

2023

**SUMMARY REPORT
FOR MUNICIPALITIES**

Millbrook Municipal Well House

PERIOD: JANUARY 1, 2023 – DECEMBER 31, 2023



Municipal Drinking Water Licence: 136-101, Issue No. 7

Municipal Waterworks No: 220000781

February 28th, 2024

Executive Summary

The Ontario Ministry of Environment Conservation and Parks (MECP) regulates and enforces the production and delivery of safe potable water to consumers under the *Safe Drinking Water Act, (SDWA) 2002* and associated regulations. Most notably is the *Ontario Drinking Water System Regulation (O. Reg.) 170/03* which outlines treatment and testing parameters.

Each year it is a requirement under *O. Reg. 170/03 – Schedule 22* that the owner of a Drinking Water Subsystem produce a summary report. The purpose of this summary report is to keep Town Council (the Owner) and the public informed regarding the quality of their drinking water.

This report is submitted annually for the previous calendar year and is required to contain the following information:

- Council must receive the report no later than March 31st for the previous calendar year.
- List the requirements of the SDWA, the regulations, and the system's approval.
- Any order(s) from the MECP that the system failed to meet at any time during the period covered by the report, specify the duration of the failure and describe the measures that were taken to correct the failure.
- Summary of quantities and flow rates of the water supplied during the period covered including monthly averages, maximum daily flows and daily instantaneous peak flow rates.
- A comparison of the summary of quantities and flow rates to the system's approved Permit to Take Water and Municipal Drinking Water Licence.
- Any additional data or other information that may be useful for Council.

1.0 Introduction

This summary report is a requirement of the Drinking Water Systems Regulation; O. Reg. 170/03 specifically Schedule 22. This report must be submitted no later than March 31st to members of the Municipal Council. The contents must list the requirements of the Safe Drinking Water Act, 2002, the regulations, the system's approval, drinking water works permit, municipal drinking water Licence and any orders that the system failed to meet at any time during the reporting period covered along with specifying the duration of the failure and the correct measures taken to correct the failure.

The report will include a summary of the quantities and the flow rates of the water supplied during the reporting period, including monthly averages, maximum daily flows and daily instantaneous peak flows. The summary shall be compared to the rated capacity and flows provided in the system's Permit To Take Water (PTTW) and Municipal Drinking Water Licence (MDWL).

This summary report is for the period from January 1st to December 31st, 2023. This report is available to the public free of charge. It is available on the Township of Cavan Monaghan web site (<https://www.cavanmonaghan.net>). A copy can also be obtained from the Cavan Monaghan Municipal Office upon request.

1.1 Plant Description and Treatment Process

The Millbrook Drinking Water System consists of three (3) wells, a pump house with treatment and control facilities, chlorine contact pipe, water storage tank, booster pumping station and approximately 9.554 kilometers of distribution water mains with diameters of 150mm, 200mm and 250mm.

1.2 Source Water (Raw Water)

The raw water source for the Millbrook Drinking Water System consists of three (3) drilled wells (30m deep). These wells are non-GUDI wells, meaning the raw well water quality is not influenced by surface waters.

1.3 Raw Water Intake Facilities

Raw water is drawn from the three wells via submersible vertical turbine pump (one per well) rated at 1,500 Litres per minute. The three pumps discharge into a common discharge header and the pumping rate of each pump is controlled by a variable frequency drive.

1.4 Disinfection

Primary Disinfection – Pre-contact pipe

At the common discharge header sodium hypochlorite is added prior to the oversized chlorine contact pipe. Sodium Hypochlorite is added to ensure that any potential harmful organisms (pathogens) are destroyed prior to distribution.

The contact pipe ensures sufficient contact time to achieve the pathogen destruction. Free Available Chlorine (FAC) residual is continuously measured after the contact pipe to ensure that the required residual is being discharged to the distribution system.

Secondary Disinfection – Distribution System and Standpipe

Secondary disinfection is accomplished by adding sufficient sodium hypochlorite at the pumphouse to maintain an appropriate chlorine residual in the distribution system and storage tank. This residual is intended to control microbiological re-contamination, bacterial regrowth, biofilm formation and serve as an indicator of system integrity. FAC residual is measured continuously by online analyzers at the storage tank inlet and outlet to ensure that the required residual is being maintained and applied to the distribution system. There are also four sampling stations throughout the distribution system that are routinely checked for adequate FAC residual.

