DEPARTMENT OF
ECOLOGY
State of Washington

Washington State
Alternatives Assessment Guidance
for Small and Medium Businesses

Discussion Draft

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Purpose

In January 2014, the Interstate Chemicals Clearinghouse (IC2) published its Alternatives Assessment Guide (Guide). The IC2 is an association of state, local, and tribal governments and supporting members from non-government organizations, businesses, labor unions, and academia. The IC2 was created with the intention of:

- Avoiding duplication while enhancing efficiency and effectiveness of government initiatives on chemicals through collaboration and coordination.
- Building government capacity to identify and promote safer chemicals and products.
- Ensuring that agencies, businesses, and the public have easy access to high-quality and authoritative chemical data, information, and assessment methods.

The Guide is the result of coordination among member states to identify a common perspective for conducting alternatives assessments. An alternatives assessment is a process created to identify safer alternatives to toxic chemicals in products and reduce the impacts from, and cost of, toxic use on human health and the environment.

The Guide identifies no single process that is appropriate for all consumer products, but provides numerous frameworks for conducting an alternatives assessment. In addition, the Guide recognizes that individual states may have different perspectives, legislative requirements, and priorities that would affect the contents of an acceptable alternatives assessment. However, by working together on the Guide, the states identified a common foundation upon which to conduct alternatives assessments with the intent of sharing resources and expertise among member states.

The purpose of this document is to provide alternatives assessment guidance for small- to medium-sized businesses as recommended by the Washington Department of Ecology (Ecology) based on the IC2 Guide released in 2014. The Ecology guidance establishes minimum requirements for an alternatives assessment and a recommended methodology for implementation. Individual companies or organizations conducting an alternatives assessment may build upon these requirements and add modules and complexity by referencing the Guide, which provides greater detail. Any alternatives assessment conducted within Washington State by Ecology, however, will follow these requirements as a minimum. The goal of an effective alternatives assessment is to replace chemicals of concern in products or processes with safer alternatives, thereby protecting and enhancing human health and the environment.

Background

Basic principles exist for both the alternatives assessment (AA) process and the contents of the Guide. These principles include:

- **Replacement of toxic chemicals with safer alternatives**: The primary objective of an AA is to replace toxic chemicals in products with safer alternatives. Elimination of toxic chemicals is in direct agreement with Ecology's Reducing Toxic Threats (RTT) initiative. Ecology's RTT initiative is based on the principle that removal of toxic chemicals from the manufacturing process not only better protects human health and the environment but saves the general public substantial amounts of money through the prevention of cleanup sites and regulatory oversight.

- **Hazard-based**: Reducing risk by reducing hazard is fundamental to the AA process. Therefore, a chemical hazard assessment process is the first process to be conducted in an AA.

- **Risk-based**: The AA process is based on reducing risk by selecting alternatives that have both the lowest hazard and lowest exposure potential. See the box on risk for more information.

- **Scientifically-based**: The AA process uses the best available science when evaluating the different components selected for an AA.

- **Transparency**: The AA process requires identification and publication of information used, where possible, within the AA. Although some information may be confidential (see Confidential Business Information bullet below), some information, such as the hazard assessment, for example, must be made accessible to all reviewers.

- **Continuous Improvement**: This guidance recognizes that safer alternatives may not exist for all toxic chemicals used in products. The AA process, however, conducts a

Risk:
The Guide defines risk as: *'Identification of the probability of harm a chemical may have upon human health and the environment. Risk is defined as a function of hazard and exposure and is approximated by the equation: Risk = f (Hazard, Exposure).'*

Unlike the Risk Assessment process, which attempts to quantify risk based primarily on assumptions related to exposure, the Alternatives Assessment process reduces risk by optimizing BOTH components of the risk equation, i.e., hazard and exposure. The safest alternative and, by definition, the alternative with the lowest risk has both the lowest hazard and exposure potential.

review of the current conditions and when safer alternatives are not found provides a focus for product innovation and green chemistry to create new chemicals to replace the toxic chemical.

