

## Information for private well owners

# Know Your Well Water Quality – Arsenic

### What is arsenic and how can it get into my well water?

Arsenic is an element present in certain types of soil and rock. Arsenic can occur naturally in well water if soil or rocks that contain arsenic are present in the area. Less commonly, arsenic in well water may be present as a result of human activities such as mining or agriculture.

### Can arsenic affect my health?

Health issues related to arsenic depend on the amount of exposure and individual factors such as age, pre-existing illnesses, lifestyle, genetics, and other chemical exposures. For most Canadians, the primary source of arsenic exposure is through food, followed by drinking water, soil and air. There are no known health effects from exposures to arsenic in drinking water through bathing, hand-washing, or laundry.

Arsenic has been confirmed to cause cancer in humans; therefore consuming water that contains elevated levels of arsenic over a long period may increase the risk of lung, skin, bladder and other cancers. The risk of developing cancer from arsenic depends on how much arsenic you are exposed to, how often you are exposed and for how long.

Arsenic poisoning is rare. It may occur as a result of consuming water with very high arsenic concentrations, much higher than typically found in Ontario. People who have arsenic poisoning may experience a “pins and needles” sensation in hands and feet. Thickening of skin on the palms and soles and changes in skin colour may also be present.

### Are there standards for arsenic in drinking water?

Ontario’s drinking water standard for arsenic is 0.010 milligrams per litre (0.010 mg/L). The Canadian Drinking Water Guideline is also 0.010 mg/L. Daily consumption of water containing arsenic at 0.010 mg/L is associated with a lifetime risk of developing arsenic related cancer of approximately 1 in 10,000. Where possible, exposure to arsenic in drinking water should be reduced to the extent practical. The health risks from arsenic increase with the arsenic concentration in your water and are not eliminated even if you meet the 0.010 mg/L standard.

### How do I know how much arsenic is in my well water?

In drinking water, potentially harmful levels of arsenic may have no taste or odour. It can only be detected through chemical testing.

Have your well water tested by an accredited laboratory to find out how much arsenic, if any, is in your well water. A list of laboratories licensed to perform drinking water tests in Ontario is available at: <https://www.ontario.ca/page/list-licensed-laboratories>. The laboratory will provide you with a sample bottle and instructions on how to take a sample.

### **You should test your well for arsenic:**

- At least once to determine if arsenic is in your well water.
- Frequently if your arsenic levels are near the drinking water standard.
- Every three years in areas known to have elevated levels. See the question below “How do I know if high arsenic levels have been found in well water in my community?”
- If you have a treatment system to remove arsenic from your water, test the treated water annually to ensure it is working properly.

### **What should I do if a high level of arsenic is found in my well water?**

Very high levels of arsenic in groundwater are relatively rare in Ontario. Many parts of Atlantic Canada and western Canada have higher levels of naturally occurring arsenic in groundwater than we have in Ontario.

If your well water has levels of arsenic above the Ontario standard of 0.010 milligrams per litre (0.010 mg/L) you can take action to reduce the arsenic in water you use for drinking and for preparing food. One option is to install a treatment system for your well to remove arsenic or to use alternative sources of drinking water. You can consult a water treatment professional to get advice on ways to treat your water to reduce the arsenic concentration. You can also check with your nearest municipal water system to see whether it is feasible to hook up to their supply.

### **How is arsenic removed from drinking water?**

There are several technologies that remove arsenic from drinking water. Treatment can be carried out at the point-of-entry (POE) to treat all of the water entering a household or at the point-of-use (POU) to treat the water from a single tap used for the purposes of drinking or cooking.

For treatment options, consult with a water treatment professional. When purchasing a treatment device, consider one that has been certified by an accredited certification organization to remove arsenic. Follow the manufacturer’s instructions regarding their use and maintenance.

For more information, contact your local public health unit. Contact information is available at <http://www.health.gov.on.ca/en/common/system/services/phu/locations.aspx>.

### **How do I know if high arsenic levels have been found in well water in my community?**

Occurrences of arsenic in well water can vary widely from one well to the next, even within a relatively small area. Where available, groundwater monitoring information could provide information on the presence of arsenic in an area.

More information on groundwater monitoring in Ontario may be found on the following websites:

- <https://www.ontario.ca/environment-and-energy/map-provincial-groundwater-monitoring-network>
- <http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth/ambient-groundwater-geochemistry>