



COUNTY OF MONTEREY HEALTH DEPARTMENT

ENVIRONMENTAL HEALTH BUREAU

FAQs About Arsenic in Drinking Water

Q. What is the legal maximum contaminant level (MCL) for arsenic allowed in California drinking water?

A. Prior to January 23, 2006, the Federal and State MCL for Arsenic were 50 parts per billion (ppb). On January 23, 2006, the U.S. Environmental Protection Agency (E.P.A.) adopted a more stringent Federal maximum contaminant level (MCL) of 10 ppb for Arsenic. On November 28, 2008, the State of California followed by also adopting the MCL standard of 10 ppb into the California Code of Regulations. The current legal MCL for potable water in California is 10 ppb.

Q. Why was the MCL lowered from 50 ppb to 10 ppb?

A. The California State Water Resources Control Board, Division of Drinking Water (DDW) and Federal EPA lowered the MCL for Arsenic from 50 ppb to 10 ppb based on research indicating that ingestion of Arsenic at levels equal to or above 10 ppb increased the risk of bladder and lung cancer.

Q. How is compliance determined?

A. Demonstrating compliance with the Arsenic standard is based on the average of four quarterly samples. Therefore, your system must collect three more quarterly samples beginning the next quarter (Quarters are January-March, April-June, July-September, and October-December). The results of each quarterly sample must be submitted to Monterey County Health Department, Environmental Health Bureau (EHB). If EHB determines that the average of the four quarterly samples exceeds the MCL, the system will be required to come into compliance with Arsenic standards. However, if the initial sample exceeds the MCL for Arsenic, the system may forego the quarterly sampling and immediately take steps to come into compliance.

Q. Why is Arsenic harmful to human health?

A. Some people who drink water with Arsenic in excess of the MCL of 10 ppb over many years may experience skin damage, circulatory system problems and may have an increased risk of cancer and the enhancement of cancer progression. Arsenic also appears to act as endocrine disrupter to block glucocorticoid action which may contribute to the incidence of diabetes, hypertension, and cancer.

More specifically, a variety of human cancers are associated with Arsenic ingestion such as, but not limited to, lung, bladder, prostate, skin, and liver cancer. At the cellular level, Arsenic can also inhibit chromosomal repair and mitochondrial respiration. In addition, Arsenic can also cause circulatory system and neurological damage and promote diabetes. Therefore all users of water from wells and other sources with Arsenic levels over 10 ppb are required to drink and cook with potable bottled water.

Q. How are humans exposed to Arsenic?

A. The primary Arsenic exposure route is oral through ingestion of food and water. Incidence of respiratory uptake from air exposure is negligible. Skin uptake may be possible from contact with contaminated soil, but uptake from dilute water solutions such as from showering or handwashing is unlikely.

Q. So do I need to worry about Arsenic when hand washing and showering?

A. No! Studies have indicated there is no health risk from skin contact at levels typically found in drinking water. However, ingestion of Arsenic may cause dermal symptoms such as skin damage.

FAQs About Arsenic in Drinking Water, cont.

Q. What should I do when I become aware that my water exceeds the MCL for Arsenic?

A. When you become aware that your water system is over the MCL for Arsenic, you should first assure that all other members of your water system are informed. Everyone on the system should immediately begin using potable bottled water for drinking and cooking. A signature sheet must be circulated to all members of the water system for their signature. When the form is signed by all adult members of the water system, the responsible contact person or operator for a water system must provide a copy of the completed signature to the Monterey County Health Department, Environmental Health Bureau at 1270 Natividad Rd., Salinas Ca. 93906, Attn: EHB Drinking Water Protection Services.

Q. How do I remove Arsenic from my water source?

A. Practical treatment technology for Arsenic has only recently evolved. There are some existing Arsenic treatment systems that are installed on larger water systems in Monterey County. These systems are currently being evaluated for long term effectiveness and feasibility for application to smaller water systems. As Arsenic removal technology improves more cost effective treatment systems should be available in the future.

