



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION

ARSENIC IN NONCOMMUNITY WATER SUPPLIES
FREQUENTLY ASKED QUESTIONS AND ANSWERS

Where does arsenic come from and how does it get in drinking water?

Arsenic is a natural component of some underground rock and soil formations and thus leaches into the groundwater when it dissolves. Arsenic is also used in wood preservatives, paint, dyes, metals, and in agriculture, although, the primary source in Michigan water supplies is naturally occurring.

What health effects are associated with consuming too much arsenic in drinking water?

People consuming high levels of arsenic over many years could experience skin damage or problems with their circulatory system and may have an increased risk of cancer.

What is the allowable limit of arsenic in drinking water?

The maximum contaminant level (MCL) is 10 parts per billion (ppb) or 0.010 parts per million (ppm).

Who does the standard apply to and when does it have to be met?

The drinking water standard or MCL applies to nontransient noncommunity (and community) water systems. The standard was put into effect by the United States Environmental Protection Agency (USEPA) on March 22, 2002. The regulated water systems will have to meet the 10 ppb MCL by January 23, 2006 or they will be in violation of the standard.

If the compliance date for arsenic is not until 2006, why be concerned now?

Most arsenic compliance alternatives require planning and/or are expensive so it is very important to begin the process now rather than be in violation after January 23, 2006. The treatment for removal of arsenic requires properly designed equipment, installation, and ongoing monitoring and reporting by an operator certified to run a treatment system. Plan review and a permit are required prior to installing this type of treatment on a public water system. Depending on the size of the system and the level of arsenic, the initial capital cost can be a few thousand to tens of thousands of dollars for arsenic removal. Other alternatives such as drilling a new well to find low arsenic water or connecting to municipal water are very site specific and can also be expensive.

How many systems have arsenic above the standard?

It is estimated about 250 of the 1700 nontransient water supplies in Michigan have arsenic levels that will exceed the 10 parts per billion standard. The majority are located in a band of counties from Jackson and Washtenaw running northeast to Huron County at the tip of Michigan's "thumb." However, elevated arsenic in the groundwater is not limited to these areas, it can occur nearly anywhere in the state.

How is compliance with the arsenic MCL determined?

Groundwater systems sample for arsenic once every three years with the first compliance cycle beginning January 1, 2005 and ending December 31, 2007. If the initial sample result is over 10 ppb, quarterly monitoring will be required for the remainder of 2005. If the running annual average after four consecutive quarters exceeds the MCL, the system is in violation of the standard. It is also a violation if one sample is more than 4 times the MCL.

(over)

If the water system exceeds the MCL for arsenic, is bottled water required to be provided to consumers while steps are taken to comply with the standard?

Under most circumstances bottled water is not required by law if the arsenic MCL is exceeded. Arsenic is a chronic contaminant where health effects are based on years of exposure as opposed to an acute contaminant that can have serious health implications with a single exposure. Unusual situations such as an extremely high level of arsenic or conditions of an enforcement agreement may involve requiring bottled water to be provided to consumers at nontransient noncommunity systems.

How can a water system with elevated arsenic comply with the standard?

The circumstances vary by system but generally the options to consider include:

1. Connect to municipal water system where available.
2. Investigate drilling a new well that would meet the standard.
3. Investigate blending water with low arsenic wells onsite if available.
4. Obtain a permit to install and operate an arsenic removal system.

Can customers of nontransient systems that exceed the arsenic MCL provide bottled water to their customers on a permanent basis as a way of complying with the MCL?

Currently, the USEPA regulations prohibit the use of bottled water on a permanent basis to meet drinking water standards. The Department of Environmental Quality (DEQ) is developing a test program that would allow water systems that exceed the arsenic standard the option to use bottled water under prescribed conditions. The DEQ intends to petition the USEPA to accept the use of bottled water by systems under prescribed conditions beyond the arsenic compliance deadline of January 23, 2006, if the results of our test program are favorable. If the USEPA does not accept the proposal, the DEQ will allow participants in the test program additional time beyond the compliance deadline in 2006 to meet the standard.

What should nontransient noncommunity systems do now to prepare for meeting the arsenic standard in 2006?

Most nontransient systems should have previous test results for arsenic because it was a part of the required metal testing done by the DEQ drinking water laboratory. It is recommended that systems locate and review those test results to determine if the arsenic levels were approaching the 10 parts per billion level when the tests were taken. If a system is in an area with elevated arsenic or has previous tests indicating a potential problem, it would also be prudent to begin testing for arsenic now in order to plan and budget properly if it is likely the system will exceed the arsenic standard.

Where can I have the water tested for arsenic?

Any laboratory certified by the DEQ for arsenic analysis can provide the analytical service. The DEQ laboratory also does analysis for arsenic. Sample units can be ordered from them by calling 517-335-8184 or by fax 517-335-8562. The current cost is \$16 (subject to change). Sample units for the DEQ lab arsenic testing may also be available at your local health department.

For more information contact:

DEQ, Water Division, Noncommunity Unit: 517-241-1370, or your local health department, or go to www.michigan.gov/deq then link to **WATER, DRINKING WATER, and NONCOMMUNITY UNIT or DRINKING WATER ANALYSIS LABORATORY.**