

February 28 2025

Mayor Jim Moffat and Council
The Corporation of the Township of Manitouwadge
1 Mississauga Drive
Manitouwadge, Ontario
P0T 2C0

Re: For the Manitouwadge Water Treatment Plant; Waterworks No.: 220000219
O. Reg. 170 Section 11 & Schedule 22 Annual Reporting under SDWA

Attached are the [2024](#) Annual and Summary Reports for the Manitouwadge Drinking Water System. The Reports are based on information provided by Operators in accordance with Section 11 and Schedule 22 of O. Reg. 170/03, under the Safe Drinking Water Act. A confirmation of submission of the PTTW reporting, as required by O.Reg 387, is included as part of the report.

Please note that any Orders that you have received directly from the MECP or any major expense incurred by the Municipality which is not listed should be reviewed and added to the report.

As per Schedule 22 of O. Reg. 170/03, this Summary Report is to be provided to the members of the municipal council no later than [March 31, 2025](#). Please ensure this distribution.

Section 12 of O. Reg. 170/03, requires both the Summary Report and the Annual Report be made available for inspection by any member of the public during normal business hours, without charge. The reports should be made available for inspection at the office of the municipality or at a location that is reasonably convenient to the users of the water system

Yours truly,

Patrick Couture

Patrick Couture
Senior Operations Manager
Northwestern Ontario Regional Hub
807-228-2617

Copy to: Florence Maclean – CAO
Tyler Brewster – Public Works Superintendent
Operations Staff – Manitouwadge Drinking Water System

Manitouwadge Drinking Water System

Large Municipal Residential Drinking Water System

January 1 – December 31, 2024

O.Reg 170/03 Schedule 22 Summary Report
O.Reg 170/03 Section 11 Annual Report

Issued: February 28 2025

Prepared by the



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Drinking-Water System Number: **220000219**
Drinking-Water System Name: Manitouwadge Drinking Water System
Drinking-Water System Owner: The Corporation of the Township of Manitouwadge
Drinking-Water System Category: Large Municipal Residential Drinking Water-System
Period being reported: [January 1 – December 31, 2024](#)

SECTION 1: INTRODUCTION

This document is prepared in accordance with Section 11 and Schedule 22 of O.Reg.170/03 under the Safe Drinking Water Act and with Section 9 of O.Reg.387/04 under the Ontario Water Resources Act.

The reports are prepared by the Ontario Clean Water Agency on behalf of the Corporation of the Township of Manitouwadge. Acronyms and definitions can be found at the end of the report.

A copy of the Summary Report must be provided to the members of the municipal council by [March 31, 2025](#).

SECTION 2: REQUIREMENTS OF THE REPORTS

Schedule 22 Report

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. It must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

For the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and future planned water uses, the following information is required to be included in this report:

- 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.
- A comparison of the summary to the rated capacity and flow rates approved in the systems approval.

Section 11 Report

The annual report must contain the following:

- A brief description of the drinking water system and 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



- A summary of corrective actions taken in response all AWQIs
- A summary of all test results required under the regulation, under an approval, municipal drinking water license or order, including an OWRA order.
- A statement of where a Schedule 22 report will be available for inspection.

The report must be prepared not later than February 28 of the following year.

Regulation 387 Report

On or before March 31 in every year, every holder of a permit to take water (PTTW) shall submit to a Director the data collected and recorded for the previous year.

SECTION 3: SECTION 11 REPORT

Information	
Population Served	1,974
Does your Drinking-Water System serve more than 10,000 people?	Yes [☐] No [☒]
Is your annual report available to the public at no charge on a web site on the Internet?	Yes [☐] No [☒]
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.	The Corporation of the Township of Manitouwadge 1 Mississauga Drive Manitouwadge, ON, P0T 2C0
Number of Designated Facilities served:	N/A
Did you provide a copy of your annual report to all Designated Facilities you serve?	
Number of Interested Authorities you report to:	N/A
Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?	
List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:	
DWS Name:	DWS: #
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?	
Yes [☐] No [☐]	
Indicate how you notified system users that your annual report is available, and is free of charge.	
☐ Public access/notice via the web ☒ Public access/notice via Government Office (Municipal) ☐ Public access/notice via a newspaper ☒ Public access/notice via Public Request ☐ Public access/notice via a Public Library ☐ Public access/notice via other method –	



Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

Facility Description

Raw water is extracted from five (5) wells, considered to be GUDI with adequate in-situ filtration. The first well-head site consists of wells #1 and #2, which are located at the pump house within the WTP boundaries. A 400 kW diesel engine generator is located at the WTP to provide emergency power. Wells #3 and #4 are located at the second well-head site adjacent to the west end of Manitouwadge Lake southeast of Oshweken Road. The second well-head site is supplied back-up power from the sewage lift station diesel generator. Well #5 is located in a separate building approximately 30 m southwest of well #3, for a total of three well-head sites. Each well is equipped with a submersible pump rated at 30.3 L/s.

The raw water pumped from the wells is controlled by the treated water reservoir level. When the reservoir level falls to the 'low operating level,' the duty well pump will start drawing water until the reservoir reaches its 'high operating level.' Other well pumps will activate if required in order to meet water demands. The speed of the pumps are controlled by VFDs providing a more flexible and efficient operation.

The Manitouwadge WTP consists of a two-stage disinfection process, involving UV and chlorine disinfection. There are three UV reactors, one at each well-head site. UV treatment (primary disinfection) is provided at the well-head site as soon as the duty raw water well starts. Two UV reactors of rated flow rate of 63 L/s are provided for well-head sites #1 & #2 and another UV reactor with a rated flow rate of 31.5 L/s is provided for well-head site #3. The UV reactors operate using a 254 nm spectrum, and were specifically designed to achieve maximum inactivation of pathogens at a minimum dosage rate of 42 mJ/cm².

After the primary disinfection, water is passed through an aerator unit. There are two aerator units located at the main water treatment plant. The first aerator unit treats water coming from well-head site #1, whereas the second aerator treats water coming from both well-head sites #2 & #3. The aerator units are provided to scrub off the naturally occurring hydrogen sulfides and CO₂ in addition to controlling the pH of the raw water.

Water from the aerators is combined and transmitted through a common header; 400 mm diameter pipeline located at the main water treatment plant. Sodium hypochlorite (12% NaOH) is injected at the common header to provide secondary disinfection. There are two (2) microprocessor-controlled metering pumps capable of delivering 3.78 L/hr of sodium hypochlorite (12% NaOH). Following chlorination, 22.56 m downstream in the common header, water flow is split through a joint reducer and transmitted through two 44.3 m long pipes of 300 mm in diameter that feeds into the reservoir.

Water is stored in a concrete underground reservoir consisting of two cells separated by a sluice gate. There are two clear-wells joint to each separate cell, located underneath the high-lift pumps. The water is pumped from the clear-wells to the distribution system. The two clear-wells are also separated by sluice gates, which provide the operational flexibility for the maintenance purposes. The dimensions of both reservoir and clear-well combined is approximately 43 m long, 20 m wide and 5 m in height. The total volume for storage by the unit is approximately 4,060 m³. Water is distributed and supplied by four high lift pumps with VFD's. Two turbine fire pumps are used as a back up to the high lift pumps. Each high lift pump has a total rated capacity of 40.5 L/s. Fire pumps are also rated at 40.5 L/s.

Average daily and peak flows are 854.17 m³/day (10 L/s) and 1,218.9 m³/day (14 L/s), respectively. The WTP's average day flow demand is well below its rated capacity of 10,472 m³/day (121 L/S) (approximately 20% of the rated capacity). Consequently, the operator only requires one well pump and one high lift pump to meet water demands under normal circumstances. A secondary standby well pump is selected to meet the additional demand. Similarly, a fire pump would be used in case of an increase in water demands.



