
HALDIMAND COUNTY

Report ENV-01-2023 Annual Water Quality Reports

For Consideration by Council in Committee on February 28, 2023



OBJECTIVE:

To provide an annual summary of Haldimand County's Drinking Water Systems.

RECOMMENDATIONS:

1. THAT Report ENV-01-2023 Annual Water Quality Reports be received.

Prepared by: Lisa Young, Water and Wastewater Technologist, Environmental Operations

Reviewed by: Nancy McKinnon, Supervisor Environmental Operations

Respectfully submitted: Philip Mete, P. Eng., General Manager of Public Works Operations

Approved: Craig Manley, MCIP, RPP, Chief Administrative Officer

EXECUTIVE SUMMARY:

The Annual Water Quality Reports address requirements identified in Ontario Regulation 170/03 under the Safe Drinking Water Act, 2002 and are intended to provide the public and Council with information about Haldimand County's drinking water systems.

The reports include summaries of water quality, water taken/supplied by the drinking water systems and regulatory compliance.

BACKGROUND:

Drinking water is regulated by the Ontario Government through the Ministry of the Environment, Conservation and Parks (MECP). Ontario Regulation 170/03, under the Safe Drinking Water Act 2002, requires Haldimand County to prepare an annual report for each County drinking water system and present them to Council. These reports must be made available to the public free of charge. Copies can be obtained at the Haldimand County Administration Building (by request) or from the Haldimand County website.

The purpose of the Annual Report, under Schedule 11 of Ontario Regulation 170/03, is to provide the public with drinking water system information, which includes water quality sample results for water supplied by the distribution system.

The purpose of the Summary Report, under Schedule 22 of Ontario Regulation 170/03, is to provide the Owner, specifically the Mayor and Members of Council, with information to allow them to make informed decisions regarding the drinking water systems under their care. This report is intended as a full disclosure mechanism to ensure that Council, Senior Management, Regulatory Agencies and the public are aware of any outstanding compliance issues or operating changes within the systems.

The Summary Report must:

- a) 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 and specify the duration of the failure;
- b) for each requirement referred to in clause (a) of this section, that was not met, specify the duration of the failure and the measures that were taken to correct the failure;
- c) a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows and daily instantaneous peak flow rates; and
- d) a comparison of the summary referred to in item (c) to the rated capacity and flow rates approved in the system's approval.

ANALYSIS:

Haldimand County has three distinct drinking water systems: the Nanticoke Drinking Water System; the Dunnville Drinking Water System; and the Caledonia and Cayuga Distribution System. As a result, the County is required to develop water quality reports for each drinking water system.

In all drinking water systems, the County consistently achieved all operational targets and regulatory requirements for water quality.

In 2022, there was one adverse event regarding low chlorine residual in Cayuga during a water main replacement project. Haldimand County Operators responded by notifying the MECP and Haldimand-Norfolk Health Unit. Haldimand County staff recognized contractor practices that did not conform to County practices. The Project Manager stopped the connection until Operators corrected the situation until an acceptable residual was obtained. The County believes no residents were affected by this event.

In 2022, all three drinking water systems experienced increases in distribution system potable water demand. Although flows increased, the maximum day flow for each system was below the rated capacity for each facility. When comparing 2021 and 2022 flows, the changes are summarized in the table below:

Drinking Water System	2022 Percent Change
Caledonia and Cayuga Distribution System	+ 4.2%
Dunnville Drinking Water System	+ 0.92 %
Nanticoke Drinking Water System	+ 5.1%

MECP Inspections:

MECP inspections were completed for all drinking water systems. These inspections provide Haldimand County and its Contract Operators an opportunity to review best management practices and work towards continually improving the operation and management of the drinking water systems.

The 2022 Caledonia and Cayuga distribution system inspection rating has not been finalized prior to the completion of the annual drinking water reports. A rating will be included in the 2023 annual reports.

As a requirement of the Permit to Take Water for the Nanticoke system, annual reporting is to be submitted to the Director by May 31st of the previous year. The inspection found that the 2021 water taking records required under Condition 4.1 were submitted late and the operations summary report required under Condition 4.2 were not submitted.

The MECP provides an inspection risk rating to the County based on their inspection findings for the reporting year. The 2022 drinking water system inspection ratings are as follows:

Drinking Water System	2022 MECP Inspection Rating
Caledonia and Cayuga Distribution System	Rating Pending Final Inspection Report
Dunnville Drinking Water System	100%
Nanticoke Drinking Water System	98.1%

An inspection rating of less than 100 percent does not mean that the drinking water system is unsafe, but is intended to show areas where a system's operations can improve. The County continues to perform well during the drinking water inspections and continuously strives to improve the drinking water system's performance. The 2022 inspection ratings remained consistent with the previous inspection and the County's five-year average for all drinking water systems is approximately **98%**.

Haldimand County and its Contract Operators are diligent in ensuring that regulatory requirements are achieved and Haldimand County residents are provided with safe, reliable drinking water.

Water Production Summaries 2022:

System and Municipal Drinking Water License	Rated Capacity (m ³ /day)	Maximum Daily Flow (m ³ / day)	Percentage of Capacity
Dunnville 066-101	14,500	4,984	34.4 %
Caledonia 066-103	13,000	5,025	38.6%
Cayuga 066-103	2,333	1,055	45.2%
Nanticoke 066-102	13,636	11,889*	87.2%

*A low-pressure event in May 2022 caused water from the elevated Tank to be released. This resulted in a higher demand to refill the tank which accounts for the higher than average Maximum Daily Flow.

Average system water flows are approximately **6965 m³/day**. This would represent 51% of rated capacity.

2022 Monthly Total Flows (ML)

	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
Caledonia	87.6	78.4	85.8	84.9	120.8	104.1	108.6	101.8	91.5	94.4	93.4	99.7
Cayuga	19.5	18.8	20.6	19.3	22.9	21.5	21.9	20.8	18.9	16.9	15.2	16.1
Dunnville	93.2	80.2	81.3	82.6	102.4	117.0	113.0	98.2	87.5	87.0	83.7	81.7
Nanticoke	204.8	198.0	214.6	204.6	264.1	260.7	255.8	228.3	229.8	226.8	226.7	223.7

Note: 1 megaliter (ML) equals 1000 cubic meters (m³)

FINANCIAL/LEGAL IMPLICATIONS:

Not applicable.

STAKEHOLDER IMPACTS:

Not applicable.

REPORT IMPACTS:

Agreement: No

By-law: No

Budget Amendment: No

Policy: No

ATTACHMENTS:

1. Caledonia and Cayuga Distribution System 2022 Annual Water Quality Report.
2. Dunnville Drinking Water System 2022 Annual Water Quality Report.
3. Nanticoke Drinking Water System 2022 Annual Water Quality Report.
4. Haldimand County DWQMS Operational Plan