Responsible persons or operators of small water systems that are out of compliance with the MCL for Arsenic should immediately consult with a licensed engineer to evaluate treatment options and the associated ongoing operation and maintenance costs of the various treatment options. ***It is required by code that all plans for treatment are submitted to and approved by the EHB prior to installation.***

Q. If our water system needs to install treatment, is it required that we hire a licensed engineer?

A. Yes, in accordance with Monterey County Code, Chapter 15.04.

Q. What other options do I have besides treatment?

A. You should begin by determining whether any of your neighbor's wells are in compliance with the MCL for Arsenic. If so, the EHB recommends consolidating your water system with a compliant neighboring well or water system when it is feasible.

Drilling a new well is another alternative. However, as a cautionary note, be aware that Arsenic is a naturally occurring chemical in some geological formations, such as granitic formations. Therefore, a new well may also be high in Arsenic if it is drilled to a similar depth and in the same geological formation as the old well.

Q. Is funding assistance available to defray the cost of treatment installation?

A. Funding may be available through the California State Water Resources Control Board, Division of Drinking Water (DDW). However, funding tends to be focused on larger systems serving 15 or more connections, but because funding rules may change over time, small water system operators should still contact DDW to explore potential current or future funding opportunities. For information, on outside funding sources and opportunities for Arsenic treatment, the DDW has suggested referencing the following:

- [California State Water Resource Control Board Funding Opportunities for Public Water Systems](#)
- [US Department of Agriculture Rural Utilities Service's Loan and Grant Program](#)
- [US Department of Housing and Urban Development Community Development Block Grant Program](#)
- [CoBank for small systems – see the EPA website,
https://www3.epa.gov/npdes/pubs/sso_casestudy_finance.pdf](#)

FAQs About Arsenic in Drinking Water, cont.

For more information on types of treatment available for Arsenic removal, the following listing may be helpful:

- **CA Code of Regulations, Title 22, Chapter 15, Article 12 – Best Available Technologies (BATs)** [https://govt.westlaw.com/calregs/Document/I0A917CB0EE0911E3AD09E1D84304E27A?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/I0A917CB0EE0911E3AD09E1D84304E27A?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

Please be advised that any plan to use a BAT as treatment requires plans to be designed and stamped by a licensed engineer.

- **Isolux Technology** - An Arsenic removal treatment system manufactured by Isolux Technology is currently operational for a public water system in Monterey County. For more information regarding this Arsenic removal treatment system, contact Isolux Technology at (800) 366-4850.

- **Filtration Technology** - An Arsenic removal system using filtration technology has recently been installed on a public water system in Monterey County. You may wish to talk to a water treatment engineer regarding this technology.

- **Monterey County Health Department, Environmental Health Bureau** – A [list of engineers](#) is available on Environmental Health's [Drinking Water Protection Services website](#).

The following is a list of Arsenic treatment references that California Department of Public Health has found to be useful:

- U.S. EPA has a virtual “trade show” website. It provides discussions on each technology type, on-line interactive decision trees, vendor information, and vendor databases. The virtual “trade show” can be found on EPA’s website at: <http://cfpub.epa.gov/safewater/Arsenic/Arsenicradeshow/>.

- EPA’s July 2003 reference titled “*Arsenic Treatment Technology Evaluation Handbook for Small Systems*”. The reference has a very useful decision trees for evaluating each major technology type, including level of operator skill required, and provides a good overview of Arsenic chemistry and Arsenic treatment technologies. This reference can be found on the EPA’s website at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=20017JUO.txt>
Additional references on some specific treatment technologies can also be obtained from the California Department of Public Health, upon request.

Note that a water system may not alter a water source, or use treatment of any kind without prior approval from the Health Department’s Environmental Health Bureau.

If you have any questions please call the Health Department’s Environmental Health Division’s Drinking Water Protection Services at 755-4507.

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