

Alternatives Assessment Guidance

Welcome to the webinar!

Schedule & Presenters

- Overview of Alternatives Assessment Guidance – ½ hour
 - Dr. Alex Stone, Washington Department of Ecology
- Questions & comments – 1 hour
 - Alex Stone, Guidance Team Lead
 - Linda Glasier, Stakeholder Coordinator, Department of Ecology
 - Moderators
 - Bob Kerr & Roian Atwood, Pure Strategies
 - Cheri Peele, the Peele Group
- Blog site:
<http://blog.purestrategies.com/StateofWashington/DepartmentofEcology/Alternatives-Assessment/>
 - Additional information on modules
 - Text of module outlines
 - Opportunity to comment on modules

Alternatives Assessment Guidance



Alex Stone
Guidance Team Lead
Stakeholder Webinar
15 August 2012

Presentation Outline

Background:

- Why alternatives assessment?
- Who is working on guidance and who is funding it?
- Stakeholder Involvement
- What is an alternatives assessment?

Guidance Fundamentals

- Mission Statement
- Goals and Objectives

Alternatives Assessment Guidance:

- Progress
- Details on completed modules
- Timeline





Background

Traditional Risk Assessment

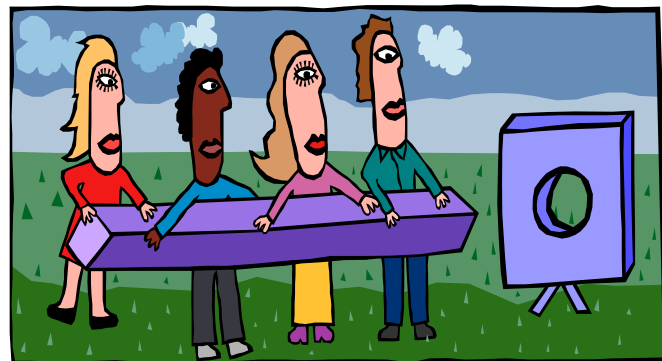
Objective: Evaluate the RISK posed by a product containing toxic chemicals

- RA only looks at exposure during use and does not include a life-cycle exposure perspective
- Does not include the complete costs of toxic chemicals use; long-term management, human health, cleanup and disposal costs are often externalized
- Is difficult and expensive to implement and therefore not typically used by small businesses



Alternatives Assessment

RA is not adequate to address all impacts posed by toxic chemicals in products

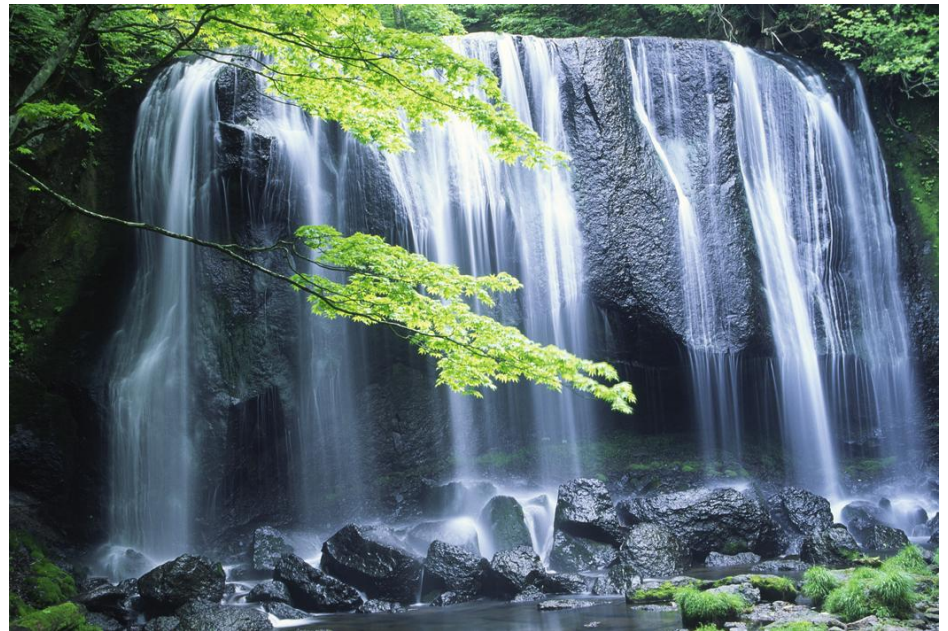


- *Finding 4.6. — Better methods [beyond risk analysis] are needed to support consideration of health and environmental effects for the green chemistry goal of safer products and more sustainable chemical usage (National Academy of Science's Green Book on Sustainability)*
- Major US and International manufacturers have adopted some form of alternatives assessment

