
MOLESWORTH DRINKING WATER SYSTEM

2023 ANNUAL
SUMMARY REPORT

Municipality of North Perth



Introduction

The treatment and delivery of potable water in Ontario is regulated by the Ministry of the Environment, Conservation and Parks (MECP) under the Safe Drinking Water Act. On June 1, 2003, O. Reg. 170/03 came into effect which prescribes requirements for owners and operators of municipal drinking water systems.

O. Reg. 170/03 requires the owner to produce an Annual Report, under Schedule 11. The Report must include the following:

- A description of the drinking water system including a list of the water treatment chemicals used;
- A summary of any adverse test results or observations and corrective actions;
- A summary of all required test results;
- A description of any major expenses incurred to install, repair or replace equipment.

Every time an Annual Report is prepared the owner of the system shall ensure that effective steps are taken to advise users of water from the system that copies of the report are available, without charge, and how a copy may be obtained.

The Regulation also requires the owner to produce a Summary Report as indicated in Schedule 22.

- The report must list the requirements of the Act, its Regulations, the system's Drinking Water Works Permit, Municipal Drinking Water Licence, and any orders the system failed to meet during the reporting period. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.
- To enable the Owner to assess the rated capacity of their system to meet existing and future planned water uses, the following information is also required in the report.
 - A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and maximum daily flows;
 - A comparison of the summary to the rated capacity and flow rates approved in the system's Permit to Take Water, Drinking Water Works Permit and Municipal Drinking Water Licence



Molesworth Drinking Water System
2023 Annual and Summary Report

Part 1 - ANNUAL REPORT (as required by O. Reg. 170/03, Section 11)

Drinking-Water System Number:	260034996
Drinking-Water System Name:	Molesworth Drinking Water System
Drinking-Water System Owner:	Municipality of North Perth
Drinking-Water System Category:	Small Municipal Residential
Municipal Drinking Water Licence	091-104 (Issue #4)
Drinking Water Works Permit	091-204 (Issue #4)
Period being reported:	January 1 to December 31, 2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential	Complete for all other Categories
<p><i>Does your Drinking-Water System serve more than 10,000 people?</i></p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><i>Number of Designated Facilities served: 0</i></p>
<p><i>Is your annual report available to the public at no charge on a web site on the Internet?</i></p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><i>Did you provide a copy of your annual report to all Designated Facilities you serve?</i></p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p><i>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</i></p> <p>Municipal Office and Municipality of North Perth Website</p>	<p><i>Number of Interested Authorities you report to: 0</i></p> <p><i>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</i></p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:	
Drinking Water System Name	Drinking Water System Number
N/A	



Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
N/A

Indicate how you notified system users that your annual report is available and is free of charge.		
<input checked="" type="checkbox"/> Public access/notice via the web	<input checked="" type="checkbox"/> Public access/notice via Government Office	<input type="checkbox"/> Public access/notice via a newspaper
<input checked="" type="checkbox"/> Public access/notice via Public Request	<input type="checkbox"/> Public access/notice via a Public Library	<input type="checkbox"/> Public access/notice via Other Method _____

Describe your Drinking Water System

The Molesworth Water System is owned and operated by the Municipality of North Perth and provides a potable water supply to the residents and businesses of the Village of Molesworth.

A new well was drilled for the Molesworth Drinking Water System to replace the original ground water well housed in a building located at Part Lot 61, Concession 1, Township of Wallace. The new well is located outside of the wellhouse building. Four 430-liter pre-charged pressure tanks provide pressure to the distribution system when the well pump is not operating. Predetermined pressure set points automatically start and stop the well pumps. Two chemical feed pumps operate with the well pump on a rotating duty basis, automatically adding predetermined quantities of sodium hypochlorite. A third pump adds sodium silicate.

The first chemical added is sodium hypochlorite (liquid chlorine). It is used to kill any disease-causing organisms (disinfect) that may be present in the water. It is important to add enough of this chemical to maintain a free chlorine residual throughout the water distribution system. A chlorine analyzer ensures a sufficient residual is maintained in the water entering the distribution. The second chemical added is sodium silicate. It is used as a sequestering agent to prevent iron from oxidizing thereby minimizing the rust formation in the water.



List all water treatment chemicals used over this reporting period
<ul style="list-style-type: none"> Liquid Chlorine 12% - NSF certified Sodium Silicate - NSF certified
Please provide a brief description and a breakdown of monetary expenses incurred
No significant monetary expenses incurred in 2023.