- **Confidential Business Information (CBI)**: The Guide does not address CBI requirements. Members creating the Guide identified that CBI was outside their mandate to address, since state laws are different. Other entities such as State Legislatures will need to resolve conflicts between an industry's need to keep information confidential and a consumer's right to know the impacts that chemicals in products have on human health and the environment. It is important to note, however, that the U.S. Environmental Protection Agency's (EPA's) Design for the Environment Program conducted an AA and was able to protect CBI while still releasing information on the impacts the unidentified chemical had on human health and the environment.

The following guidance is based upon these principles.

Alternatives Assessment Structure

The Guide creates a five-step process for conducting an AA:

1. Identify Chemicals of Concern
2. Initial Evaluation
3. Scoping Alternatives Assessment
4. Identification of Alternatives
5. Evaluate Alternatives

This guidance will address each of the five steps and, based on the contents of the IC2 Guide, identify what is recommended as a minimum for an AA conducted in Washington State.

1. Identify Chemicals of Concern

As stated in the Guide, the identification of a chemical of concern is outside the scope of this guidance. Numerous methods can lead to the identification of a chemical of concern including legislation, consumer concern, industry concern, etc. To attempt to include this process within this guidance would make implementation of this guidance difficult if not impossible. Therefore, both the Guide and this document assume that the identification process occurs prior to initiating an AA.

2. Initial Evaluation

An initial evaluation should be conducted as recommended within the IC2 Guide (see the Initial Evaluation Module in the Guide). In some cases, it may be possible to eliminate the use of the toxic chemical without the need to consider alternatives. An initial evaluation determines whether the chemical can be eliminated from the product without affecting product performance and whether an alternatives assessment is needed.

3. Scoping Alternatives Assessment

This step within the AA process identifies both the level of stakeholder involvement and which of the three frameworks identified with the Guide will be used. This guidance identifies which levels of stakeholder involvement are appropriate for an AA and which framework is recommended.

Stakeholder

The Initial Screen and two levels identified in the Stakeholder Module of the Guide are recommended for use in this guidance:

Initial Screen	*Identification of pertinent stakeholders*: Identifies pertinent stakeholders and those likely to be interested in and important to the proposed AA.
Level 1	*Internal exercise*: Identifies potential stakeholders, their concerns, and how their concerns may be addressed in the AA. There is little external stakeholder involvement unless specific questions are posed where external input is required or recommended.
Level 2	*Formal stakeholder process*: Identifies potential stakeholders and seeks their input in a formal and structured process. Pertinent AA information is provided for stakeholder review and comment. All comments are collected and responded to.

For the purpose of this guidance, Ecology recommends as a minimum Level 1 for most assessors and Level 2 for AAs conducted by public agencies such as Ecology. Assessors may use higher levels of stakeholder involvement if appropriate. More details can be found in the Guide.

Decision Framework

The IC2 Guide identifies three different frameworks that can be used to conduct an AA.

Those three frameworks are:

