

**A Multimedia Strategy
for Priority Persistent, Bioaccumulative, and
Toxic (PBT) Pollutants**

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The PBT Plenary Group is comprised of program and technical experts from seven EPA Program Offices (i.e., the Office of Air and Radiation; the Office of Enforcement and Compliance Assurance; the Office of International Activities; the Office of Prevention, Pesticides and Toxic Substances; the Office of Research and Development; the Office of Solid Waste and Emergency Response, and the Office of Water), the Great Lakes National Program Office, and the Regions. OPPTS chairs the group. The mission of the Plenary Group is to develop the PBT strategy and identify and resolve issues associated with strategy implementation.

The Office Directors' Multi-Media and Pollution Prevention (M2P2) Forum was established by Deputy Administrator Fred Hansen in 1997 to examine a variety of multi-media and pollution prevention issues. The PBT Strategy is a central focus of the M2P2 Forum. More than 20 of EPA's program offices and regions are represented in the Forum. The Office of Prevention, Pesticides and Toxic Substances (OPPTS) and the Office of Water currently co-chair the Forum.

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EXECUTIVE SUMMARY

Purpose and Goal

The goal of this strategy is to further reduce risks to human health and the environment from existing and future exposure to priority persistent, bioaccumulative, and toxic (PBT) pollutants.

The U.S. Environmental Protection Agency (EPA) has developed this draft strategy to overcome the remaining challenges in addressing priority PBT pollutants. These pollutants pose risks because they are toxic, persist in ecosystems, and accumulate in fish and up the food chain. The PBT challenges remaining stem from the pollutants' ability to travel long distances, to transfer rather easily among air, water, and land, and to linger for generations, making EPA's traditional single-statute approaches less than the full solution to reducing risks from PBTs. Due to a number of adverse health and ecological effects linked to PBT pollutants -- especially mercury, PCBs, and dioxins -- it is key for EPA to aim for further reductions in PBT risks. The fetus and child are especially vulnerable. EPA is committing, through this strategy, to create an enduring cross-office system that will address the cross-media issues associated with priority PBT pollutants.

Building on a Strong Foundation

This strategy reinforces and builds on existing EPA commitments related to priority PBTs, such as the 1997 Canada - U.S. Binational Toxics Strategy (BNS), the North American Agreement on Environmental Cooperation, and the recently released Clean Water Action Plan. EPA is forging a new approach to reduce risks from and exposures to priority PBT pollutants through increased coordination among EPA national and regional programs. This approach also requires the significant involvement of stakeholders, including international, state, local, and tribal organizations, the regulated community, environmental groups, and private citizens.

Approach to PBT Reductions

1. ***Develop and Implement National Action Plans for Priority PBT Pollutants.*** EPA is initially focusing action on the 12 BNS Level 1 substances: aldrin/dieldrin, benzo(a)pyrene, chlordane, DDT, hexachlorobenzene, alkyl-lead, mercury and compounds, mirex, octachlorostyrene, PCBs, dioxins and furans, and toxaphene. EPA is developing action plans that will use the full range of its tools to prevent and reduce releases of these 12 (and later other) PBTs. These tools include international, voluntary, regulatory, programmatic, remedial, compliance monitoring and assistance, enforcement, research, and outreach tools. EPA will analyze PBT pollutant sources and reduction options as bases for grouping pollutants, activities, and sectors to maximize efficiencies in achieving reductions. EPA will integrate and sequence actions within and across action plans, and will seek to leverage these actions on international and industry-sector bases.

Activities ready for near-term action include:

- ▶ Conduct process-specific and pollution prevention (P2) projects under the mercury action plan, including regulatory actions to reduce mercury and voluntary reductions through potential partnerships with various industries (e.g., chloralkali industry, hospitals using mercury-containing products).
 - ▶ Focus enforcement and compliance assistance activities on PBTs, analyzing compliance within PBT-related sectors for problems and opportunities. Select industries, sectors, or regulations that would benefit from focused compliance attention/assistance. Target actions with high potential to reduce PBT releases.
 - ▶ Develop or revise water quality criteria for mercury and other priority PBTs, and revise methodology for mercury water quality criteria.
 - ▶ Conduct research and analysis on PBTs, especially on mercury emission control approaches for coal-fired utility boilers, and on the transport, fate, and risk management of mercury. Develop P2 options for preventing mercury/dioxin risks from industrial combustion.
 - ▶ EPA is actively engaged in international efforts beyond the BNS to reduce PBT risks, including the recently negotiated Persistent Organic Pollutants (POPs) and Heavy Metals protocols to the UN Economic Commission for Europe's Long Range Transboundary Air Pollution Convention, the preparation for the upcoming negotiation of a global POPs convention under UN Environmental Program auspices, and the Regional Action Plans on DDT, chlordane, PCBs, and mercury developed under auspices of the North American Commission for Environmental Cooperation.
2. **Screen and Select More Priority PBT Pollutants for Action.** Beyond the BNS Level 1 substances, EPA will select additional PBT pollutants for action. EPA will apply selection criteria in consultation with a technical panel. Candidate chemicals will be those highly scored by EPA's Waste Minimization Prioritization Tool and other chemicals of high-priority to EPA offices. EPA will seek internal and external comment on the proposed selection methodology in 1999.
3. **Prevent Introduction of New PBTs.** EPA is acting to prevent new PBT chemicals from entering commerce by: (a) proposing criteria for requiring testing/restrictions on new PBT chemicals; (b) developing a rule to control attempts to re-introduce out-of-use PBT chemicals into commerce; (c) developing incentives to reward the development of lower-risk chemicals as alternatives to PBTs; and (d) documenting how PBT-related screening criteria are taken into account for approval of new pesticides and re-registration of old pesticides.
4. **Measure Progress.** EPA is defining measurable objectives to assess progress. EPA will use direct and indirect progress measures, including: (a) human health or environmental indicators (such as National Health and Nutritional Examination Surveys and a national study of chemical residues in fish); (b) chemical release, waste generation or use indicators (such as enhancing the Toxics Release Inventory and using other release

reporting and monitoring mechanisms); and, (c) program activity measures (such as EPA compliance/enforcement data).

Mercury -- An Action Plan Example

EPA's PBT Strategy is a living document that supports the development and implementation of action plans on priority PBTs. Attached to the strategy is EPA's draft Mercury Action Plan. It illustrates an action plan that is national and even international in scope, and describes the kinds of actions EPA may take to reduce risks posed by other priority PBT pollutants. Each substance or group of substances will present its own set of action opportunities.

A MULTIMEDIA STRATEGY FOR PRIORITY PERSISTENT, BIOACCUMULATIVE, AND TOXIC (PBT) POLLUTANTS

I. PURPOSE -- THE CASE FOR COORDINATION

A key purpose of this strategy is to overcome the remaining challenges in addressing priority persistent and bioaccumulative toxic (PBT) pollutants. EPA has a long history of successful programs in controlling PBT pollutants -- pollutants that are toxic, persist in the environment, and bioaccumulate in food chains, and thus pose risks to human health and ecosystems. The challenges remaining on PBT pollutants stem from the fact that they transfer rather easily among air, water, and land, and span boundaries of programs, geography, and generations, making single-statute approaches less than the full solution to reducing these risks. To achieve further reductions, a multi-media approach is necessary. Accordingly, EPA is committing, through this strategy, *to create an enduring cross-office system that will address the cross-media issues associated with priority PBT pollutants.*

Many single-medium offices have established a sequence of activities aimed at further reducing PBT risks within their media. To better address the cross-media aspects of PBT pollutants, however, EPA programs must integrate their work across media more thoroughly and align their domestic and international activities more effectively. The intention of this strategy is to make the whole of the Agency's efforts on PBT pollutants more than the sum of its parts. EPA will coordinate its use of statutory authorities and resources to maximize public health and environmental protection. Environmental results anticipated from implementing this strategy will derive from stronger multi-media coordination among national and regional EPA programs, and through the significant involvement of stakeholders.

