Ontario Clean Water Agency
Agence Ontarienne Des Eaux

MATTICE DRINKING WATER SYSTEM
2024 ANNUAL COMPLIANCE AND SUMMARY REPORT

Prepared by the Ontario Clean Water Agency
on behalf of the Township of Mattice – Val Côté

TABLE OF CONTENTS

INTRODUCTION

Municipalities throughout Ontario are required to comply with Ontario Regulation 170/03 made under the *Safe Drinking Water Act*, 2002. The Act was passed following recommendations made by Commissioner O'Conner after the Walkerton Inquiry. The Act's purpose is to protect human health through the control and regulation of drinking-water systems. O. Reg. 170/03 regulates drinking water testing, use of licensed laboratories, treatment requirements and reporting requirements.

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

1. Description of system and chemical(s) used
2. Description of any major expenses incurred to install, repair or replace equipment
3. Summary of all required testing
4. Summary of any adverse water quality reports and corrective actions

This Annual Report must be completed by February 28 of each year.

The regulation also requires a Summary Report, which must be presented and accepted by Council by March 31 of each year for the preceding calendar year reporting period.

The report must list the requirements of the Act, its regulations, the system's Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), and any Provincial Officer Order 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.

The *Safe Drinking Water Act*, 2002 and the drinking water regulations can be viewed at the following website: http://www.e-laws.gov.on.ca.

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:

1. A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and the maximum daily flows.
2. A comparison of the summary to the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water licence or a written agreement if the system is receiving all its water from another system under an agreement.

The two reports have been combined and presented to council as the Annual Compliance and Summary Report.

SECTION 11 ANNUAL REPORT

SYSTEM INFORMATION

Drinking-Water System Name:	MATTICE DRINKING WATER SYSTEM
Drinking-Water System No.:	210001781
Drinking-Water System Owner:	The Corporation of the Township of Mattice-Val Côté
Drinking-Water System Category:	Large Municipal, Residential System
Population:	542
Reporting Period:	January 1 to December 31, 2024

REPORT AVAILABILITY

Hard Copy Available at:	Mattice - Val Côté Municipal Office; 500 Highway 11; Mattice ON P0L 1T0
Electronic Copy Available:	https://www.matticevalcote.ca/en/eaux-et-égouts
Public Notification via:	Public access/notice

DESCRIPTION OF THE DRINKING WATER SYSTEM

The Water Treatment System is located at 249 Parkview Avenue in the community of Mattice. The system is designed to treat raw water from the Missinaibi River for the removal of colour, turbidity and other impurities in order to provide a high quality effluent for potable and domestic use.

Raw water is introduced to the system via one of two (one standby) pumps, each rated at 11.0 L/s located in the wet well building adjacent to the river. The raw water inlet valve opens on plant start up, low clearwell level, or another control signal. The valve closes automatically on plant shutdown.

The facility houses a dual train package water treatment plant, chlorine contact tank, chemical storage, dosing equipment, high lift pumps, office, laboratory and personnel facilities. The treatment process is a completely automatic, gravity flow operation consisting of two-process trains with a treatment capacity of 905 m^3/day. The trains provide flash mixing, coagulation, flocculation, and up flow clarification using settling tubes and high rate filtration through a dual media system. The filter is comprised of sand and anthracite and is backwashed when a pressure transmitter indicates total headloss, when filtered turbidity values are high, or by elapsed time. The turbidity off each filter is continuously monitored and information is relayed to the plant control panel.

Backwash water and sludge from the bottom of the clarifier is automatically removed and discharged to the sanitary sewer.

The plant is provided with five chemical storage and dosing systems: alum, sodium hydroxide, sodium hypochlorite, polymer and ammonia solution. Each system consists of a solution tank, chemical feed pumps, and a mixer where applicable.

The treated water enters a baffled chlorine contact tank (reservoir/storage) that has a capacity of 808 m^3 before it is distributed to the residents of Mattice. Free chlorine residual is continuously monitored in the reservoir where primary disinfection has been achieved. Ammonium sulphate is added at the discharge of the chlorine contact tank to produce a combined chorine residual before entering the distribution system.

Standby power consists of a 130 kW diesel generator and is located in a separate room with the ability to provide power for the entire facility including the low lift building

WATER TREATMENT CHEMICALS USED

- Sodium hypochlorite - disinfection by chlorination
- Ammonium sulphate - disinfection by chloramination
- Aluminum sulphate - coagulation/flocculation
- Polymer - aids in coagulation/flocculation
- Sodium hydroxide or soda ash – pH and alkalinity adjustment

All treatment chemicals are NSF/ANSI approved.

