



<http://www.epa.gov/pbt/pubs/accomp99.htm>

Last updated on Tuesday, January 15th, 2008.

## Persistent Bioaccumulative and Toxic (PBT) Chemical Program

You are here: [EPA Home](#) [Prevention, Pesticides & Toxic Substances](#) [Pollution Prevention](#)

[and Toxics](#) [Persistent Bioaccumulative and Toxic \(PBT\) Chemical Program](#) [About PBTs](#)

First Annual 1999 Accomplishments Report

# First Annual 1999 Accomplishments Report

## EPA's Agency-wide Multimedia Persistent, Bioaccumulative, and Toxic Pollutants Initiative

### **1999 Accomplishments Report**

**First Annual Edition  
EPA 742-R-00-003  
July 2000**



### **Introduction**

In continuing its mission of protecting human health and the environment, the U.S. Environmental Protection Agency (EPA) launched the Persistent, Bioaccumulative, and Toxic (PBT) Pollutants Initiative in November 1998. The PBT Initiative is an integrated approach for addressing widespread problems associated with toxic chemicals that persist and bioaccumulate in the environment. This Report will demonstrate the Agency's PBT commitment by summarizing accomplishments made in the areas of "Actions," "Policy," and "Science" in 1999. The report strives for a balance between accounting for progress on integrating the Agency's various PBT activities and illustrating how this process of increasing integration produces better results.

Pollutants such as mercury, polychlorinated biphenyls (PCBs), and some pesticides have persistent, bioaccumulative, and toxic characteristics and pose significant health and environmental concerns. Challenges in controlling pollutants with these characteristics result from their ability to transfer rather easily among air, water, and land, and to travel long distances. Once ingested by fish, birds, or mammals, many of these substances bioaccumulate, leading to body burdens far in excess of levels found in the environment.

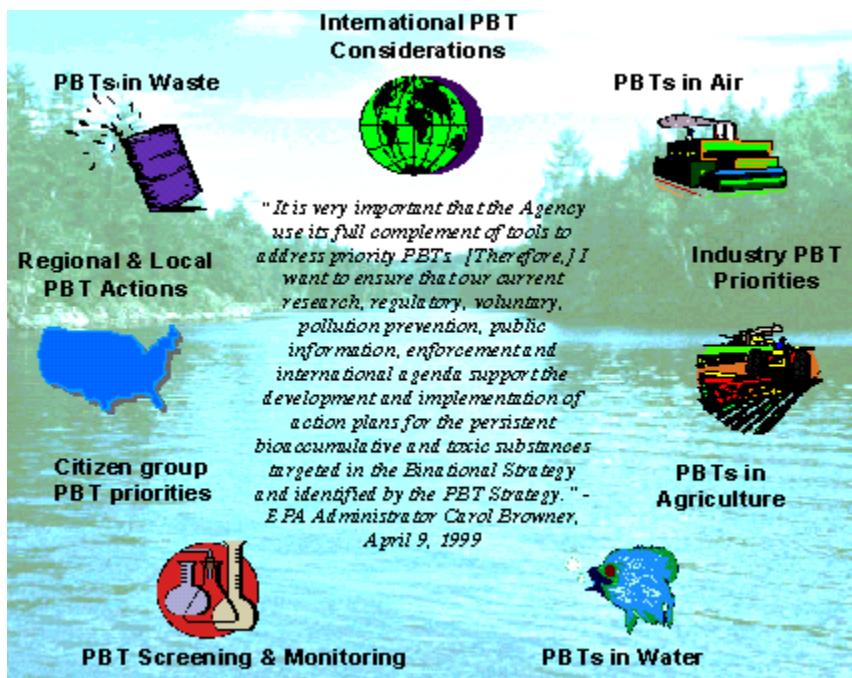
With frequent exposure over time, the amount present in organisms' tissues can build up and cause toxic effects. In humans, effects include nervous system abnormalities, reproductive and developmental problems, cancer, and genetic impacts. Young children and developing fetuses are especially at high risk.



Over the years, a substantial amount of work has been done by federal and state regulatory agencies, industry, environmental and public health groups, and the scientific community to reduce the risk associated with these pollutants. However, the following examples illustrate the current imperative to continue to take action. Studies have been conducted worldwide to understand more fully the impacts of PBTs on human health and the environment. We have chosen to summarize some of these major findings in two large geographic areas.