Groups outside EPA also recognize the need for a cross-program, multi-media approach to environmental problems like PBTs. Recommendations consistent with this strategy are in three recent reports: (a) the 1998 Natural Resources Defense Council Report, "Contaminated Catch -- The Public Health Threat from Toxics in Fish" (prevent persistent pollution, control pollutants that cross media); (b) the National Academy of Public Administration's 1995 Report, "Setting Priorities, Getting Results -- A New Direction for EPA" (set priorities by risk, integrate efforts across media/statutes); and, (c) the Organization for Economic Cooperation and Development's (OECD) 1996 Report, "Environmental Performance Review of the United States" (coordinate/integrate EPA chemical programs with EPA media programs).

II. GOAL -- REDUCE RISKS FROM PBT POLLUTANTS

The goal of this strategy must be measurable in terms of environmental results. EPA's strategic goal is to identify and reduce risks to human health and the environment from

current and future exposure to priority PBT pollutants. PBTs are associated with a range of adverse human health effects, including effects on the nervous system, reproductive and developmental problems, cancer, and genetic impacts. People who eat large amounts of fish from local waters contaminated with certain PBTs are at risk for adverse effects. The developing fetus and young child are at particular risk for developmental problems. Birds and mammals at the top of the food chain are also at risk. The most famous example is the serious decline of the bald eagle in the 1960's because the fish they ate contained DDT. The DDT did not kill them or make them sick, but it did make their eggshells so thin it seriously threatened their ability to reproduce.

Characterizing Chemicals as Persistent, Bioaccumulative, and Toxic

This strategy characterizes PBT chemicals as those that partition primarily to water, sediment or soil, and are not removed at rates adequate to prevent their bioaccumulation in aquatic or terrestrial species. Chemicals characterized as suspected persistent bioaccumulators typically have been confirmed as such based on accepted test methods. Follow-on toxicity testing leads to their identification as persistent and bioaccumulative toxic chemicals.

III. FOUNDATION AND GUIDING PRINCIPLES

Building on a Strong Foundation. This strategy reinforces and builds on an existing federal commitment to deal with PBT pollutants. EPA's commitment to control, remediate, and prevent releases of PBTs (such as lead, mercury, PCBs, and DDT) is reflected in efforts that span 25 years. Among EPA's current commitments on PBTs are the 1997 Canada-U.S. Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes (Binational Toxics Strategy or BNS), its cross-Agency Task Forces on lead, mercury, and dioxin, its Waste Minimization National Plan, its Contaminated Sediment Management Strategy, its recently announced Clean Water Action Plan, and the PBT emphasis in its new Chemical Right-to-Know program announced by the Vice President in April 1998.

Identifying and managing PBT pollutants is a priority for key international organizations at both regional and global levels.¹ Recognizing that many PBTs circulate at regional and even global scales, nations find they must cooperate to reduce PBT risks. Often spurred by U.S. Government leadership, these international organizations are developing and implementing risk reduction measures ranging from technical assistance programs to build institutional capacities for dealing with PBTs to legally-binding international agreements for phasing out production and use of selected PBTs.

¹PBT pollutants are addressed by such fora as the North American Commission for Environmental Cooperation (CEC), the UN Economic Commission for Europe Convention on Long Range Transboundary Air Pollution (LRTAP), the Arctic Council, the UN Environment Program (especially its negotiations on a global Persistent Organic Pollutants Convention), and the Intergovernmental Forum on Chemical Safety (IFCS).

Guiding Principles. EPA will follow these principles in carrying out its PBT strategy:

- * Address problems on multi-media bases through integrated use of all Agency tools.
- * Coordinate with and build on relevant international efforts.
- * Coordinate with relevant Federal programs and agencies.
- * Emphasize cost-effectiveness (e.g., amount of PBT removed per dollar spent).
- * Involve stakeholders.
- * Emphasize use of innovative technologies and pollution prevention.
- * Protect vulnerable sub-populations.
- * Base decisions on sound science.
- * Use measurable objectives and assess performance (see page 10 on GPRA).

IV. APPROACH TO PBT RISK REDUCTIONS

Four elements are central to EPA's PBT strategy. They are: (1) developing and implementing national action plans for priority PBT pollutants using the full range of EPA tools to achieve risk reduction; (2) screening and selecting more priority PBT pollutants for action; (3) preventing the introduction of new PBT pollutants into commerce; and, (4) measuring progress by linking activities to environmental results. All of these elements require a heightened level of multi-office integration in planning, budgeting, and implementation. Figure 1 on page 7 shows the framework EPA is using to carry out these elements.

Below is a description of activities being undertaken in 1998-1999. Following that is a more detailed explanation of each of the four strategy elements.

Activities Underway or Planned for Near-Term Action²

Offices abbreviated in parentheses are funding the stated activity. Generally, all other offices are also participating.

■ Develop and Integrate National Action Plans.

- ▶ Support/build upon evolving BNS Level 1 action plans as bases for developing national action plans on 12 Level 1 pollutants (as listed on p. 6) (GLNPO, OIA, OW -- Fall 1998 - ongoing).
- ▶ Focus on appropriate risk, use, and release reduction actions, and sequence them as needed for implementation. When possible, group chemicals for action to achieve efficiency and consistency (Fall/Winter 1998 - ongoing).

²Office abbreviations for this section are OAR (Office of Air and Radiation), OECA (Office of Enforcement and Compliance Assurance), OIA (Office of International Activities), OPPTS (Office of Prevention, Pesticides, and Toxic Substances), ORD (Office of Research and Development), OSWER (Office of Solid Waste and Emergency Response), OW (Office of Water) and GLNPO (Great Lakes National Program Office).

- ▶ Align work and roles across Headquarters and Regional programs to prepare for implementing action plans (OPPTS, OSWER, Regions -- Fall 1998 - ongoing).
- ***Engage Stakeholders Nationwide*** (OPPTS).
 - ▶ Engage stakeholders on (1) draft strategy, (2) development/implementation of action plans, and (3) criteria for selecting more PBTs for action (Fall 1998 -- ongoing).
- ***Implement Process-Specific and Pollution Prevention (P2) Projects Under Draft Mercury Action Plan*** (OAR, OECA, OPPTS, OSWER, OW, Regions).
 - ▶ Use regulatory authorities to reduce mercury emissions. (Recently-final municipal waste combustor and medical waste incinerator rules will get significant reductions.) Evaluate linkages between air emissions and water quality impacts for targeted, regulatory action. Develop pollution prevention (P2) guidelines and incentives in rulemakings addressing mercury (Summer 1998 and ongoing).
 - ▶ Seek voluntary reductions in uses of mercury through partnerships with the chlor-alkali industry, hospitals using mercury-containing products, laboratories, and manufacturers and users of mercury switches (Fall 1998 and ongoing).
 - ▶ To improve citizens' right-to-know on mercury, seek to lower the reporting threshold for mercury under the Toxics Release Inventory, which could lead to more reporting of mercury releases (end of 1998).
- ***Focus Enforcement and Compliance Assurance Activities on PBTs*** (OECA, Regions, Winter 98/99 - ongoing).
 - ▶ Analyze compliance within PBT-related sectors to identify problems and opportunities for action.
 - ▶ Select industries, sectors, or regulations that would benefit from focused compliance attention and/or assistance.
 - ▶ Target actions with best potential to reduce PBT releases.
 - ▶ Develop Supplemental Environmental Projects and models to use with enforcement actions to enhance P2/reduction opportunities.
- ***Identify PBT chemicals to measure national reductions in hazardous wastes*** (OSW, Regions).
 - ▶ Using the Waste Minimization Prioritization Tool and selection criteria reflecting Resource Conservation and Recovery Act (RCRA) concerns, publish a draft RCRA PBT List in a *Federal Register* notice (early November 1998).
 - ▶ Hold stakeholder meetings to discuss criteria (Fall 1998).
 - ▶ Finalize and release list of RCRA PBT chemicals (Winter 1998/99).
- ***Develop or Revise Water Quality Criteria*** for mercury and other specific priority PBTs. Revise methodology for mercury water quality criteria. (OW, Spring 1999)
- ***Support International Efforts beyond the Binational Toxics Strategy*** (OAR, OECA, OIA, OPPTS, ORD, OSWER, OW, 1998 and ongoing).

