
ATWOOD 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 License, 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 License



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

Drinking-Water System Number:	220065260
Drinking-Water System Name:	Atwood Drinking Water System
Drinking-Water System Owner:	Municipality of North Perth
Drinking-Water System Category:	Large Municipal Residential
Municipal Drinking Water License	091-101 (Issue #4)
Drinking Water Works Permit	091-201 (Issue #4)
Permit To Take Water	1771-9UVR3Y
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
<i>Does your Drinking-Water System serve more than 10,000 people?</i> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>Number of Designated Facilities served: 0</i>
<i>Is your annual report available to the public at no charge on a web site on the Internet?</i> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Did you provide a copy of your annual report to all Designated Facilities you serve?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No
<i>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</i> Municipal Office and Municipality of North Perth Website	<i>Number of Interested Authorities you report to: 0</i> <i>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No

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 Atwood Drinking Water System is owned and operated by the Municipality of North Perth and provides a potable water supply to the residents of Atwood.

The system receives raw water from Well 1 (Danbrook) located adjacent to the Atwood Pumphouse and Well 2 (Smith) located at 102 Parkview Crescent. All treatment of raw water from both sources takes place at the Atwood Pumphouse. Two chemical feed pumps operate with the well pump on a rotating duty basis, automatically adding predetermined quantities of sodium hypochlorite. An additional two pumps operate on a rotating basis to add 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. The treated water is discharged to a reservoir. Three high lift pumps deliver the treated water from the reservoir to the distribution system via five hydro-pneumatic pressure tanks. The pressure tanks reduce the cycling of the high lift pumps and maintain pressure within the distribution system.

List all water treatment chemicals used over this reporting period

- Liquid Chlorine 6% - NSF certified
- Sodium Silicate - NSF certified



Please provide a brief description and a breakdown of monetary expenses incurred

-Atwood Well 2 (Smith) Well Inspection & Pump Maintenance \$20,000
- Water Meter Replacement and new AMI Reading System \$100,000

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
Aug 18/23	Sodium Exceedance	0.24	Aug 24/23	Resampled and retested
Sept 12/23	Low pressure event	N/A	Sept 15/23	Sampled and tested distribution, flushed distribution

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)
Well 1 - Raw	52	0-0	0-0	N/A	N/A
Well 2 - Raw	52	0-0	0-1	N/A	N/A
Reservoir - Treated	52	0-0	0-0	52	0-47
185 Ellen - Distribution	53	0-0	0-0	52	0-1
Public Works Garage	53	0-0	0-0	52	0-3
Goodyear and Ballantyne	1	0-0	0-0	N/A	N/A



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
Well 1 -Raw Turbidity – grab sample	12	0.17 – 0.40	NTU
Well 2 – Raw Turbidity – grab sample	12	0.14 – 0.43	NTU
Free Chlorine Residual – continuous monitor at well house	8,760	0.0* - 2.56	mg/L
Free Chlorine Residual – grab sample in distribution system	107	1.21 – 1.81	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 9/21	ND	µg/L	No
Arsenic	Aug 9/21	4.0	µg/L	No
Barium	Aug 9/21	98	µg/L	No
Boron	Aug 9/21	61	µg/L	No
Cadmium	Aug 9/21	ND	µg/L	No
Chromium	Aug 9/21	ND	µg/L	No
Mercury	Aug 9/21	ND	µg/L	No
Selenium	Aug 9/21	ND	µg/L	No
Sodium	Aug 15/23	24.4	mg/L	Yes
Sodium (retest)	Aug 21/23	23.4	mg/L	Yes (No action required)
Uranium	Aug 9/21	ND	µg/L	No
Fluoride	Aug 15/23	1.12	mg/L	Yes
Nitrite – Q1	Feb 14/23	ND	mg/L	No
Nitrite – Q2	May 17/23	ND	mg/L	No
Nitrite – Q3	Aug 15/23	ND	mg/L	No
Nitrite – Q4	Nov 13/23	ND	mg/L	No
Nitrate – Q1	Feb 14/23	ND	mg/L	No
Nitrate – Q2	May 17/23	0.044	mg/L	No
Nitrate – Q3	Aug 15/23	0.055	mg/L	No
Nitrate – Q4	Nov 13/23	0.026	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	Distribution sampling station	7.70	232	<1.0	No
Aug 8/2023	Distribution sampling station	8.13	255	<1.0	No

Atwood 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 9/21	ND	µg/L	No
Atrazine + N-dealkylated metabolites	Aug 9/21	ND	µg/L	No
Azinphos-methyl	Aug 9/21	ND	µg/L	No
Benzene	Aug 9/21	ND	µg/L	No
Benzo(a)pyrene	Aug 9/21	ND	µg/L	No
Bromoxynil	Aug 9/21	ND	µg/L	No
Carbaryl	Aug 9/21	ND	µg/L	No
Carbofuran	Aug 9/21	ND	µg/L	No
Carbon Tetrachloride	Aug 9/21	ND	µg/L	No
Chlorpyrifos	Aug 9/21	ND	µg/L	No
Diazinon	Aug 9/21	ND	µg/L	No
Dicamba	Aug 9/21	ND	µg/L	No
1,2-Dichlorobenzene	Aug 9/21	ND	µg/L	No
1,4-Dichlorobenzene	Aug 9/21	ND	µg/L	No
1,2-Dichloroethane	Aug 9/21	ND	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug 9/21	ND	µg/L	No
Dichloromethane	Aug 9/21	ND	µg/L	No
2-4 Dichlorophenol	Aug 9/21	ND	µg/L	No