1.5 Standpipe and Booster Pumping Station

A 2,600 m³ glass-fused-to-steel standpipe located at 988 County Road 10 (behind the Township Municipal Office) provides storage and maintains pressure in the distribution network. The site contains a bulk water loading station for truck filling, and a booster pumping station that provides water to a separate pressure zone in Millbrook (north of Brookside Street and west of County Road 10). The Booster station serviced by three (3) vertical in-line centrifugal booster pumps each with a capacity of 11 Litres per second and two (2) vertical in-line centrifugal high flow pumps each with a capacity of 120 litres per second.

1.6 Sample Analysis

Provincial regulations and the current Municipal Drinking Water Licence (MDWL), dictate the sampling and monitoring requirements for the system. Water quality is tested throughout the treatment process from four dedicated sampling locations throughout the distribution system. Distribution system samples are collected once per week from each location. Where required by regulation, samples are submitted to an accredited laboratory for analyses.

2.0 Compliance

The Ministry conducted the annual Drinking Water System Inspection (Event Number 1-203847422) on June 29th, 2023, with the final inspection report being received August 31, 2023.

During this inspection it was noted that all the lead sampling requirements prescribed by Schedule 15.1 of Ontario Regulation 170/03 had not been met. The current requirement for the Millbrook Drinking Water System is to sample for pH and total alkalinity in every summer (June 15-Oct. 15) and winter (Dec. 15-Apr. 15) sampling period and for lead in every third 12-month period. During the inspection, it was found that the Millbrook DWS was not sampled for pH and alkalinity during the winter period. To rectify this situation the sample schedule was updated to clarify the requirements of the lead sampling program and ensure that all necessary samples were included.

3.0 Summary of Flows and Quantities

The volume of water delivered in 2023 was within the limits stipulated in the Municipal Drinking Water Licence and the Permit to Take Water. These two documents permit a maximum water taking of 3,000 m³/day; and a peak flow rate of 1,500 L/minute. However, paragraph 3.4 of the Permit to Take Water (Number: 7704-AW7HJF) allows for the temporary exceedance of the peak flow rate when necessary for maintenance activities.

In July operational staff performed tests on the distribution system to verify that adequate pressure could be maintained with the standpipe out of service in preparation to have the standpipe cleaned. In August and September higher than normal peak flows resulted due to additional testing for the standpipe cleaning, a water main break, valve maintenance and winterization activities. In October the standpipe cleaning was completed and the high flows were a result of refilling the standpipe following this work.

Table 1 provides a summary of the volume of water delivered to the Millbrook Drinking Water System in 2023.

Table 1 – Volumer of Water Delivered

Month	Average Daily (m ³ /day)	Maximum Daily (m ³ /day)	Peak Flows (L/min)
January	659.13	756.16	1264.2
February	691.84	820.77	1271.4
March	662.47	904.15	1260.6
April	705.53	874.19	1260.6
May	877.70	1277.46	1437.6

June	912.07	1238.48	1378.8
July	834.62	994.70	2487.6*
August	809.42	1052.01	2186.4*
September	819.41	1422.15	2377.8*
October	821.82	1795.52	1944.0*
November	732.59	880.35	1225.2
December	734.56	911.18	1216.8

Table 2 – Licence and Permit Limits

	Maximum Daily (m ³ /day)	Peak Flows (L/min)
Municipal Drinking Water Licence: Number: 136-101 Expires June 24, 2026	3,000 m ³ /day	----
Permit to Take Water Number: 7704-AW7HJF Expires March 31, 2024	3,000 m ³ /day	1,500 L/min

4.0 Annual Report

Raw and Finished water are sampled and tested for chemical, physical and microbiological parameters in accordance with the requirements of O. Reg. 170/03. This annual report must be completed for the previous year by February 28th and also made available to the public free of charge. The annual report was posted to the Township website on February 28th, 2024, along with a public notice indicating where the report can be located.

5.0 Drinking Water Quality Management Standard

This section provides an up-date on the Drinking Water Quality Management Standard (DWQMS).

Licence and Permit

The current Municipal Drinking Water Licence (MDWL) and Drinking Water Works Permit (DWWP) were issued on June 25th, 2021, and are valid until June 24th, 2026 with the application for renewal due December 21st, 2025.

The Permit to Take Water (PTTW) is valid until March 31st, 2024.

Accreditation 3rd Party –Certification Audit:

The objective of the certification audit is to determine whether the Drinking Water Quality Management System (QMS) is conforming to the requirements of the MECP DWQMS. The audit of the Millbrook Drinking Water System Operational

Plan was conducted by an NSF auditor on August 22nd, 2023. There were no non-conformances found during this audit.

