

# Uranium

## in Manitoba Water Supplies

### What is uranium?

Uranium is a naturally occurring radioactive element found in low concentrations in nature. It is present in certain types of soil and rocks, especially granite bedrock. Uranium can also be found in the environment as a result of human activity. Sources include mill tailings, emissions from the nuclear industry, phosphate fertilizer production and burning coal or other fuels.

### Exposure to uranium

Exposure to uranium can occur through food, water or air. Uranium may occur in groundwater when rocks containing the element break down and dissolve.

### Drinking water standard for uranium

Health Canada has established an interim maximum acceptable concentration (MAC) for uranium in drinking water of 0.02 milligrams per litre (mg/L). This is the same value used in Manitoba as a standard for uranium in all public (municipal) drinking water supplies.

### Health effects of uranium

The health effects of uranium depend on the duration and level of exposure. Studies show that high levels of uranium in drinking water can increase a person's risk of kidney damage. Little is currently known about the long-term health effects of human exposure to uranium. However, the available evidence has not linked ingested uranium in humans and animals to increased cancer rates.

### How uranium gets into well water

The uranium found in Manitoba well water occurs naturally. It is the result of groundwater coming into contact with rock or soil containing uranium. The concentration of uranium in a well water sample depends on factors such as the amount of uranium present in the rock through which the groundwater has passed and whether the water chemistry is favourable for uranium to remain dissolved.

### Uranium in Manitoba water supplies

Public (municipal) water systems that use well water are tested regularly by the water system owner or by the Office of Drinking Water as required under *The Drinking Water Safety Act*.

For information on your drinking water system, contact your water supplier or the drinking water officer in your region. Large, public water suppliers must make annual reports available to the public, and post a copy of that report on the Internet.

### What to do if there is uranium in your water supply

If the uranium level in the water is above the drinking water standard, private home owners should consider how they are using this water and may wish to discuss health risks with their doctor, who can consult their regional medical officer of health for more information.

Private home owners should consider options to increase the safety of water used for drinking or food preparation (such as for beverages, baby formula, soup and coffee). These options include:

- installing a cistern and arranging for the delivery of safe drinking water by a water hauler

- using commercially bottled water from a supplier who is a member of the Canadian Bottled Water Association or International Bottled Water Association
- treating the water

## Treating the water

Common treatment systems like water softeners, carbon filters and sediment filters cannot adequately remove uranium from drinking water. Boiling will only concentrate the uranium, it will not remove it.

Water treatment methods that can remove uranium from drinking water include reverse osmosis, distillation, anion exchange units and adsorption with activated alumina or other special filter media. A treatment device may be installed at the kitchen faucet (point-of-use) or where the water enters the home (point-of-entry).

Generally, it is recommended that the treatment device be certified to meet the appropriate NSF International (NSF)/ American National Standards Institute (ANSI) standard but there is no standard for removal of uranium at present.

Certification is still recommended though, as certified devices are tested to ensure the safety of the materials used in the devices and to ensure they perform as claimed.

Accredited certification organizations include:

- NSF International (NSF)
- Canadian Standards Association (CSA)
- Underwriters Laboratories Incorporated (UL)
- Quality Auditing Institute
- International Association of Plumbing and Mechanical Officials (IAPMO)
- Water Quality Association (WQA)

Quotes should be obtained from reputable water treatment equipment suppliers. The supplier should provide information on how much uranium will be removed, maintenance requirements and costs.

Once installed, manufacturer's instructions on the use and maintenance of treatment devices and disposal of filter media should be followed. The water supply and treated drinking water should be tested annually for uranium to confirm that the treatment system is working properly.

## For more information

For more information on uranium, refer to Health Canada's website at [www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/guide/index_e.html) or the Agency for Toxic Substances and Disease Registry at [www.atsdr.cdc.gov/tfacts150.html](http://www.atsdr.cdc.gov/tfacts150.html)

For more information on water treatment, contact Manitoba Water Stewardship's Office of Drinking Water at 204-945-5762, or refer to the website at [www.gov.mb.ca/waterstewardship/odw/reg-contacts/index.html](http://www.gov.mb.ca/waterstewardship/odw/reg-contacts/index.html) for a local office near you.

For information on certification of water treatment devices visit [www.nsf.org](http://www.nsf.org).

For health related questions on uranium, call Health Links at 204-788-8200 or toll free at 1-888-315-9257 or your local public health office.