MAJOR EXPENSES INCURRED TO INSTALL, REPAIR OR REPLACE EQUIPMENT

Capital Work – 2024

- Chemical Pump and Analyzer Parts
- Confined Space Equipment Certification
- Hydrant Flushing Equipment
- Food Grade Antifreeze
- Generator Maintenance
- DWQMS Third Party Audit
- Backwash Flowmeter Purchase
- Treated Water Flow Meter
- Highlift-521 VFD Install
- Lab Turbidity Analyzer Replacement
- Fire Extinguisher Inspections
- Highlift-531 VFD Purchase

REPORTING ADVERSE TEST RESULTS AND OTHER PROBLEMS

Details on the notices required 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

Date	Details (Parameter, Limit, Result, Corrective Action, Date, etc.)
NONE	None

SCHEDULE 7 - OPERATIONAL TESTING WITH CONTINUOUS MONITORING

Continuous Analyzers in Treatment Process	Number of Samples	Range of Results (min to max)	Unit of Measure	Standard
Turbidity (Filter #1)	8760	0.0 – 1.97	NTU	<1.0
Turbidity (Filter #2)	8760	0.0 – 2.00	NTU	<1.0
Chlorine (Free)	8760	0.97– 2.15	mg/L	-

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

Effective backwash procedures, including filter to waste at 0.3 NTU, are in place to ensure that the effluent turbidity requirements are met all times. The plant is configured to shutdown and creates a callout whenever turbidity reaches 1. 0 NTU

SCHEDULE 7 - OPERATIONAL TESTING IN THE DISTRIBUTION SYSTEM

Distribution System	Number of Samples	Range of Results (min to max)	Unit of Measure	Standard
Combined Chlorine	368	0.67 – 1.78	mg/L	>0.25

Note: A total of seven operational checks for chlorine residual in the distribution system are required each week. The owner/operating authority can continue to test one sample per day or test four (4) samples one day and three (3) on a second day. The sample sets must be collected at least 48-hours apart and samples collected on the same day must be from different locations.

SCHEDULE 10 - MICROBIOLOGICAL TESTING

Sample Type	Number of Samples	*E.coli* Results (min to max)	Total Coliform Results (min to max)	Number of HPC Samples	Range of HPC Results (min to max)
Raw	53	0 – 15	0 – >1000	N/A	N/A
Treated	53	0 – 0	0 – 0	53	<10 – 220
Distribution	106	0 – 0	0 – 0	53	<10 – 80
MAC	-	0	0	-	-

Maximum Acceptable Concentration (MAC) applies only to treated or distribution samples

SCHEDULE 13 - NITRATE AND NITRITE AT THE WATER TREATMENT PLANT

Date of Sample	Nitrate Result Value (mg/L)	Nitrite Result Value (mg/L)	Exceedance
January 9, 2024	0.10	<0.05	No
April 9, 2024	0.12	<0.05	No
July 16, 2024	0.83	<0.05	No
October 22, 2024	0.3	<0.01	No

Maximum Acceptable Concentration (MAC) for Nitrate = 10 mg/L MAC for Nitrite = 1 mg/L

SCHEDULE 13 - TOTAL TRIHALOMETHANES IN THE DISTRIBUTION SYSTEM

Date of Sample	Result (ug/L)	Running Four Quarter Average	Exceedance
January 9, 2024	57.5	65.9	No
April 9, 2024	48.7	68.4	No
July 16, 2024	121	72.0	No
September 10, 2024	65.8		
October 22, 2024	59.2	64.7	No

Maximum Acceptable Concentration (MAC) for Trihalomethanes = 100 ug/L Four Quarter Running Average

SCHEDULE 13 – HALOACETIC ACIDS (HAA) IN THE DISTRIBUTION SYSTEM

Date of Sample	Result (ug/L)	Running Four Quarter Average	Exceedance
January 9, 2024	44	67.8	No
April 9, 2024	51	67.5	No
July 16, 2024	54	52.1	No
September 10, 2024	15		
October 22, 2024	58	46.9	No

Maximum Acceptable Concentration (MAC) for Haloacetic Acids = 80 ug/L Four Quarter Running Average

SCHEDULE 13 – SODIUM AT WATER TREATMENT PLANT

Date of Sample	Result (mg/L)	Maximum Acceptable Concentration	Exceedance
October 11, 2022	45.5	20	Yes - AWQI
October 18, 2022	36	20	Yes (Re-sample)

Note: sample required every 60 months

SCHEDULE 13 – FLUORIDE TESTED AT WATER TREATMENT PLANT

Date of Sample	Result (mg/L)	Maximum Acceptable Concentration	Exceedance
October 11, 2022	<0.05	1.5	No

Note: sample required every 60 months

SCHEDULE 15.1 – LEAD IN THE DISTRIBUTION

The Mattice water supply system qualified for the 'Exemption from Plumbing Sampling' as described in section 15.1-5 (9) and 15.1-5 (10) of Ontario Regulation 170/03

As such, the system was required to test for total alkalinity and pH in two distribution samples collected during the periods of December 15 to April 15 and June 15 to October 15. This testing is required in every 12-month period with lead testing in every third 12-month period.