- ▶ Support the North American Commission for Environmental Cooperation's (CEC) Sound Management of Chemicals work program, including the implementation of the Regional Action Plans on DDT, chlordane, PCBs, and mercury.
 - ▶ Promote the early implementation of the Persistent Organic Pollutants (POPs) and Heavy Metals Protocols recently negotiated under the UN ECE's Convention on Long Range Transboundary Air Pollution.
 - ▶ Provide leadership in the negotiations on a global POPs convention under the auspices of the UN Environment Program.
 - ▶ Continue working with developing countries to phase out use of lead in gasoline.
- ***Conduct Research and Analysis on PBTs*** (ORD, OAR, OPPTS, OSWER, OIA, Regions, 1999 and ongoing).
- ▶ Develop/promote mercury emission control approaches for coal-fired utility boilers.
 - ▶ Conduct research on mercury and POPs transport, fate, and risk management.
 - ▶ Use P2 tools (Design for the Environment tools, environmental accounting materials management, etc.) in voluntary components of action plans.
 - ▶ Develop and improve test methodologies for environmental persistence.
 - ▶ Conduct Science Workshops on mercury and emerging PBTs.
 - ▶ Develop P2 options for mercury and dioxin risks from industrial combustion.
 - ▶ Publish "Status and Needs" paper on use of bioaccumulation data to assess sediment quality (Fall 1998).
- ***Screen and Select Additional Priority PBTs for Action*** (OPPTS, OSWER, Regions).
- ▶ Finalize Waste Minimization Prioritization Tool for use in prioritizing PBTs (Summer 1998).
 - ▶ Catalog chemicals and modify data systems as needed (Fall 1998 - ongoing).
 - ▶ Select chemicals beyond the Level 1 list (1999).
- ***Prevent the Introduction of New PBT Chemicals*** (OPPTS-led).
- ▶ Propose criteria for requiring testing/restrictions on new PBTs (Fall 1998).
 - ▶ Develop rule to control re-introducing out-of-use PBTs into commerce (1999).
 - ▶ Develop incentives to reward development of lower-risk alternatives to PBTs (Ongoing).
 - ▶ Document how PBT screening criteria are taken into account when approving new pesticides and re-registering existing ones (Fall 1998).
- ***Measure Progress*** (OAR, OECA, OPPTS, OSWER, OW, OIA, Regions).
- ▶ Help develop *National Health and Nutrition Examination Surveys* to analyze U.S. population for pesticides/dioxin in serum, and mercury in blood/hair (Summer '98).
 - ▶ Begin working with the National Institutes of Health (NIH) to monitor PBTs in fetal cord blood of Alaskan native groups (Fall 1998 - ongoing).
 - ▶ Design and peer review *National Study of Chemical Residues in Fish* for estimating trends in environmental measures (1998-early 1999). Begin sampling in 1999.
 - ▶ Propose a rule adding dioxins/possibly other PBTs to the Toxics Release Inventory (TRI); lower reporting thresholds for dioxins and PBTs listed on TRI (end of 1998).

Update air emission inventory, especially for dioxin/mercury sources (Fall 1998 - ongoing), and support coal sampling and stack testing for mercury at utilities (Fall 1998 - ongoing).

- ▶ Design activity measures (1999).

Strategy Elements

1. Develop and Implement National Action Plans

Developing National Action Plans. In this strategy, EPA is affirming the priority given by the United States and Canada to the Level 1 substances under the Binational Toxics Strategy (BNS), and making these substances the first focus for action. The Level 1 substances are:

aldrin/dieldrin
benzo(a)pyrene
chlordane
DDT(+DDD+DDE)
hexachlorobenzene
alkyl-lead

mercury and compounds
mirex
octachlorostyrene
PCBs
PCDD (Dioxins) and PCDF (Furans)
toxaphene

EPA is focusing on these substances first because the BNS reduction goals for them are national, and most of these substances are already targets of existing and pending international agreements. EPA believes there is much to gain by building on the efforts of its Great Lakes National Program Office (GLNPO) and EPA Region 5 to virtually eliminate these PBT pollutants in the Great Lakes Basin.

EPA will use the work plans being developed by BNS multi-stakeholder work groups as starting points for national action plans under this strategy. The BNS framework relies heavily on stakeholder involvement, and has a preference for voluntary action when adequate to meet BNS goals. BNS work plans will likely yield regionally-specific model actions that can serve as foundations for national action plans under this strategy. EPA is evaluating whether, for the Level 1 substances, assembling national workgroups (or some other configuration) to involve Regions and complement BNS workgroups may help in the timely development of national action plans. For a summary of linkages between this strategy and the BNS, see page 15.

National action plans will draw on the full array of EPA statutory authorities and national programs. EPA may use regulatory action where voluntary efforts are insufficient. EPA will likewise pursue, in the short-term or longer-term as appropriate, actions for enforcement of and compliance with current regulations, international coordination, place-based remediation of existing PBT contamination, research, technology development and monitoring, community and sector-based projects, and use of outreach and public advisories. EPA will focus on action, while bearing in mind the need to address uncertainties and data gaps through data collection and scientific and technical research. EPA will sequence activities to lay any groundwork necessary for longer-term action.