Alternatives Assessment Definition

Alternatives Assessment¹: a process for identifying and comparing potential chemical and non-chemical alternatives that can be used as substitutes to replace chemicals or technologies of high concern

¹From Dr. Ken Geiser, Professor of Work Environment and Director of the Lowell Center for Sustainable Production at the University of Massachusetts Lowell



Background



- \$150K from EPA to develop guidance
- Eight states (CA, CT, MA, MI, MN, NY, OR, WA) working together under IC2 umbrella
- Staff from EPA Design for the Environment (DfE) program providing technical support
- Dr. Lauren Heine of Clean Production Action hired as technical consultant
- Contracted for stakeholder & technical writing support

Stakeholder Process

States committed to an open and transparent process during development of guidance

- Webpage at:
<http://www.ecy.wa.gov/programs/hwtr/ChemAlternatives/index.html>
- Information posted to keep stakeholders informed and involved
 - Comments received
 - TAAG Team agendas
 - Meeting summaries
 - Completed module outlines for review and comment
- Initiated blog to seek additional input
<http://blog.purestrategies.com/StateofWashington/DepartmentofEcology/Alternatives-Assessment/?&t=79585>
- Two webinars, today and last week in September





Guidance Fundamentals

Mission Statement

Create an alternatives assessment process that promotes continuous improvement by fostering the manufacture of products that are benign by design.



Goals & Objectives



The guidance document will allow users to identify viable safer alternatives to chemicals of concern that:

- 1. Reduce risk by replacing toxic chemicals in products with inherently safer alternatives*
- 2. Prevent uninformed substitutions where alternatives are poorly understood, or are as toxic or more toxic than chemical of concern*
- 3. Define information requirements for credible alternatives assessment*
- 4. Continually improve products until they are benign to human health and the environment*

Goals & Objectives

The document is intended to be:

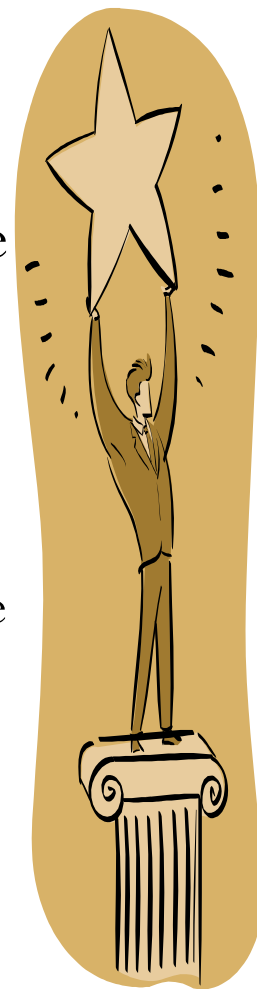
- 1. Flexible and transparent to meet the needs of a wide range of users (from small, medium and large businesses, to local, state and federal governments, to other interested parties, etc.)*
- 2. Assist users when determining both which components and to what level each component should be incorporated into their alternatives assessment.*



Alternative Assessment Objective

Replace toxic chemicals with safer alternatives

- If a safer alternative to chemical of concern exists that completes the function of the product at a cost effective price, there is NO justification for continued use of chemical of concern
- Cost savings from eliminating toxic chemicals:
 - Releases during manufacture, transport, storage and end-of-life
 - Regulatory costs of managing chemicals and dangerous waste
 - Potential health and societal costs
- Major US manufacturers are using the alternatives assessment process because of these benefits