Monitoring equipment includes five flow meters to measure the water coming from each well. There are two additional flow meters; one (1) flowmeter that measures the combined flow of all five wells before it enters the reservoir and one (1) treated water flow meter prior to the distribution network. A free chlorine analyzer is used to measure the free chlorine residual at the point of entrance to the distribution system. A turbidimeter is also set up at the same location as the free chlorine analyzer in order to measure the turbidity of the treated water just before the distribution

Chemicals Used During Reporting Period

- Sodium Hypochlorite

Significant Expenses

Significant expenses were incurred to:

- Install Required Equipment
- X Repair Required Equipment
- Replace Required Equipment

Install	Repair	Replace	Description	Expense
	X		Distribution System Swabbing	17500

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 (yyyy/mm/dd)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

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 Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw					
Raw Well 1	53	0 – 0	0 – 0	N/A	N/A
Raw Well 2	53	0 – 0	0 – 0		
Raw Well 3	53	0 – 0	0 – 0		
Raw Well 4	53	0 – 0	0 – 0		
Raw Well 5	53	0 – 0	0 – 1		
Treated	52	0 – 0	0	53	10 – 20
Distribution	213	0 – 0	0	212	10 - 150



Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity		
Raw Well 1	11	0.88 – 3.23 NTU
Raw Well 2	11	0.18 – 0.57 NTU
Raw Well 3	11	0.12 – 1.97 NTU
Raw Well 4	11	0.13 – 0.63 NTU
Raw Well 5	11	0.21 – 1.56 NTU
Treated	8760	0.00 – 1.00 NTU
Chlorine		
Treated	8760	0.03 – 2.00
Distribution	378	0.54-1.75
Fluoride (If the DWS provides fluoridation)	N/A	N/A

NOTE: For continuous monitors use 8760 as the number of samples.

* Turbidity & chlorine Min/Max (lows/highs) are due to planned maintenance and not plant upset.

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 (yyyy/mm/dd)	Result	Unit of Measure
N/A	N/A	N/A	N/A	N/A

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Result Value	Unit of Measure	MAC	Exceedance	
					MAC	½ MAC
Antimony	2024/02/06	0.7	µg/L	6	No	No
Arsenic	2024/02/06	> MDL 1	µg/L	10	No	No
Barium	2024/02/06	36	µg/L	1000	No	No
Boron	2024/02/06	9	µg/L	5000	No	No
Cadmium	2024/02/06	> MDL 0.1	µg/L	5	No	No
Chromium	2024/02/06	3	µg/L	50	No	No
Mercury	2024/02/06	> MDL 0.1	µg/L	1	No	No
Selenium	2024/02/06	0.9	µg/L	50	No	No
Uranium	2024/02/06	> MDL 1	µg/L	20	No	No
Fluoride	2020/01/28	0.071	mg/L	1.5	No	No
Nitrate	2024/01/10	0.98	mg/L	10	No	No
	2024/02/06	1.24	mg/L	10	No	No
	2024/04/08	1.1	mg/L	10	No	No
	2024/07/08	1.09	mg/L	10	No	No
	2024/10/16	1.16	mg/L	1	No	No
Nitrite	2024/01/10	> MDL 0.05	mg/L	1	No	No
	2024/02/06	> MDL 0.05	mg/L	1	No	No
	2024/04/08	> MDL 0.05	mg/L	1	No	No
	2024/07/08	> MDL 0.05	mg/L	20**	No	No
*Lead	Refer to Summary Table Below					
*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems						