Most PBT pollutant releases occur between the Arctic Circle and the Tropic of Cancer where the majority of industrialized nations are located. In this area, known as the **North Temperate Zone**, the general population has detectable levels of dioxin in their bodies as a result of eating contaminated meat, fish, eggs, and dairy products. EPA's draft dioxin reassessment (1994) estimated cancer risk to the U.S. population from this background exposure to be in the 1:10,000 to 1:1,000 range. Dioxin exposure is approaching levels associated with adverse non-cancer effects (NHANES). Also, about 25 percent of children and nine percent of the general U.S. population are exposed to a level of methylmercury that exceeds the current EPA Reference Dose. Those who rely on fish as a main source of food have even higher PBT body burden levels. U.S. tribes tell the EPA that contamination of subsistence foods is their main concern.

In the **Arctic Zone**, located north of the Arctic Circle and centered on the North Pole, PBTs are present due to long-range transport from industrialized nations and exposure of migrating species. PBT levels are substantial in the Arctic Zone and PBTs persist longer there because of the low temperatures. Levels of PBTs are expected to rise in the Arctic due to increased local and southeast Asian industrialization. Global distillation alone means decades more of PBT pollutants entering this area (Bard 1999).



For many **Arctic tribes**, PBT contamination of subsistence foods is linked to their long term survival. PBT exposures are aggravated by the fact that high-food-chain meats are their major source of protein. Extensive recent Canadian research suggests Alaskan wildlife has high PBT levels. If confirmed, most animal protein sources are in question. Often, for many of these populations there is no alternative but to eat contaminated food. (Alaskan and Arctic Fish and Wildlife database, 1998 AMAP)

Some **marine mammal and bird populations** are experiencing disease, reproductive problems, and population declines, probably in whole or in part due to contamination from PBT pollutants. A review on harbour porpoises indicates that levels of organochlorines, especially PCBs, are high enough to cause concern about maintaining the population (Aguilar

and Bornell 1995). Free-ranging orca whales along the Pacific Northwest coast have PCB levels four to five times higher than highly-PCB-polluted St. Lawrence beluga whales, who themselves have serious health problems. Canadian Arctic whales are providing the first statistical inference that PBT (specifically, PCB) levels in Arctic species relate to subtle health effects. (Lockhart 1995, AMAP 1998). A 1998 study by the International Whaling Commission determined levels of contamination among some marine mammals are so high that the animals would be classified as hazardous waste sites if they were on land.

## **Integrating PBT Efforts at EPA: Action, Policy and Science**

Like other environmental departments around the world, the U.S. Environmental Protection Agency (EPA) has learned, little by little over time, that the impacts of PBT contamination have not been, and could not have been, entirely addressed by single-medium approaches or by a singularly domestic approach. Addressing PBT contamination requires a perspective that cuts across environmental media and geographic boundaries. Therefore, EPA continues to stay the course announced in its November 1998 draft PBT Strategy: that of taking an increasingly holistic and integrated approach to addressing PBT contamination.

EPA's PBT effort will be accomplished by using all of the tools available to the Agency -- regulatory, compliance, enforcement, research, voluntary actions, and international negotiations. The effort also stresses a preventive approach, but recognizes that in some situations, treatment and remediation will also be required.

EPA's commitment to addressing PBT contamination implies a dual obligation: (1) to account for the many significant areas of Agency activity that are being integrated or need to be integrated, and (2) to clarify how this process of increasing integration produces better results. In numerous instances, EPA began integrating certain PBT activities several years ago. The increasingly larger scale on which this is being attempted presents a constant challenge to the Agency.

Being the first year of the Initiative, many of the activities in this Report are new and/or ongoing and so have not yet produced formal, quantifiable results. However, these planning, integration, and development efforts have been included in order to recognize their value to the Initiative in 1999 and beyond. Future editions of the Report will undoubtedly have a greater emphasis on outcomes. It is also important to note, that this Report does not attempt to capture each and every accomplishment made by the Agency and its Regions with regard to PBT pollutants. Rather, it is our hope that the following accomplishments demonstrate that the PBT Initiative is making great strides in further integrating the Agency's efforts -- a new way of doing business.

The draft Multimedia Strategy for Priority PBT Pollutants, published by EPA in November 1998 (abbreviated as "the PBT Strategy"), describes how the Agency plans to reduce PBTs in the nation by integrating and coordinating its PBT activities. In functional terms, "PBT Strategy" can be used interchangeably with "PBT Initiative."

