

DRAFT (2-10-10)

Types of Toxic Chemical and Pollutant Reduction Measures

Specific reduction measures fall into a number of broad, general categories. Most specific strategies will fall into one (or more) of these categories. This will help with organization of the many possible strategies, and, because the strategies within each category will share common attributes, the categories will facilitate evaluation of the strategies.

1. Direct Regulatory Strategies

Strategies in this category include traditional approaches to pollution control, such as the Clean Water Act and Clean Air Act, that:

- Limit or prohibit use of toxic chemical
- Limit or prohibit release of toxic chemical
- Require disclosure (i.e., require disclosure of chemical data)
- Producer Responsibility
- Require removal from the environment

Typically, these types of strategies rely upon rules, permits, and orders that are enforced through civil penalties. Such strategies impose a significant burden on regulatory agencies to develop, maintain, and enforce. They focus on specific entities and tend to present end of pipe approaches to pollution control. As appropriate, DEQ may recommend the expansion or redirection of existing programs, or the establishment of new direct regulatory programs, to accomplish specific reductions of toxic chemicals.

2. Incentive Strategies

Strategies in this category are or could in the future be included in direct regulatory programs to provide incentives for entities to voluntarily take specific pollution control or reduction measures. They include:

- Incentives for actions beyond minimal regulatory compliance
- Incentives for continuous improvement beyond compliance
- Incentives for actions not required by the underlying regulatory program

Strategies in this category could be characterized as following the “carrot” approach and are typically – although not necessarily – a component of a direct regulatory program. In the past, incentives in this category have been implemented through rather complex and cumbersome rules and permits (e.g. Green Permits and Performance Track programs) that have limited their use. They also require monitoring and verification by the regulatory agency. However, if properly approached, they could provide opportunities to achieve significant toxic reductions with reduced regulatory burdens.

3. Toxic Chemical Reduction, Control, and Management Strategies

Strategies in this category provide toxic reductions through technology, engineering, and construction measures, and include:

- Air contaminant control technologies
- Process improvement technologies
- Facility design and location
- Wastewater treatment
- Stormwater Treatment
- Source reduction innovations
- Stormwater control
- Stream bank stabilization and erosion control methods
- Soil and groundwater cleanup technologies

Measures in this category are not intended to provide “upstream” reductions, but can provide reductions by reducing or preventing releases of toxic chemicals into the environment. Many of these measures can be implemented outside traditional regulatory programs, although they are often an element of such programs. In those cases, they can require significant regulatory resources to develop rules and permits, and provide monitoring and oversight.

4. *Pollution Prevention Strategies*

These strategies are one directly targeted at reducing pollution at the source, rather than controlling toxic pollution. These strategies will be advanced through technological innovations, education and technical assistance, incentives and technology transfer. They include:

- Increase research into new pollution prevention strategies
- Promote implementation of effective pollution prevention for businesses, agriculture and forestry (all sectors and sector-specific)
- Household chemical use reduction actions
- Collaboration and Partnerships on source reduction measures

5. *Monitoring and Measurement*

Strategies in this category provide information about the presence of toxics in the environment at various locations and through time, and also measure the presence of toxics in materials released or discharged into the environment. They include:

- Source identification
- Ambient environmental monitoring
- Biological indicator monitoring
- Biosolids monitoring
- Sediment monitoring
- Drinking water intake systems
- Effectiveness monitoring
- Modeling & assessment

Measures in this category can be implemented by private entities or governmental bodies, and may be voluntary or a regulatory requirement of a program, permit, or order. They tend to focus either on toxics already in the environment or on release and discharges of materials to the environment. They do not provide direct toxic reductions but provide the basis for assessing environmental conditions and measuring reductions in the environment. They can range from the relatively simple, e.g. direct measurement, to the very complex, e.g. ecosystem modeling.

6. *Land Use Strategies*

Strategies in this category include limitations or restrictions on land use, or conditions required for certain uses, that are implemented through state or local laws, regulations, goals, comprehensive plans, and ordinances. An emerging combination of land use and incentive strategies are regulatory incentives in the form of reduced permitting and other burdens in return for facility siting that avoids areas of significant environmental concern. Land use strategies are not “upstream” sources, but, depending upon how they are implemented, they can be effective at limiting the release of toxic chemicals into the environment. Once the controlling ordinances are in place, these strategies do not require significant regulatory involvement.

7. *Chemical Replacement Strategies*

Strategies in this category include approaches that would develop or identify benign chemicals that could replace toxic chemicals in products and processes. These include strategies such as:

- Safer Alternatives Review and Promotion

- Green Chemistry Research

Strategies in this category will likely require a combination of direct regulation, for example through prohibitions or restrictions on the use of certain chemicals, along with voluntary substitutions by manufacturers and others. Care must be taken to make sure replacement chemicals do not create other or additional problems. Replacement strategies can also function along with market based strategies, especially in the consumer products area. Strategies in this area can be highly effective and approach toxic chemicals the source, but, depending upon how they are implemented, may require significant regulatory verification, monitoring, and oversight.

8. *Market-based Strategies*

Strategies in this category rely on the power of the market to provide toxic reductions and include:

- Labeling
- Certification
- Producer responsibility

Examples of strategies in this area include organic labeling, “Salmon Safe” certifications, Eco-Biz certifications, EPA’s Design for Environment and others. Strategies in this area are voluntary and can provide effective, upstream toxics reductions. They can be implemented through private entities, e.g. private certification organization, or through certification by a regulatory agency. They require monitoring and verification, by government entities or private certification organizations, to validate claimed reductions.

9. *Tax and Credit Strategies*

Strategies in this category rely on financial tools to achieve reductions and include:

- Taxes on certain chemicals
- Taxes on discharges
- Credits for certain, achieved reductions

These strategies can provide significant incentives for reduction, which would occur at the source rather than end of pipe. They commonly require governmental action, verification, and oversight. DEQ’s Dry Cleaner program includes a tax-based component. The monies are used to remove toxics from the environment

10. *Educational Strategies*

Strategies in this category rely on providing information to consumers, businesses, and industrial users of toxic chemicals and can include:

- Technical Assistance
- Education and Outreach

These actions have typically been performed by regulatory agencies but could also include significant involvement of private entities, universities, and others. They may include information about replacement chemicals, alternative process or approaches, safer handling, and many others.