**There is no MAC for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	N/A	N/A	N/A
Distribution	2	0.25 – 0.6	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Result Value	Unit of Measure	MAC	Exceedance	
					MAC	½ MAC
Treated Water						
1,1-Dichloroethylene (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	14	No	No
1,2-Dichlorobenzene (ug/L)-TW	2024/02/06	< MDL 0.2	µg/L	200	No	No
1,2-Dichloroethane (ug/L)-TW	2024/02/06	< MDL 0.2	µg/L	5	No	No
1,4-Dichlorobenzene (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	5	No	No
2,3,4,6-Tetrachlorophenol (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	100	No	No
2,4,6-Trichlorophenol (ug/L)-TW	2024/02/06	< MDL 0.2	µg/L	5	No	No
2,4-Dichlorophenol (ug/L)-TW	2024/02/06	< MDL 0.2	µg/L	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)-TW	2024/02/06	< MDL 0.386	µg/L	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)-TW	2024/02/06	< MDL 6.43	µg/L	100	No	No
Alachlor (ug/L) -TW	2024/02/06	< MDL 0.265	µg/L	5	No	No
Atrazine + N-dealkylated metabolites (ug/L)-TW	2024/02/06	< MDL 0.199	µg/L	5	No	No
Azinphos-methyl (ug/L)-TW	2024/02/06	< MDL 0.1	µg/L	20	No	No
Benzene (ug/L)-TW	2024/02/06	< MDL 0.008	µg/L	1	No	Yes
Benzo(a)pyrene (ug/L)-TW	2024/02/06	< MDL 0.103	µg/L	0.01	No	No
Bromoxynil (ug/L)-TW	2024/02/06	< MDL 2	µg/L	5	No	No
Carbaryl (ug/L)-TW	2024/02/06	< MDL 4	µg/L	90	No	No
Carbofuran (ug/L) -TW	2024/02/06	< MDL 0.2	µg/L	90	No	No
Carbon Tetrachloride (ug/L) -TW	2024/02/06	< MDL 0.199	µg/L	2	No	No
Chlorpyrifos (ug/L) -TW	2024/02/06	< MDL 0.199	µg/L	90	No	No
Diazinon (ug/L)-TW	2024/02/06	< MDL 0.09	µg/L	20	No	No
Dicamba (ug/L)-TW	2024/02/06	< MDL 1	µg/L	120	No	No
Dichloromethane (Methylene Chloride) (ug/L)-TW	2024/02/06	< MDL 0.129	µg/L	50	No	No
Diclofop-methyl (ug/L)-TW	2024/02/06	< MDL 0.199	µg/L	9	No	No
Dimethoate (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	20	No	No
Diquat (ug/L)-TW	2024/02/06	< MDL 10	µg/L	70	No	No
Diuron (ug/L)-TW	2024/02/06	< MDL 20	µg/L	150	No	No
Glyphosate (ug/L)-TW	2024/02/06	< MDL 0.199	µg/L	280	No	No
Malathion (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	190	No	No
Metolachlor (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	50	No	No
Metribuzin (ug/L)-TW	2024/02/06	< MDL 0.5	µg/L	80	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)-TW	2024/02/06	< MDL 0.2	µg/L	80	No	No



Paraquat (ug/L)-TW	2024/02/06	< MDL 0.06	µg/L	10	No	No
PCB (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	3	No	No
Pentachlorophenol (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	60	No	No
Phorate (ug/L)-TW	2024/02/06	< MDL 0.09	µg/L	2	No	No
Picloram (ug/L)-TW	2024/02/06	< MDL 0.0663	µg/L	190	No	No
Prometryne (ug/L)-TW	2024/02/06	< MDL 0.199	µg/L	1	No	No
Simazine (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	10	No	No
Terbufos (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	1	No	No
Tetrachloroethylene (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	10	No	No
Triallate (ug/L) -TW	2024/02/06	< MDL 0.2	µg/L	230	No	No
Trichloroethylene (ug/L)-TW	2024/02/06	< MDL 0.133	µg/L	5	No	No
Trifluralin (ug/L)-TW	2024/02/06	< MDL 0.1	µg/L	45	No	No
Vinyl Chloride (ug/L)-TW	2024/02/06	< MDL 0.3	µg/L	1	No	No
Distribution Water						
THM	2024/10/16	38.6	µg/L	N/A		
(NOTE: show latest annual average)	2024 Average	33.3	µg/L	100	No	No
Haloacetic acids (HAA)	2024/10/16	17.0	µg/L	N/A		
(NOTE: show latest annual average)	2024 Average	19.0	µg/L	80	No	No

SECTION 4: SCHEDULE 22 REPORT

Flows – Treated

In accordance with the **Municipal Drinking Water License 229-101 Schedule C: System – Specific Conditions 1.0 Performance Limits**, the Manitouwadge drinking-water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **10,472 m³/ day**.

