Background Document
Draft PBT Regulation

1 Introduction

1.1 Nature of the Environmental Problem

A wide range of activities result in the production and release of persistent bioaccumulative toxins (PBTs) into the Washington environment. These activities include highly visible sources (e.g. large industrial processes) that have been the traditional focus of pollution control strategies. However, there are also numerous smaller sources of PBTs that may release (on a cumulative basis) an equal or greater amount of PBTs. These smaller sources include automobiles, consumer products, etc. Releases from these sources (both ongoing and historical) have resulted in measurable levels of PBTs being found in the air, water, soils, and sediments throughout Washington State.

Although many chemicals can have toxic effects on humans and the environment, PBTs pose special challenges because of their chemical properties. Unlike many chemicals, PBTs do not readily break down or react with other chemicals in the environment (e.g. they are persistent). They also tend to be absorbed into fatty tissues in living organisms. These two properties prevent PBTs from diluting as they move away from individual sources. In many cases, the concentrations of these chemicals can increase as PBTs are passed up the food chain (e.g. bioaccumulate) to concentrations that pose threats to human health and the environment.

1.2 Ecology's Dilemma

Ecology and other agencies currently implement a wide range of programs to protect human health and the environment. These programs have been in place for many years and have produced significant reductions in the uses, releases and environmental concentrations of several PBTs. However, new and growing body of information reveals that PBTs remain in our environment and may pose a greater threat to health and the environment than previously thought. Consequently, Ecology and other agencies are faced with answering the following question:

What is a reasonable approach for responding to the threats to human health and the environment posed by persistent bioaccumulative toxins (PBTs) that are used, released or present in Washington (either now or in the future) given:

- *Current understanding of the potential threats to human health and the environment posed by PBTs and the uncertainties surrounding those threats;*
- *Current understanding of the sources of PBTs and the behavior of PBTs once released into the environment;*
- *Current understanding of the effectiveness of current programs to prevent threats to human health and the environment associated with PBTs;*
- *The benefits (and the uncertainties surrounding those benefits) associated with the uses of PBTs; and*
- *The availability of technically feasible and cost-effective options for reducing or eliminating uses and releases of PBTs (and the uncertainties associated with characterizing economic and social costs).*

1.3 Historical Background

Over the last decade, the State of Washington has struggled to devise an effective response to the problems and challenges associated with PBTs. This has resulted in a series of proposals, actions and directives from Ecology and, more recently, the Governor and the Washington Legislature.

- August 1998 Announcement: In August 1998, Ecology announced plans to develop a long-term strategy to reduce and eliminate certain chemicals that accumulate in human and animal tissues. As a starting point, Ecology proposed focusing on the 27 substances identified by the Province of Ontario's Ministry of Environment. Ecology held a series of public meetings in late 1998 and early 1999 and numerous organizations and individuals submitted comments on that proposal.
- August 2000 Draft Strategy. Ecology distributed a draft PBT strategy for public review and comment in August 2000. In developing the draft strategy, Ecology considered the wide range of issues and concerns identified during the public meetings held in late 1998 and early 1999. The August 2000 draft approach contained: (1) an initial PBT list (i.e. Starter List) that included nine of the twelve chemicals included on EPA's National PBT List; (2) a proposal to develop a process for identifying and listing additional PBT chemicals; and (3) a number activities that Ecology proposed to undertake to facilitate the reduction and elimination of PBT chemicals from existing sources, the cleanup of PBT chemicals released from historical sources and prevention of new sources of PBT chemicals. Ecology held a series of public meetings and received numerous public comments on the August 2000 Draft Strategy.
- December 2000 Proposed Strategy: After evaluating the public comments, Ecology elected to modify the draft strategy. Specifically, Ecology decided to move forward to develop a process for identifying and ranking PBT chemicals using a 4-step process: (1) Identify candidate chemicals[1]; (2) Screen candidate chemicals using information on environmental concentrations, uses, and/or source releases in order to determine which of the candidate chemicals should be included on Washington's PBT list; (3) Rank the chemicals on the PBT list using available information on PBT characteristics, environmental levels and potential sources; and (4) Prioritize the chemicals on the PBT list using the chemical rankings and information on costs, programmatic concerns and opportunities for reductions.
- PBT Working List: Ecology reviewed the comments on the proposed listing and ranking process described in the December 2000 Proposed Strategy. In mid-2002, Ecology distributed the PBT Working List and a document that summarized the comments on the December 2000 proposal, Ecology's response to those comments and the technical and policy rationale for the PBT Working List. The PBT Working List included 22 chemicals or groups of chemicals. The most significant differences between the PBT Working List and the December 2000 proposal resulted from Ecology's decision to focus attention on those chemicals that received WMPT scores of 9 (instead of chemicals with WMPT scores of 7, 8 or 9).
- Executive Order 04-01: In January 2004, Governor Gary Locke signed an executive order that included several findings and directives regarding persistent toxic chemicals. As part of that executive order, the Governor directed Ecology to establish, through rule, specific criteria for use in identifying persistent toxic chemicals that pose human health and environmental impacts in Washington State and a clear process for developing chemical action plans to address those impacts.

[1] Ecology proposed to use the WMPT to identify candidates for inclusion on the Washington PBT list. Under the January proposal, a chemical must score at least 2 (out of a possible 3 for each of the "persistence (P)", "bioaccumulation (B)" and "toxicity (T)" characteristics and must have a total score of at least 7 out of a possible 9 in order to be included on the Candidate List.

- Legislative Direction: In March 2004, the Washington Legislature directed Ecology to develop a PBT rule that includes (1) specific criteria by which chemicals may be included on a persistent bioaccumulative toxins list, (2) a specific list of persistent, bioaccumulative toxins and (3) criteria for selecting chemicals for chemical action plans. The Legislature further specified that registered pesticides or fertilizers regulated under the Washington Fertilizer Act should not be included on the PBT list developed as part of the rulemaking process.

During the Summer of 2004, Ecology formed the PBT Advisory Committee to advise the Department on issues associated with developing the PBT rule. The committee includes representatives from academia, agricultural groups and communities, businesses, environmental groups, health organizations and local government agencies. The committee held its' first meeting in August 2004. As of November 1st, the committee had met four times.

1.4 Purpose of the Document

This document was prepared as part of the internal decision-making process used by Ecology to prepare the draft rule language distributed to the PBT Advisory Committee in November 2004. The document is designed to serve three main purposes:

- Facilitate the identification and discussion of key rulemaking issues, options for resolving those issues and factors that are relevant to making decisions on each issue;
- Facilitate efforts to reach a decision on each issue;
- Facilitate the Advisory Committee's review and discussion of the draft PBT rule language developed by Ecology.