Guidance Approach

Guidance based upon optimized risk-reduction

$$\text{Risk} \approx \text{Function} (\underline{\text{Hazard}}, \underline{\text{Exposure}})$$

Optimized Risk-reduction:

1. Identifies chemicals with lowest possible hazard
2. Evaluates exposure of chemicals with lowest hazard

Select alternative that is both lowest hazard and lowest possible exposure potential across life-cycle

Exposure evaluation alone will not be employed to allow continued use of toxic chemicals as both steps are critical





Alternatives Assessment Guidance

Alternative Assessment Components

- *Initial Evaluation*
- *Identification of alternatives*
- *Pre-screening evaluation*
- *Hazard evaluation*
- *Exposure considerations*
- *Performance & Process Engineering*
- *Cost & Availability*
- *Stakeholder Involvement*
- *Social, worker & environmental justice & related considerations*
- *Material flow assessment*
- *Life cycle considerations / avoiding shifting risks*
- *Decision making methodology*



Color code:

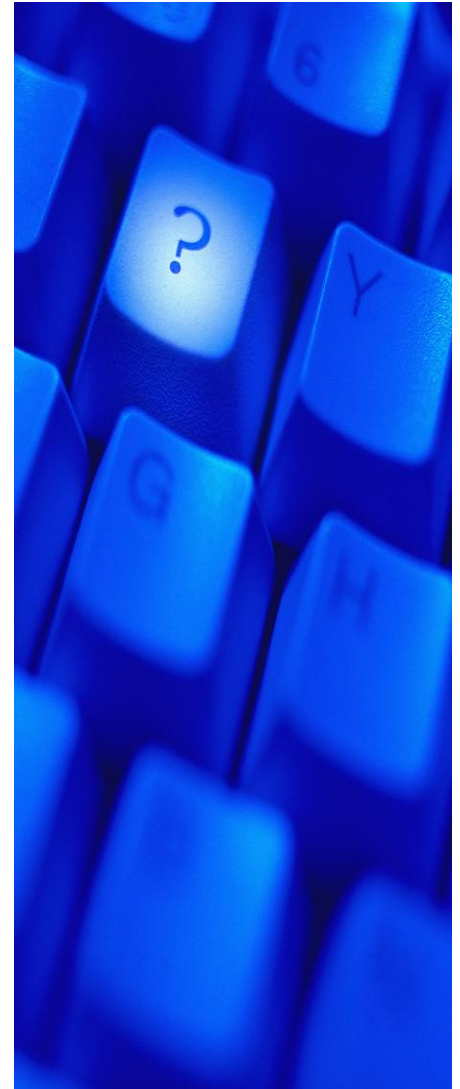
- *Outlines completed*
- *Outlines in draft and near complete*
- *Modules remaining to be worked on*

Initial Evaluation Module

Asks whether or not an alternatives assessment is needed?

- Can the product function without the chemical of concern?
- Has the product reached its maturity and can it be replaced with another product that does not contain the chemical of concern?

If these options are possible, proceed with an alternatives assessment



Identification of Alternatives Module

- Identifies the universe of potential alternatives to be considered during the alternatives assessment process
- Alternatives include:
 - Chemical substitution
 - Use of alternative materials
 - Product redesign to reduce use of and exposure to chemical of concern
- Defines a very broad universe of alternatives that will be evaluated in subsequent modules



Hazard Assessment Module

- Objective is to determine what hazards exist for potential alternatives to chemical of concern
- Based upon methodology established by EPA's Design for the Environment (DfE) Program's Safer Products Initiative
- Ranges from a simple list comparison to a full-blown, validated chemical hazard assessment
- Provides tools to fit needs of wide range of users



Hazard Assessment Module

Level 1: Comparison against lists of chemicals of concern identified by authoritative bodies

Level 2: Add more lists for comparison

Level 3: Add more authoritative sources including specific databases, technical reports such as risk assessments, etc.