Strategy Elements Framework

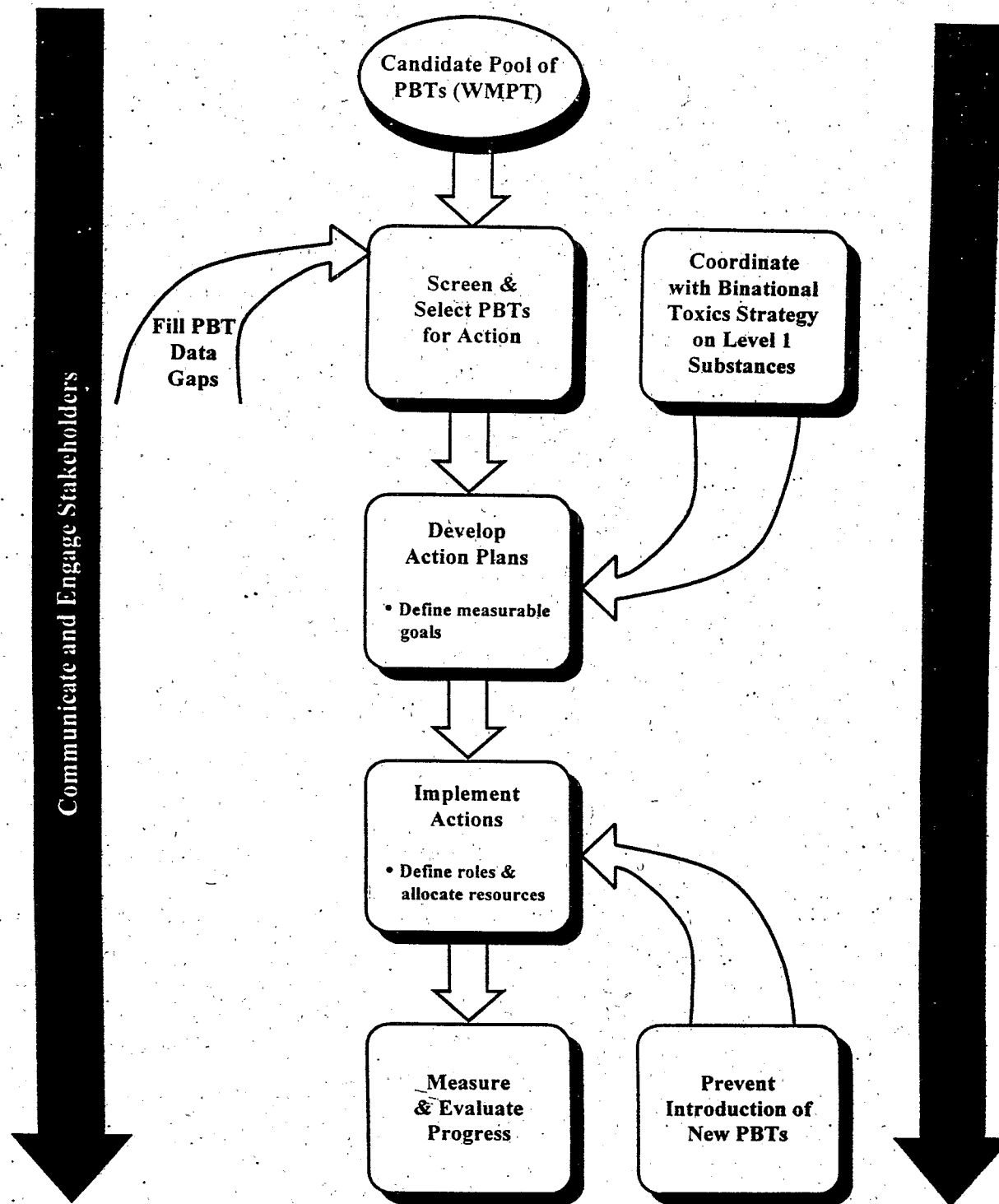


Figure 1.

The Draft Mercury Action Plan in *Attachment 1* illustrates how EPA can coordinate the use of its tools to achieve reductions for a PBT pollutant. This plan represents EPA's preferred approach, since it involves multi-media and cross-office actions, quantitative challenge goals, stakeholder engagement, international coordination, and long-term emphasis on pollution prevention. Such an action plan is possible because EPA has extensive knowledge of and a mature program on mercury, more so than for most other PBT pollutants. Action plans for banned substances like canceled pesticides or PCBs, or substances with much less risk characterization like octachlorostyrene, will differ substantially from the draft mercury action plan. EPA has begun implementing some reduction activities for mercury. See the next section and *Appendix B* for the status of developments on all 12 BNS Level 1 substances.

Maximizing Opportunities for Integration. As EPA develops action plans, it will align program efforts and integrate actions across media. Whenever possible, EPA will address groups of pollutants rather than individual pollutants, to prevent or reduce risks for multiple pollutants at the same time. As individual action plans mature, EPA may see opportunities to integrate activities in ways that achieve greater cost savings in amounts of each PBT removed per dollar spent. EPA may also be able to identify facility-wide pollution prevention and technology transfer opportunities for specific industry sectors. Maximizing opportunities for integration will avoid transferring problems across media or to chemical substitutes.

Implementing PBT Reduction Actions. Some of the activities being planned for the 12 BNS Level 1 substances are already reasonably well outlined. This is especially true for mercury, as noted above on pages 4 and 6. What follows highlights some of the activities on some of the other 11 substances on the BNS Level 1 list.

- ▶ EPA will prepare a BNS status report by December 31, 1998 on the use or release of chlordane, DDT, aldrin-dieldrin, mirex, and toxaphene from sources that enter the Great Lakes Basin. EPA will continue "Clean Sweeps"³ in the Great Lakes Basin, and will seek to extend Clean Sweeps on a national basis. EPA will work with Mexico to reduce DDT/chlordane reliance, speed registration of reduced-risk pesticides, and encourage states' promotion of biological controls through State Management Plans.
- ▶ EPA will prepare a BNS status report by December 31, 1998 on alkyl-lead to confirm no use in automotive gasoline. EPA will encourage stakeholder minimization of use/release from aviation and racing sources in the Great Lakes Basin, and will seek to extend these efforts on a national basis.
- ▶ EPA will publicly release the final Dioxin Reassessment in Spring 1999.

³ Agricultural "Clean Sweeps" is a popular term for waste pesticide collections undertaken at State and local levels to dispose of pesticides that are suspended, canceled, or no longer fit for use. States conduct Clean Sweeps as a prudent investment to avoid potential spills and costly clean-up.

2. Screen and Select More Priority PBT Pollutants for Action

Looking beyond its initial focus on the BNS Level 1 substances, the Agency will screen and select additional PBT pollutants for action. It is likely that the opportunities for pollution prevention will be greater for the additionally selected PBT pollutants. EPA will use a primary and secondary screening process to make these selections.

Primary Screening: Preliminary Criteria. EPA will apply a primary screening process to candidate PBT pollutants. EPA is defining candidate pollutants as (a) those highly scored by EPA's *Waste Minimization Prioritization Tool* (WMPT) for human or ecological concern, and (b) other high-priority chemicals for EPA headquarters and regional program offices. The WMPT prioritizes chemicals based on their cumulative persistence, bioaccumulation, and chronic human and ecological toxicity. The purpose of the primary screen is to reduce the number of candidate pollutants under consideration. A chemical will pass the primary screen if it meets at least one of the following criteria:

- The chemical is currently produced within the U.S. or imported;
- The chemical is being released to the environment;
- The chemical is generated/managed in waste; or
- The chemical has been detected in the environment at levels of concern (as yet undefined).

Secondary Screening: Ranking Criteria and Technical Panel. EPA will then use secondary criteria to rank those PBT pollutants that pass the primary screen. EPA's Office Directors and the PBT Plenary Group are developing the secondary criteria. EPA is carefully crafting these criteria to represent its priorities and will define them, in part, by the availability of sound scientific and technical data. The criteria will be related to PBT characteristics (especially hazard), potential exposure, pollution prevention opportunity, and suitability for an EPA-wide national focus (including potential for grouping chemicals for action). EPA will apply the secondary criteria in consultation with a technical panel which, in turn, may consult with a network of experts to ensure that chemical selection is based on sound science. Details about the selection criteria, process, and technical panel remain under development.

The proposed methodology will undergo internal and external review in 1999. The methodology and decisions will also be periodically reassessed as more data become available that may affect EPA's selection process.

3. Prevent the Introduction of New PBT Pollutants

EPA will be taking four actions to prevent new PBT chemicals from entering commerce, using authorities under the Toxics Substances Control Act (TSCA) and the Federal Insecticide, Fungicide and Rodenticide Act.

- EPA will propose a PBT category for screening new chemicals, to enhance EPA's ability to evaluate the potential risks of new PBTs and to use testing requirements and other restrictions as necessary to protect the public. Under its TSCA-based New Chemicals Program, EPA groups new chemicals with shared structural and toxicological properties into categories. These categories allow submitters of Premanufacture Notices and EPA reviewers to benefit from accumulated data and decisional precedents. If EPA identifies a new substance as being in the PBT category, EPA will evaluate the potential health or environmental concerns associated with the category, and the potential exposures and releases of the new chemical. If EPA concludes the new substance may pose an unreasonable risk to human health or the environment, EPA may require testing and restrictions.
- EPA will develop a significant new use rule to control attempts to re-introduce out-of-use PBT chemicals into commerce. This rule will apply to PBTs previously in commerce but not being manufactured, as identified from updated reporting on U.S. production, including polychlorinated terphenyls and hexachlorobenzene.
- EPA is developing incentives to reward the development of lower-risk chemicals as alternatives to existing, higher-risk PBT chemicals. EPA will create these incentives through its New Chemicals Program and its green chemistry activities.
- EPA will document how PBT-related screening criteria are taken into account for approval of new pesticides and re-registration of existing ones. EPA will seek acceptance of these criteria by international organizations working on persistent organic pollutants (POPs), including the OECD chemical/pesticide program, the Binational Toxics Strategy, the IFCS, and the CEC.

