



Markstay Distribution System Large Municipal Residential Drinking Water System Reports Covering January 1, 2025– December 31, 2025

Reg 170/03 Schedule 22 Annual Water Summary Report
Reg 170/03 Section 11 Annual Water Quality Report

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Introduction

This document is prepared to satisfy Section 11, Schedule 22 of the Ontario Regulation 170/03 (O.Reg 170/03) under the Safe Drinking Water Act (Act). The City of Greater Sudbury (CGS) is the operating authority and therefore is responsible for creating and reporting the document to the owner, the Corporation of the Municipality of Markstay-Warren.

Section 11 of Schedule 22 of O.Reg 170/03 states that the annual water quality report must contain the following information:

- A description of the drinking water system along with a list of chemicals used by the system.
- A description of any major expenses incurred during the period covered by the report to install, repair, or replace required equipment.
- A summary of all adverse water quality incidents (AWQI) reported to the Ministry along with the list of corrective actions taken in response all AWQIs.
- A summary of all test results required under the regulation, under an approval, municipal drinking water licence or order.
- A statement of where the report will be available for inspection.

Schedule 22 of O.Reg 170/03 states that the report must list the requirements of the Act, the regulations, the system's approval, and any order that the system failed to meet at any time during the period covered by the report. The quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows, must also be included in the report along with a comparison to the rated capacity and flow rates approved in the systems approvals document. As Markstay is a receiving system supplied by the Wanapitei Water Treatment Plant (WTP), the flows will represent the systems demand and not supplied.

System Description

The Markstay Distribution System, 220013605, is within the Large Municipal Residential category under the O.Reg 170/03 descriptor. The Municipality of Markstay purchases water Sudbury's Wanapitei Water Treatment Plant. The source for the Wanapitei plant is the Wanapitei River. The Stinson Water Metering Station, located at the boundary between the region of Sudbury and the Township of Awrey, is where the delivery of potable water occurs.

The system has a re-chlorination station that uses 12 % sodium hypochlorite as the disinfectant and an elevated storage tank which operates using a remote fill cycle controlled via SCADA.

All systems are monitored 24/7, 365 days a year from the Wanapitei WTP with the use of the CGS SCADA system.

Table 1 Information to be provided under Section 11 (O.Reg.170/03)

Population Served	<500
Does your Drinking Water System serve more then 10 000 people?	No
Location where Summary Report required under O. Reg. 170/03	Markstay-Warren Municipal Office, 21 Main Street South, Markstay, ON P0M 2G0
Number of Designated Facilities served:	None
Did you provide a copy of your annual report to all Designated Facilities you serve?	NA
Number of Interested Authorities you report to	None
Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?	NA
List all Drinking-Water Systems (if any), and their DWS Number which receive all their drinking water from your system	NA
Indicate how you notified system users that your annual report is available and free of charge	notice via the web - notice via a Public Library - notice via Government Office
Indicate if you notified system users that your annual report is available and is free of charge using alternate methods	Yes

Expenditures

No significant expenditures were incurred other then routine maintenance and the inspection of half the contact chamber.

System Failures and Corrective Actions

CGS operations have continued with decreasing the residency time in the storage tank, have stopped re-chlorinating at the tank and have reduced the free chlorine residual in the system. These actions are being done to optimise the disinfection and decrease the future formation of haloacetic acids (HAA) which is a type of disinfection by-product that are formed when chlorine reacts with natural organic matter present in the water.

Table 2 Adverse Water Quality Incidents (AWQI)

AWQI#	Date	Parameter	Result (µg/L)	Corrective Action
171007	12/09/2025	HAA	94	Monitor chlorination
171615	12/09/2025	THM	101.98	Monitor pre chlorination

Annual Water Quality Data

Haloacetic acids are disinfection by-products with a provincial maximum allowable limit, based on running annual average (RAA), of 80 µg/L. The haloacetic acids results have varied from quarter to quarter and the end of year RAA was 94 µg/L. Concentrations of HAAs are currently showing an upward trend. Plant optimisation and chlorination will be closely monitored to reduce these levels.

Trihalomethanes (THMs) are another disinfection by-product in potable water that has a RAA limit of 100 µg/L under regulatory requirements. As of the fourth quarter the RAA was 101.98 µg/L. This parameter was showing a downward trend but raised during the 3rd quarter. Issues with the chlorine dioxide system is believed to be the issue. The system has since been repaired and THM values should decline by next quarter.

Lead analysis completed within the distribution system showed no trace residuals with a laboratory result below the detection limit of 0.1 µg/L.

Alkalinity for the system was 13.5 mg/L with a pH of 7.6.

One hundred and fifty-nine bacterial samples were analysed and showed no abnormal results for *E. coli* or total coliform. Twenty five percent (25 %) of the samples were tested for heterotrophic plate count with no abnormal results ranging from non detect to 10 CFU/1mL.

A continuous analyser measures the free chlorine residual within the system. The maximum free chlorine for this term was 2.72 mg/L and the minimum residual was 0.31 mg/L. The disinfection residual was within regulatory requirements. The systems total flows received from the Wanapitei WTP during this reporting time frame was 84,467 m³.

Conclusion

The City of Greater Sudbury has operated the systems in Markstay-Warren within regulatory requirements and will continue to monitor disinfection by-products and optimise the disinfection process to reduce the systems residuals. As demonstrated within this report, the Municipality of Markstay-Warren has provided its residents with safe drinking water with no risk of ill health effects to the public.