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Arsenic in Western Gallatin Valley Groundwater

Recent water samples collected by the City of Three Forks confirms the presence of arsenic in groundwater prompting additional outreach by the Montana Department of Environmental Quality, the City of Three Forks and the Gallatin City-County Health Department. Samples collected by the City of Three Forks in the first quarter of 2019 from one of four wells that feed the distribution system had levels exceeding the arsenic Maximum Contaminant Level (MCL) of 10 parts per billion set by US Environmental Protection Agency. Three Forks’ other three wells were well below the MCL for arsenic.

The City of Three Forks is working closely with the Montana Department of Environmental Quality staff to address the exceedance and have taken concrete steps to correct the situation. Specifically, arsenic levels in one of the four wells serving the City of Three Forks was 67 ppb, which is roughly six times the MCL. The well with the high levels of arsenic has been shut down and will be tested and monitored before it is put back into service. More frequent monitoring will occur even once the well is brought back in to service. Although an exceedance of the arsenic MCL at this level for this period of time is not necessarily an emergency, it is important for the community to know about what happened, what is being done to correct the situation and what individuals can do.

While the presence of arsenic is an issue of concern, users of the Three Forks water system should also be aware that system operators anticipate the levels of arsenic will fall with the discontinued use of the well that is the source of the problem and as water from that well moves out of the distribution system. The City and MDEQ are also assessing the condition of an existing treatment plant, which when functioning as intended should allow removal of arsenic from water moving into the system. It should also be noted that water samples analyzed by the City in March of 2018 did not show an arsenic exceedance.

According to MDEQ, the use of bottled water is not needed. However, those with specific health concerns should consult their doctor about drinking the water.

Arsenic is a part of the environment. As water moves through soil and rock, arsenic can be released into groundwater. Naturally occurring arsenic can be found at high levels in areas with volcanic or geothermal activity such as Yellowstone National Park. Arsenic from geothermal waters can migrate dozens of miles downstream, such as in the case of the Madison River which...
 originates in Yellowstone National Park. High levels of arsenic are found in the area near the Madison Plateau, Camp Creek Hills area, the Madison River Valley near the western edge of Gallatin County, and throughout the region. Rivers and streams are connected to groundwater so arsenic can end up in groundwater.

Arsenic above the MCL is a health hazard, with health effects that can occur after short- and long-term exposure but short term effects are not often seen following exposures at the above levels. Health problems related to arsenic toxicity can include negative effects on the neurological, respiratory, cardiovascular and gastrointestinal systems. Effects may also include skin damage and an increased risk of lung, skin, prostate, liver and bladder cancers.

“The MCL is set at a level that is intended to protect those who drink the water from the harmful effects of arsenic, compliance is important to protect public health” says Lori Christenson, Environmental Health Director at the Gallatin City-County Health Department.

Children in particular may have an increased risk due to their metabolism and the increased sensitivity of their developing nervous system.

Based on the recent water sample results, the Gallatin Local Water Quality District and the Gallatin City-County Health Department recommend that residents in Gallatin County who live west of the Gallatin River test their private wells for arsenic at least once and consider repeating this screening every five years, in addition to annual nitrate and bacteria testing. You can pick up a well test kit at the Gallatin Local Water Quality District at 215 W. Mendenhall. “We will walk you through the water sampling procedure and provide you with the information you need to help understand your well test results and provide you with some recommendations if you water does test high in arsenic,” says Tammy Swinney, Director of the Gallatin Local Water Quality District. “The recent results in Three Forks serves as a good reminder to those who do have private wells, where there are no testing requirements, to test your well if you haven’t done so and to take protective measures to keep yourself and your family safe.”

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