4. Measure Progress: Link Activities to Environmental Results

EPA will measure progress on actions under this strategy through: (1) environmental or human health indicators, (2) chemical release, waste generation, or use indicators, or (3) programmatic output measures. EPA believes that tying its indicators of progress to environmental results through real world measures (e.g., reduced levels of PBTs in human blood or fish tissue) will encourage the Agency and its stakeholders to think creatively about how to achieve the progress in risk reduction that both seek.

This approach to measuring progress meets the requirements of the Government Performance and Results Act of 1993 (GPRA). GPRA requires federal agencies to define measurable goals and objectives, measure progress, and report accomplishments. Appendix A shows that the goal of this strategy matches EPA's goals and objectives under GPRA, including Goal # 1 clean air, Goal # 2 clean and safe water, Goal # 4 preventing pollution and reducing risk, Goal # 6 reducing global and cross-border environmental risks, Goal # 8 sound science, and Goal # 9 credibly deterring pollution and increasing compliance with the law.

EPA will use the following measures to track progress in reducing risks from PBT pollutants, as shown in Figure 2. EPA will evaluate and use other progress measures as appropriate.

- **Human Biomarkers.** EPA will use the National Health and Nutrition Examination Surveys (NHANES) as its primary measure of human exposure. Conducted by the CDC's National Center for Health Statistics (NCHS), NHANES trace the health and nutritional status of U.S. civilians. Surveys use adult, youth, and family questionnaires, followed by standardized physical examinations. The primary NHANES objective is to obtain national population health and nutrition parameters, using suitably precise estimates for age, gender, and race/ethnicity (whites, blacks, and Mexican-Americans). EPA expects NHANES IV to analyze most Level 1 substances. EPA has worked with NCHS to add analysis for mercury in blood and hair for some survey participants. EPA also will begin working with NIH and other U.S. government entities to conduct fetal cord blood monitoring for PBTs in Alaskan native groups.
- **Food Chain/Environmental Measures.** A cornerstone of the measurement effort will be a National Study of Chemical Residues in Fish. This EPA study will statistically evaluate the incidence and severity of mercury and other PBT residues in fish, both downstream from suspected problem areas and in background areas. On a national basis, the study will calculate concentrations of priority PBT chemicals in fish. On a regional basis, it will also calculate concentrations of some other PBT chemicals in fish. The study will allow for estimating trends over time. EPA will work with State Departments of Health and Environmental Protection, coordinating with state fish advisory programs to help fill data needs identified in the survey. Study design and peer review will be completed in fiscal year 1998 (FY98) or early FY99. Sampling begins in FY99 and concludes in Summer FY01. Study results will be available in FY02.
- **Environmental Release Data.** To help characterize trends in environmental releases and waste management, EPA intends to propose a rule to add dioxins and possibly other PBT substances to the Toxics Release Inventory (TRI). This rule will also propose lowering reporting thresholds for PBT chemicals -- some already listed on TRI, like mercury and mercury compounds, and some being added, like dioxins. Lowering reporting thresholds could increase reporting of PBT chemicals and thereby enhance TRI's value for tracking progress in reducing PBT pollution. Plans are to propose the TRI PBT rule by close of 1998. EPA expects a final rule by the end of 1999, with reporting to begin in 2000. The first public release of the data obtained through the TRI PBT rule would be in 2001.

Reductions of volumes of hazardous wastes containing PBTs will also be measured using the 1991 Biennial Reporting System⁴ data as a baseline on hazardous waste generation

⁴ The Biennial Reporting System contains data on hazardous waste generation and management for facilities regulated by the Resource Conservation and Recovery Act (1976). EPA collects the data every two years pursuant to the Hazardous and Solid Waste Amendments of 1984, and publishes it in the Biennial RCRA Hazardous Waste Report.

trends. Reductions of specific high-priority PBT chemicals in hazardous wastes will also be measured using TRI data. Reductions of chemicals in hazardous wastes is one indicator of whether the reductions are occurring at the source, prior to generation of hazardous wastes. EPA will use these methods to report progress on reducing PBTs in hazardous wastes by 50% by 2005, a subobjective under GPRA Goal 4 (see discussion of GPRA on page 10).

Beyond TRI, EPA will also evaluate the results of ongoing monitoring programs, such as the Integrated Atmospheric Deposition Network and those used by other Federal agencies like the U.S. Geological Survey. EPA will also evaluate and support improving outputs from international monitoring and modeling programs. These include national emission inventories and related modeling of long-range transboundary fluxes, conducted pursuant to the POPs and heavy metals protocols to the UN ECE's Convention on Long Range Transboundary Air Pollution.

- **Activity Measures.** EPA will also use PBT-related activity measures, especially at the start, since risk reductions might not be readily apparent in the short term. Activity measures include negotiation and implementation of international agreements; Federal or State compliance assistance; public/industry workshops and educational outreach; pollution prevention agreements or other voluntary activities by the regulated community; focused compliance monitoring and enforcement; and regulatory and permitting changes.

V. MANAGING FOR SUCCESS

To manage the effort under this strategy, EPA will rely on sustained senior-level support, a strong organizational structure for coordination, sustained resources, a well-defined framework for carrying out the elements of this strategy, and stakeholder involvement.

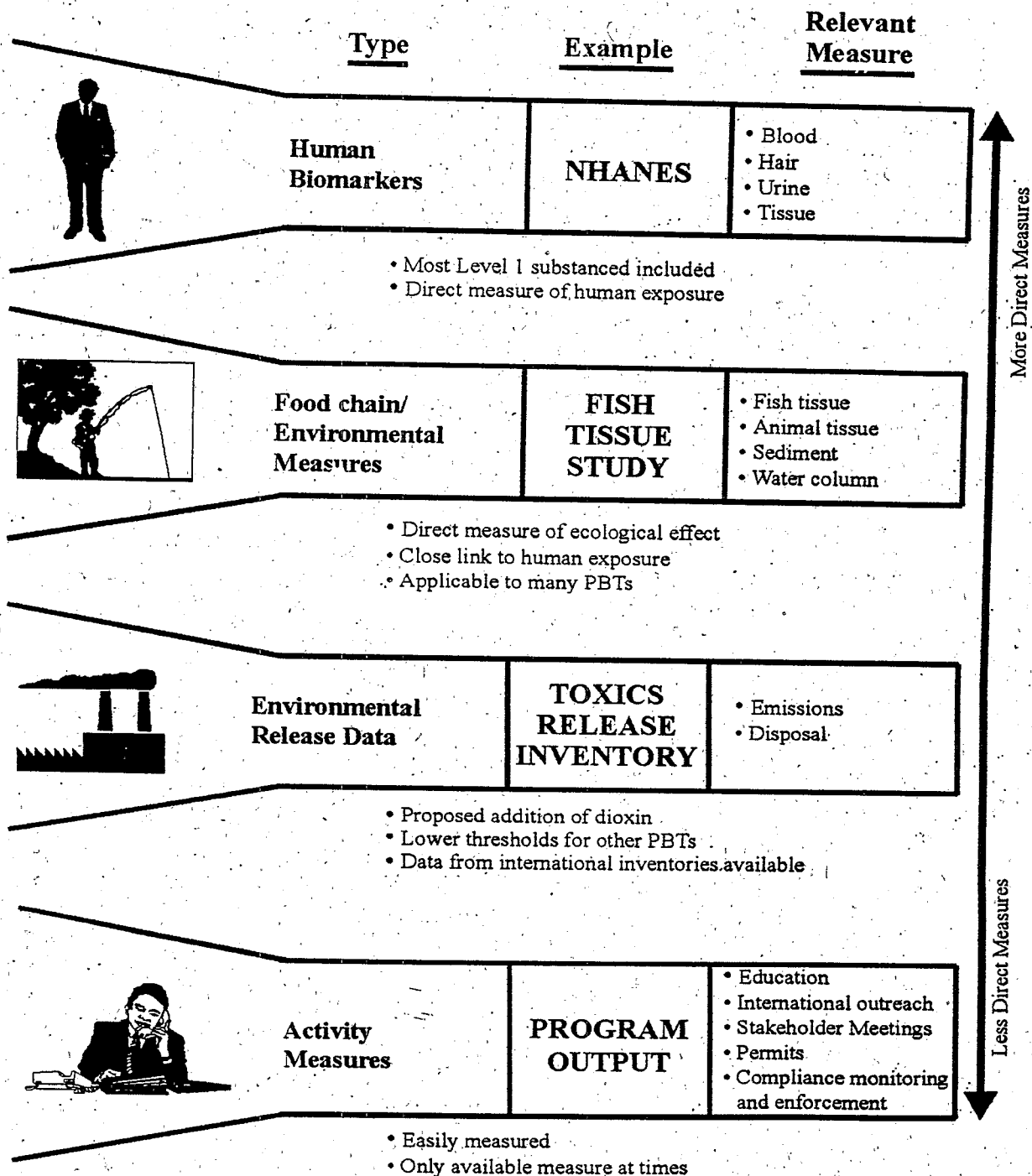
Managing the Implementation of the Strategy