Risk Assessment (Element 7) and Risk Assessment Outcomes (Element 8):

The 12-month risk assessment review was conducted August 1st, 2023. The team reviewed the previous risk assessment table and found it suitable for the current date.

Internal Audit (Element 19):

An internal audit was conducted June 27 - 29, 2023 for the period of September 1st, 2022 to June 23rd, 2023. There were two (2) opportunities for improvement noted which will be included on the next Operational Plan review and update.

Management Review (Element 20):

A Management Review was conducted on August 8th, 2023, for the period of January 1st to August 7th, 2023, with top management, which included the Manager, Water and Wastewater Operations, Manager, Laboratory and Water Services and Manager, Environmental Protection Services.

Appendix A – Legislative Requirements and Applicable Legislation

A.0 Legislated Requirements

A.1 Acts and Regulations

Systems regulated in Ontario must meet the requirements of the *Safe Drinking Water Act, 2002* and its regulations. Most notably, the *Drinking Water Systems Regulation* which sets out the treatment and testing requirements for all categories of regulated water systems.

In Part Two of the Walkerton Inquiry Report, Justice Dennis O'Connor recommended that the Ontario government enact a *Safe Drinking Water Act, 2002* to deal with matters related to treatment and distribution of drinking water. As expressed by Justice O'Connor, the purpose of the *Safe Drinking Water Act, 2002* is to gather in one place all legislation and regulations relating to the treatment and distribution of drinking water.

As recommended by Justice O'Connor, the government passed the *Safe Drinking Water Act, 2002* which expands on existing policy and practice and introduces new features to protect drinking water in Ontario. The act's purpose is to protect human health through the control and regulation of drinking water systems and drinking water testing. The act also provides legislative authority to implement 50 of the 93 recommendations made in Justice O'Connor's Part Two Report.

A.2 Safe Drinking Water Act, 2002

The SDWA states that the people of Ontario are entitled to expect their drinking water to be safe. It provides for the protection of human health and prevents drinking water health hazards through the control and regulation of drinking water systems and drinking water testing.

The SDWA along with its associated regulations specifies the requirements for drinking water systems, testing services, and certification of system operators. It also sets out quality standards and mechanisms for compliance and enforcement.

The two sections of the SDWA that are important for Municipal Councilors and Top Managers/Directors are Section 11: Duties of Owners and Operating Authorities and Section 19: Statutory Standard of Care, Municipal Drinking Water Systems.

A.3 Safe Drinking Water Act, 2002 Section 11 Duties of Owners and Operating Authorities

Section 11 of the Act describes the legal responsibilities of the owners and operating authorities of regulated drinking water systems.

Owners and operating authorities are responsible for ensuring their drinking water system:

1. Provides water that meets all the prescribed drinking water quality standards.
2. Operate in accordance with the Act, regulations and are kept in a fit state of repair.
3. Appropriately staffed and supervised by qualified persons.
4. Comply with all sampling, testing, and monitoring requirements.
5. Meet all reporting requirements.

A.4 Safe Drinking Water Act, 2002 Section 19 Statutory Standard of Care

Section 19 of the Act, requires that anyone in a position of oversight to the municipal water system applies a statutory standard of care to their oversight activities. This section extends the legal responsibilities to those who are in the position to oversee the municipal drinking water systems. Specifically, the people with decision making authority over the drinking water system. This section requires they exercise the level of care, diligence, and skill with regard to a municipal drinking water system that a reasonably sensible person would be expected to exercise in a similar situation and that they exercise this due diligence honestly, competently and with integrity.

Section 19 Standard of Care applies to the owner of the system, where the drinking water system is owned by a municipality this includes:

- Every person who oversees the accredited operating authority (Millbrook Drinking Water System) for the system.
- Every person who exercises decision making authority over the system.

This does not require that everyone involved in the oversight be an expert, but they must exercise a level of care, diligence and skill in respect of the drinking water system. Part of this diligence would include engaging persons who would have the expertise to operate a drinking water system.

Failure to comply with the SDWA, Section 19 of the Act or its regulations is an offense and has serious consequences for non-compliance which could result in the prosecution of an individual, corporation, or both.

A conviction under Section 19 could result in financial penalties worth \$20,000 per each day or part day the offence occurred, imprisonment or both. If the breach of section 19 is severe enough a fine as much as \$4,000,000 for each day or part day the offence occurred, or imprisonment or both could occur.

