



Defining a Perchlorate Drinking Water Standard

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Toxicological studies on animals, human test subjects and studies from human populations where perchlorate occurs naturally are used to determine what amount or dose should be considered safe (reference dose (RfD)). A drinking water standard is determined by the toxicological studies for the substance and the dose that makes it toxic. Such studies can be contradictory and controversial as has been the case for perchlorate.

In 1999, based on perchlorate toxicological studies on animals and humans the U.S. Environmental Protection Agency (EPA) established interim guidance and a provisional clean-up level / action level in water with a range of 4 to 18 parts per billion (ppb). **The Nevada Division of Environmental Protection established 18 ppb as a provisional action level based upon EPA guidance.**

The National Academy of Sciences, National Research Council (NRC) established a panel of experts to assess the health implications of perchlorate ingestion. The panel included pediatricians, thyroid specialists, industry specialists, and researchers. The NRC at the request of the DoD, DOE, NASA and the U.S. EPA, addressed a number of charge questions covering key scientific issues associated with perchlorate risk, and in January 2005 recommended a reference dose of 0.0007 mg/kg per day (NRC 2005a). The NRC findings were summarized in the 2005 "Report in Brief: Health Implications of Perchlorate Ingestion" which is freely available online (NRC 2005b (<http://www.nap.edu/books/0309095689/html>)). The U.S. EPA adopted the NRC recommended reference dose in February 2005 and established an official reference dose (RfD) of 0.0007 mg/kg/day for perchlorate.

The EPA may use this information to derive and establish a promulgated drinking water standard known as a Maximum Contaminant Level (MCL); however, this process can take several years to finish. In the meantime many states have or are in the process of establishing their own standards for perchlorate in water. Revised guidance from the EPA, which is based upon the new RfD, is expected soon.