Sampling Dates	Number of Samples	Range of Results (min to max)		
		Lead (ug/L)	pH	Alkalinity (mg/L)
Winter Period				
April 12, 2023	2	0.7 – 1.5	6.79 – 6.84	31 – 43
April 10, 2024	2	-	6.74 – 6.82	64 – 65
Summer Period				
August 18, 2023	2	0.2 – 0.3	7.37 – 7.44	79 – 81
October 2, 2024	2	-	7.14 – 7.15	76 – 79

MAC for lead is 10 ug/L

SCHEDULE 23 - INORGANIC PARAMETERS SAMPLED AT THE WATER TREATMENT PLANT

Sample Date: October 22, 2024

Parameter	Result	MAC	MAC Exceedance	1/2 MAC Exceedance
Antimony	<0.5	6.0	No	No
Arsenic	<1	10.0	No	No
Barium	7	1000.0	No	No
Boron	<2	5000.0	No	No
Cadmium	<0.1	5.0	No	No
Chromium	2	50.0	No	No
Mercury	<0.1	1.0	No	No
Selenium	<0.2	50.0	No	No
Uranium	<1	20.0	No	No

MAC – Maximum Acceptable Concentration

No inorganic parameter(s) exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standards (ODWS) during the reporting period

SCHEDULE 24 - ORGANIC PARAMETERS SAMPLED AT THE WATER TREATMENT PLANT

Sample Date: October 22, 2024

Parameter	Result	MAC	MAC Exceedance	1/2 MAC Exceedance
1,1-Dichloroethylene	<0.3	14	No	No
1,2-Dichlorobenzene	<0.2	200	No	No
1,2-Dichloroethane	<0.2	5	No	No
1,4-Dichlorobenzene	<0.3	5	No	No
2,3,4,6-Tetrachlorophenol	<0.2	100	No	No
2,4,6-Trichlorophenol	<0.2	5	No	No
2,4-D (2,4-Dichlorophenoxy acetic acid)	<0.37	100	No	No
2,4-Dichlorophenol	<0.2	900	No	No
Alachlor	<0.263	5	No	No
Atrazine + N-dealkylated metabolites	<0.5	5	No	No
Azinphos-methyl	<0.197	20	No	No
Benzene	<0.1	1	No	No
Benzo(a)pyrene	<0.01	0.01	No	No*
Bromoxynil	<0.0986	5	No	No
Carbaryl	<2	90	No	No
Carbofuran	<3	90	No	No
Carbon Tetrachloride	<0.2	2	No	No
Chlorobenzene (Monochlorobenzene)	<0.5	80	No	No
Chlorpyrifos	<0.197	90	No	No
Diazinon	<0.197	20	No	No
Dicamba	<0.0862	120	No	No
Dichloromethane (Methylene Chloride)	<1	50	No	No
Diclofop-methyl	<0.123	9	No	No
Dimethoate	<0.197	20	No	No
Diquat	<0.2	70	No	No
Diuron	<10	150	No	No
Glyphosate	<20	280	No	No
Malathion	<0.197	190	No	No
MCPA (2-methyl-4-chlorophenoxyacetic acid)	<6.16	100	No	No
Metolachlor	<0.132	50	No	No
Metribuzin	<0.132	80	No	No
Paraquat	<0.2	10	No	No
Pentachlorophenol	<0.3	60	No	No

Parameter	Result	MAC	MAC Exceedance	1/2 MAC Exceedance
Phorate	<0.132	2	No	No
Picloram	<0.0862	190	No	No
Prometryne	<0.0658	1	No	No
Simazine	<0.197	10	No	No
Terbufos	<0.132	1	No	No
Tetrachloroethylene	<0.3	10	No	No
Total PCBs	<0.06	3	No	No
Triallate	<0.132	230	No	No
Trichloroethylene	<0.2	5	No	No
Trifluralin	<0.132	45	No	No
Vinyl Chloride	<0.1	1	No	No

Note*: Benzo(a)pyrene – Schedule 13-5 of O. Reg. 170/03 requires increased frequency of sampling if an analytical result obtained for any of the parameters listed in Schedule 24 exceeds one half of the MAC. The Ministry has set the reporting detection limit (RDL) for Benzo[a]pyrene at 50 per cent or more of the MAC, due to the limitations of the current analytical methods to achieve lower detection limits. The RDL for benzo[a]pyrene is 0.01 ug/L. For this parameter, a licenced laboratory must be able to achieve a method detection limit (MDL) at least equal to the RDL. A positive result above their MDL would trigger increased frequency of sampling, but a result equal to their MDL would not.