1.5 Organization of the Document

The rest of this document is organized into two main sections:

- **Section 2 – Areas of Apparent Agreement**: The PBT Advisory Committee has held four meetings between August 18th and October 14th. Ecology reviewed the summaries and notes from the four advisory committee meetings and identified several areas of apparent agreement that Ecology believes have emerged from the discussions held at those meetings. This section summarizes Ecology's current understanding on issues where agreement appears to exist.
- **Section 3 – Rationale for Decisions on Selected Rulemaking Issues:** There are many rulemaking questions where Advisory Committee members hold different opinions. Ecology reviewed the summaries and notes from the four advisory committee meetings and identified several broad issues that the Department believes are central to the rulemaking effort. Section 3 identifies those issues and provides the rationale for Ecology's decisions on each issue.

2 Areas of "Apparent" Agreement

The PBT Advisory Committee held four meetings between August 18th and October 14th. Ecology reviewed the summaries and notes from the four advisory committee meetings and identified several areas of apparent agreement that Ecology believes have emerged from the discussions held at those meetings. These areas of apparent agreement provide a foundation for discussing more contentious rulemaking issues. The purpose of this section is two fold:

- Determine whether the Advisory Committee believes there is general agreement on these issues; and
- Identify areas where there is either more or less agreement now that further details have been provided on various features of the draft rule.

2.1 Characteristics of a Good Rule and the Process for Producing a Good Rule

The PBT Advisory Committee brainstormed ideas on attributes and characteristics of a "good" rule at the August 18th meeting. No attempt was made to reach consensus on this list and it is apparent from subsequent discussions that disagreements exist on several of the characteristics. However, there were several features or characteristics identified by the Committee that appear to have broad support both in terms of the final PBT rule and the process used to produce the rule. These include:

- Clarity: The rule should be logically organized and written in language that is clear, concise and understandable.
- Transparency: Ecology should clearly describe the basis for decisions associated with developing and implementing the PBT rule.
- Certainty/Predictability: The rule should include well-defined criteria and processes that enable interested parties to understand Ecology actions, timelines and opportunities to provide input to Ecology decisions.
- Flexibility: The rule should establish processes that provide the flexibility to address new information and circumstances.
- Sound Scientific Foundation: Decisions on issues associated with the development and implementation of the PBT rule should have a sound scientific foundation.
- Efficiency: The rule should minimize transaction costs. Implementation of the rule, chemical action plans and other rule-related activities should be coordinated with other programs, rules and activities.
- Public Involvement: The processes for developing and implementing the PBT rule should provide meaningful opportunities for the public to review and provide comments on Ecology decisions.

2.2 Elements of the Draft PBT Rule

Over the course of four meetings, the PBT Advisory Committee has discussed a wide range of issues. Committee members have had the opportunity to review and provide feedback on a variety of rulemaking questions, presentation materials (e.g. Powerpoint presentations, issue papers, etc), a draft rule outline and draft rule language for the initial sections of the rule. Based on a review of the meeting summaries and notes, Ecology believes there are several areas of agreement on various rule features:

- Draft Rule Outline: Ecology distributed a draft rule outline for review and comment at the September 29th meeting. While there were some suggestions on the relative order of the various sections, there appeared to be general agreement that the draft rule outline was logically organized and addressed the major topics identified in the budget proviso and the Governor's Executive Order[2].

- Phased Approach: There appears to be general agreement that a phased approach that includes an initial evaluation of the characteristics (persistence, bioaccumulation potential and toxicity), preparation of a PBT list, ranking and prioritization of the list, and preparation and implementation of chemical action plans and other activities (e.g. Ecology ambient monitoring programs, public awareness, promoting voluntary measures).

- PBT Criteria: The Advisory Committee appears to agree that Ecology should consider a chemical's persistence, bioaccumulation potential and toxicity when deciding whether to include it on the PBT list.[3] The Advisory Committee also appeared to agree that media-specific half-life values are appropriate measures for characterizing the persistence of individual chemicals and that bioaccumulation factors (BAF) and bioconcentration factors (BCF) are appropriate measures for characterizing the bioaccumulation potential of individual chemicals.[4] Finally, there seem to be general agreement that Ecology should use existing criteria – rather than creating new criteria. However, as discussed in Section 3, Advisory Committee members hold diverse opinions on the appropriate set of criteria to be used in Washington.

- PBT List: There also appears to be general agreement (or understanding) that the PBT list must be published in the rule and changes to the list (additions or deletions) will require Ecology to amend the rule.[5] In addition, there seems to be little enthusiasm for multiple lists or a tiered list.

- Uses of the PBT List[6]: There appears to be general agreement on the following uses of the list: (1) identify chemicals that will be evaluated in chemical action plans; (2) identify chemicals that may require further information on ambient concentrations; (3) promote awareness on chemical hazards and steps that can be taken to reduce uses, releases and exposures; and (4) encourage voluntary measures to reduce uses, production and releases.

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[2] The Advisory Committee reviewed and discussed the outline for the draft rule at the September 29th meeting.

[3] The Advisory Committee initially reviewed and discussed issues associated with the PBT criteria and list at the September 8th meeting. Although most members expressed support for considering all three characteristics when preparing the PBT list, members representing environmental and citizen groups expressed a preference for also listing chemicals that were "persistent and toxic" or "bioaccumulative and toxic". However, subsequent to that meeting, these organizations proposed an approach (Alternative E) that involves consideration of all three characteristics.

[4] The Advisory Committee reviewed and discussed the measures for characterizing persistence and bioaccumulation potential at the September 8th meeting.

[5] The Advisory Committee reviewed and discussed the process for preparing and amending the PBT list at the September 8th meeting.

[6] The Advisory Committee reviewed and discussed the purposes of the PBT list at the September 8th, September 29th and October 14th meetings. Ecology acknowledges that there were multiple opinions on other purposes or uses of the list and the relative importance of the four purposes. However, Ecology believes the discussions at the three meetings indicate general support for the four identified uses of the list.

- Ranking[7]: There appears to be general agreement that (1) Ecology should rank chemicals on the PBT list in order to provide a rough ordering of the seriousness of the hazards posed by these chemicals in Washington; (2) the relative ranking should be based on four factors (i.e. PBT characteristics, use of the chemical in Washington, releases of the chemical in Washington and presence in the Washington environment)[8]; (3) Ecology should create several broad ranking categories (e.g. high, medium and low) because available data make it infeasible to judge the significance of finer distinctions; and (4) the PBT list in the rule should provide information on the relative rankings of the individual chemicals (e.g. each chemical's rank, the primary factors resulting in the ranking (e.g. lack of data on chemical uses, etc).
- Prioritization for Chemical Action Plan Preparation: There appears to be general agreement that Ecology should consider two main factors when deciding to develop a chemical action plan for a particular chemical or group of chemicals: (1) the chemical's relative ranking; and (2) opportunities for reducing uses or releases in Washington.[9] There also appears to be general agreement that Ecology will not need to prepare a chemical action plan for every chemical on the PBT list.[10]
- Chemical Action Plans: There appears to be general agreement that the processes used to prepare the mercury and PBDE chemical action plans are good models for the processes used to prepare future action plans[11][12]. With some exceptions, there also appears to be general agreement on the types of information and evaluations that should be incorporated into future chemical action plans.