The drinking-water system may be operated temporarily at a rate above the rated capacity where necessary for

- The purposes of fighting a large fire or,
- The maintenance of the drinking-water system

In 2024, the average monthly treated flow rate was 5,229.678 m³; the average daily treated flow rate was 171.513 m³; and the maximum daily treated flow rate for the year was 1360.06 m³ representing 12.99% of the allowable daily volume.

The Manitouwadge Drinking-Water facility operated below the rated capacity in 2024.

Flows – Raw

The daily raw maximum flow is stated in the PTTW as a maximum rate of flow of **2,400 L/min** and a maximum daily volume of **17,307,000 L/day**.

The average monthly raw flow rate was 25,301.25 m³; the average raw daily flow rate was 829.55 m³, with a maximum raw daily flow rate of 1313.8 m³.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water*.



Summary of Flows

A summary of raw and treated flows are included in the tables/graphs below.

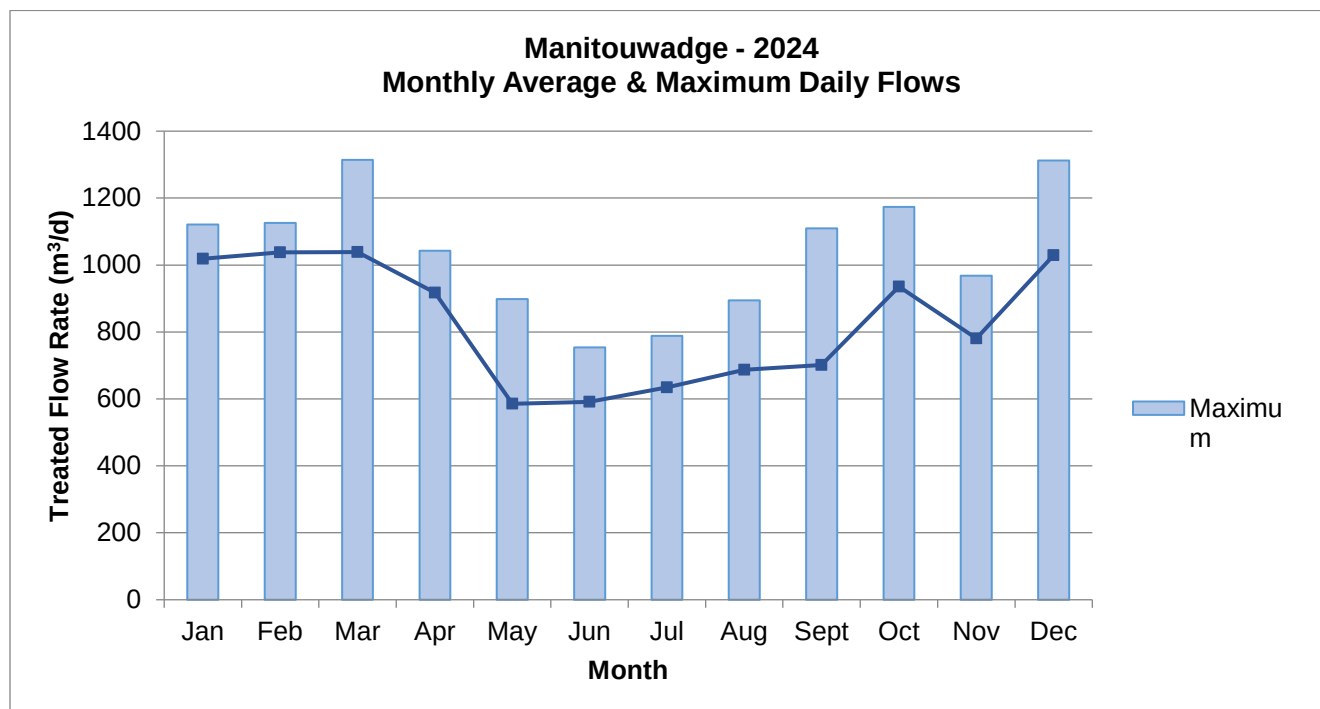
Monthly Raw & Treated Flow Rates for 2024