Atwood Drinking Water System 2023 Annual and Summary Report

Summary of Organic parameters tested during this reporting period or the most recent sample results				
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 9/21	ND	µg/L	No
Diclofop-methyl	Aug 9/21	ND	µg/L	No
Dimethoate	Aug 9/21	ND	µg/L	No
Diquat	Aug 9/21	ND	µg/L	No
Diuron	Aug 9/21	ND	µg/L	No
Glyphosate	Aug 9/21	ND	µg/L	No
HAA (running annual average)	2023	7.38	µg/L	No
Malathion	Aug 9/21	ND	µg/L	No
Metolachlor	Aug 9/21	ND	µg/L	No
Metribuzin	Aug 9/21	ND	µg/L	No
Monochlorobenzene	Aug 9/21	ND	µg/L	No
Paraquat	Aug 9/21	ND	µg/L	No
Pentachlorophenol	Aug 9/21	ND	µg/L	No
Phorate	Aug 9/21	ND	µg/L	No
Picloram	Aug 9/21	ND	µg/L	No
Polychlorinated Biphenyls(PCB)	Aug 9/21	ND	µg/L	No
Prometryne	Aug 9/21	ND	µg/L	No
Simazine	Aug 9/21	ND	µg/L	No
THM (running annual average)	2023	18.23	µg/L	No
Terbufos	Aug 9/21	ND	µg/L	No
Tetrachloroethylene	Aug 9/21	ND	µg/L	No
2,3,4,6-Tetrachlorophenol	Aug 9/21	ND	µg/L	No
Triallate	Aug 9/21	ND	µg/L	No
Trichloroethylene	Aug 9/21	ND	µg/L	No
2,4,6-Trichlorophenol	Aug 9/21	ND	µg/L	No
Trifluralin	Aug 9/21	ND	µg/L	No
Vinyl Chloride	Aug 9/21	ND	µg/L	No
2 methyl-4-chlorophenoxyacetic acid (MCPA) Reported as MCPA on analysis	Aug 9/21	ND	µg/L	No

*ND = Not detected



Atwood Drinking Water System
2023 Annual and Summary Report

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 15/23	1.12	mg/L	1.5

Note: Fluoride is naturally occurring in the Atwood 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 Atwood 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; • Municipal Drinking Water Licence - 091-101; • Drinking Water Works Permit - 091-201; • Permit to Take Water – 1771-9UVR3Y 		
<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>		



System Capability

WELL 1 – DANBROOK WELL						
Month	Average Flow (m³/d)	Maximum Flow (m³/d)	Total Monthly Flow (m³/d)	Maximum Flow Rate (L/min)	System Capacity	Approved Flow Rate
January	29.99	39.99	929.84	194.44	326.88 m ³ /day	227 L/min
February	35.92	59.01	1005.69	170.08		
March	31.60	45.58	979.52	170.86		
April	37.38	57.00	1133.39	173.43		
May	46.39	79.00	1438.00	213.54		
June	51.40	105.00	1542.00	202.82		
July	44.52	74.00	1380.00	202.70		
August	41.00	53.00	1271.00	202.70		
September	41.80	69.00	1254.00	190.63		
October	44.85	83.00	1378.00	190.48		
November	36.30	74.00	1089.00	194.27		
December	45.77	63.00	196.08	196.08		
Average	40.58		1133.04	191.84		
Maximum		105.00	1542.00	213.54		
% of Capacity	12.41	32.12				



Atwood Drinking Water System
2023 Annual and Summary Report

WELL 2 – SMITH WELL						
Month	Average Flow (m³/d)	Maximum Flow (m³/d)	Total Monthly Flow (m³/d)	Maximum Flow Rate (L/min)	System Capacity	Approved Flow Rate
January	40.78	77.87	1264.24	170.87	262.08 m ³ /day	182 L/min
February	34.15	47.42	956.25	170.98		
March	44.51	73.74	1379.71	170.86		
April	41.05	55.00	1231.54	173.43		
May	48.84	83.00	1514.00	172.41		
June	60.03	104.00	1801.00	170.94		
July	47.77	64.00	1481.00	169.92		
August	44.00	60.00	1364.00	172.07		
September	45.73	68.00	1372.00	174.13		
October	42.52	66.00	1318.00	175.44		
November	53.03	102.00	1591.00	176.28		
December	53.13	72.00	1647.00	170.85		
Average	46.30		1409.98	172.35		
Maximum		104.00	1801.00	176.28		
% of Capacity	17.67	39.68				



Atwood Drinking Water System 2023 Annual and Summary Report

ATWOOD WELL SUPPLY – ALL WELLS COMBINED					
Month	Average Flow (m ³ /d)	Maximum Flow (m ³ /d)	Total Monthly Flow (m ³ /d)	System Capacity	Approved Flow Rate
January	70.78	80.31	2194.08	588.96 m ³ /day	Well 1: 227 L/min Well 2: 182 L/min
February	70.07	82.06	1961.94		
March	76.10	107.45	2359.23		
April	78.83	97.00	2364.93		
May	95.23	143.00	2952.00		
June	111.43	180.00	3343.00		
July	92.29	138.00	2861.00		
August	85.00	108.00	2635.00		
September	87.53	121.00	2626.00		
October	86.97	99.00	2696.00		
November	89.93	102.00	2680.00		
December	98.90	112.00	3066.00		
Average	86.92		2644.93		
Maximum		180.00	3343.00		
% of Capacity	14.76	30.56			