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[7] The Advisory Committee reviewed and discussed issues associated with ranking and prioritizing chemicals on the PBT list at the September 29th and October 14th meetings.

[8] The meeting summary and notes from the October 14th indicate there was general agreement that the relative rankings should be based on PBT characteristics, uses, releases and environmental concentrations. Ecology acknowledges that Advisory Committee members hold a range of opinions on the relative weights assigned to each factor, information sources, etc.

[9] The meeting summary and notes from the October 14th indicate there was general agreement that Ecology should consider the relative rankings and opportunities for further reductions when prioritizing chemicals for chemical action plans. Ecology acknowledges that one or more Advisory Committee members also suggested that Ecology consider additional factors such as the potential for synergistic interactions, co-occurring chemicals and the incidence of various diseases that may be related to exposure to hazardous substances.

[10] This issue was discussed at the September 29th meeting (See page 7 of the meeting summary).

[11] The Advisory Committee discussed the contents of chemical action plans and the processes for preparing the plans at the September 29th meeting. Committee members generally agreed that the CAP process used for Mercury and PBDEs is a good model (see page 8 of the meeting summary)

[12] Ecology recognizes that there are a wide range of opinions on the specific recommendations in those documents.

3 Rationale for Decisions on Selected Rulemaking Issues

When preparing the November 2004 version of the draft PBT rule, Ecology identified several interconnected issues that the Department believes are central to the rulemaking effort. Based on discussions at the PBT Advisory Committee, it is apparent that committee members hold widely different views on many of these issues. Consequently, Ecology staff and management spent several meetings discussing these issues, identifying options and factors relevant to resolving each issue and reaching decisions on how to address each issue in the draft rule.

The remainder of this document is divided into ten sections. Each section includes: (1) a short description of the issue and the range of opinions expressed by members of the Advisory Committee; and (2) a summary of how Ecology decided to handle the issue in the draft rule and the rationale for each decision.

Issue #1: Should Ecology include a statement on the overall environmental goal in the PBT rule and, if so, what is an appropriate goal statement?

Issue #2: What is the appropriate relationship between the Proposed PBT Strategy (published in December 2000) and the PBT rule?

Issue #3: Should the PBT rule include a statement on the precautionary principle and, if so, what should that statement say?

Issue #4: What are the purpose(s) of the PBT list?

Issue #5: What are the intended uses of the PBT list?

Issue #6: What are appropriate criteria for selecting chemicals to be included on the PBT list given the range of criteria being used by other organizations, the purposes of the Washington list, the uncertainties surrounding available scientific information and the range of stakeholder viewpoints?

- What persistence criteria should Ecology use when creating the PBT list?
- What bioaccumulation criteria should Ecology use when creating the PBT list?
- What toxicity criteria should Ecology use when creating the PBT list?

Issue #7: What criteria should Ecology consider when deciding whether to include metals on the PBT list?

Issue #8: What additional factors (if any) should Ecology consider when preparing the initial PBT list and future amendments (in addition to PBT characteristics)?

Issue #9: How should Ecology handle chemical groups that share common chemical characteristics and/or degrade into different chemical forms when released into the environment?

Issue #10: What chemicals should Ecology include on the initial PBT list?

1. Long-Term Goal

Issue #1: Should Ecology include a statement on the overall environmental goal in the PBT rule and, if so, what is an appropriate goal statement?

The PBT Advisory Committee discussed whether the PBT rule should include an environmental goal statement and (if so) what concepts should be included in that statement. Some members recommended that a goal statement not be included in the rule. However, some of the same members also suggested that, if Ecology decided to include a goal statement, the goal of the rule should be to facilitate actions to "manage" threats to human health and the environment posed by the use and release of PBTs. Other committee members recommended that Ecology include a goal statement in the rule and suggested that the goal should be to "...facilitate implementation of the 'Proposed PBT Strategy' by reducing, and where possible, eliminating the use and production of persistent toxic chemicals.

Draft Rule Language and Rationale: Ecology elected to include the following statement in the purpose and goals section of the rule:

The goal of this chapter is to minimize threats to human health and the environment by reducing and, where feasible, phasing out the uses and releases of PBTs in Washington.

Ecology's rationale for this decision includes the following:

- **Executive Order:** The Executive Order includes the statement "...I, Gary Locke, Governor of the state of Washington, declare my commitment to phasing out persistent, toxic pollution in Washington State..."
- **Nature of the Problem Posed by PBTs:** The nature of PBT sources, releases and environmental behavior argue for a goal that includes the concepts of phasing out or eliminating uses and releases. Specifically, programs have often been unsuccessful in managing the numerous small PBT sources or uses that result in the release of low or undetectable concentrations of chemicals that can bioaccumulate in the food chain to levels that threaten health and ecosystems.
- **Other PBT Strategies**: All major national and international PBT strategies include some type of goal statement. Many of these statements include the concepts of phasing out and eliminating uses and releases. One exception is the EPA National PBT Strategy which includes a goal statement that focuses on reducing risks.
- **Practical Considerations**: State, federal and international efforts are based on the premise that new and more effective approaches are needed to address this class of chemicals. Ecology believes that the goal statement will help promote greater scrutiny of alternatives to the status quo during the CAP process. However, Ecology also believes that the goal statement should include the concept of feasibility (as opposed to possibility) to provide a clear signal that real-world constraints are important considerations in determining whether, how and when the goal can be achieved for a particular PBT.

2. Status of the Proposed PBT Strategy and Relationship to PBT Rule

Issue #2: What is the appropriate relationship between the proposed strategy and the PBT rule?

Ecology published the *Proposed Strategy to Continually Reduce Persistent, Bioaccumulative Toxins (PBTs) in Washington State* in December 2000. Governor Locke acknowledged the proposed strategy in Executive Order 04-01. However, the budget proviso language directing Ecology to prepare the PBT rule does not reference the strategy. The PBT Advisory Committee discussed the relationship between the proposed strategy and the PBT rule. Some members recommended that the PBT rule (once finalized) should replace the proposed strategy. Other members expressed the opinion that one of the main purposes of the PBT rule is to implement the proposed strategy and that this should be clearly stated in the rule.

