



Drinking Water Standards & Health Effects



SAFE DRINKING WATER ACT • 1974-2004 • PROTECT OUR HEALTH FROM SOURCE TO TAP

Drinking water standards are set by the U.S. Environmental Protection Agency (US EPA) to control the level of contaminants in the nation's drinking water. The Safe Drinking Water Act (SDWA) requires US EPA to set these standards, which public water systems in the U.S. are required to meet. US EPA has set standards for 90 chemical, microbiological, radiological, and physical contaminants in drinking water. US EPA and others are currently conducting research and collecting information to determine which currently unregulated contaminants pose the greatest public health risk and will therefore be regulated in the future.

US EPA also sets Secondary Drinking Water Regulations, which are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin and tooth discoloration) or aesthetic effects (such as taste or odor).

Water systems are not required by US EPA to adopt these secondary standards, but states may choose to adopt and enforce them.

Public Water Systems Must Meet National Drinking Water Standards

Drinking water standards apply to public water systems, which provide water to at least 15 connections or 25 persons at least 60 days out of the year (most cities and towns, schools, businesses,

campgrounds, and shopping malls are served by public water systems).

Private Wells



The 10 percent of Americans whose water comes from private wells (individual wells serving fewer than 25 persons) are not required to be protected by these federal standards. People with private wells are responsible for making sure that their own drinking water is safe. Some states do set standards for private wells, so well owners should check their state requirements. US EPA recommends testing your water once per year to see if it meets federal and state standards. Call the Safe Drinking Water Hotline at 1-800-426-4791 or see the Safewater home page at www.epa.gov/safewater/privatewells to find out how to get a list of certified testing labs in your state.

Bottled Water

Bottled water is regulated by the U.S. Food and Drug Administration as a food product, and is required to meet standards equivalent to those US EPA sets for tap water.

Steps in Drinking Water Standard Setting:

US EPA uses the following steps to set enforceable, health-based drinking water standards.

Determine whether a contaminant should be regulated based on peer-reviewed science, including data on: how often the contaminant occurs in the environment; how humans are exposed to it; the health effects of exposure, (particularly to vulnerable subpopulations).

Set a Maximum Contaminant Level Goal (MCLG) (the level of a contaminant in drinking water below which

there is no known or expected health risk. MCLGs allow for a margin of safety). These goals take into account the risks of exposure for certain sensitive populations, such as infants, the elderly, and persons with compromised immune systems. These goals are not enforceable levels because they do not take available technology into consideration, and therefore are sometimes set at levels which public water systems cannot meet.

Propose an enforceable standard in the form of a Maximum Contaminant Level (MCL) (the maximum amount of a contaminant allowed in water delivered to a user of any public water system) or a Treatment Technique (TT) (required procedure or level of technological performance set when there is no reliable method to measure a contaminant at very low levels). MCLs are set as close to MCLGs as feasible, considering available technology and cost. Examples of rules requiring treatment techniques are the Surface Water Treatment Rule (requires disinfection and filtration) and the Lead and Copper Rule (requires optimized corrosion control). Water samples that contain lead or copper exceeding the action level trigger additional treatment or other requirements that a water system must follow. Required testing (monitoring) schedules are part of the enforceable standard.

After determining a proposed MCL or TT that is as close to the MCLG as possible based on affordable technology, US EPA must complete an economic analysis to determine whether the benefits of that standard justify the costs. If not, US EPA may adjust the MCL for a particular class or group of systems to a level that “maximizes health risk reduction benefits at a cost that is justified by the benefits.” US EPA may not adjust the MCL if the benefits justify the costs to large systems and small systems that are unlikely to receive variances.

US EPA sets an enforceable MCL or TT. After considering comments on the proposed standard and other relevant information, US EPA makes final an enforceable Maximum Contaminant Level or Treatment Technique, including required testing and reporting schedules.

States are authorized to grant variances from standards for systems serving up to 3,300 people if the systems cannot afford to comply with a rule (through treatment, an alternative source of water, or other restructuring) and the systems install EPA approved variance technology. States can grant variances to systems serving 3,301 - 10,000 people with US EPA approval. SDWA does not allow small systems to have variances for microbial contaminants. Under certain circumstances exemptions from standards may be granted to allow extra time to seek other compliance options or financial assistance. After the exemption period expires, the public water system must be in compliance. The terms of variances and exemptions must ensure no unreasonable risk to public health.

Determining Whether Standards Are Needed for Other Contaminants - the Contaminant Candidate List

The 1996 Amendments to SDWA requires that every 5 years US EPA establish a list of contaminants which are known or anticipated to occur in public water systems and may require future regulations under SDWA. The list is developed with significant input from the scientific community and other interested parties. After establishing this contaminant candidate list, US EPA identifies contaminants which are priorities for additional research and data gathering. US EPA uses this information to determine whether or not a regulation is appropriate and this process is repeated for each list, every 5 years.

In order to support this decision-making, US EPA has also established a National Contaminant Occurrence Database (NCOD), which stores data on the occurrence of both regulated and unregulated contaminants. US EPA is also required to list and develop regulations for monitoring certain unregulated contaminants. These monitoring data will provide the basis for identifying contaminants that may be placed on future Contaminant Candidate Lists and support the US EPA Administrator's decisions to regulate contaminants in the future.

Health Effects

Adverse health effects from contaminants that may occur in drinking water include acute effects that may immediately impact health and chronic effects that may occur if contaminants are ingested at unsafe levels over many years.

Drinking water that meets US EPA's health-based standards is generally safe. People who are not healthy as a result of illness, age, or weakened immune systems, are more likely to be at risk from certain contaminants that may be found in drinking water. Infants and very young children are also more susceptible to some contaminants. Individuals concerned about their particular situations should consult their health care providers.

For More Information

To learn more about current drinking water standards, information on potential health effects of specific contaminants, and guidance to persons with severely compromised immune systems call the Safe Drinking Water Hotline at 1-800-426-4791 or visit the safewater web site at www.epa.gov/safewater.