EPA is using the following organizational structure to coordinate and sequence activities under this strategy.

- The PBT Plenary Group, a body of EPA personnel instrumental in developing this strategy, will be responsible for integrating actions across Agency programs and recommending action priorities. This group will forward its recommendations to the Office Directors for decisions. It will also help track progress toward the strategy's goals.
- EPA's Office Directors' Multi-Media and Pollution Prevention Forum will define actions to be taken each fiscal year, based on Plenary Group recommendations. The Forum will also incorporate these actions into EPA's program planning process, and evaluate progress on activities towards the strategy's goal.

Figure 2

A Continuum of Activities that Measure Environmental Results



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- Program and Enforcement Offices at the Headquarters and Regional levels will implement defined actions with the support of ad-hoc groups such as the Mercury Task Force and Dioxin Assessment Group. EPA has also established a network of Regional PBT contacts to facilitate these efforts at the Regional level.

Establish Linkages Among Current Program Efforts

Establishing linkages among programs is key to achieving the goal of this strategy.

Linkages with the Canada – U.S. Binational Toxics Strategy. EPA is coordinating its implementation of this strategy with that of the Binational Toxics Strategy. These efforts mutually contribute to the success of one another, as summarized in Table 1.

Table 1. Relationship Between the PBT Strategy and Binational Toxics Strategy (BNS)

Binational Strategy	PBT Strategy
Initial focus on Level 1 substances	Initial focus on Level 1 substances. Will select additional substances, providing a basis for BNS implementation decisions on Level 2 substances.
Much of the focus is regional in scope for water, and national in scope for air.	National in scope for all media, including Everglades, Gulf of Mexico, Chesapeake Bay, Lake Champlain.
Establishes quantitative challenge goals for virtual elimination of Level 1 substances	Provides scientific support for deciding whether more action is needed after challenge goals are met.
Progress tracking and accountability related to specific reduction (use/release) goals.	Builds on use/release tracking of BNS and expands progress tracking to measures closer to human and ecological levels and effects.
Identify key stakeholders and bring stakeholders' current technology to light	Coordinates research on new technologies and provides Agency tools such as environmental accounting, models, etc.
Specifies coordination with international efforts to ensure consistency	Expands coordination with international efforts

Linkages with International Chemical Management Efforts. To the extent that international voluntary activities and legally-binding agreements result in meaningful PBT risk reductions in other countries, these international steps would be a positive complement to this strategy. Likewise, domestic actions implemented by this strategy could serve as models for other countries. A number of international efforts in which EPA participates, including those listed below, are relevant to this strategy.

- The North American Commission for Environmental Cooperation (CEC), made up of the U.S., Canada, and Mexico, is conducting a Sound Management of Chemicals Program.

- ▶ Through CEC, the U.S. is working to implement Regional Action Plans on DDT, chlordane, PCBs, and mercury.
- ▶ EPA is continuing long-standing efforts to provide technical assistance to developing countries to eliminate the use of lead in gasoline.
- ▶ EPA is supporting the implementation of the Persistent Organic Pollutants (POPs) and Heavy Metal Protocols to the UN ECE's LRTAP Convention.
- ▶ EPA is a key US government participant in the ongoing negotiations of a global POPs Convention under UNEP auspices.

Linkages with the Waste Minimization National Plan. EPA is coordinating this strategy with its Waste Minimization National Plan which EPA launched four years ago. Supporting this National Plan is EPA's GPRA subobjective to "reduce the most persistent, bioaccumulative, and toxic chemicals in hazardous waste 50% by the year 2005." In furtherance of the Plan and this subobjective, EPA: (1) has developed the Waste Minimization Prioritization Tool; (2) is proposing this fall and finalizing this winter a list of those PBTs of most concern for tracking national reductions in hazardous wastes; (3) is using the RCRA Implementation Plan and its guidance on core measures for National Environmental Performance Partnerships with states to reinforce the PBT reduction goals for hazardous wastes; and, (4) will be finalizing methods this year to measure reductions of PBTs in hazardous wastes and reductions of hazardous wastes containing PBTs. The PBT Strategy will likewise be making use of the Waste Minimization Prioritization Tool and will seek consistency with other activities of the Waste Minimization National Plan to the maximum extent possible.

Linkages with Sector- and Community-Based Efforts. The chemical-based PBT Strategy is complementary to sector-based and place-based approaches. Aspects of this strategy – assessing risk, overcoming single-medium approaches in establishing national baseline regulations and policies, targeting research, controlling more PBTs from entering commerce, creating incentives for safer substitutes, and facilitating coordination with U.S. and international agencies – can serve the needs of sector- and place-based approaches. Indeed, constructive collaboration can occur among all three approaches.

EPA, with the Common Sense Initiative Council, is developing a Sector-Based Action Plan to integrate the sector-based approach into core Agency operations. The Plan will, among other things, identify objective criteria for selecting future sector-based opportunities. EPA's regulatory framework already starts with "source categories" of releases to air, water, or land, and may serve as a point of reference. This PBT strategy may also be able to identify source categories by use or release of chemicals or chemical groups. Once a sector could be earmarked for significant PBT use or release, then sector-based and chemical-based approaches could use complementary analysis and stakeholder outreach to tackle PBT problems on a sector-basis.

EPA also seeks to implement Community-Based Environmental Protection (CBEP), a place-based, collaborative, multi-media, and multi-disciplinary approach to environmental protection. Embracing principles of ecosystem management and sustainable development, it convenes stakeholders within a geographic area to identify local concerns (including urban

sprawl, shrinking biodiversity, and remediation of in-place PBT contaminants), set priorities and goals, and forge comprehensive solutions. CBEP promotes integration of EPA programs and activities to complement and enhance community decision-making. Regional activities on the Chesapeake Bay and Great Lakes exemplify the CBEP approach and are also integral to the PBT Strategy (see Table 1).

Linkages with EPA Regional Programs. EPA Regional programs are essential to implementing this strategy. Among the roles they may take on are the following:

- Participating in GLNPO or national work groups as appropriate.
- Identifying geographic sources and sinks of priority PBTs.
- Participating in the chemical selection process.
- Assuming lead responsibilities for action plan development teams.
- Managing region-specific projects during action plan implementation.
- Promoting compliance assurance and enforcement efforts.
- Supporting States and Tribes in addressing PBT issues in their jurisdictions.
- Carrying out PBT-related actions under EPA's National Waste Minimization Plan.