Draft Rule Language and Rationale: Ecology believes that the Proposed PBT Strategy provides a sound framework for addressing PBT chemicals and that the PBT rule will be a primary (but not sole) mechanism for implementing the strategy. However, Ecology understands that there is a great deal of uncertainty and difference of opinion on the relationship of the strategy to the PBT rule. Consequently, Ecology decided to include the following language in the PBT rule in order to clarify the status of the proposed strategy and its' relationship to the PBT rule:

> **Implementation of the PBT Strategy**. Ecology will implement the *Proposed Strategy to Continually Reduce Persistent Bioaccumulative Toxins (PBTs) in Washington State* (December 2000) and any subsequent PBT Strategy document update(s) consistent with this rule.

Ecology's rationale for this decision includes the following:

- **Executive Order:** Ecology believes the proposed strategy provides a sound framework for addressing PBT chemicals. This was acknowledged in Executive Order 04-01 which states that "...the state of Washington has developed a groundbreaking strategy to phase out existing sources of persistent, toxic chemicals, cleanup historical sources, and prevent new sources..." The Executive Order also directs Ecology to "...continue using its existing programs and authorities to reduce persistent, toxic chemicals over time..." The language in the Executive Order highlights the need to clarify the relationships between the PBT strategy and the PBT rule.
- **Previous Ecology Statements**: Ecology has indicated that we are not locked into all of the elements of the proposed strategy. At the beginning of the rulemaking process, Ecology indicated that the proposed strategy was a "starting point". Similarly, the Ecology Director's February 25, 2004 letter to Senator Zarelli refers to a "significantly revamped program" and notes that budget request is for specific action items – not the PBT program. The letter seems to imply that (1) there are a broader set of PBT-related activities for which Ecology is not requesting funding and (2) the revamped program differs from the proposed strategy.
- **Impacts of Uncertainty on Rule Development and Implementation**: Ecology believes that continued uncertainty on the status of the Proposed PBT Strategy and relationship to the PBT will complicate rule development and implementation. Ecology also believes there will be differences between the Proposed PBT Strategy and the final PBT rule that will eventually need to be explained and harmonized. However, the exact nature of those differences, as well as their practical significance, is currently unclear. Consequently, Ecology believes it makes sense to update and finalize the Proposed PBT Strategy when the Department formally proposes and adopts the PBT rule.

3. Application of the Precautionary Principle (PP)

Issue #3: Should the PBT rule include a statement on the precautionary principle and, if so, what should that statement say?

The PP is a decision-making approach that is applicable to situations where (1) we suspect actions may threaten human health and the environment and (2) scientific uncertainty may otherwise prevent people or organizations from taking cost-effective actions to prevent harm. For example, the Rio Treaty states "...[w]hen there are threats of serious and irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation..." The Advisory Committee discussed the application of the PP to issue of PBTs and whether Ecology should include a statement in the PBT rule. Some members proposed that Ecology incorporate the PP into the PBT rule. Other members recommended that Ecology not mention the PP.

Draft Rule Language and Rationale: Ecology decided to include the following statement in the administrative principles section of the rule:

> **Scientific information**. Decisions implementing this chapter will be based on sound scientific information. Lack of full scientific certainty should not be used to justify delays in the implementation of reasonable measures to prevent environmental harm.

The rationale for this decision includes the following:

- **Current Policies and Approaches:** The vast majority of state and federal environmental laws are based on the principle that in order to protect human health and environment it will often be necessary to take action before scientists have gained a complete understanding of how a chemical affects people and the environment. In some cases, the application of precaution in response to scientific uncertainty is explicit (e.g. use of safety factors, use of new scientific information under MTCA, GMA, etc). In other cases, the application is more implicit (e.g. anti-degradation provisions).
- **Application in Other PBT Strategies:** Support for the PP has grown significantly over the last ten years. Most federal & international strategies include either (1) a version of the PP (e.g. Stockholm) or (2) language that states that scientific uncertainty is not an appropriate justification for inaction.
- **Perception on the Use of Scientific Information:** Groups opposed to using the PP perceive that decision-makers ignore scientific information. Ecology believes that acknowledging scientific uncertainty actually forces decision-makers to more explicitly consider available scientific information (both in terms of what is known and what is unknown) when implementing environmental laws that have been established to protect human health and the environment.
- **Multiple Versions of the Precautionary Principle**: Ecology considered including a specific reference to the PP as recommended by some members of the committee. However, Ecology decided against this approach because there are currently over ten different versions and interpretations of the principle[13] and none of the current versions of the PP provide guidance on the practical use of the principle (e.g. how do you deal with a chemical that has benefits as well as risks?, how do you deal the risks of substitutes?).
- **Other Provisions in the PBT Rule**. Ecology believes that other features commonly associated with the PP are incorporated into the chemical action plan process (e.g. exploring alternatives, considering the full costs of environmental and health impacts over time, public participation in decision-making).

[13] Various versions differ in terms of (1) the level of threat needed to trigger the principle; (2) how uncertainty is considered; (3) the obligation or duty to take action; and (4) the burden of proof; and (5) the role of costs.

4. Purpose(s) of the PBT List

Issue #4: What are the purpose(s) of the PBT list?

Some members expressed the opinion that the sole purpose of the PBT list is to identify chemicals for chemical action plan preparation. Other members expressed the opinion that purpose of the PBT List is to identify those chemicals that Ecology believes require further action in order to more effectively prevent the bioaccumulation of these chemicals to levels that pose threats to human health and environment in Washington. Other members expressed the opinion that the purpose of the list is to identify chemicals that are persistent, bioaccumulative and toxic.

Draft Rule Language and Rationale: Ecology decided to define the purposes of the PBT list as follows.

> **Purpose**. The purpose of the PBT List is to identify chemicals that require further action because they remain ("persist") in the environment for long periods of time where initially low concentrations can increase as the chemical move through the food chain ("bioaccumulation") to levels that pose threats to human health and environment in Washington.

