

Uranium in Drinking Water

Uranium is a weakly radioactive metal that occurs naturally in many different minerals. It can also get into sources of drinking water from human activities, such as:

- burning coal and other fuels
- emissions from nuclear industry
- mining and processing of minerals
- using phosphate fertilizers containing high levels of uranium in agriculture

Levels of uranium in natural water sources in Canada depend on the rock formations and human activity in the area. Uranium in drinking water in Canada is generally low, but higher values have been reported in areas with large uranium deposits.

Testing conducted by your municipality or by an accredited laboratory can determine if uranium is present in the water. These testing results as well as an understanding of the water treatment and the flow of water in the pipes can determine if the water is safe for consumption. Monitoring results from your municipality or by an accredited laboratory can be utilized to determine if uranium levels are below Health Canada's maximum acceptable concentration. The municipality must continue to monitor the uranium levels to ensure that this remains unchanged.

Health Effects of Uranium in Drinking Water

The main health effects from exposure to natural uranium are from its chemical properties. Exposure to high levels of uranium in drinking water for a long time could affect:

- kidneys
- bones

Exposure to uranium in drinking water for a short time should not have a negative impact on your health.

Guideline Value for Uranium in Drinking Water in Canada

Health Canada worked with the provinces, territories and other federal departments to reaffirm the guideline value for uranium in drinking water of 0.020 milligrams per litre (mg/L). The guideline is protective of the health of Canadians, including the most vulnerable members of society, such as infants and children.

How to Reduce your Exposure to Uranium in Drinking Water

If you are concerned about your exposure to high levels of uranium in drinking water you may wish to:

- use an alternate source of drinking water, such as bottled water, or
- consider installing a treatment unit

Uranium will not enter the body through intact skin or by breathing in vapours while showering or bathing. Bathing and showering in water that contains levels of uranium at or below the guideline value are considered safe.

If you are pregnant or breastfeeding

Uranium can be passed from a:

- pregnant woman to her fetus
- mother's breast milk to a baby

If you are pregnant or breastfeeding and suspect that your drinking water may contain uranium, you should have it tested. If uranium levels are above the guideline value, you should:

- find an alternate source of drinking water
- install a treatment unit to remove uranium

Removing Uranium from Drinking Water

There are currently no certified residential treatment units for removing uranium from drinking water in your home, but the following are expected to be effective at lowering uranium concentrations to below the guideline value:

- reverse osmosis: installed directly at the tap to reduce specific contaminants at one tap only (point of use units). You can dispose of used filters and units in your regular garbage when you are replacing them.
- ion exchange: installed by specialists where the water supply enters the home to treat water for the whole home (point of entry units).

Periodic testing should be conducted on both the water entering the treatment unit and the finished water to verify that the treatment unit is effective.

Health Canada strongly recommends that you use a unit that meets the appropriate NSF International/American National Standards Institute standards for drinking water treatment units and materials.

It is important to make sure treatment units are maintained (or replaced) according to the instructions provided by the manufacturer.

Values in Other Countries

At 0.020 mg/L, Canada's guideline value for uranium in drinking water is one of the lowest in the world.

Other countries and organizations have established limits for uranium in drinking water that are different than ours due to their policies and approaches (for example, a different value is used to determine how much water a person drinks based on the country average).

- United States: maximum contaminant level of 0.03 mg/L
- Australia: guideline value of 0.017 mg/L
- World Health Organization (WHO): provisional guideline value of 0.03 mg/L