Stakeholder Involvement

Building on the stakeholder involvement begun under the Binational Toxics Strategy is essential to this strategy. EPA's Region 5 and GLNPO are successfully engaging state and tribal program partners, industry, environmental groups, and others in taking actions on Level 1 substances. For example, the Council of Great Lakes Industries has helped educate and bring to the table other industries and sectors to identify possible voluntary actions. In cooperation with EPA, the National Wildlife Federation has begun mercury and dioxin reduction projects at Great Lakes hospitals. EPA will build on these efforts to engage stakeholders in areas of the country beyond the Great Lakes Basin.

EPA will seek stakeholder input on this draft strategy, the development and implementation of specific action plans for PBT pollutants, and the criteria for selecting more PBTs for risk reduction action. EPA will make *Federal Register* announcements of meetings in Washington, DC and EPA regional city locations for stakeholders to comment on the draft strategy. EPA will invite State and tribal representatives to join the teams that develop the action plans, and will invite all others to review and comment on draft action plans. EPA will also invite all interested partners to join in developing voluntary agreements with EPA, agreements EPA considers essential to reaching the goal of this strategy.

For answers to general questions about the PBT Strategy or to find out who to contact regarding particular aspects of the PBT Strategy, please contact Sam Sasnett, (202)260-8020, sasnett.sam@epa.gov.

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EPA Water Docket: (202) 260-3027
EPA RCRA Docket: (703) 613-9230

GLOSSARY

BNS	June 1997 Canada-U.S. Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes (also referenced as "Binational Toxics Strategy").
CEC	North American Commission for Environmental Cooperation
GLNPO	EPA's Great Lakes National Program Office
GPRA	Government Performance in Results Act of 1993
IFCS	Intergovernmental Forum on Chemical Safety
LRTAP	Convention -- the UN ECE's Convention on Long Range Transboundary Air Pollution
NHANES	National Health and Nutrition Examination Surveys
NIH	National Institutes of Health (U.S. Department of Health and Human Services)
OAR	EPA's Office of Air and Radiation
OECA	EPA's Office of Enforcement and Compliance Assurance
OECD	Organization for Economic Cooperation and Development
OIA	EPA's Office of International Activities
OPPTS	EPA's Office of Prevention, Pesticides, and Toxic Substances
ORD	EPA's Office of Research and Development
OSWER	EPA's Office of Solid Waste and Emergency Response
OW	EPA's Office of Water
P2	Pollution prevention
PBTs	Persistent, bioaccumulative, and toxic pollutants
POPs Protocol	-- the Persistent Organic Pollutants Protocol negotiated under the UN ECE's LRTAP Convention
RCRA	Resource Conservation and Recovery Act
TRI	Toxics Release Inventory
UN ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Program
WMPT	Waste Minimization Prioritization Tool

APPENDIX A

GPRA Goals and Objectives Supported by the PBT Strategy

Table A-1. The PBT Strategy Will Help Meet Goals and Objectives Stated in EPA's Strategic Plan

EPA Strategic Plan Goals and Objectives
<p>■ GPRA Goal 1: Clean Air</p> <ul style="list-style-type: none"> ● By 2010, improve air quality for Americans living in areas that do not meet the National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter (PM). ● By 2010, reduce air toxics emissions by 75 percent from 1993 levels to significantly reduce the risk to Americans of cancer and other serious adverse health effects caused by airborne toxics. ● By 2005, improve air quality for Americans living in areas that do not meet the NAAQS for carbon monoxide, sulfur dioxide, lead, and nitrogen dioxide. ● By 2010, ambient sulfates and total sulfur deposition will be reduced by 20-40% from 1980 levels due to reduced sulfur dioxide emissions from utilities and industrial sources. By 2000, ambient nitrates and total nitrogen deposition will be reduced by 5-10% from 1980 levels due to reduced emissions of nitrogen oxides from utilities and mobile sources.
<p>■ GPRA Goal 2: Clean and Safe Water</p> <ul style="list-style-type: none"> ● By 2005, protect human health so that 95 percent of the population served by community water systems will receive water that meets drinking water standards; consumption of contaminated fish and shellfish will be reduced, and exposure to microbial and other forms of contamination in waters used for recreation will be reduced. ● Conserve and enhance the ecological health of the nation's (state, interstate, and tribal) waters and aquatic ecosystems – rivers and streams, lakes, wetlands, estuaries, coastal areas, oceans, and groundwater – so that 75 percent of waters will support healthy aquatic communities, by 2005. ● By 2005, pollutant discharges from key point sources and nonpoint source runoff will be reduced by at least 20 percent from 1992 levels. Air deposition of key pollutants impacting water bodies will be reduced.
<p>■ GPRA Goal 4: Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems</p> <ul style="list-style-type: none"> ● By 2005, public and ecosystem risk from pesticides will be reduced through migration to lower-risk pesticides and pest management practices, improving education of the public and at-risk workers, and forming "pesticide environmental stewardship" partnerships with pesticide user groups. ● By 2005, the number of young children with high levels of lead in their blood will be significantly reduced from the early 1990's. ● By 2005, of the approximately 2,000 chemicals and 40 genetically engineered microorganisms expected to enter commerce each year, we will significantly increase the introduction by industry of safer or "greener" chemicals, which will decrease the need for regulatory management by EPA. ● By 2005, 15 million more Americans will live or work in homes, schools, or office buildings with healthier indoor air than in 1994. ● By 2005, reduce by 25% (from 1992 levels) the quantity of toxic pollutants released, disposed of, treated, or combusted for energy recovery. Half of this reduction will be achieved through pollution prevention practices. ● By 2005, EPA and its partners will increase recycling and decrease the quantity and toxicity of waste generated. ● By 2003, 60% of Indian Country will be assessed for its environmental condition, and Tribes and EPA will be implementing plans to address priority issues.

Table A-1. The PBT Strategy Will Help Meet Goals and Objectives Stated in EPA's Strategic Plan (Continued)

EPA Strategic Plan Goals and Objectives
<p>■ GPRA Goal 6: Reduction of Global and Cross-Border Environmental Risks</p> <ul style="list-style-type: none"> ● By 2005, reduce transboundary threats to human health and shared ecosystems in North America, including marine and Arctic environments, consistent with our bilateral and multilateral treaty obligations in these areas, as well as our trust responsibility to tribes. ● By 2000 and beyond, US greenhouse gas emissions will be reduced to levels consistent with international commitments agreed under the Framework Convention on Climate Change, building on initial efforts under the Climate Change Action Plan. ● By 2005, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery. ● By 2005, consistent with international obligations, the need for upward harmonization of regulatory systems, and expansion of toxics release reporting, reduce the risks to U.S. human health and ecosystems from selected toxics (including pesticides) that circulate in the environment at global and regional scales. Results will include a 50% reduction of mercury emissions from 1990 levels in the United States. Worldwide levels of lead in gasoline will be below 1993 levels. ● By 2005, increase the application of cleaner and more cost-effective environmental practices and technologies in the U.S. and abroad through international cooperation.
<p>■ GPRA Goal 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems</p> <ul style="list-style-type: none"> ● By 2008, provide the scientific understanding to measure, model, maintain, or restore, at multiple scales, the integrity and sustainability of ecosystems now and in the future. ● By 2008, improve the scientific basis to identify, characterize, assess, and manage environmental exposures that pose the greatest health risks to the American public by developing models and methodologies to integrate information about exposures and effects from multiple pathways. ● By 2008, establish capability and mechanisms within EPA to anticipate and identify environmental or other changes that may portend future risk, integrate futures planning into ongoing programs, and promote coordinated preparation for and response to change. ● By 2006, develop and verify improved tools, methodologies, and technologies for modeling, measuring, characterizing, preventing, controlling, and cleaning up contaminants associated with high priority human health and environmental problems. ● Provide services and capabilities, including appropriate equipment, expertise, and intramural support necessary to enable ORD to research innovative approaches to current and future environmental problems and improve understanding of environmental risks. ● By 2005, EPA will increase the number of places using integrated, holistic partnership approaches, such as community-based environmental protection (CBEP), and quantify their tangible and sustainable environmental results in places where EPA is directly involved. ● By 2005, test innovative facility- and sector-based strategies to achieve improved environmental protection, and make successful approaches broadly available. ● By 2005, Regions will have demonstrated capability to assess environmental conditions in their Region, compare the relative risk of health and ecological problems, and assess the environmental effectiveness of management action in priority geographic areas. ● Conduct peer reviews and provide guidance on the science underlying Agency decisions. ● Incorporate innovative approaches to environmental management into EPA programs, so that EPA and external partners achieve greater and more cost-effective public health and environmental protection.
<p>■ GPRA Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law.</p> <ul style="list-style-type: none"> ● Identify and reduce significant non-compliance in high priority program areas, while maintaining a strong enforcement presence in all regulatory program areas. ● Promote the regulated communities' voluntary compliance with environmental requirements through compliance incentives and assistance programs.

