

The *History* of Arsenic Regulation

1942 to 2002

The federal legislative history for revising the drinking water standard on arsenic has been a roller coaster ride.

Compliance Clarification

The Arsenic Rule promulgated on Jan 22, 2001 generated confusion about the number of significant figures required for calculating compliance. On Jan 25, 2002, the EPA issued the following clarification:

“Compliance with the Arsenic Rule is governed by 40 CFR 141.23, which requires reporting arsenic analytical results to the nearest 0.001 mg/L. This reporting requirement has the effect of making all measurements that are greater than or equal to 0.0105 mg/L a violation of the arsenic MCL (after rounding to the nearest .001 mg/L).”

— Memorandum from Cynthia L. Dougherty, Director, Office of Ground Water and Drinking Water, U.S. Environmental Protection Agency. (Available online at www.epa.gov/safewater/ars/dimpguidaxd.pdf).

The United States Public Health Service set the first drinking water standard for arsenic at 50 parts per billion (ppb) in 1942. At that time, the key health effects associated with ingesting arsenic were believed to be limited to skin cancer and black foot disease. In 1974, with the passage of the Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (EPA) adopted the same standard as a maximum contaminant level (MCL), stating that illness was not associated with exposure to arsenic below the level of 50 ppb.

Since that time, extensive research has been conducted around the world that links exposure to much lower levels of arsenic to a wide range of health effects that include both cancer and non-cancer illnesses. The majority of the research on the topic has been performed outside of the United States, which has been a key factor in the controversy over the appropriate safe level for the contaminant in drinking water.

In 1986, the SDWA required the EPA to revise the standard for arsenic. The debate over the appropriate standard – one that would protect human health but not cost too much – continued for more than 15 years.

In the late 1990’s, the EPA directed the National Academy of Sciences (NAS) to analyze the research conducted on the health effects of arsenic and make an appropriate recommendation for the United

States. In its analysis, the NAS used research published through the fall of 1999. The report found that “The current EPA MCL for arsenic in drinking water of 50 ppb does not achieve EPA’s goal for public-health protection and, therefore, requires downward revision as promptly as possible.” It also stated that at exposure to arsenic at 50 ppb, 1 in 100 people will contract a potentially fatal form of cancer.

In March of 2001, the EPA turned to the NAS again, asking the organization to review more than 300 recent studies on the health effects of arsenic. This was one of three studies commissioned by the EPA under the Bush administration. On Sept. 11, 2001, the NAS released its report, which concluded that the cancer risk associated with arsenic exposure is higher than previously thought. The report states that people who drink water with arsenic levels of 3 ppb have a one in 1,000 risk of developing cancer. At 10 ppb, the risk is three in 1,000.

For the past two decades, the EPA’s maximum acceptable level of risk for all drinking water contaminants has been one in 10,000. The results of this report were a key factor in the EPA’s decision to reduce the allowable level of arsenic in drinking water to 10 ppb on November 1, 2001.

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