The rationale for this decision includes the following:

- **Nature of the Challenges and Dilemmas Posed by PBT Chemicals Uses, Production and Releases**: The purpose focuses on actions that are linked to the root causes of the PBT problem (e.g. bioaccumulation to levels that threaten human health and the environment in Washington); Ecology (and other organizations) have developed initiatives and/or programs for dealing with PBT chemicals because existing media-specific programs have not effectively managed the numerous small PBT sources or uses that release of small or undetectable amounts of chemicals that can then bioaccumulate in the food chain to levels that threaten health and ecosystems.
- **Approaches Used In Other PBT Programs**: The purpose is consistent with the purposes of lists developed by other federal and international organizations. The most common purpose of the lists developed by other agencies is to identify chemicals that require additional action to reduce, phaseout or eliminate uses, production and/or releases (e.g. the Stockholm Convention, EPA PBT Strategy). A second purpose is to promote public awareness and the collection of information on sources, uses and releases (e.g. Toxics Release Inventory).
- **Legislative Direction**: The purpose is consistent with the Legislative directive which focuses on action (through chemical action plans).
- **Effectiveness and Efficiency**: The purpose focuses on further action in Washington and, consequently, promotes effectiveness and efficiency by focusing agency resources and minimizing unnecessary duplication.

5. Uses of the PBT List

Issue #5: How should Ecology use the PBT list?

The Advisory Committee discussed a wide range of potential uses for the PBT list. Some members expressed the opinion that the sole purpose of the list was to identify chemicals for chemical action plan preparation. Other members recommended that the list should be used to focus review and implementation of additional measures to reduce or eliminate PBT uses or releases. Most advisory committee members seem to agree on the following uses of the list: (1) identify chemicals that will be evaluated in chemical action plans; (2) identify chemicals that may require further information on ambient concentrations; (3) promote awareness on chemical hazards and steps that can be taken to reduce uses, releases and exposures; and (4) encourage voluntary measures to reduce uses, production and releases.

Draft Rule Language and Rationale: Ecology decided to use the PBT list to: (1) identify chemicals that will be evaluated in chemical action plans; (2) identify chemicals that require further information on ambient concentrations; (3) promote awareness on chemical hazards and steps that can be taken to reduce uses, releases and exposures; and (4) encourage voluntary measures to reduce uses, production and releases. The rationale for this decision includes the following:

- **Legislative Direction**: The Legislative budget proviso identifies one use of the PBT list (identifying chemicals to be evaluated in chemical action plans). There are a wide range of activities associated with preparing, implementing and evaluating the effectiveness of chemical action plans. At a minimum, this includes ambient monitoring, promoting public awareness and voluntary measures to reduce and, where feasible, eliminate uses and releases of PBTs.
- **Approaches Used In Other PBT Programs**: The four uses are consistent with the uses of lists developed by EPA and various international organizations. The lists developed by other agencies are generally being used to identify chemicals that require action to (depending on the program) reduce, phaseout or eliminate uses, production and/or releases (e.g. the Stockholm Convention, EPA PBT Strategy). EPA uses the PBT list developed as part of the Toxic Release Inventory program to promote (1) information collection on sources, uses and releases; (2) public awareness through the Community Right-to-Know Program; and (3) voluntary reductions in use and releases.
- **Stakeholder Viewpoints**: Most advisory committee members seem to agree on the following uses of the list: (1) identify chemicals that will be evaluated in chemical action plans; (2) identify chemicals that may require further information on ambient concentrations; (3) promote awareness on chemical hazards and steps that can be taken to reduce uses, releases and exposures; and (4) encourage voluntary measures to reduce uses, production and releases.

6. Criteria for Persistence (P), Bioaccumulation (B) and Toxicity (T)

Issue #6: What are appropriate PBT criteria given the range of criteria being used by other organizations, the purposes of the Washington list, the uncertainties surrounding available scientific information and the range of stakeholder viewpoints?

Options: The PBT Advisory Committee has discussed several combinations of P, B and T criteria being used by federal and international agencies to identify PBT chemicals. Those approaches fall into two broad categories:

- High PBT Criteria: Some members support the use of higher criteria such as those specified in the Stockholm Convention: Persistence (soil or sediment ½ life > 6 months or water ½ life > 2 months); Bioaccumulation (BAF or BCF > 5000); Toxicity (narrative criteria).
- Low PBT Criteria: Some members support the use of lower criteria such as those used by EPA in preparing the Toxics Release Inventory or the Waste Minimization Prioritization Criteria: Persistence (Regional specific half live > 580 hours or media specific (sediment, soil or water) ½ life > 2 months); Bioaccumulation (BAF or BCF > 1000); and Toxicity (EPA WMPT Toxicity Fencelines or TRI Narrative Criteria).

Factors: The issues and factors relevant to decisions on criteria for persistence, bioaccumulation and toxicity are discussed on the next several pages. However, there are several factors that are applicable to the criteria for all three characteristics.

- **Relationship of Criteria to Goals and Purpose of List** The choice of PBT criteria is related to the choices on the purpose and uses of the list. EPA discussed the relationship between the purpose of the list and the choice of criteria in the Preamble to the Toxics Release Inventory Rule. In that document, EPA concluded that there was an inverse relationship between the stringency of the criteria and the consequences of listing a chemical. For example, EPA concluded it would be inappropriate to apply the strict criteria used to identify chemicals whose use and manufacture should be banned (e.g. BAF > 5000) to create lists that are designed to promote greater public awareness and voluntary reduction measures.
- **Federal Requirements**: There are two sets of federal PBT criteria that are currently applicable to Washington. The TRI criteria (described above) are used by EPA to create a list that is designed to promote information collection, greater public awareness and voluntary measures. EPA also used a combination of criteria and factors to establish the list in the National PBT Strategy.[14] Those criteria appear to include: persistence (media-specific half life > 56 days); bioaccumulation (BAF > 5000); and toxicity (chemical included on one of more lists of toxic chemicals).
- **Legislative Direction**: The Legislature directed Ecology to develop specific criteria for identifying persistent, bioaccumulative toxins that may be included on a PBT list. Ecology has interpreted this directive to mean that the Department needs to consider all three characteristics (P, B, and T) – not just 2 of 3 (e.g. P and T or B and T).
- **Phased Process**: The application of the PBT criteria represents the first step in a multi-step process leading from the identification of PBT chemicals to selection and implementation of measures to reduce and, where feasible, eliminate uses and releases.

[14] The list used to implement the EPA National PBT Strategy is published on the EPA website. However, unlike the TRI criteria and list, EPA has not incorporated the list or the listing criteria into a federal rule.

Choice of Persistence Criteria

Issue: What persistence criteria should Ecology use when creating the PBT list?

The Advisory Committee discussed persistence criteria at the September 8th and October 14th meetings. Based on those discussions, Ecology believes there is general agreement that (1) persistence is an appropriate characteristic to consider when preparing the PBT List and (2) media-specific half-live values are an appropriate way to characterize a chemical's persistence (as opposed to the WMPT regional half-life values and used by Ecology to prepare the PBT Working List). However, members expressed different opinions about the particular media-specific half-life values Ecology should use when preparing the PBT list. Some members urged Ecology to use the media-specific half life values selected by EPA for the Toxics Release Inventory list (surface water, soil or sediment half-life values > 2 months). Other members urged Ecology to use the criteria used by several international agencies (surface water ½ life > 2 months; soil ½ life > 6 months; or sediment ½ life > 6 months).

