

Arsenic in Drinking Water

Information for Well Owners

The limit for arsenic in the *Guidelines for Canadian Drinking Water Quality*¹ (the Guidelines) has been lowered from 0.025 mg/L to 0.010 mg/L to reduce the health risks.

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 element found in the Earth's crust.

How can it 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 does not enter the body through the skin during bathing or showering.

What are the health impacts of lifelong exposure to arsenic in drinking water?

There is an increased risk of cancer of internal organs such as the bladder, liver and lungs. Statistics indicate that in a community of at least 385,000 people, who have been drinking 1.5 litres of water with 0.010 mg/L arsenic every day for 70 years, one can expect that there will be one additional cancer attributable to arsenic. Studies do not show a greater risk of health effects in children, pregnant women or other vulnerable populations.

¹The *Guidelines for Canadian Drinking Water Quality* sets out maximum acceptable concentrations for microbiological, chemical, physical and radiological parameters and can be found on Health Canada's website www.hc-sc.ca

The review and revision of the Guidelines is an on-going process that is supported by research, science and technology.

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 a specialized laboratory.

There is no laboratory in Yukon that tests for the chemicals, including arsenic, which may be present in drinking water.

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 bottle, forms and sampling instructions. The cost for shipping the sample to an accredited lab will be covered by the Yukon Government. The person requesting the test will be billed directly by the laboratory for the cost of the chemical test(s).

Alternatively, a well owner can make their own arrangements with a laboratory of their choice, and pay the costs for both the shipping and testing.

How much will it cost to have drinking water tested?

Several 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 will be around \$185.

The cost of testing a sample of your drinking water for arsenic only is about \$43. Testing for arsenic and uranium (another harmful chemical commonly found in Yukon mineral deposits), or for arsenic and another chemical or physical parameter costs around \$50.

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 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 (e.g., by the Canadian Standards Association; NSF International).

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 also 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 or to have a drinking water sample shipped to a specialized laboratory for chemical analysis 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
E-mail: environmental.health@gov.yk.ca

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