



First Nations Health Authority  
Health through wellness

## Information on Changes to the Canadian Guideline for Manganese in Drinking Water

### **What is manganese and how are people exposed?**

Manganese is an essential nutrient for human health. It can be found in air, food, consumer products, soil and drinking water. Food is the main source of exposure to manganese. However, manganese is more readily absorbed from drinking water than from food.

### **Why is the guideline changing?**

New scientific studies suggest that too much manganese can cause negative health effects in humans, especially infants. These studies were used to establish a new health-based guideline for manganese in drinking water. The guideline is intended to protect the entire population by setting a maximum acceptable concentration (MAC) level that is based on protecting infants as they are the most sensitive population. Drinking water used to prepare infant formula should not contain manganese at levels that exceed the maximum acceptable concentration.

The revised guideline will introduce a new maximum acceptable concentration of 0.12 milligram/Litre. The existing aesthetic objective (non-health based) level will be lowered to 0.02 milligram/Litre. The guideline is expected to be established by early-mid 2019 and this document is to serve as interim information about the guideline change.

### **What health effects can result from exposure to manganese in drinking water?**

The maximum acceptable concentration is intended to be protective of all Canadians and is based on the most vulnerable/sensitive population to manganese exposure which is infants consuming tap water or formula prepared with tap water. Infants consuming water with too much manganese (above the maximum acceptable concentration) may have negative impacts on brain development, including: memory, attention, motor function, and learning and behavioral problems. Breastfed infants are generally thought to be at lower risk because manganese absorption and elimination are expected to be managed by the mother's body. However, mothers who have concerns may wish to use a safe, alternate drinking water source or consult with a health professional. Water that exceeds the maximum acceptable concentration is still safe for hand washing, bathing and showering.

### **How do I know if there is manganese in my drinking water?**

The only way to be sure is to have your drinking water tested. Manganese is most frequently an issue for drinking water systems that use groundwater as a source but monitoring should be conducted on all types of source water to confirm whether it is above maximum acceptable contamination. Water with high levels of manganese can have a purple, dark brown, or blackish colour. However, even colourless/clear water could contain manganese. Discolouration can also be caused by other chemicals, such as iron, which can be found under similar conditions as manganese. If your water is discoloured or you have concerns, you should contact the water treatment plant operator for the community water system to report the discolouration. While manganese can cause discoloured water at concentrations that are still safe to drink, as a precaution it is recommended that you avoid using it to prepare infant formula until the safety of your drinking water can be confirmed.

For BC First Nations communities, FNHA Environmental Health Officers (EHOs) and Community Based Water Monitors (CBWMs) routinely monitor and test drinking water in community and public water systems. All monitoring results are reviewed to identify elevated levels and are communicated to community leaders. Sampling for private wells is also available upon request. As part of the new guideline, quarterly sampling for manganese will be carried out in community and public drinking water systems and systems where a concern has been identified.

### **What should I do if there is manganese in my drinking water?**

If your water supply is confirmed to have manganese that exceeds the guideline, another source of water that is safe and below the maximum acceptable concentration for infants, such as bottled water, should be used for formula-fed infants or reconstituting baby formula. New and expectant mothers who have a concern if drinking water is above guideline levels, may wish to use an alternate source of drinking water and/or consult a health professional. Adults and children consuming water with manganese above the MAC level are at lower risk than infants, but as a precaution may wish to consider using water treatment to reduce levels.

EHOs will work with community leaders, water treatment plant operators, and others to ensure adequate monitoring for manganese, and provide advice on interim and long term measures to minimize any health risk.

If elevated levels of manganese persist, community leaders can work with their EHO and Indigenous Service Canada (ISC) to determine the best approach to reducing manganese in drinking water from community water systems. Point of entry or point of use treatment devices in the home, such as reverse osmosis, greensand, and cation exchange, can also reduce manganese levels. Owners should arrange to test the treated water after installing any treatment device to confirm that it is reducing manganese to safe levels. Then follow the manufacturer's recommended testing and maintenance schedules to ensure an ongoing supply of safe water

Boiling water may increase the concentration of dissolved manganese and is not recommended.

### **What should I do if I have been drinking water with high levels of manganese?**

Health Canada established the guideline using a precautionary approach, assuming that people would be constantly exposed to high levels of manganese for long periods of time and built in additional safety factors. Occasionally consuming water with manganese concentrations slightly greater than the maximum acceptable concentration is unlikely to cause any health issues. If you have been consuming water with elevated levels of manganese and have concerns over your health, you should consult your family physician or health professional.

### **For More Information**

Contact your EHO: \_\_\_\_\_

***Guidelines for Canadian Drinking Water Quality: Manganese in Drinking Water:***  
<https://www.canada.ca/en/health-canada/programs/consultation-manganese-drinking-water/manganese-drinking-water.html>

***BC HealthLink file on Manganese*** (being finalized)