Draft Rule Language and Rationale: The draft rule states that a chemical or group of chemicals may be included on the PBT list if Ecology determines it meets the following criteria:

(a) **Persistence**. The chemical or chemical group can persist in the environment based on evidence that:

i. The half-life of the chemical in water is greater than or equal to sixty (60) days;

ii. The half-life of the chemical in soil is greater than or equal to 60 days; or

iii. The half-life of the chemical in sediments is greater than or equal to 60 days.

The rationale for this selection includes the following:

- **Legislative Direction:** The Legislature directed Ecology to consider a chemical's persistence when developing criteria for identifying chemicals to include on a PBT list. Executive Order 04-01 specifies that Ecology shall develop criteria for identifying persistent toxic chemicals.
- **Scientific Foundation**: EPA states that the decision on the degree of persistence represents a combination of science and policy. Media-specific half-life values are commonly-used measures of persistence that have a sound scientific foundation. Information is available for a wide range of chemicals in agency databases and the peer-reviewed scientific literature.
- **Purpose and Intended Uses of PBT List**: The purpose of the PBT list is to identify chemicals that require further action because they are used or released in Washington and persist long enough in the Washington environment for the chemical to bioaccumulate to levels that pose a threat to human health and the environment. Ecology believes that the shorter half-live values are a more relevant measure for Washington because, the closer the source is to the receptor, the more likely it is that the released chemical will reach the receptor. This is in contrast to the longer half-life values which are used in programs focused on the global distribution of PBT.
- **Federal and International Criteria and Uses**: The persistence criteria are similar to the persistence criteria used by other agencies to create PBT lists that have uses that are similar to the intended uses of the Washington PBT list. In particular, EPA used the same values when identifying PBT chemicals under the Toxics Release Inventory (TRI) programs.
- **Practical Considerations**: All other things being equal, the use of lower half-live values will result in a longer list of chemicals than a list based on higher criteria. However, initial analyses indicate that use of the lower criteria values will not result in a large number of additional chemicals being listed because a chemical must be judged to be persistent, bioaccumulative <u>and</u> toxic before being added to the PBT list. In other words, the list does not appear to be highly sensitive to the choice of persistence criteria.

Choice of Bioaccumulation Criteria

Issue: What bioaccumulation criterion should Ecology use when creating the PBT list?

The Advisory Committee discussed the choice of bioaccumulation criteria at the September 8th and October 14th meetings. Based on those discussions, Ecology believes there is general agreement that (1) bioaccumulation is an appropriate characteristic to consider when preparing the PBT List and (2) Bioaccumulation factors (BAFs), Bioconcentration factors (BCFs) and (to a lesser degree) octonal water partition coefficients (K_{ow}) are appropriate ways to characterize bioaccumulation potential. However, members expressed diverse opinions on the specific BAF or BCF values Ecology should use when preparing the PBT list. Some members urged Ecology to use a BAF or BCF value of 1000 when preparing the PBT list. Other members urged Ecology to use a BAF or BCF value of 5000 to judge whether a chemical should be included on the PBT list.

Draft Rule Language and Rationale: Ecology decided to use the following bioaccumulation criteria when preparing the PBT list. Specifically, the draft rule states that a chemical or group of chemicals may be included on the PBT list if Ecology determines it meets the following criteria:

> **Bioaccumulation**. The chemical or chemical group has a high potential to bioaccumulate based on evidence that the bioconcentration factor or bioaccumulation factor in aquatic species for the chemical is greater than 1000 or, in the absence of such data, that the log Kow is greater than five (5);

The rationale for this decision includes the following:

- **Legislative Direction:** The Legislature directed Ecology to consider a chemical's bioaccumulation potential when developing criteria for identifying chemicals to include on a PBT list.
- **Scientific Foundation**: BAFs, BCFs and Log K_{ow} values are commonly-used measures of bioaccumulation potential that have a sound scientific basis. Information is available for a wide range of chemicals in agency databases and the peer-reviewed scientific literature.
- **Purpose and Intended Uses of PBT List**: The purpose of the PBT list is to identify chemicals that require further action because they are used or released in Washington and persist long enough in the Washington environment for the chemical to bioaccumulate to levels that pose a threat to human health and the environment. Risk assessments indicate that chemicals with BAF values between 1000 and 5000 can bioaccumulate to levels that pose a threat to human health and the environment in Washington.
- **Federal and International Criteria and Uses**: The bioaccumulation criteria are similar to the bioaccumulation criteria used by other agencies to create PBT lists that have uses that are similar to the intended uses of the Washington PBT list. In particular, EPA used a BAF/BCF value of 1000 when identifying PBT chemicals under the Toxics Release Inventory (TRI) programs.
- **Practical Considerations**: Preliminary analyses indicate that the choice of bioaccumulation criterion will have a larger impact on the length of the list than the choices of criteria for persistence and toxicity. Initial evaluations identified 22 chemicals/groups that would be included on a PBT List developed using a BAF/BCF of 1000. Four (4) of those chemicals would not be listed if a BAF/BCF of 5000 was used. Two of those chemicals (Aldrin and Dieldrin) routinely appear on most federal and international lists. The initial comparison focused on chemicals that had previously been included on one or more federal and international lists. It is not clear how the comparison results apply to a broader universe of chemicals.

Choice of Toxicity Criteria

Issue: What toxicity criterion should Ecology use when creating the PBT list?

The Advisory Committee discussed the choice of toxicity criteria at the September 8th and October 14th meetings. Ecology believes there is general agreement that (1) toxicity is an appropriate characteristic to consider when preparing the PBT List and (2) Ecology's consideration of toxicity should take into account human and ecological toxicity. In general, Advisory Committee members did not appear to have strong opinions (either "for" or "against") Ecology's proposal to use the WMPT toxicity criteria. However, some members expressed concerns about the overall protectiveness of the criteria and recommended that Ecology use toxicity values that are 1/10 of the EPA values. Some members also observed that some of the databases by EPA (e.g. the Integrated Risk Information System) may not include the most current scientific information because of the time and level of review involved in updating individual databases. In addition, some members observed that many of the toxicity criteria established by other organizations are in narrative form. Some members expressed uncertainty on whether judgments on toxicity were amenable to quantitative criteria similar to persistence and bioaccumulation.