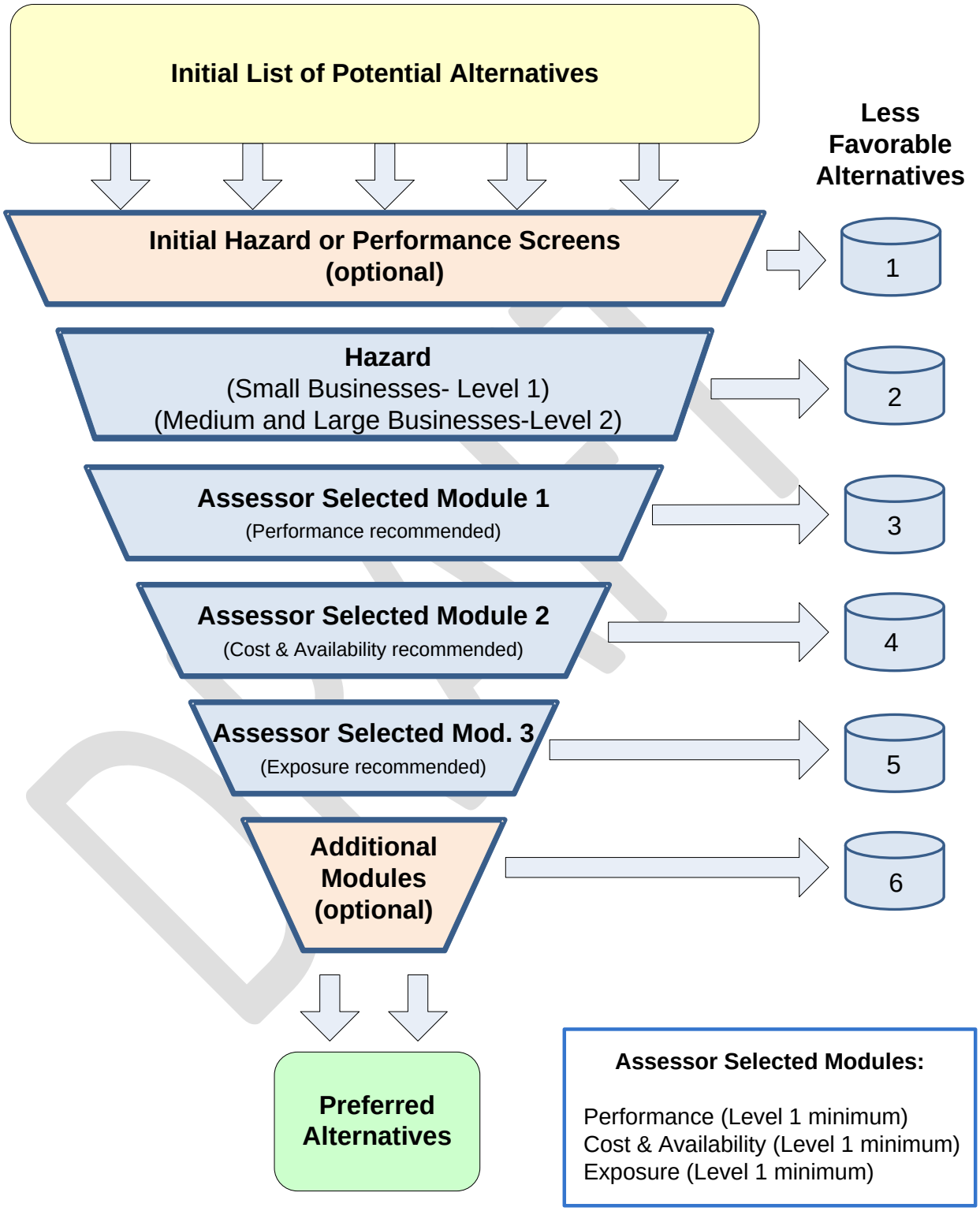
1. Sequential
2. Simultaneous
3. Hybrid

For the purposes of this guidance, Ecology recommends using an adaptation of the IC2 Sequential Framework.

This guidance allows users to determine which module is implemented after the Hazard Module. In this process, a chemical hazard assessment is conducted on the toxic chemical and potential alternatives. Ecology recommends small companies conduct a Level 1 chemical hazard assessment, which incorporates the Quick Chemical Assessment Tool (QCAT), developed by Ecology. For medium and large businesses a Level 2 chemical hazard assessment is recommended to evaluate hazard end points more fully. The alternatives with the lowest hazard are evaluated further using the three remaining modules, i.e., performance, cost and availability, and exposure. As a minimum, Level 1 is recommended for these three modules. Assessors may use higher levels if they have the resources or expertise.

Ecology recommends that assessors use the recommended order in the Guide with lowest hazard alternatives evaluated first for performance, followed by cost and availability, and exposure. However, individual assessors may select a different order of implementation as long as all four modules are included in any AA. This process is described in Figure 1.

Figure 1: Sequential Framework used in this guidance document



4. Identification of Alternatives

Ecology recommends conducting an initial screen of alternatives using the lowest levels of the Hazard and Performance Modules. By implementing this procedure, the widest range of alternatives is identified including consideration of alternatives such as, product redesign that removes the need for chemical addition.

5. Evaluation of Alternatives

For the purpose of this guidance, Ecology recommends small- and medium-sized companies (annual sales of less than $250,000,000) implement four core modules. Use the Hazard Module first. After the Hazard Module, Ecology recommends using the Performance Module, Cost and Availability Module and then the Exposure Module; however, it is acceptable to use these three in any order. For the Hazard Module, Ecology recommends using Level 1 for small businesses.