## **Building on a Strong Foundation of Existing Agency Programs and Activities**

The PBT Initiative reinforces and builds on a long-standing EPA commitment over a 25 year period to control, remediate and prevent releases of PBTs. Many of these activities stem from the Agency's major media-specific authorities. Others stem from recognition that media-specific activities alone cannot fully address this critical problem. Current programs and activities include, but are not limited to, the following:

- The Office of Solid Waste's Waste Minimization Program, focused on PBTs in hazardous waste  
[<http://www.epa.gov/epaoswer/hazwaste/minimize/index.htm>]
  - The Office of Air and Radiation's (OAR) Urban Air Toxics Program  
[<http://www.epa.gov/ttn/uatw/>]
  - The Office of Water's (OW) Clean Water Action Plan  
[<http://www.cleanwater.gov/>]
  - The Great Waters Program, involving both OAR and OW  
[<http://www.epa.gov/airprogm/oar/oaqps/gr8water/>]
  - The Office of Prevention, Pesticides, and Toxic Substances' (OPPTS) PCB Program  
[<http://www.epa.gov/oppt pcb/>]
  - Cross-Agency task forces on lead, mercury, and dioxin
  - Canada-U.S. Binational Toxics Strategy, managed by EPA Region V's Great Lakes National Program Office (GLNPO) [<http://www.epa.gov/glnpo/bns/>]
  - Other International agreements, involving both the Office of International Activities (OIA) and OPPTS, such as the Northern American Agreement on Environmental Cooperation and continuing negotiations on Persistent Organic Pollutants (POPs)  
[<http://www.epa.gov/international/index.html>]
- 

## **Actions**

This section highlights the major activities the Agency implemented in 1999 to address PBTs and to reduce their production, use, and releases nationwide. Given EPA's mission, the Agency's work tends to fall into certain categories -- activities focused on a single chemical or cluster of chemicals (chemical-based), those focused on a geographic area (place-based), and activities focused on an industrial or commercial sector (sector-based) -- reflecting the Agency's interest in contaminants or other environmental stressors and its relationship with the public. Accordingly, this Report discusses actions in all three categories. Monitoring of PBTs is addressed in a separate category, since it affects and supports the other three.

### **Chemical-Based Actions**

Lower PBT Reporting Thresholds Finalized under the Toxics Release Inventory (TRI). On October 29, 1999 EPA published a final rule that added seven chemicals and two chemical compound categories to the list of chemicals subject to reporting under section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and section 6607 of the Pollution Prevention Act of 1990 (PPA).

Additionally, TRI reporting thresholds were lowered for 18 PBT chemicals and

chemical categories. The rule also included a special, lower, reporting threshold of 0.1 grams for dioxin and dioxin-like compounds, and modified certain reporting exemptions and requirements for chemicals newly subject to lower reporting thresholds. This rule will give people more information about PBT releases in their communities.



**Reviewing Chemical Pre-manufacturing Notices under the new TSCA PBT Policy.** As of November 1999, the Agency began screening the pre-manufacturing data on new chemicals that industry submits to EPA for evidence of PBT chemical characteristics. This additional level of screening -- conducted pursuant to EPA's new Toxic Substances Control Act (TSCA) Policy Statement described on page nine of this Report-- resulted in EPA identifying 36 new chemicals as potential PBTs and issuing consent orders on 13 of these substances. Permissible control actions range from banning production to prohibiting certain uses and releases, pending development of further data.

**Developing a Publicly-Available PBT Screening Tool.** Since 1997, EPA has been working on a screening tool that companies could use to evaluate the PBT characteristics of chemicals they may make or use for one purpose or another. This amounts to EPA publicly sharing its tools for analyzing chemical properties based on chemical structure, so industry can choose chemicals at the process design stage that are more benign. During 1999, EPA beta-tested this "PBT Profiler" tool with several corporations and received very positive feedback.

**Collecting, Labeling, and Legislating on Mercury-in-Products.** Under the PBTI, EPA awarded a 1999 grant to the Northeast Waste Management Officials' Association (NEWMOA) to report on state efforts to collect mercury-containing products for disposal (to prevent unintentional releases), to launch or implement mercury-labeling programs, and to draft mercury-in-products legislation. EPA Region I also worked on developing case studies at federal facilities for identifying mercury containing-products.



Rewarding Lower-Risk Chemical Alternatives to PBTs. In 1999, EPA presented a Presidential Green Chemistry Challenge Award to Dow AgroSciences LLC for a new natural insect control product. This award recognizes outstanding chemical technologies that incorporate more environmentally-friendly principles into chemical design, manufacture, and use. Called Spinosad, Dow's product does not leach, volatilize, bioaccumulate, or persist in the environment.

**Rewarding PBT Emissions Reductions.** EPA's Office of Solid Waste (OSW) and the National Pollution Prevention Roundtable (NPPR) entered into a partnership to distribute the MVP2 /PBT Cup Awards. The MVP2/PBT Cup Awards go to companies that reduce PBT releases through innovative means. Awards are judged on five broad criteria, including: innovation, measurable results, transferability, commitment, and optimization of available project resources.