Month	Average Daily Flow Rate	Maximum Daily Flow Rate	Average Daily Flow Rate	Maximum Daily Flow Rate	Total Monthly Flow Rate
	Raw (m ³ /d)	Raw (m ³ /d)	Treated (m ³ /d)	Treated (m ³ /d)	Treated (m ³ /month)
January	211.366	1,179.4	1,019.08	1121.4	31,591.6
February	214.278	1,167.65	1,037.55	1126.3	30,088.9
March	215.786	1,229.87	1,038.77	1313.8	32,202
April	188.8	1,040.18	917.41	1042.3	27,522.2
May	121.54	971.6	585.45	898.2	18,148.9
June	122.844	7,49.22	591.23	753.9	17,736.8
July	129.19	911.02	634.75	788.1	19,677.3
August	144.328	947.02	687.52	895	21,313.1
September	144.81	1,143.71	701.17	1109.3	21,035
October	192.428	1,215.83	935.3	1173.4	28,994.2
November	161.458	978	780.31	967.9	23,409.4
December	211.326	1,360.06	1,028.89	1312.3	31,895.5

2024 Total Treated Flows (m³) 303,614.9

**Raw - The daily raw maximum rate of flow is 2,400 L/min and a maximum daily volume of 17,307,000 L/day.*

**Treated - The maximum flow rate from the treatment subsystem to the distribution system is 10,472 m³/day*





System Failures & Corrective Actions

The Ministry of Environment conducted an inspection of the Manitouwadge Drinking Water System on [July 17 2024](#). The [2024/25](#) final inspection report did not identify any non-compliances.

The [2024/25](#) final inspection rating record for the Manitouwadge Drinking Water System was [100%](#)

Item	Non-Compliance Identified	Compliance Date yyyy/mm/dd	Action Being Taken to Address item	Status
1	N/A	N/A	N/A	N/A

Adverse Water Quality Incidents (AWQIs)

In the reporting year of [2024](#), there were [no](#) adverse water quality incident (AWQI) reports filed as summarized in the table below.

Incident Date yyyy/mm/dd	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date yyyy/mm/dd
N/A	N/A	N/A	N/A	N/A	N/A

SECTION 6: CONCLUSION

For the operating year of [2024](#), the Manitouwadge Drinking-Water System delivered water that, in all its treated and distribution samples, indicates the water to be [free of bacteriological contamination](#).

In addition, the system was able to meet the demand of water use within the town [without exceeding](#) the Permit to Take Water or the Municipal Drinking Water Licence and Permit.



List of Acronyms and Definitions	
Alkalinity	The capacity of water for neutralizing an acid solution
AWQI	Adverse Water Quality Incident- when a water sample test result exceeds the Ontario Drinking Water Quality Standards
Backwash	Water pumped backwards to clean filters
BWA	Boil Water Advisory; Issued when risk of contamination is possible in drinking water
CFU	Colony Forming Units
Chlorine Residual	A low level of chlorine remaining in water after disinfection occurs
DW	Distribution Water
DWA	Drinking Water Advisory; Issued when water cannot be consumed by any means
DWWP	Drinking Water Works Permit - provides a description of the overall system
E.Coli	Bacteria used as indicators to measure the degree of pollution and sanitary quality of water
GUDI	Groundwater Under Direct Influence – Considered to be surface water under O.Reg 170/03
HPC	Heterotrophic Plant Count
L/s	Litres per Second
m3/d	Cubic Metres per Day
MAC	Maximum Acceptable Concentration
MDL	Minimum Detection Level
MDWL	Municipal Drinking Water Licence - relates to the operation and performance requirements
mg/L	Miligrams per Litre
Ministry	Ministry of the Environment, Conservation and Parks
MECP	Ministry of the Environment, Conservation and Parks
NDOGN	No Data: Overgrown with Non Target Bacteria
NDOGT	No Data: Overgrown with Target Bacteria
O.Reg	Ontario Regulation
PTTW	Permit to Take Water – Permit which allows water taking from groundwater or surface water
RW	Raw Water
TC	Total Coliforms
TSS	Total Suspended Solids
Turbidity	Cloudiness or haziness of water
TW	Treated Water