To better meet the responsibilities of the Standard of Care everyone in a position of oversight should become and stay informed. Staying informed is best done by:

- Becoming acquainted with drinking water legislation and regulations,

- Understanding the roles and responsibilities of councilors, senior management and other officials who exercise decision making authority,
- Becoming familiar with your drinking water system,
- Hire competent senior management,
- Reading and asking questions about any reports or information,
- Being satisfied that appropriate steps are taken to address any issues and hiring industry experts when required.

A.5 Summary of Provincial Drinking Water Legislation

ACT	REGULATIONS
<i>Water Opportunities Act, 2010</i> <ul style="list-style-type: none"> • Water Technology Acceleration Project 	O. Reg. 40/11
<i>Clean Water Act, 2006</i> <ul style="list-style-type: none"> • Source Protection Areas and Regions • Source Protection Committee • General • Service of Documents 	O. Reg. 284/07 O. Reg. 288/07 O. Reg. 287/07 O. Reg. 231/07
<i>Safe Drinking Water Act, 2002</i> <ul style="list-style-type: none"> • Municipal Residential Drinking Water Systems in Source Protection Areas • Financial Plans • Schools, private schools and day nurseries • Service of Documents • Licensing of Municipal Drinking Water Systems • Compliance and Enforcement • Certification of Drinking Water System Operators and Water Quality Analysts • Drinking Water Testing Services • Definitions of Deficiency and Municipal Drinking Water Systems • Definitions of Words and Expressions Used in the Act • Drinking Water Systems • Ontario Drinking Water Quality Standards 	O. Reg. 205/18 O. Reg. 453/07 O. Reg. 243/07 O. Reg. 229/07 O. Reg. 188/07 O. Reg. 242/05 O. Reg. 128/04 O. Reg. 248/03 O. Reg. 172/03 O. Reg. 171/03 O. Reg. 170/03 O. Reg. 169/03
<i>Ontario Water Resources Act, 1990</i> <ul style="list-style-type: none"> • Charges For Taking Ground Water to Produce Bottled Water • Taking Ground Water to Produce Bottled Water • Experimental Lakes Area (Water Resources) 	O. Reg. 176/17 O. Reg. 463/16 O. Reg. 61/14

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<ul style="list-style-type: none"> • Charges for Industrial and Commercial Water Users • Service of Documents • Environmental Penalties • Water Taking and Transfer • Secured Creditors, Receivers, Trustees in Bankruptcy • Approval Exemptions • Transitional Provisions Relating to the Repeal of Part VIII of the Environmental Protection Act • Additional Charges • Wells 	<p>O. Reg. 450/07 O. Reg. 226/07 O. Reg. 223/07 O. Reg. 387/04 O. Reg. 299/02 O. Reg. 525/98 O. Reg. 155/98 O. Reg. 157/93 R.R.O. 1990, Reg. 903</p>
<p><i>Environmental Protection Act, 1990</i> <i>Along with 81 supporting regulations</i></p> <ul style="list-style-type: none"> • Applications for Environmental Compliance Approvals • Environmental Compliance Approvals – Exemptions from Section 9 of the Act 	<p>O. Reg. 255/11 O. Reg. 524/98</p>

Appendix B – Acronyms and Definitions

List of Acronyms

AQWI	Adverse Water Quality Incidents
DWWP	Drinking Water Works Permit
FAC	Free Available Chlorine
GUDI	Ground Water Under Direct Influence of Surface Water
MDWL	Municipal Drinking Water Licence
MECP	Ministry of the Environment Conservation and Parks
MOH	Medical Officer of Health
PTTW	Permit To Take Water
R.R.O	Revised Regulations Ontario (1990)
RWW	Raw Water Well
SDWA	Safe Drinking Water Act
WDS	Water Distribution System
WTP	Water Treatment Plant

List of Definitions

“Director” - reference to the director appointed under the Safe Drinking Water Act, 2002

“Owner” - Municipal drinking water system is often the municipality as a corporate entity. Members of municipal councils and municipal officials who provide oversight to this corporate entity also provide oversight or exercise decision making authority in respect of the drinking water systems it owns. They are responsible for having policies, management tools and processes in place so that the municipality meets all its legislative and regulatory requirements under the SDWA.

“Operator or Operating Authority” – The Operating Authority is the person or entity that is given responsibility by the owner for the day-to-day operations of the drinking water system, its management, maintenance or alternation. A municipality may take on this operational role through its own staff or it may choose to contract it out to a third party.