APPENDIX B

Status of Developments on Binational Toxics Strategy Level 1 Substances

Table B-1. Status of Developments on the Level 1 Substances under PBT Strategy

Binational Toxics Strategy Level I Substances		
Effort Level	Timing	Features
Mercury and Compounds		
High, probably the highest	U.S. challenge goal is, by 2006, 50% reduction in deliberate use and 50% reduction in release from human-activity sources. Draft action plan is complete. Many activities ongoing, with the BNS workgroup initiating others.	Activity is occurring in all National Program Offices and the Regions. EPA, through its draft mercury action plan, Mercury Task Force, BNS work group activities, and the PBT Strategy, will ensure activities are coordinated and complement each other. BNS work group activities have begun with a focus on voluntary action. The best description is in the attached draft Mercury Action Plan.
PCDD (Dioxins) and PCDF (Furans)		
High	U.S. challenge goal is 75% reduction in releases from human-activity sources by 2006. EPA will finalize an action plan after public release of its final Dioxin Reassessment, due Spring 1999, and a concurrent draft Cross-Media Dioxin Strategy. Meanwhile, the BNS work group will begin voluntary reduction efforts. EPA is addressing dioxins/furans in the negotiation of the global POPs convention, which began 6/98.	Beyond key steps already taken, actions will include BNS work group and PBT Strategy activities such as a Great Lakes state pilot to target air emissions using cross-media authorities, a national study of chemical residues in fish, new watershed decision-making using air data, research, and Gulf of Mexico activity. The BNS dioxin group will work closely with PBT Strategy dioxin efforts. EPA will work with other partners to better quantify dioxin/furan sources and release levels in representative developing countries as an input to the global POPs negotiations.

Table B-1. Status of Developments on the Level 1 Substances (Continued)

Binational Toxics Strategy Level I Substances		
Effort Level	Timing	Features
PCBs		
Medium to high (much is already done, given EPA's mature PCB program).	U.S. challenge goal is 90% reduction of PCBs used in electrical equipment by 2006. The BNS workgroup is developing a work plan. A draft national action plan is expected in 1999. EPA will address PCBs in the implementation of the LRTAP POPs protocol and the negotiation of the UNEP POPs convention, which began 6/98.	EPA heavily regulates PCBs. Problems include disposing of collected PCBs, remediating contaminated sediments, and motivating other countries (e.g., Russia) to reduce risks from PCBs. Two rules (one complete, one nearly so) will further facilitate industry's remediation, disposal, and replacement of PCBs. The BNS work group is pursuing voluntary reductions through expanding Region 5's PCB phase down program, encouraging national replication of the phase down program, a clean sweep pilot in Chicago, and encouraging a national PCB reduction effort. International capacity building efforts for PCB identification, management, and disposal are underway and will grow in volume and importance with the negotiation and conclusion of the UNEP POPs convention.
The Pesticides (Chlordane, DDT, Aldrin/Dieldrin, Mirex, Toxaphene)		
Medium low (collective level of effort, but possibly large impact of BNS)	EPA will submit a BNS status report on use or release from sources that enter the GL Basin by 12/31/98. BNS workgroup is developing a work plan this summer. A draft national action plan is expected in 1999. EPA is also addressing these pesticides through the UN negotiations on a legally binding global POPs convention, which began June 1998.	EPA will continue clean sweeps to reduce stockpiles in GL Basin, and work with stakeholders and GL states (NEPPS process) to reduce pesticide reliance. The possible contribution of long range transport to U.S. loadings is a significant issue to be resolved. OPP will work with Mexico to reduce DDT/chlordane reliance, speed registration of reduced-risk pesticides, and work with GLNPO to foster states' promotion of biological controls through State Management Plans. OPPTS and OIA will lead the EPA component of the U.S. delegation to the UNEP POPs negotiations.

Table B-1. Status of Developments on the Level 1 Substances (Continued)

Binational Toxics Strategy Level I Substances			
Effort Level	Timing	Features	
Alkyl-Lead			
Low (air emissions estimated under 0.5 tons annually).	U.S. challenge goal is to confirm no use in automotive gasoline by 1998. Draft national action plan to be developed by 1999 based on BNS work plan.	EPA will submit "confirmation of no use in automotive gasoline" report under BNS by 12/31/98, broaden stakeholder involvement, encourage stakeholder minimization of use/release from other sources (e.g., aviation, racing), and track efforts to develop unleaded alternatives for aviation and racing fuel. The OECD risk management program and EPA's efforts to promote phasing out use of lead in gasoline are ongoing.	
Hexachlorobenzene			
Low (collective level of effort, but possibly large impact of BNS).	BNS workgroup work plan is under development. Completion of final action plan may have contingencies (baseline levels not established and percentage goal not yet set under BNS).	An initial step under BNS is to quantify loadings to set a realistic percentage goal. The effect of long range transport remains a key issue. The BNS work group will consider approaches to reducing releases during pesticide manufacturing and use, chlorinated solvent manufacture, and possibly aluminum manufacturing. EPA may be able to address incineration sources through actions aimed at other PBTs, e.g., actions taken by other BNS work groups or recent MACT standards. A total phaseout is required under the LRTAP POPs protocol and will be proposed under the global POPs convention being negotiated under UNEP auspices.	
Benzo(a)pyrene			
Low (collective level of effort, but possibly large impact of PBT Strategy and BNS).	BNS workgroup developing a work plan this summer. A draft national action plan is expected by 1999.	Benzo(a)pyrene is a polycyclic aromatic hydrocarbon, a subset of polycyclic organic matter (POM), which is a large class of substances that are by-products of incomplete combustion. POM is an area needing more research. In the LRTAP POPs context, B(a)P will be used as one of several indicators for overall releases of PAHs, with the intention of ultimately reducing such releases.	

Table B-1. Status of Developments on the Level 1 Substances (Continued)

Binational Toxics Strategy Level I Substances		
Effort Level	Timing	Features
Octochlorostyrene (OCS)		
Low (collective level of effort, but possibly large impact of PBT Strategy and BNS).	U.S. challenge goal is to confirm no use or release by 1998. In January 1998, the PBT Plenary Group prepared a preliminary draft action plan for use in discussions with BNS stakeholders. BNS workgroup is developing a work plan.	GLNPO will submit a BNS status report on use or release from sources that enter the GL Basin by 12/31/98. The BNS work group is leading the OCS effort with a focus is on defining sources, releases, and environmental loadings (and to some extent toxicity and bioaccumulation). Near-term reduction activities may need to rely on efforts directed at other PBTs to accomplish associated reductions in OCS.