**Reducing Mercury Emissions from Municipal and Medical Waste.** Municipal Waste Combustors (MWC) and Medical Waste Incinerators (MWI) accounted for approximately 30 percent of the nation's mercury emissions into the air in 1994. The EPA established Maximum Achievable Control Technology (MACT) rules for large MWCs in 1995 and for MWIs in 1997. These rules, when fully implemented, should reduce mercury emissions from these sources by at least 90 percent and will result in more than a 95-percent reduction in dioxin/furan emissions. Facilities must be in compliance with the rules for large MWCs by December 2000 and for MWIs by September 2002. By the end of 1999, control retrofits were either completed or underway at all large MWCs. On August 30, 1999, EPA proposed rules to control small MWCs, and expects to finalize them in 2000.

### **Re-evaluating RCRA Land Disposal Restrictions (LDR) for Mercury-Bearing Hazardous Wastes.**

Existing LDR treatment standards applicable to mercury-bearing wastes require recovery and recycling of mercury or incineration, depending on the waste stream. On May 28, 1999, EPA published an Advance Notice of Proposed Rulemaking (ANPRM) to mark the beginning of its comprehensive reevaluation of these treatment standards, and to note associated issues, options, and data needs. EPA is evaluating: (1) the effect of reducing the number of waste types to be incinerated; (2) the environmental advantages of allowing direct treatment for disposal where secondary production exceeds demand; (3) whether thermal recovery is being required for wastes where this treatment is inappropriate; (4) mercury retorting emissions; and, (5) incentives for reducing mercury in hazardous waste. The ANPRM comment period ended in August 1999. In 2000, EPA anticipates reviewing public comment and examining treatability studies conducted by EPA and the U.S. Department of Energy.

**Minimizing Open Barrel Burning to Reduce Dioxin Emissions.** According to recent EPA studies, burning household trash in backyard barrels is a significant source of dioxin/furan emissions. Through the PBTI, EPA awarded a 1999 grant to the Western Lake Superior Sanitary District to work collaboratively on a regional basis to help communities reduce garbage burning. Upon completion, the information can be shared nationwide. Under another EPA grant, the Oregon Department of Environmental Quality is developing and delivering to schools a curriculum on alternatives to open burning. Agency surveys indicate an estimated 20 million people in rural areas burn trash in their backyards.

**Collecting Pesticides through State Clean Sweep Programs.** Nearly half of the states operate "Clean Sweep" programs to help farmers and, in some cases, citizens and businesses, dispose of waste pesticides. In addition, many local governments conduct household hazardous waste collection programs to facilitate the disposal of unwanted chemicals, including pesticides. Some of the PBT chemicals removed through Clean Sweep programs include pesticides like aldrin, dieldrin, DDT, chlordane, and products containing mercury.

In 1999, EPA provided incremental funding to four existing Clean Sweep programs for pilot projects to facilitate the collection of data on the quantities of specific pesticides collected. Using this information, EPA is currently preparing a report on the status and success of Clean Sweep programs nationwide and will promote these programs by publicizing their success and providing information on the many different ways to start, operate, and fund them.



Reducing PBT Waste Generation. EPA awarded several 1999 grants to research and promote PBT waste generation reductions. North Carolina, for example, is focusing on the identification of PBT generators and training state hazardous waste program staff on PBT reduction techniques and OSW's Waste Minimization Prioritization Tool (WMPT).

---

## **Sector Based Actions**

**Partnering with Industrial Boilers.** EPA issued a grant under the PBTI to the Delta Institute to develop a partnership with the Council of Industrial Boiler Owners. The Institute will then work with one or several of the industries to develop ways to boost energy efficiency and cut toxic chemical use and discharge. This effort is a collaboration with the Department of Energy. The critical substances targeted include mercury, cadmium, PCBs, dioxins/furans and hexachlorobenzene.

**Air Data Collection/Analysis at Electric Utilities.** In 1999, EPA began collecting information to better understand mercury emissions from coal-fired, electric power plants. This collection effort includes data from coal sampling as well as stack tests. EPA intends to complete the information collection by Summer 2000, and will then begin analysis to determine the amount and species of mercury emissions from these plants.

**Phasing Down PCBs in Great Lakes Utilities.** In 1999, 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, currently a pilot project with utilities in Region 5. It provides an incentive for facilities to commit to removing their remaining PCB equipment, including public recognition and consideration of PCB removal efforts during settlement of enforcement actions. Utilities in the region are making efforts to phasedown PCB transformers and capacitors.

**Partnering with Steel Facilities.** In 1998, under the Binational Toxics Strategy, three Indiana steel facilities -- Bethlehem Steel Burns Harbor, Ispat Inland Inc. Indiana Harbor Works, and U.S. Steel Gary Works -- signed a Memorandum of Understanding (MOU) with EPA to reduce the use of mercury at their facilities through pollution prevention. The PBTI was instrumental in implementing this MOU. In 1999, as a part of this agreement, the companies developed an inventory of mercury sources and are now working on a reduction strategy. The expectation is that lessons learned there can be shared with others in the industry.