For larger companies (annual sales exceeding $250,000,000) and for government organizations, Ecology recommends that the Level 2 evaluation be used in the Hazard module. This more detailed assessment improves the quality of alternatives submitted for further evaluation and provides a more thorough toxicity review. As with all modules, higher Levels may be used if the company has resources or expertise available and the more detailed assessment is appropriate for the alternatives being evaluated.

Those alternatives identified to have the lowest toxicity are evaluated using one of the three remaining modules. The next module is determined by the assessor and should be appropriate for the chemical or alternative being evaluated. Further assessment continues through the remaining modules until all alternatives have been evaluated using Level 1 as a minimum. Ecology recommends implementation of the modules as recommended in the Guide, i.e., 2) performance, 3) Cost and Availability, and 4) Exposure; however, the implementation order is not fixed and may be varied depending on the chemical, product, or process under evaluation.

As indicated in the Guide, safer alternatives are identified that meet the requirements of all four modules. If no safer alternatives are identified, the assessor will need to cycle back to the second best alternatives identified in the Hazard Module and evaluate these alternatives using the other modules.

The expectations identified in this section establish minimum expectations. If the situation warrants it, assessors may use higher levels and different frameworks identified in the Guide. More detail on applicable portions of each module is available in the Guide.

Hazard Module

Two levels and Initial Screen of the Hazard Module are recommended in this guidance:

Initial Screen	*Initial Screen:* Uses several readily available sources to evaluate whether a chemical, product, or process appears on authoritative lists of hazard criteria.
Level 1	*Basic Evaluation:* Uses the Quick Chemical Assessment tool to determine if hazards exist for specific hazard criteria using well-defined, readily available data sources.
Level 2	*GreenScreen Evaluation:* Uses the GreenScreen for Hazard Assessment tool (GreenScreen®) to conduct a thorough hazard evaluation. The GreenScreen® is a free, publicly available hazard assessment tool.

Smaller companies with limited resources and expertise in the AA process would use Level 1 while medium and larger companies would use Level 2. Higher levels may be used if appropriate.

Performance Module

This guidance recommends Level 1 of the Performance Module as minimum. The Guide describes Level 1 as:

Level 1	*Basic Performance Evaluation:* Identifies a few, very basic questions about whether the alternative performs the required function in the product. This level uses qualitative information readily available from manufacturers and other sources to evaluate alternatives.

Higher levels may be used if appropriate.

Cost and Availability Module

This guidance recommends Level 1 of the Cost and Availability Module as a minimum:

Level 1	*Basic Cost and Availability Evaluation:* This evaluation asks a few, very basic questions about whether the alternative is being used in cost competitive products. If yes, the alternative is considered feasible.

Higher levels may be used if appropriate.

Exposure Module

This guidance recommends using both the Initial Screen and Level 1 of the Exposure Module as a minimum:

Initial Screen	*Initial Exposure Assessment Evaluation:* Identifies whether sufficient similarities exist between the chemical of concern and potential alternative(s), such that an exposure assessment is not necessary. If so, differences in exposure concerns between the chemical of concern and potential alternatives are inconsequential to the AA.
Level 1	*Basic Exposure Evaluation:* Identifies potential exposure concerns and how the concerns may be addressed. Decisions in this level are based upon a qualitative assessment using readily available data.

The Initial Screen is important as it provides a mechanism for focusing attention only on those alternatives that have substantially different potential routes of exposure. If the routes of exposure are the same for the alternatives as for the toxic chemical, exposure can be assumed to be identical and therefore not pertinent to the AA. Higher levels may be used if appropriate.

Final Report

As indicated previously, transparency is an important factor in any AA. The assessor should document the results of each step in a final report and have the report available for review if requested. Ecology recommends disclosure of as much of the report as possible to provide consumers with greater confidence in the overall impacts that products have on human health and the environment. If confidential business concerns prevent publication of some of the steps, the report must include the results of the hazard assessment for each alternative along with the source of the data used in the assessment.