

The maximum acceptable concentration (MAC) for arsenic in drinking water in the *Guidelines for Canadian Drinking Water Quality*¹ (the Guidelines) is 0.010 mg/L (10 µg/L) based on municipal- and residential-scale treatment achievability. Certified devices for residential treatment are commercially available to remove arsenic to well below this concentration. Every effort should be made to maintain arsenic levels in drinking water as low as reasonably achievable (or *ALARA*).

The following information is provided to respond to some of the questions well owners may have about arsenic in drinking water.

What is arsenic?

Arsenic is a naturally occurring mineral found in the Earth's crust.

How can arsenic get into drinking water?

Arsenic can get into drinking water when ground water dissolves minerals that contain arsenic. Yukon is rich in mineral deposits, so it is not surprising that drinking water may contain elevated levels of various minerals and chemicals, including arsenic.

How does arsenic get into people?

Arsenic can enter the body through the food we eat and the water we drink. Arsenic is not well absorbed by the skin so there is minimum exposure as a result of bathing or showering.

What are the health concerns of arsenic exposure?

Ingestion of drinking water that has high concentrations of arsenic over a short period of time can cause sickness, including nausea, diarrhea and muscle pain. Over the long term, exposure to low levels of arsenic may cause certain types of cancer.

How would a person know if there is arsenic in drinking water?

As arsenic is both tasteless and odourless, the only way to know if drinking water contains arsenic above the Guidelines is to have a water sample from the drinking water well tested by an accredited laboratory.

There is no accredited laboratory in Yukon that tests for the chemicals, including arsenic, which may be present in drinking water. Accredited laboratories are available in most major cities; contact Environmental Health Services for more information.

How can a person or facility owner/operator of their own well water supply have the drinking water tested for arsenic or other chemicals?

To have drinking water tested for arsenic and other chemicals, a well owner can contact Environmental Health Services to obtain the appropriate sample bottles, forms and sampling instructions. These materials can also be obtained from the laboratory the owner has contracted to do the analysis.

Consult the yellow pages for a list of accredited labs.

Environmental Health Services can also help with interpretation of the results.

¹The *Guidelines for Canadian Drinking Water Quality* sets out maximum acceptable concentrations for microbiological, chemical, physical and radiological parameters. The review and revision of the Guidelines is an on-going process that is supported by research, science and technology. You can read more about drinking water quality on Health Canada's web-site: www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water.html

How much will it cost to have drinking water tested?

Some laboratories offer a “potable water package” which tests a drinking water sample for 30 or so common chemical and physical parameters, including arsenic. The cost of the package is approximately \$200.

The cost of testing a sample of your drinking water only for arsenic and metals such as uranium is approximately \$90. Uranium is commonly found in Yukon mineral deposits.

What can be done if there is arsenic in drinking water that is above the Guidelines limit?

If test results show that arsenic concentrations are greater than 0.010 mg/L, the well owner can purchase and install a certified water treatment system which will reduce the arsenic level to an acceptable concentration. Another option is to obtain drinking water from an alternate safe supply (e.g., trucked water delivery, bottled water).

What are some ways to treat drinking water with elevated levels of arsenic?

There are several ways to treat water with elevated levels of arsenic, such as reverse osmosis or anion-exchange.

A point-of-entry treatment system will treat all of the water entering the building while a point-of-use system will treat the water coming out of the tap which supplies all or most of the water for drinking, food preparation and cooking (e.g., the kitchen tap). No matter what treatment system is used, the components should be certified by an accredited certification body as meeting the appropriate National Sanitation Foundation NSF International standards.

A water system supplier can assist the well owner in selecting a treatment system. Some suppliers are listed in the yellow pages under Water Purification & Filtration Equipment.

All treatment systems should be operated and maintained according to manufacturer’s instructions. After a treatment system is installed, follow-up testing of a water sample should be done to confirm that your water treatment system is working properly (i.e., arsenic levels are lower than 0.010 mg/L).

Will boiling the drinking water, or using a carafe or pitcher-style filters remove arsenic?

No, unlike some drinking water contaminants, boiling the water will not remove arsenic. Carafe or pitcher-style filters do not remove arsenic.

If arsenic is above the Guidelines, is the water safe for pets?

Talk to a veterinarian about a pet’s drinking water.

For more information contact:

Environmental Health Services
2 Hospital Road, Whitehorse, Yukon Y1A 3H8
Phone: 867-667-8391 • Toll-free: 1-800-661-0408 ext.8391 • Fax: 867-667-8322
Email: environmental.health@gov.yk.ca

References:

Health Canada (2006) *It’s Your Health - Arsenic in Drinking Water*, (Catalogue # H50-3/6-2004E-PDF)
Nova Scotia Department of Environment *Arsenic in Nova Scotia’s Drinking Water* Updated: 2017-Dec-10
Health Canada (2006) *Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Arsenic*, Water Quality and Health Bureau Healthy Environments and Consumer Safety Branch Health Canada Ottawa, Ontario

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