**Working with the Chlor-alkali Sector.** In 1998, the Agency received a commitment from the Chlor-alkali sector of the chemical industry to cut mercury use 50 percent by 2005. On August 31, 1999, EPA's Region 5 met with representatives of industry, government, and academia to plan a Mercury Emissions Study at an Olin Chlor-alkali Facility in Georgia. The Region 5 study will also identify methods for reducing mercury emissions at other chlor-alkali facilities.

**Partnering with Hospitals.** On June 24, 1998, the American Hospital Association (AHA) and the EPA, in consultation with Healthcare Without Harm, a group representing 80 non-governmental organizations, reached a landmark agreement with the goal of virtually

eliminating mercury-containing waste from hospital waste streams by the year 2005. In 1999, EPA launched a formal program, founded on this agreement and facilitated by the PBTI, called Hospitals for a Healthy Environment (H2E).



In March 1999, the H2E program received Vice President Gore's Hammer Award for excellence in government innovation. This partnership expects to complete the drafting of educational material by Summer 2000 and begin implementing educational courses on waste reduction later in the year.

**Awarding Grants to Assist Health Care Facilities.** An EPA Environmental Justice for Pollution Prevention grant to the St. Clair County Health Department will promote pollution prevention in health care facilities in the East St. Louis area and surrounding communities, with an emphasis on eliminating mercury-containing products and waste streams. The St. Clair County Health Department will establish a model facility, disseminate information to promote mercury reduction, assist facilities with mercury reduction and pollution prevention practices, develop case studies of successful programs at healthcare facilities, and encourage the development of pollution prevention and waste minimization plans.

Many states, including New Hampshire, Massachusetts, Vermont, and California, have also been focusing on reducing mercury and other toxics in hospital waste streams with EPA funding. Activities include on-site assessments of participating hospitals and developing and implementing training curricula, checklists, case studies, and outreach materials for hospital staff.

#### **Significant Reductions Achieved Through Compliance/Enforcement Efforts.**

Continuing federal compliance/enforcement efforts for major regulations addressing PBTs, along with on-going support to states, has yielded PBT reductions via increased compliance and deterrence of violations. Case settlements and Supplemental Environmental Projects (SEPs) in 1999 have resulted in additional reductions of: 129 million pounds of PCB waste; 573 million pounds of soil contaminated with dioxin/lead/arsenic; and four million pounds of polycyclic aromatic hydrocarbons (PAHs).

#### **Place-Based Actions**

**Mixing Zone Guidance for the Great Lakes.** On September 24, 1999, EPA Administrator Carol Browner proposed to phase-out the discharges of "bioaccumulative chemicals of concern" (BCCs, another term for PBTs) into "mixing zones"(areas of the Great Lakes where discharges of toxic chemicals are allowed to mix with receiving waters and dilute). New discharges of BCCs, including mercury, PCBs, dioxin, chlordane, DDT, and mirex, would be prohibited and phased-out over the next 10 years.

Indiana, Michigan, Minnesota, and Wisconsin have already eliminated mixing zones for PBTs in the Great Lakes Basin. Browner's

proposal would ensure that mixing zones for BCCs in the Great Lakes Basin are also prohibited in Illinois, New York, Ohio and Pennsylvania. EPA anticipates that the proposal will reduce mercury from direct water discharges (like outfall pipes) into the Great Lakes by up to 90 percent.



**Phasing Out DDT in Mexico.** Transboundary air deposition of DDT in the United States and Canada coming in from Mexico has been an issue of concern for several years. In 1999, Mexico stopped using DDT altogether, reserving only the limited right to use DDT in severe malaria control emergencies. The efforts of the three countries, through the North American Commission on Environmental Cooperation, are now evolving toward developing sustainable malaria control practices for Mexico. Then, Mexico can share its results with other Central American countries.

**Phasing-out of PCBs in Russia.** In March 1999, the eight Arctic countries (Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States) commenced an initiative to expedite the phase-out of polychlorinated biphenyls (PCBs) in the Russian Federation. This initiative, proposed and organized by EPA's Office of International Activities with funding from the PBTI, is expected to result in reducing transboundary impacts on the Arctic environment. The initiative started in 1999 with the development of a first-ever inventory of PCBs in Russia. Once this inventory is completed in 2000 the initiative will commence work on feasibility studies of possible PCB phase-out/conversion projects in high priority sectors (e.g., electric utilities). Ultimately, the initiative will undertake pilot demonstrations of PCB replacements in priority-use sectors, as well as explore ways to further develop environmentally-sound disposal practices in Russia. It is expected that this multilateral effort will further encourage the Russian Federation to become a party to the Convention on Long Range Transboundary Air Pollution (LRTAP) Protocol on Persistent Organic Pollutants (POPs), as well as the UNEP POPs Convention now under negotiation.