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre				
Incident Date	Parameter	Result	Corrective Action Date	Corrective Action
July 17, 2023	Total Coliforms	1	July 18, 2023	Resampled and retested until 2 sets of samples with no TC.

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period					
	Number of Samples	Range of E. Coli Results (Min-Max)	Range of Total Coliform Results (Min-Max)	Number of HPC Samples	Range of HPC Results (Min-Max)
Raw	12	0-0	0-0	N/A	N/A
Treated	N/A	N/A	N/A	N/A	N/A
Distribution	34	0-0	0-1	N/A	0-9



Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report			
	Number of Samples	Range of Results (Min-Max)	Units
Turbidity – grab sample	12	0.30 – 0.53	NTU
Free Chlorine Residual – continuous monitor at well house	8,760	0.0* - 2.51	mg/L
Free Chlorine Residual – grab sample in distribution system	58	1.27 - 1.68	mg/L

*Value due to operational maintenance

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument				
Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
N/A				

Additional water information
<p>Hardness and Iron may affect the appearance of water. Iron is a naturally occurring mineral commonly found in ground water wells throughout Ontario. Water with higher levels of iron can stain fixtures and clothing. Iron testing is not required by the Safe Drinking Water Act as it is considered an aesthetic(visual) concern, not a health concern.</p> <p>Levels of iron less than 0.30 mg/L are not considered to cause aesthetic problems such as discoloured water. Sodium silicate is added to the raw water to keep the iron in suspension. The average iron level in raw water tested in 2023 was 0.82 mg/L. The average iron level in the distribution water tested in 2023 was 0.56 mg/L.</p>



Many households have water softeners to help reduce white calcium deposits and improve the efficiency of soaps and reduce iron levels. The water hardness for North Perth Drinking Water Systems is approximately 265 mg/L (15 grains/gallon).

Inorganic Testing

Summary of Inorganic parameters tested during this reporting period or the most recent sample results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Aug 12/20	<0.60	µg/L	No
Arsenic	Aug 12/20	2.6	µg/L	No
Barium	Aug 12/20	51	µg/L	No
Boron	Aug 12/20	<50	µg/L	No
Cadmium	Aug 12/20	<0.10	µg/L	No
Chromium	Aug 12/20	<1.0	µg/L	No
Mercury	Aug 12/20	<0.10	µg/L	No
Selenium	Aug 12/20	<5.0	µg/L	No
Sodium	Aug 12/20	12.1	mg/L	Yes
Uranium	Aug 12/20	ND	µg/L	No
Fluoride	Aug 12/20	1.1	mg/L	Yes
Nitrite	Feb 14/23	ND	mg/L	No
Nitrite	May 17/23	ND	mg/L	No
Nitrite	Aug 15/23	ND	mg/L	No
Nitrite	Nov 13/23	ND	mg/L	No
Nitrate	Feb 14/23	0.063	mg/L	No
Nitrate	May 17/23	ND	mg/L	No
Nitrate	Aug 15/23	ND	mg/L	No
Nitrate	Nov 13/23	ND	mg/L	No

ND = Not detected



Lead Testing Results

Summary of Lead Results during this reporting period (Winter: Dec 15 – April 15; Summer: June 15 - Oct 15)					
Sampling Period	Location	pH	Alkalinity (mg/L)	Lead (ug/L)	Exceedance
Feb 14/2023	Blow off – Behind Bowling Lanes	7.87	232	<1.0	No
Aug 8/2023	Blow off – Behind Bowling Lanes	7.86	220	<1.0	No

* Molesworth qualified for reduced Lead sampling in 2023

Organic Testing

Summary of Organic parameters tested during this reporting period or the most recent sample results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Aug 12/20	ND	µg/L	No
Atrazine + N-dealkylated metabolites	Aug 12/20	ND	µg/L	No
Azinphos-methyl	Aug 12/20	ND	µg/L	No
Benzene	Aug 12/20	ND	µg/L	No
Benzo(a)pyrene	Aug 12/20	ND	µg/L	No
Bromoxynil	Aug 12/20	ND	µg/L	No
Carbaryl	Aug 12/20	ND	µg/L	No
Carbofuran	Aug 12/20	ND	µg/L	No
Carbon Tetrachloride	Aug 12/20	ND	µg/L	No
Chlorpyrifos	Aug 12/20	ND	µg/L	No
Diazinon	Aug 12/20	ND	µg/L	No
Dicamba	Aug 12/20	ND	µg/L	No
1,2-Dichlorobenzene	Aug 12/20	ND	µg/L	No
1,4-Dichlorobenzene	Aug 12/20	ND	µg/L	No
1,2-Dichloroethane	Aug 12/20	ND	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug 12/20	ND	µg/L	No
Dichloromethane	Aug 12/20	ND	µg/L	No
2-4 Dichlorophenol	Aug 12/20	ND	µg/L	No