Draft Rule Language and Rationale: Ecology decided that a chemical should be considered to be toxic enough to warrant inclusion on the PBT list if one or more toxicity measures (e.g. cancer slope factor, reference dose, ecological toxicity) exceed a modified version of the WMPT toxicity criteria. The modified criteria include:

Toxicity. The chemical or chemical group has the potential to be toxic to humans or plants and wildlife based on evidence that:

i. The chemical or a chemical group is a carcinogen and has a cancer slope factor or equivalent toxicity measure that is equal to or greater than 1 $(mg/kg/day)^{-1}$;

ii. The chemical or chemical group has a reference dose or equivalent toxicity measure that is equal to or less than 0.003 mg/kg/day; or

iii. The chemical or chemical group has an aquatic toxicity value that is equal to or less than 0.1 mg/liter.

The rationale for this decision includes the following:

Carcinogenicity

- **Legislative Direction:** The Legislature directed Ecology to consider a chemical's toxicity when developing criteria for identifying chemicals to include on a PBT list.
- **Scientific Foundation**: Cancer slope factors are commonly-used measures of toxicity that have a sound scientific basis. Information is available for a wide range of chemicals in agency databases and the peer-reviewed scientific literature. In addition, the draft rule provides the flexibility to consider new scientific information in a timeframe that is not directly tied to other review processes (e.g. the IRIS database review and update process). However, Ecology believes that the scientific foundation for the criteria would be strengthened by updating the EPA toxicity criteria to incorporate information that has become available since 1994 when the original criteria were developed. This results in an approximate five-fold lowering (more protective health protective) of the carcinogenicity criteria (from 4.6 to 1).

- **Threat to Human Health**: The EPA toxicity criteria (as well as the updated criteria) are established at levels that serve to focus on chemicals that are highly toxic. Consequently, the use of draft criteria is consistent with the purpose of the list ("...identify chemicals where further actions are needed...").
- **Consistency**: Unlike the criteria for persistence and bioaccumulation, there are a wide range of toxicity criteria being used by federal and international agencies. These include (1) narrative criteria (e.g. pose threat to human health and the environment, known or suspected to be carcinogenic in humans and animals); (2) presence on one or more lists of toxic substances and (3) numerical criteria (e.g. WMPT values). However, use of the updated EPA toxicity criteria produce results (in terms of the chemicals identified as being toxic enough to be included on various lists) that are similar to the results from applying the qualitative criteria used by various federal and international agencies.
- **Transparency and Predictability**: Ecology believes that the draft toxicity criteria are more transparent and provide greater predictability than the qualitative and narrative criteria used by many federal and international agencies.

Non-Cancer Health Effects

- **Legislative Direction:** The Legislature directed Ecology to consider a chemical's toxicity when developing criteria for identifying chemicals to include on a PBT list.
- **Scientific Foundation**: Reference doses are commonly-used measures of toxicity that have a sound scientific basis. Information is available for a wide range of chemicals in agency databases and the peer-reviewed scientific literature. However, Ecology believes the scientific foundation of the criteria would be strengthened by updating the EPA values to incorporate toxicity information that has become available since 1994 when the original criteria were developed. This resulted in a five-fold increase (more health protective criteria) in the reference dose criteria.
- **Threat to Human Health**: The EPA toxicity criteria (as well as the updated criteria) are established at levels that serve to focus on chemicals that are highly toxic. Consequently, the use of these criteria is consistent with the purpose of the list ("...identify chemicals where further actions are needed...").
- **Consistency**: Unlike the criteria for persistence and bioaccumulation, there are a wide range of toxicity criteria being used by federal and international agencies. These include (1) narrative criteria (e.g. pose threat to human health and the environment, known or suspected to be carcinogenic in humans and animals); (2) presence on one or more lists of toxic substances and (3) numerical criteria (e.g. WMPT values). It appears that use of the updated EPA toxicity criteria produce results (in terms of the chemicals identified as being toxic enough to be included on various lists) that are similar to the results from applying the qualitative criteria used by various federal and international agencies.
- **Transparency and Predictability**: Ecology believes that the draft toxicity criteria are more transparent and provide greater predictability than the qualitative or narrative criteria used by many federal and international agencies.

Ecological Toxicity

7. Metals

Issue #7: What criteria should Ecology consider when deciding whether to include metals on the PBT list?

The PBT Advisory Committee discussed whether Ecology should use the same PBT criteria for inorganic (metals) and organic substances. Some members expressed the opinion that Ecology should not use the same PBT criteria for organic chemicals and metals. The primary concern identified by these members was that many forms of various metals commonly found in the environment are not bioavailable and, consequently, would be unlikely to bioaccumulate. Other members expressed the opinion that metals should be included on the PBT list and that listing decisions should be made using the same set of criteria as are used for organic chemicals. These members expressed the opinion that bioavailability issues are better addressed during the ranking or chemical action plan development.

Draft Rule Language and Rationale: Ecology decided that it is appropriate to include metals on the PBT list if the metal meets the PBT criteria and Ecology determines that it is likely to be present in the environment in forms that are bioavailable and environmentally accessible. The rationale for this decision includes the following:

- **Persistence and Toxicity:** Metals do not degrade and, consequently, persist indefinitely in the environment in a wide range of forms that can be toxic to humans, plants and animals. While many factors influence exposure and toxicity of metals, the lack of significant environmental degradation creates a higher potential for exposure and adverse health impacts relative to chemicals that are transformed and/or degraded in the environment.
- **Bioavailability and Bioaccumulation:** There is scientific evidence that metals are able to accumulate in biological organisms and reach levels sufficient to cause harmful effects. For example, certain organic forms of mercury are bioavailable and have the potential to reach very high levels in the tissue of fish and animals (including humans). However, Ecology believes that bioavailability is a critical factor in evaluating the potential for individual metals to bioaccumulate in organisms and that many physical, chemical, and biological factors affect the ultimate fate of metals in the environment. This is consistent with the findings in a series of recent issue papers prepared by the Environmental Protection Agency.
- **Consistency with Other Federal and International Agencies**. There appears to be considerable precedent for identifying metals as PBT chemicals by federal and international organization organizations. Several federal, regional and international organizations that have identified one or more metals as PBT chemicals: the Great Lakes Bi-national Toxics Strategy; the Accelerated Reduction/Elimination of Toxics (ARET) program; the EPA Waste Minimization Program; and the EPA Toxics Release Inventory (TRI) Program.
- **Phased Process:** Ecology is currently proposing to publish a ranked list of PBT chemicals in the PBT rule. Consequently, the listing and ranking will occur at the same time and provide the opportunity to consider bioavailability and environmental accessibility at both stages of the process.

8. Screening Factor Based on Use, Release or Presence in Washington

Issue #8: What additional factors (if any) should Ecology consider when preparing the initial PBT list and future amendments (in addition to a chemical's PBT characteristics)?