## Monitoring

Developing a NARAP for Environmental Monitoring and Assessment. Pursuant to a Commission on Environmental Cooperation (CEC) council resolution in June 1999, a North American Regional Action Plan (NARAP) on environmental monitoring and assessment for priority chemicals is being developed. It will likely focus on identifying a network of reference sites, with an emphasis on atmospheric deposition, fate, transport and effects in receiving ecosystems; and, addressing the human health dimension of exposure to chemicals.

Assisting in the Development of Surveys. EPA contributes funds to Health and Human Services (HHS) to develop National Health and Nutrition Examination Surveys (NHANES) to analyze the U.S. population for various PBTs. In 1999, EPA succeeded in having mercury added to the NHANES parameter list.



Conducting a Fish Tissue Survey. In 1999, EPA began a long-term study, with funding from the PBTI, on Chemical Residues in Fish. The study, organized and managed by the Office of Water, will provide information on fish tissue levels of toxic bioaccumulative contaminants in lakes throughout the contiguous U.S.

The Agency consulted with states, tribes, other federal agencies, and the PBTI Plenary Group to design the survey and to select the PBT chemicals for analysis. By providing for collection of samples through grants, this study will also enhance state and tribal data monitoring capabilities. EPA will make data available to states, tribes, and Agency programs to help them evaluate, prioritize, and target pollution prevention, abatement, remediation, and control efforts. The data will highlight specific PBTs that need to be addressed and the locations of contaminants.

**Monitoring Fetal Cord Blood.** In 1999, EPA's OIA and the Office of Children's Health, in coordination with the Center for Disease Control and a variety of other partners, launched a project to monitor the umbilical cord blood and maternal blood of indigenous coastal Alaska groups.

The program, which focuses on blood levels of persistent organic pollutants (POPs) including PCB congeners, was developed in response to Alaska native concerns about the effects of contaminants accumulating in subsistence foods in the Arctic. It is OIA's hope to collaborate with other Arctic nations in extending this effort to other native groups in the eastern seaboard of Russia and elsewhere. These findings will be a valuable complement to NHANES and other indicators of the eventual results of PBT control actions undertaken by EPA and its partners.



**Florida Everglades Long-Range Transport.** In 1999, EPA's OIA and Office of Research and Development (ORD) began planning mercury monitoring efforts in the Florida Everglades. At present, there is controversy about whether local sources of mercury predominate or whether large amounts of mercury may be carried via trade winds from Africa and Europe. In 1999, mercury speciation equipment was purchased and installed. By the end of 2000, EPA expects to report on the initial results of aircraft flight monitoring and ground sampling. This study will provide the first reliable data on the amount and origin of sources of long-range transport of mercury in South Florida.

**Barrow, Alaska Long-Range Transport and Arctic Sunrise Evaluation.** In September 1999, EPA's OIA and ORD began to set into place and to test the first speciated mercury analytical equipment at the NOAA/ORD Point Barrow, Alaska atmospheric mercury monitoring station. Speciated mercury analysis will enable EPA and its partners, the National Oceanic and Atmospheric Administration (NOAA), Department of Energy, and Canada, to better understand the unique behavior and transport of atmospheric mercury under Arctic conditions. This is the first time speciated mercury measurements have been made in the U.S. Arctic. In particular, EPA will obtain data to help determine the potential for long-range transport of mercury to that location from, for example, Asia or Russia. Additionally, EPA will gain the data necessary to understand the processes associated with the Arctic Sunrise phenomenon. This is a newly discovered atmospheric mercury depletion event in early Spring, where mercury leaves the vapor phase and is thought to enter a particulate phase

whence it can be deposited and perhaps more readily enter the food chain.

**Supporting Monitoring Efforts in Maine.** In 1999, EPA's Office of Enforcement and Compliance Assurance funded a grant under the PBTI to the Maine Department of Environmental Protection to reduce PBTs in the state. Highlights of this project include multimedia data collection and analysis in partnership with the University of Maine to benchmark monitoring efforts, sector-based analysis of mercury sources and targeted on-site multimedia compliance and pollution-prevention efforts. Appropriate enforcement responses will also be incorporated to bring entities into compliance when assistance efforts are inappropriate.

---

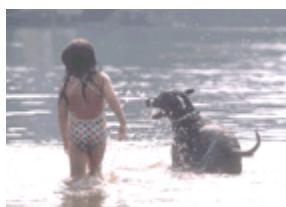
## Policy

This section identifies policies, strategies or procedures intended to guide the Agency's thinking about how PBTs should be viewed and encourages the integration of PBTs throughout new and existing EPA programs.