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Summary of Organic parameters tested during this reporting period or the most recent sample results				
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 12/20	ND	µg/L	No
Diclofop-methyl	Aug 12/20	ND	µg/L	No
Dimethoate	Aug 12/20	ND	µg/L	No
Diquat	Aug 12/20	ND	µg/L	No
Diuron	Aug 12/20	ND	µg/L	No
Glyphosate	Aug 12/20	ND	µg/L	No
HAA (running annual average)	2023	10.29	µg/L	No
Malathion	Aug 12/20	ND	µg/L	No
Metolachlor	Aug 12/20	ND	µg/L	No
Metribuzin	Aug 12/20	ND	µg/L	No
Monochlorobenzene	Aug 12/20	ND	µg/L	No
Paraquat	Aug 12/20	ND	µg/L	No
Pentachlorophenol	Aug 12/20	ND	µg/L	No
Phorate	Aug 12/20	ND	µg/L	No
Picloram	Aug 12/20	ND	µg/L	No
Polychlorinated Biphenyls(PCB)	Aug 12/20	ND	µg/L	No
Prometryne	Aug 12/20	ND	µg/L	No
Simazine	Aug 12/20	ND	µg/L	No
THM (running annual average)	2021	15.73	µg/L	No
Terbufos	Aug 12/20	ND	µg/L	No
Tetrachloroethylene	Aug 12/20	ND	µg/L	No
2,3,4,6-Tetrachlorophenol	Aug 12/20	ND	µg/L	No
Triallate	Aug 12/20	ND	µg/L	No
Trichloroethylene	Aug 12/20	ND	µg/L	No
2,4,6-Trichlorophenol	Aug 12/20	ND	µg/L	No
Trifluralin	Aug 12/20	ND	µg/L	No
Vinyl Chloride	Aug 12/20	ND	µg/L	No
2 methyl-4-chlorophenoxyacetic acid (MCPA) Reported as MCPA on analysis	Aug 12/20	ND	µg/L	No

*ND = Not detected



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List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.				
Parameter	Sample Date	Result Value	Unit of Measure	ODWS Standard
Fluoride	Aug 12/2020	1.10	mg/L	1.5

Note: Fluoride is naturally occurring in the Molesworth Drinking Water Supply. For more information on fluoride visit Huron Perth Public Health Unit at:

<https://www.hpph.ca/en/health-matters/water.aspx>



Part 2 – SUMMARY REPORT (as required by O. Reg. 170/03, Schedule 22)

Non-Compliance with Legislations, Regulations, Approvals & Orders		
<p>The Molesworth Drinking Water System is governed by, and must operate in accordance with, the following Acts and Regulations:</p> <ul style="list-style-type: none"> • Safe Drinking Water Act 2002; <ul style="list-style-type: none"> ○ O. Reg 128/04 – Certification of Drinking Water System Operators ○ O. Reg 170/03 – Drinking Water Systems ○ O. Reg 169/03 – Ontario Drinking Water Quality Standards • Environmental Protection Act, where applicable; • Clean Water Act, where applicable; <p>During this period, the Facility was operated in full compliance with the Act, the regulations and the Facility’s license and permit save and except for the following:</p>		
Requirement	Duration of Failure	Measures to Correct the Failure
<p>There were no non-compliances in 2023.</p>		
<p> </p>		



System Capability

Month	Average Flow (m ³ /d)	Maximum Flow (m ³ /d)	Total Monthly Flow (m ³ /d)	Maximum Flow Rate (L/min)	System Capacity
January	15.70	21.41	486.67	118	190.08 m ³ /day
February	14.89	18.83	416.90	118	
March	15.10	24.89	468.17	118	
April	16.10	25.33	483.08	118	
May	18.17	34.20	563.20	118	
June	17.92	28.66	537.47	117	
July	16.52	21.54	512.07	117	
August	15.66	20.61	485.32	118	
September	19.74	31.10	592.14	117	
October	15.47	20.42	479.63	114	
November	19.44	75.0	583.06	116	
December	15.01	24.73	465.24	116	
Average	16.64		506.08	117	
Maximum		75.0	592.14	118	
% of Capacity	8.75	39.46			