The PBT Advisory Committee discussed the provision in the Proposed Strategy that specifies that Ecology would consider whether there is evidence that a chemical is used or released in Washington or present in the Washington environment before including the chemical on the PBT list. Some members expressed the opinion that it was inappropriate to consider factors other than a chemical's PBT characteristics. Other members expressed the opinion that it was appropriate for Ecology to consider whether there is some evidence (quantitative or qualitative) that the chemical is used in Washington, released by Washington sources or present in the Washington environment.

Draft Rule Language and Rationale: Ecology decided that it was appropriate to consider (in addition to a chemical's P, B and T characteristics) whether there is evidence that the chemical is used, produced or released in Washington or present in the Washington environment when deciding whether to include the chemical on the PBT list.

The rationale for this decision includes the following:

- **Purpose of the List**: Ecology believes this provision is consistent with the purpose of the PBT list (i.e. identify chemicals that require further action). Specifically, the need for further actions would be extremely limited if Ecology had no reason to believe a chemical has been used, produced or released in Washington and/or was present in the Washington environment.
- **Executive Order 04-01**: Ecology believes that this provision is consistent with Executive Order 04-01. Specifically, the Governor directed Ecology to establish "....specific criteria for use in identifying persistent, toxic chemicals that pose human health or environmental impacts in Washington State...."
- **Consistency With Other Strategies**: Ecology believes this provision is consistent with approaches used by federal and international organizations Decisions to include chemicals on federal and international PBT lists take into account several factors in addition to a chemicals persistence, bioaccumulation and toxicity characteristics (e.g. sources, uses, costs, etc.)
- **Consistency With Proposed PBT Strategy**: Ecology considered information on the use, release or presence of chemicals in Washington when preparing the PBT Working List.
- **Phased Process**: Ecology is currently proposing to publish a ranked list of PBT chemicals in the PBT rule. Consequently, Ecology will be considering information on potential uses and releases prior to publishing the PBT list (or amendments) as part of the ranking process.

9. Chemical Groups

Issue #9: How should Ecology handle chemical groups that share common chemical characteristics and/or degrade into different chemical forms when released into the environment?

The Advisory Committee discussed whether Ecology should evaluate and list broad classes or families of chemicals that share common chemical characteristics (e,g. polynuclear aromatic hydrocarbons (PAHs)) or separately list all of the individual chemicals (e.g. benzo(a)pyrene) from the class of chemicals that meet the PBT criteria. Some members expressed the opinion that it was appropriate to list the chemical groups or chemical classes. Other members recommended that Ecology should consider specific chemicals – not just classes of chemicals – because different chemicals from the same chemical family can have vastly different characteristics. Several members also requested that Ecology clarify in the rule how the Department will address chemicals that break down into different chemical forms.

Draft Rule Language and Rationale: Ecology decided that it is appropriate to list broad classes of chemicals that share common chemical characteristics instead of listing individual chemicals from the particular class of chemicals. Ecology also decided that it was important to clarify in the rule that decisions on individual chemicals should consider the characteristics of the chemical and potential breakdown products that might result from the degradation of the chemical in the environment. The rationale for these decisions includes the following:

- **Purpose and Intended Uses of PBT List**: The purpose of the PBT list is to identify chemicals that require further action because they are used or released in Washington and persist long enough in the Washington environment for the chemical to bioaccumulate to levels that pose a threat to human health and the environment. In terms of actions to reduce/prevent threats, Ecology believes it is important to consider groups of chemicals releases by common sources and the behavior of individual chemicals once they enter the Washington environment.
- **Consistency With Other Federal and International Approaches**: Ecology believes this approach is consistent with approaches used by other federal and international agencies. Specifically, many agencies have developed lists that include chemicals groups such as PAHs, PCBs, polychlorinated naphthalenes, etc. In addition, several agencies have listed and developed action plans that are primarily designed to prevent or address health and environmental threats of degradation products. For example, several organizations have included heptachlor on their PBT lists (e.g. Toxics Release Inventory, EPA National PBT List, etc.). The basis for listing this chemical is the persistence, bioaccumulation and toxicity characteristics of heptachlor expoxide which is a breakdown product of the parent substance (heptachlor).
- **Consistency with Early Implementation of the PBT Strategy**: Ecology currently considers groups of chemicals sharing similar properties and the potential for degradation products having similar or greater PBT characteristics.
- **Practical Considerations**: The Department believes it makes sense to list certain chemical groups because measures to reduce or eliminate uses and releases will generally address all of the chemicals in a group (rather than selectively focusing on one chemical on the group). Ecology recognizes that this will not always be the case and believes the chemical action plan process provides sufficient flexibility to address these exceptions. Ecology also believes there may be chemical groups where it is possible to distinguish different members of the group in terms of uses and chemical properties.

10. Initial PBT List

Issue #10: What chemicals should Ecology include on the initial PBT list?

The Advisory Committee discussed the size and scope of the initial PBT list at several of their meetings. Some members urged Ecology to start with a small list that was limited to chemicals on the EPA's national PBT list. These members stated that Ecology could then add other chemicals by amending the rule. Other members urged Ecology to establish a more comprehensive list. These members expressed the opinion that it was inappropriate to limit the list of chemicals to only those that had been previously included on the EPA national PBT list or other lists established by federal and international agencies.

Draft Rule Language and Rationale: Ecology decided to develop the initial PBT list based on (1) a review of information on the persistence, bioaccumulation and toxicity of chemicals of potential concern in Washington and (2) the application of the PBT criteria and screening factors in the draft rule. The rationale for this decision includes the following:

- **Geographic Relevance**: Ecology believes that the Washington PBT strategy should focus on PBT chemicals that pose potential threats to human health and the environment in Washington. This was a common theme heard at the public meetings held in 1998, 1999 and 2000. However, Ecology recognizes that the individuals and organizations voicing that recommendation have varied depending on whether Ecology was proposing to use a short (@12 chemicals) or long (@25-30 chemicals) list developed by other organizations.
- **Purpose and Intended Uses of PBT List**: Ecology believes that the initial PBT list (as well as subsequent lists) should be designed to meet the goals and purposes of the Washington program.
- **Scientific Foundation**: Ecology's proposed approach allows the Department to consider the latest scientific information in making decisions on whether to include or not include a particular chemical on the PBT list.
- **Emphasis on Action**: The Legislature and the Governor have emphasized further actions to reduce, and where feasible, eliminate uses and releases of PBTs in Washington. Many of the chemicals on the EPA list are chemicals whose uses are already banned in the United States. Consequently, the initial list provides limited opportunities for consideration of meaningful measures to reduce exposures (relative to current requirements) in Washington.
- **Practical Considerations**: Available resources and information will constrain the initial list.