**Preventing the Introduction of New PBT Chemicals.** One of the first steps the Agency took under the PBT Initiative was to exercise its authority under the TSCA to prevent additional PBTs from entering commerce. In November 1999, EPA issued a policy statement under TSCA establishing a category for new persistent, bioaccumulative, and toxic (PBT) substances. This policy statement defined PBTs and stated that EPA will require additional testing and review of chemical substances that fall under this definition. Action taken under this policy is reported under "Actions," on page five.

The Agency also took the first steps to establish a similar policy under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) that will strengthen EPA's screening policies for pesticides submitted for registration. Screening efforts for pesticides are continuing in 2000.

**Setting Agency PBT Priorities.** In 1999, EPA advanced work on its PBT Strategy and corresponding PBT Initiative. The Agency made a consistent effort in 1999 to tackle some of the challenging issues raised in public comment, working across programs on priority-setting and milestones via the EPA Office Directors' Multimedia and Pollution Prevention (M2P2) Forum, representing about 15 Agency national program offices and Agency regions.



The M2P2 Forum's initial efforts will be expressed, in Fall 2000, in the revised PBT Strategy, draft national action plans, the revised mercury Action Plan, and a five-year PBT Initiative internal planning document. EPA's OSW will also publish a revised multimedia list of PBT chemicals beyond those addressed in National Action Plans to encourage voluntary reductions in PBT chemical releases.

**Interim PBT Goal.** While the PBTI has a long-term goal of further reducing risk to human health and the environment from existing and future exposure to priority PBT pollutants, the Agency recognized internally, in 1999, that working with certain populations on contaminated

food concerns is an important interim goal. Indeed, even if all PBT releases ceased worldwide today, existing PBT contamination and the continuing global distribution of these contaminants would present subsistence food concerns for years to come.

**Aligning PBT Monitoring and Measurement Programs.** As a result of PBTI integration efforts, the Agency took note at the end of 1999 of the wide perception among federal, state, and international agencies and organizations that a network of monitoring efforts on PBTs is needed, and that no single organization or agency has the funds to pay for these efforts. As a matter of policy, EPA is exploring in 2000 how the Agency might work with other governmental entities on connecting and leveraging efforts to accelerate PBT monitoring. See the "Actions" section of this report for the specific monitoring activities that took place in 1999.

**Revising the Draft Mercury Action Plan.** Based on public comments received on the draft Mercury Action Plan, the Agency spent much of 1999 prioritizing its activities on mercury. This effort will be reflected in the Final Mercury Action Plan to be released in Fall 2000.

**Drafting National Action Plans.** As indicated in the PBT Strategy, EPA is committed to developing National Action Plans for 12 priority PBTs. In 1999, the Agency began work on all action plans with active participation from both industry and environmental groups. Dioxin work focused on wrapping up the Agency Dioxin Reassessment. Agency-wide PBTI chemical-specific workgroups worked on these action plans in close coordination with the parallel chemical-specific workgroups supporting U.S. and Canadian implementation of the Binational Toxics Strategy (BNS), which focuses on the same pollutants.

#### **EPA's First 12 Priority PBT Pollutants:**

aldrin/dieldrin	octachlorostyrene
DDT, DDD, and DDE	benzo(a)pyrene
mirex	alkyl-lead
toxaphene	mercury & compounds
hexachlorobenzene	PCBs
chlordan	dioxins & furans

The preliminary stakeholder review of the initial alkyl-lead, octachlorostyrene, pesticides (aldrin/ dieldrin, DDT, mirex, toxaphene, hexachlorobenzene, and chlordan) and PCB draft plans provided valuable comments, and the Agency will again use preliminary stakeholder review in 2000 for the remaining draft action plans. The Agency plans to release all draft action plans for full public comment in late Summer/Fall 2000.

**Cross-Cutting Issues from Action Plans.** At the very close of 1999, EPA flagged several issues that the Agency could consider on a cross-cutting basis, rather than action plan by action plan. These areas are: (1) looking at collective monitoring needs for multiple PBTs, (2) communicating with subpopulations concerned about or that need to be informed about contaminated subsistence foods, and (3) focusing on "place-based" actions.

## **Science**

An important part of many EPA programs is to continually evaluate emerging scientific data

on changes in the environment and analyze their implications for existing EPA policies and actions. These data show that the extent and longevity of PBT pollutants, with their corresponding impact on human and wildlife populations, makes this contamination a global environmental problem of continuing urgency.

In 1999, Agency efforts to better integrate its PBT work were demonstrated in several areas of scientific activity. This section identifies activities throughout the Agency that promote scientific research, the development of tools to identify, detect, monitor and measure PBTs as well as opportunities to foster the exchange of emerging scientific information on PBTs.

