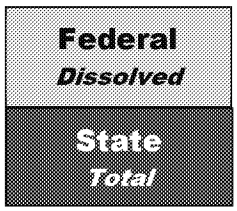
Facts About EPA's Proposed Waiver of Certain State Water Quality Standards

The Purpose of Surface Water Quality Standards

Surface water quality standards are developed to protect fish and other species that live in aquatic environments (lakes, rivers, streams, ponds, etc.) The federal government developed standards under the *Clean Water Act (CWA)*. The CWA allows states to use the federal standards or set their own. However, state standards must not be less protective than the federal standard. The State of Montana chose to set their own water quality standards[1] (State of Montana, DEQ-7).

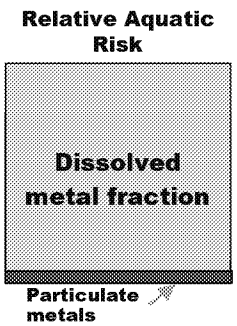
Differences Between Federal and Montana Surface Water Quality Standards

Although water may look clear to the naked eye, it is made up of variety of minerals, metals, and other constituents. Some in solid form (referred to as *particulates*) Others are much smaller (referred to as *dissolved*). A single constituent—copper for example—is often present in both dissolved and particulate forms.



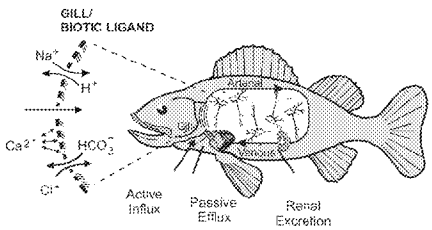
Federal surface water quality standards are based on analysis of the *dissolved* fraction of the water sample—water that passes through a 0.45-micron filter. State of Montana water quality standards are based on the unfiltered or *total* analysis which includes both dissolved and particulate forms.

How the Choice of Standard Impacts Fish and Other Aquatic Organisms



Ecological risk is a complicated subject with many variables, but—simply put—dissolved metals in water impact fish differently than do particulate metals. Dissolved metals are much more available to the fish or other aquatic organism. They are known to be toxic in small amounts and can effectively influence the vital operations and reproduction of fish, weaken the immune system, and induce pathological changes.

In contrast, particulates generally do not impact the organism unless they are swallowed (ingested) and digested. A fish can swallow a much greater concentration of metals as particulates without toxic effects. *Negative health effects to fish from ingestion of particulates are inconsequential when compared to uptake of dissolved metals.*



Concentrations of particulates are most often elevated during and shortly after wet weather events, when water runs over the land surface, carrying dirt, debris, and other materials into local water bodies.

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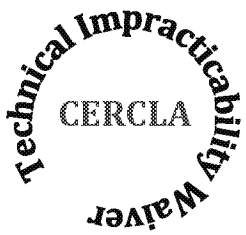
[1] *State of Montana, Department of Environmental Quality , Circular DEQ-7, Montana Numeric Water Quality Standards*

Why Montana Chose a Total Recoverable-Based Standard

In setting surface water standards, the State of Montana opted for the *most* protective standards it could get, even though the differences in protectiveness between the federal and state standards are incredibly small. Setting an unfiltered (total) standard allowed the state more control over sediment runoff into the waters of the state. Dissolved standards are not unusual but are used by almost 75 percent of states.

How a State Standard Can Be Waived

The *Comprehensive Environmental Responsibility Cleanup Liability Act* (CERCLA), often referred to as Superfund, allows for state standards to be waived[2] if meeting that standard is found to be "technically impracticable." A recent EPA study[3] found that it is technically impracticable to meet the total standard at the Butte Priority Soils Operable Unit given the amount of sediment that runs off the Butte Hill during short-duration wet weather events (storms). While great strides have been and will continue to be made in reducing sediment load to the creek, the reductions still do not allow standards to be met based on analysis of unfiltered samples. Similar waivers have occurred for the Clark Fork River and the Milltown Reservoir Sites.



What EPA has Proposed in Butte

At the Butte Priority Soils Operable Unit, EPA has proposed to waive State of Montana acute aquatic life standards for copper and zinc based on a total recoverable (unfiltered) sample and adopt the federal acute aquatic life standards based on a dissolved (filtered) sample.

Copper
Zinc
Use federal dissolved standard

Coordination with the State of Montana Department of Environmental Quality

The Environmental Protection Agency, Montana Department of Environmental Quality, Butte Silver Bow County, and Atlantic Richfield have been working toward final cleanup at the at the Butte Priority Soils Operable Unit, including the proposed waiver to federal standards for copper and zinc. The federal standards protect the most sensitive pathway for exposure—uptake of dissolved metals in surface water by fish and other aquatic organisms.

The state's desire to maintain some control over the amount of sediment entering surface water is met by other components of the remedy, such as stormwater ponds and increased removals.

The State of Montana is withholding final concurrence with the proposed change until the public comment period has closed and comments have been evaluated.

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[2] Section 121(d)(4)(C) of CERCLA, 42 U.S.C. § 9621(d)(4)(C), referred to as the technical impracticability waiver.

[3] *Draft Surface Water Technical Impracticability Evaluation Report. Butte Priority Soils Operable Unit, Silver Bow Creek/Butte Area NPL Site.*

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