Level 4: GreenScreen™ assessment

- Based upon EPA Design for Environment Methodology
- Reviews 19 hazard endpoints & ranks them from very high to very low level of concern
- Places chemicals into one of 4 bins or 'benchmarks' for comparison

Level 5: GreenScreen™ assessment plus:

- Elimination of all data gaps via computer modeling or scientific studies AND
- Validation of results by qualified scientists



Exposure Module

- Based upon work conducted by the National Institute of Occupational Safety and Health (NIOSH)
- Ranges from a simple exposure evaluation to a full-blown risk assessment
- Expected to be used after hazard evaluation and will aid in narrowing down alternatives
- Consists of 6 Levels with increasing complexity and data requirements



Exposure Module

Level 1: Compares exposure pathways and potentials to determine if sufficiently similar so no further evaluation needed

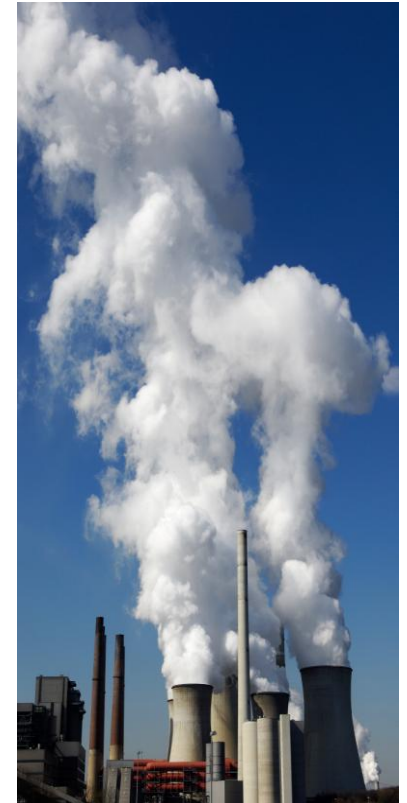
Level 2: Assesses chemical-to-chemical replacement options to reduce hazard

Level 3: Evaluates potential exposure qualitatively

Level 4: Evaluates potential exposure quantitatively

Level 5: Evaluates potential exposure quantitatively and includes evaluation of impacts upon sensitive populations

Level 6: Conduct a full risk assessment



Performance Module

- Based upon work conducted by the Toxics Use Reduction Institute (TURI) at the University of Massachusetts-Lowell and the European Chemicals Agency (ECHA)
- Ranges from a simple qualitative evaluation to a validated quantitative evaluation
- Consists of 3 Levels with increasing complexity and data requirements



Performance Module

Each level compares performance using:

Level 1: Qualitative information readily available from manufacturers and other easily-accessible sources

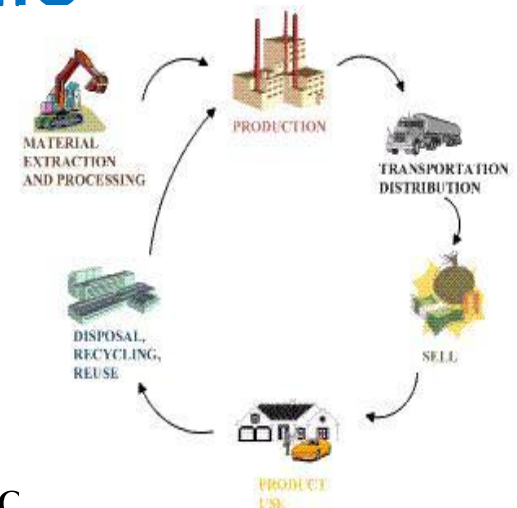
Level 2: Quantitative information of existing data reviewed by technical experts

Level 3: Quantitative information based upon results of specified tests with results reviewed and validated by technical experts



Life-cycle Thinking Module

- Evaluates relevant information about product life-cycle
- Prevents shifting negative impacts from one category to another
- Does not duplicate evaluations conducted in c but expands evaluation to consider wider impacts not previously considered
- Expected to be used late in alternatives assessment process to concentrate resources on alternatives that have ‘passed’ evaluation by other modules
- Consists of 3 Levels and an initial screening step
- Each level becomes successfully more quantitative



