this strategy, as resources allow.

3) Targeting grant funds for PCB reduction efforts: Funding could be provided for additional research and data collection efforts to identify ongoing sources of PCB contamination in the Great Lakes. Funding may also be made available to wastewater treatment plants that have PCBs appearing in their discharges. In addition, education and outreach programs could be supported to help encourage proper PCB disposal.

¹⁰ See letter from Lynn Goldman, March 10, 1995.

4) Expanding the scope of the Virtual Elimination Project: In addition to encouraging accelerated disposal from ongoing uses of PCBs, EPA recognizes that a comprehensive virtual elimination strategy should also embrace potential PCB contamination in the Canadian portion of the Great Lakes watershed as well as the identification and potential remediation of contaminated sediments and other sites where past PCB uses or activities may contaminate the Great Lakes watershed. To that end, the Binational Toxics Strategy between the U.S. and Canada targets PCBs, among other toxic substances, for reductions. The Virtual Elimination Pilot Project has since been subsumed under the Binational Toxics Strategy project. Given that the United States shares the Great Lakes watershed with Canada, it is important for the two countries to coordinate efforts to protect this shared resource. By linking the Virtual Elimination Project to national and binational efforts, EPA is incorporating a binational watershed approach into its virtual elimination strategy.

In a related binational issue, the Commission for Environmental Cooperation, established under the North American Agreement on Environmental Cooperation (the NAFTA environmental “side-agreement”), has produced a report on a North American strategy for PCB management.

While incorporating remediation efforts departs from the Virtual Elimination Project’s focus on ongoing uses, it is an important departure in the case of PCBs. One of the primary concerns is the large volume of these substances that entered the environment prior to the TSCA ban in 1979 and which may have become bound to bottom sediments and/or surface soils in the Great Lakes region. Sediment assessment and remediation programs can play an important role in protecting the Great Lakes watershed from PCB contamination from these contaminated sediment sites. RCRA and Superfund authorities may be required to remediate land-based contamination.

Although these two issues, contaminated sites and binational cooperation, were not discussed specifically at the September stakeholder meeting, they fit into EPA’s overall Virtual Elimination Project objectives and have been incorporated into the Binational Toxics Strategy. Adding these areas would lead to a Virtual Elimination Project with two primary goals:

1. The **management** of PCBs remaining in use, domestically and in Canada; and
2. The **remediation** of contaminated areas, including contaminated sediments.

Incorporating international cleanup and disposal issues will give the Virtual Elimination Project a comprehensive approach for eliminating PCBs from the Great Lakes Basin.

APPENDIX A: Options for PCB Reductions

Identified Problems/ Concerns/Barriers	Suggestions for Accelerated Reductions		Regulatory Changes
	Education	Incentives	
High Cost of Disposal	Public education on benefits to removal	Targeted enforcement to encourage disposal	Additional disposal options, e.g. self-implementing and risk based disposal options for large volume PCB wastes
	Educate PCB equipment owners of potential liability risks	Reward facilities that conduct audits and inventories and accelerate disposal	
	Educate PCB equipment owners of potential liability risks	Reward facilities that conduct audits and inventories and accelerate disposal	
	Educate investment firms about lower liability from pollution prevention improvements	Good public relations for companies that remove PCBs	
	Educate PCB equipment owners on decommissioning transformers	Support innovative PCB destruction technology	Simplified permitting process
	Educate PCB equipment owners on spill prevention and proper management techniques	Provide tax credits or other financial benefits for PCB removal	
		Use supplemental environmental projects (SEPs) to obtain increased PCB removal	
		Use economies of scale, e.g., larger utilities share expertise with/smaller companies (mentoring programs); smaller coops join together to reduce PCBs	
	Companies with PCB pollution prevention programs move to top of permit / licensing list		
	Reduce licensing / permitting fees for voluntary PCB reduction programs		

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Identified Problems/ Concerns/Barriers	Suggestions for Accelerated Reductions		Regulatory Changes
	Education	Incentives	
No Limit on Storage for Reuse	<p>Establish mentoring programs</p> <p>Publicize one-year limit on storage for disposal</p>	<p>Tax credits for PCB removal and destruction financial awards or public recognition</p> <p>Increased inspections</p> <p>Fees structured to encourage accelerated reductions and pollution prevention</p>	Strengthens storage rules to regulate "storage for reuse"
Incomplete Information Such as Sources of PCBs, Location of Remaining PCBs	<p>Outreach to municipalities, cooperatives, small utilities</p> <p>Pilot Inventory of PCBs in use</p> <p>Work with trade organizations to identify potential PCB owners</p> <p>Building inspections to identify potential PCB sources</p> <p>Develop list of abandoned locations where PCB activity has occurred</p> <p>Educate potential PCB owners about PCB items' proper disposal</p>	<p>Amnesty programs similar to pesticide "clean sweeps"</p> <p>Provide tax credits for PCB removal</p> <p>Conduct on-site inspections</p>	Requires transformer registration
Regulatory Barriers: No Phaseouts, Unrestricted Uses, No Management Requirements <50 Items	<p>Education about proper management of fluorescent lamps, including potential future liability</p> <p>Work with trade organizations to identify potential PCB owners</p> <p>Building inspections</p> <p>Mentoring programs</p> <p>Pilot inventory of PCBs in use</p>	<p>Ballast rebate program</p> <p>Offer incentives to federal facilities</p>	<p>Clarifies disposal requirements.</p> <p>Proposed clarification of management requirements.</p>