

N-Nitrosodimethylamine (NDMA) in Public Drinking Water Supplies using Chloramination in Newfoundland and Labrador

2026 Update

Water Resources Management Division

Department of Environment, Conservation and Climate Change



Background

N-Nitrosodimethylamine (NDMA) is a compound that may occur naturally in both surface water and groundwater sources. Although NDMA has no industrial or commercial uses in Canada, it may be formed as a disinfection by-product during drinking water treatment processes that employ chloramination. The Guidelines for Canadian Drinking Water Quality (GCDWQ) establish a maximum acceptable concentration (MAC) of 0.04 µg/L for NDMA in drinking water.

This report presents the results of NDMA monitoring conducted in 2026. It builds on previous provincial studies completed in 2010 and 2020, providing an updated assessment of NDMA occurrence in drinking water systems across Newfoundland and Labrador and allowing for comparison of results over time.

Sampling

Chloramination is not commonly used for drinking water disinfection in Newfoundland and Labrador. Currently, only two public water treatment systems employ chloramination as their primary disinfectant:

- Gander: Gander Lake (WS-S-0268)
 - Serviced area: SA-0274 - Gander
- St. John's: Bay Bulls Big Pond (WS-S-0691)
 - Serviced area SA-0488: Mt. Pearl
 - Serviced area SA-0188: Conception Bay South
 - Serviced area SA-0716: St. John's (+Mt. Pearl, +Paradise, +Portugal Cove-St. Phillips, +CBS)
 - Serviced area SA-0888: Portugal Cove-St. Phillips (PCSP)
 - Serviced area SA-0543: Paradise

To assess the occurrence and extent of NDMA formation in Newfoundland and Labrador's public drinking water supplies, targeted monitoring was conducted at these two chloraminated water treatment systems.

Results

Samples from the two public drinking water systems that utilize chloramination were submitted to a certified laboratory for NDMA analysis. The results are presented in Table 1, along with results from sampling conducted in 2020 for comparison.

As shown in Table 1, NDMA concentrations in all samples collected in both 2020 and 2026 were below the maximum acceptable concentration (MAC) of 0.04 µg/L.

Table 1: 2026 NDMA Sample Results (with 2020 sample result included for comparison)

Water Supply	Serviced Area	Sample ID	Sample Date	NDMA (µg/L)
Gander Lake	SA-0274 (Gander)	2020-2735-03-TI-SP	August 18, 2020	0.0010
		2026-2138-03-TI-RE	June 10, 2026	<0.0009
Bay Bulls Big Pond	SA-0488 (Mt. Pearl)	2020-1234-03-TI-SP	September 9, 2020	0.0012
		2026-1037-03-TI-RE	June 16, 2026	<0.0009
	SA-0188 (CBS)	2020-1235-03-TI-SP	September 10, 2020	0.0014
		2026-1054-03-TI-RE	July 8, 2026	<0.0009
	SA-0716 (St. John's)	2020-1236-03-TI-SP	September 15, 2020	0.0015
		2026-1039-03-TI-RE	June 18, 2026	<0.0009
	SA-0888 (PCSP)	2020-1237-03-TI-SP	September 15, 2020	< 0.0008
		2026-1040-03-TI-RE	June 18, 2026	<0.0009
	SA-0543 (Paradise)	2020-1238-03-TI-SP	September 15, 2020	0.0029
		2026-1038-03-TI-RE	June 16, 2026	0.0012

Path Forward

Regular water quality monitoring for NDMA will not be scheduled. However, public drinking water systems that are disinfected with chloramination will be monitored every five years to ensure that levels remain below GCDWQ.

In addition, monitoring for NDMA will be considered for new water supplies that utilize chloramination or any new treatment plants that implement chloramination into the water treatment process.

References

Health Canada. 2011. Guidelines for Canadian Drinking Water Quality: Guideline Technical Document: N-Nitrosodimethylamine (NDMA). Accessed via: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidelines-canadian-drinking-water-quality-guideline-technical-document-n-nitrosodimethylamine-ndma.html>