MAC – Maximum Acceptable Concentration

No organic parameter(s) exceeded half the standard found in Schedule 2 of the ODWS during the reporting period**.**

ADDITIONAL TESTING AND SAMPLING

No additional sampling and testing was required for the Mattice Drinking Water System during the reporting period.

SCHEDULE 22 - SUMMARY REPORTS FOR MUNICIPALITIES

This report is a summary of water quality information for the Mattice Water Treatment System. It is published in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation 170/03 for the reporting period of January 1 to December 31, 2024 and must be submitted to members of council.

The report must include:

- Any requirements the system failed to meet during the reporting period
- A summary of quantities and flow rates and a comparison to the imposed limits

Permits and Licences

Municipal Drinking Water Licence (MDWL)	291-101 Issued March 1, 2021
Drinking Water Works Permit (DWWP)	291-201 Issued March 1, 2021
Permit to Take Water (PTTW)	0836-AXHN4F – expires February 21, 2028

Requirements the System Failed to Meet

The following table lists the requirements of the Safe Drinking Water Act (2002), the drinking water regulations, the system's approval, drinking water works permit, municipal drinking water works licence, and any other orders applicable to the system that were not met at any time during the reporting period. This table is based on documentation available to the Ontario Clean Water Agency. The duration of the failure and details of the actions that were taken to correct the failure must be described.

Legislation	Requirement(s) the System Failed to Meet, Corrective Actions and Status
O. Reg. 170/03 Schedule 6	May 7, 2024 – Noted during the MECP inspection on November 6 All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6 or the relief conditions of the Municipal Drinking Water Works Licence. A non-compliance occurred due to the lack of phone service overnight, and the fact that an operator could not be notified immediately if there was a compliance related alarm. No corrective actions were required at this time.

Summary of Flow Rates

For the purpose of enabling the owner of the system 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. Under schedule 22-2(3) of Ontario Regulation 170/03, the Summary Report must include the following:

1. A summary of the quantities and flow rates of water supplied, including the monthly average and the maximum daily flows

2. A comparison of both the average and maximum flow rate summary to the rated capacity approved in the systems approval, drinking water works permit or municipal drinking water licence

The following tables indicate the quantities and flow rates of water taken and produced during the reporting period, including monthly average flows, maximum daily flows and the total monthly volumes. A comparison of the water data is made to the rated capacity and flow rates specified in the system's Municipal Drinking Water Licence

DAILY RAW WATER USAGE SUMMARY

	Maximum (L/min)	Maximum (m^3/d)	Average (m^3/d)	Total Usage (m^3)
January	259	258	167	5,173
February	260	239	171	4,966
March	257	232	157	4,861
April	252	233	159	4,770
May	268	272	162	5,011
June	270	341	191	5,717
July	256	341	209	6,465
August	260	297	200	6,185
September	269	282	197	5,915
October	253	265	169	5,242
November	253	249	184	5,531
December	263	330	198	6,153

DAILY VOLUME OF TREATED WATER INTO THE DISTRIBUTION SYSTEM

	Total Usage (m^3)	Average (m^3/d)	Maximum (m^3/d)	% Rated Capacity
January	4,793	155	166	17.1
February	4,549	157	182	17.3
March	4,583	148	169	16.3
April	4,427	148	171	16.3
May	4,612	149	213	16.4
June	5,333	178	256	19.6
July	5,908	191	245	21.1
August	5,571	180	223	19.9
September	5,329	178	234	19.6
October	4,878	157	169	17.4
November	5,088	170	190	18.7
December	5,608	181	211	20.0

Summary of Flow Comparison

Comparison of Raw Flows to System's Permit to Take Water

Permit to Take Water Limits (PTTW) - maximum	**1,309 m^3/day**	**909 L/min**
Average Daily Flow for 2024	180 m^3/day	250 L/min
Maximum Daily Flow for 2024	341 m^3/day	270 L/min
Total Raw Water Used in 2024	65,987 m^3	-

Comparison of Treated Flows to the System's Municipal Drinking Water Licence

Rated Capacity of the Plant (MDWL)	**905 m^3/day**	
Average Daily Flow for 2024	166 m^3/day	18.3 % of the rated capacity
Maximum Daily Flow for 2024	256 m^3/day	28.3 % of the rated capacity
Total Treated Water Produced in 2024	60,678 m^3	

Based on the information above, the plant is able to meet the demands of the consumers.