

Recent Changes to Manganese Guidelines for Canadian Drinking Water Quality

Providing safe and healthy drinking water to residents of Water Service Areas is a priority for the Regional District of Nanaimo (RDN). The RDN is actively pursuing a strategy to improve the quality of drinking water in the French Creek Water Service Area (Sandpiper) specifically to address manganese levels.

Federal Guidelines for Canadian Drinking Water Quality

The federal Guidelines for Canadian Drinking Water Quality (GCDWQ) were recently adjusted and new parameters for manganese in drinking water have been set. Under the new guidelines, Health Canada has set a Maximum Acceptable Concentration (MAC) of 0.12 mg/L (120µg/L) for manganese in drinking water. The MAC is intended to protect all Canadians, and is based on the most vulnerable/sensitive population (e.g. infants and young children). Health Canada has also established a new Aesthetic Objective for manganese of 0.02 mg/L. Manganese in water at this concentration is not a health concern, but it may affect the colour or appearance of the water.

Manganese has long been considered a nuisance in drinking water (e.g. causing stains on laundry, plumbing fixtures, etc.), and prior to May 2019, there was no MAC for manganese. However, recent health research suggests that high levels of manganese in drinking water may contribute to adverse health effects on the nervous system. This new information was used to establish the MAC for manganese under the GCDWQ. The new MAC is based on being protective of ongoing consumption of tap water by infants, especially infants consuming formula made with tap water. Health Canada recommends that drinking water that contains levels of manganese above the MAC is not used to prepare infant formula. For adults and older children, short-term exposure to manganese in drinking water slightly above the MAC is unlikely to cause negative health effects. Bathing and showering in water that contains levels of manganese above the guideline value is considered safe.

Testing Results in the French Creek Water Service Area

The groundwater used for drinking water in the French Creek Water Service Area has contained manganese since the water service began in 1980. At times, manganese levels have exceeded the new MAC outlined in the updated GCDWQ. Regular in-house testing by the RDN over the years has provided different results compared to the samples tested yearly in a BC Government-certified lab. This is due to differences in sampling dates and in analytical technique, with the government-certified lab results being considered more accurate. Please see the attached table for reference.

In July 2020 – at the request of Island Health – the RDN began taking monthly samples from two locations in the French Creek Water Service Area and submitting them to the government-certified lab for analysis. To avoid confusion, the RDN will no longer perform in-house testing for Manganese.

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<u>Date</u>	<u>Lab</u>	<u>Sample Location</u>	<u>Total Manganese (mg/L)</u>	
May 3/11	RDN Lab ¹	1334 Lanyon Drive	0.110	
May 18/11	North Island Labs ²	1228 Sunrise Drive	0.114	
May 1/12	RDN Lab ¹	1334 Lanyon Drive	0.115	
May 16/12	North Island Labs ²	1228 Sunrise Drive	0.145	
Jun 3/13	RDN Lab ¹	1381 Gilley Crescent	0.120	
Jun 5/13	North Island Labs ²	1228 Sunrise Drive	0.124	
May 6/14	RDN Lab ¹	1381 Gilley Crescent	0.068	
May 13/14	North Island Labs ²	1228 Sunrise Drive	0.139	
May 5/15	RDN Lab ¹	1381 Gilley Crescent	0.090	
May 19/15	Maxxam Analytics ²	1228 Sunrise Drive	0.125	
May 10/16	RDN Lab ¹	1228 Sunrise Drive	0.162	
May 10/16	Maxxam Analytics ²	1228 Sunrise Drive	0.123	
May 8/17	RDN Lab ¹	1228 Sunrise Drive	0.158	
May 8/17	Maxxam Analytics ²	1228 Sunrise Drive	0.142	
May 7/18	RDN Lab ¹	1228 Sunrise Drive	0.135	
May 7/18	Maxxam Analytics ²	1228 Sunrise Drive	0.127	
May 6/19	RDN Lab ¹	1228 Sunrise Drive	0.177	
May 13/19	Bureau Veritas ²	1228 Sunrise Drive	0.107	
MAC for Manganese Introduced in GCDWQ				
May 4/20	RDN Lab ¹	1228 Sunrise Drive	0.141	
May 21/20	Bureau Veritas ²	1228 Sunrise Drive	0.105	
July 9/20	Bureau Veritas ²	1228 Sunrise Drive	0.138	¹ non-certified lab
July 9/20	Bureau Veritas ²	1381 Gilley Crescent	0.115	² certified lab

For information on the Guidelines for Canadian Drinking Water Quality, visit:

www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water/canadian-drinking-water-guidelines.html

For information regarding BC Drinking Water Regulations visit

www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality

For more information, contact:

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