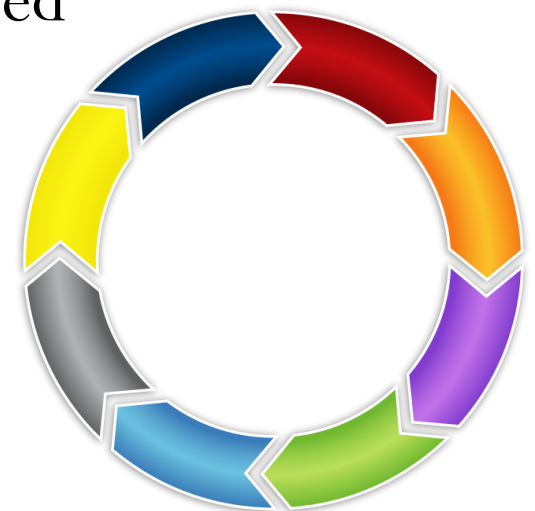
Life-Cycle Thinking Module

Initial Screening: Determines what life-cycle components are important and will be considered in subsequent Levels

Level 1: Assesses life-cycle components identified in Initial Screen using readily available information and semi-quantitative approaches

Level 2: Assesses life-cycle components identified in Initial Screen using quantitative approaches

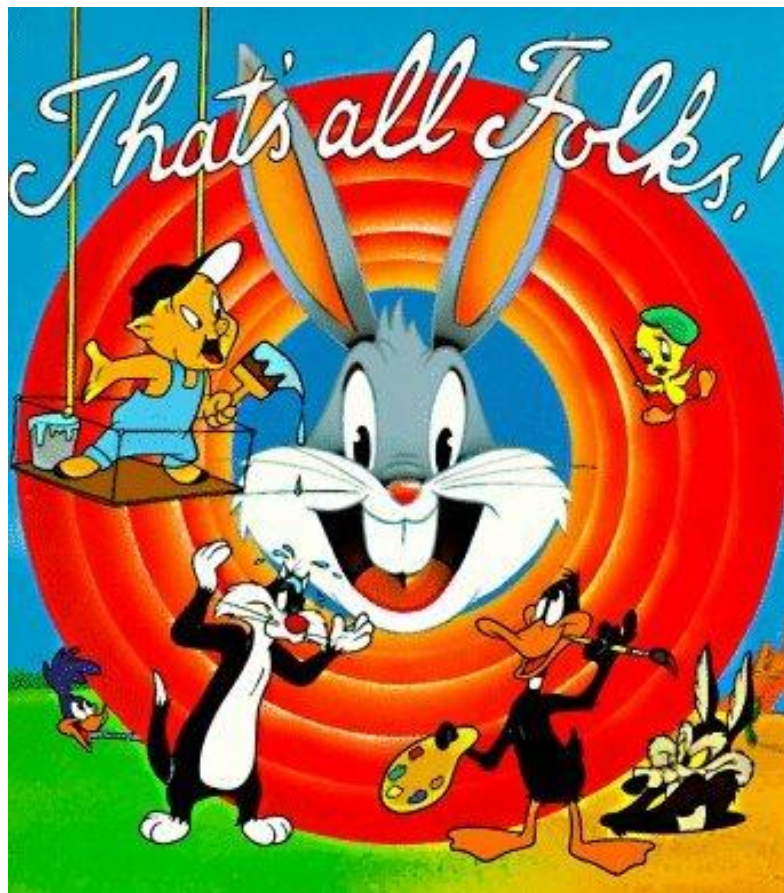
Level 3: Evaluates life-cycle components using an ISO 14040 compliant methodologies



Timeframe

- Remaining module outlines will be made available for stakeholder review and comment as they become available
- Final stakeholder webinar planned for September 26th
- Working toward having draft guidance ready for release by the end of October 2012
- Stakeholder input will be reviewed and changes made to the document.
- Release of completed guidance by December 31, 2012





Contacts:

Alex Stone

Guidance Team Lead

Washington Department of Ecology

Alex.Stone@ecy.wa.gov

(360) 407-6758

Linda Glasier

Stakeholder Coordinator

Washington Department of Ecology

Linda.Glasier@ecy.wa.gov

(360) 407- 7355