

Other Toxic, Radioactive, Biological and Deleterious Substances

Issue

How can Ecology best clarify the regulatory connection between sediments that exceed the biological Sediment Management Standards (SMS) and the definition of “hazardous substance” under the Model Toxics Control Act (MTCA)?

Problem Statement

Clarifying Connection Between Sediment Quality Designation and MTCA: Ecology is interested in clarifying the connection between the SMS sediment quality designations and the definition of “hazardous substance” under MTCA, in order to minimize any confusion about how the two schemes fit together. Ecology has sufficient authority under existing law to address “other toxic, radioactive, biological and deleterious substances” under the SMS. However, Ecology is considering making the connections between MTCA and the SMS in this area clearer in order to minimize any ambiguity as to the scope of MTCA authority to address such substances.

Other toxic, radioactive, biological or deleterious substances in the aquatic environment can:

- Be chemical, biological or physical in nature.
- Cause biological toxicity but may not be within the SMS chemistry suite or may not be analyzed or detected in the laboratory.
- Be toxic to aquatic life due to an unidentified chemical(s) or synergistic effects from multiple chemicals.
- Create [degradation by-products](#) that can be toxic to aquatic life.
- Overload the sediment with organic matter causing oxygen depletion and toxic buildup of ammonia and sulfide.
- Bury the natural sediment substrate and impair habitat for the benthic community and aquatic vegetation.
- Are dependent on a number of site-specific factors.

Overview

The SMS rule was established to guide contaminated sediment cleanup under the regulatory authority of MTCA. The SMS contains both [biological criteria](#) and [numeric criteria](#) for a suite of 47 chemicals for marine sediments. The SMS also has [narrative criteria](#) including “[other toxic, radioactive, biological and deleterious substances](#).” The intent of the narrative criteria was to include substances found to cause or contribute to failure of the SMS biological criteria, but not included within the SMS numeric criteria. Ecology is considering rule revisions to clarify that violation of the SMS biological criteria are addressed as cleanups under MTCA. For example, the presence of degrading wood waste in the aquatic environment has been shown to impact the benthic community, resulting in violations of the SMS biological criteria (WAC 173-204-315), and necessitating cleanup under the SMS.

Background

The SMS were adopted in 1991 to implement Ecology’s responsibilities under several laws, including MTCA (70.105D RCW) and the [Water Pollution Control Act](#) (90.48 RCW). Because the SMS were promulgated under both laws, the rule has a dual use. For the purposes of conducting cleanup, the SMS was established to guide contaminated sediment cleanup under MTCA. Specifically, the SMS are used to:

- Set standards for sediment quality (there are numeric chemical criteria, biological criteria, and narrative standards).
- Assess the nature and extent of sediment contamination.
- Provide a decision process for the cleanup of sediment contamination.

The SMS contain two different levels of criteria for establishing protective contaminant concentrations in sediment.

- The [Sediment Quality Standards](#) (SQS). At or below this level, it is unlikely that biological resources are impacted. This is the goal and serves as the objective for cleanup actions.
- The [Cleanup Screening Levels](#) (CSL), [Minimum Cleanup Levels](#) or [Maximum Chemical Criteria for Sediment Impact Zones](#). Levels between the SQS and CSL are likely to cause minor adverse impacts to biological resources. Levels above the CSL, will likely result in severe impacts to biological resources. The different names correspond to how the criteria are used in three different situations, but the criteria are the same.

These criteria apply to both biological effects and chemical concentrations for 47 chemicals for marine sediments. The SQS are considered protective of biological

resources for acute and chronic toxicity. For freshwater sediments, the SMS includes a narrative criteria, but not numerical standards. In addition, the WAC 173-204-200(17), -310(3) has a provision to designate sediments as exceeding the SMS by “other toxic, radioactive, biological or deleterious substances” criteria. This includes contaminants which are not identified in the suite of the 47 SMS chemicals of WAC 173-204-320 through 173-204-340.

Options

How can Ecology best clarify the connection between the “other toxic, radioactive, biological and deleterious substances” provisions of the SMS, and the definition of “hazardous substances” under MTCA?

- Clarify the MTCA rule definition of hazardous substances to include substances that cause failure of one or more sediment toxicity tests as hazardous substances.
- Clarify the SMS definition of other toxic, radioactive, biological and deleterious substances to better reflect the MTCA hazardous substance definition.
- Revise the MTCA and/or SMS rule to identify other toxic, radioactive, biological and deleterious substances in the aquatic environment as hazardous substances.

Factors to Consider When Selecting an Option

The development of the amendments will involve the consideration and balancing of a number of issues and interests. The proposed options will also be developed to satisfy several, sometimes conflicting, regulatory goals, including the following:

- Whether the option provides for the selection of cleanup actions that protect human health and the environment.
- Whether the option provides for developing scientifically and legally defensible cleanup standards.
- Whether the option provides consistent methods for assessing and managing risk.
- Whether the option provides flexibility to address site-specific factors.
- Whether the option promotes efficient and cost-effective cleanup.
- Whether the option provides enhanced opportunities for public involvement.
- Whether the option improves the clarity and usability of the rule.
- Whether the option complies with key requirements of the Administrative Procedures Act.