**Selecting Additional Priority PBTs.** In 1999, the Agency developed an integrated approach for selecting priority PBTs for purposes of the Waste Minimization National Plan and the PBT Initiative overall. The approach reflects consistent use of scientific information and PBT evaluation criteria by all of EPA's program offices. The results of these integrated efforts will be published in Fall 2000.

**Mercury Research Strategy.** In 1999, led by the Office of Research and Development (ORD), EPA drafted a strategy to help guide its mercury research program for the coming five years (2000–2004). The Mercury Research Strategy targets four areas for attention: human health effects and exposure; ecological health effects and exposure; atmospheric, terrestrial, and aquatic transport, transformation, and fate; and risk management for combustion and non-combustion sources. The draft Mercury Research Strategy was submitted for peer review in early 2000 and is targeted for publication by the end of the year. A multi-year implementation plan is scheduled for delivery in early 2001.

**Risk Characterization of and Risk Communication on Environmental Change and Subsistence Foods in Alaska.** Over the past few years, EPA's Office of Radiation and Indoor Air and EPA Region 10 have funded the Traditional Knowledge and Radionuclides Project, aimed at sharing native knowledge on environmental change in Alaska. The range of contaminants began with radionuclides but broadened, at native peoples' request, to include PBTs. During this project, EPA became receptive to an alternative way of understanding and communicating risk. In 1999, regional meetings and meetings with EPA scientists were held to share native knowledge on environmental change and to review current research and priorities. These efforts resulted in a Progress Report that tells of significant changes going on in the dynamics of the Alaskan food chain. Find the report at:  
<http://www.nativeknowledge.org/db/explain/progreport.PDF> EXIT Disclaimer.

PBT integration efforts resulted in additional funding from EPA Region 10 to the Alaskan Sea Otter and Sea Lion Commission (representing about 50 tribes) to develop a PBT screening tool for subsistence foods. Specifically, the program will develop methods for identifying abnormalities in subsistence food species and the contaminants within them, the tissues consumed by native populations, methods of food preparation, and those human populations at greatest risk. The program will result in a resource guide to be used by the tribes for measuring contaminants in native foods. EPA will spread this knowledge on Alaskan PBT-related issues to other tribal nations.

**ACS PBT Symposium.** In support of the PBTI effort, EPA's Office of Pollution Prevention and Toxics (OPPT) organized a symposium entitled "Persistent, Bioaccumulative, and Toxic Chemicals," as part of the Spring 1999 national meeting of the American Chemical Society (ACS) in Anaheim, CA. The 47 oral presentations and 14 papers were contributed by 212 authors and co-authors from 12 countries. EPA's PBT Strategy was presented in a session on hazard assessment. OPPT also led the development of two ACS monographs derived from the

symposium, including additional commissioned chapters. These will be published in October 2000, with worldwide distribution by Oxford University Press.

---

## 2000 Outlook

The PBT Initiative will continue in its role to integrate the various PBT activities and to improve stakeholder involvement in the process. Specifically, in 2000, the PBTI expects to accomplish the following:

- Develop a five-year internal planning document for the Agency-wide PBT Initiative (2000-2004)
- Issue a revised Agency-wide Multimedia Strategy for PBT Pollutants
- Issue draft National Action Plans to address the 12 Binational Strategy Chemicals
- Publish a list of PBT chemicals for voluntary reductions
- Propose a few additional PBT chemicals for Agency-wide focus
- Fund additional work at regional, state, and tribal levels in support of Agency-wide PBT efforts
- Initiate partnerships with industry to jump-start voluntary PBT reductions
- Complete the dioxin reassessment and develop a National Action Plan for dioxin/furans
- Launch an Agency-wide effort to systematize PBT monitoring/measurement activities
- Issue a policy under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) to strengthen the screening process for pesticides
- Award MVP2 PBT Cup to innovative companies that voluntarily cut PBTs in their solid waste streams

### The PBT Initiative An EPA-wide program

*This publication was developed by a cross-Agency PBT Plenary Group, comprising experts from the following EPA Program Offices: Office of Prevention, Pesticides and Toxic Substances (chair); Office of Air and Radiation; Office of Enforcement and Compliance Assurance; Office of International Activities; Office of Research and Development; Office of Solid Waste and Emergency Response; Office of Water; Office of Policy, Economics and Innovation; the Great Lakes National Program Office; and the ten EPA Regions. The key decision-making body of the PBTI is the Multimedia Pollution Prevention (M2P2) Forum, comprising Office Directors from all Agency programs and regions.*

*Comments on this report should be addressed to:*

*Sam Sasnett (7409), Office of Pollution Prevention and Toxics.  
Phone: 202-564-8858 E-mail: sasnett.sam@epa.gov*