Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Ramore Drinking Water System

2024 Annual Summary Report

Prepared by the Ontario Clean Water Agency
On behalf of the Corporation of the Township of Black River-Matheson

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OVERVIEW

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'Connor 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.

Section 11 of O. Reg. 170/03 requires the owner to produce an Annual Report which must include the following:

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

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

Schedule 22 of the regulation requires that a Summary Report for Municipalities be prepared 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), Certificate of Approval (if applicable), 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.

- A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and the maximum daily flows.
- 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 Annual and Summary Reports have been combined and presented to council as the Ramore Drinking Water System 2024 Annual Summary Report.

1.0 INTRODUCTION

Drinking-Water System Name:	**RAMORE DRINKING WATER SYSTEM**
Drinking-Water System No.:	**220002538**
Drinking-Water System Owner:	The Corporation of the Township of Black River – Matheson
DWS Operating Authority:	Ontario Clean Water Agency
Drinking-Water System Category:	Small Municipal, Residential System
Municipal Drinking Water Licence No.:	204-104 (Issue 6 - March 14, 2022)
Drinking Water Work Permit No.:	204-204 (Issue 3 - March 14, 2022)
Permit to Take Water No:	P-300-3085151154 (Issued December 2, 2020)
Period being reported on:	January 1 to December 31, 2024

Does your Drinking Water System serve more than 10,000 people? No

Is your annual report available to the public at no charge on a web site on the Internet? No

Location where Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Black River - Matheson Municipal Office
367 Fourth Avenue,
Matheson ON P0K 1N0

Drinking Water Systems that receive drinking water from the Ramore Drinking Water System

Drinking Water System Name	Drinking Water System Number
Ramore Drinking Water System	220002538

The Annual Report was provided to all connected Drinking Water System owners

The Ontario Clean Water Agency prepared the 2024 Annual Summary Report for the Ramore Drinking Water System and provided a copy to the system owner; the Township of Black River - Matheson. The Ramore Drinking Water System is a stand-alone system that does not receive water from or send water to another system.

System users are notified that the Annual Report is available through:

- Public access/notice via newspaper/website

2.0 DESCRIPTION OF THE DRINKING WATER SYSTEM

Ramore Drinking Water System is fed by three source wells, located in an easement approximately 335 m east of Ferguson Avenue and approximately 110 m south of Saint Joseph Street in the Town of Ramore. Each of the three wells has a discharge line connected to a well pump header, located in the pumphouse.

Well No. 5 is a main production well consisting of a 150 mm diameter, 48.11 m deep drilled groundwater production well. This well is equipped with a submersible deep well pump rated at 162 L/min at a total dynamic head (TDH) of 65 m. Discharge from this well is through a 50 mm diameter discharge line.

Well No. 4 is a main production well consisting of a 200 mm diameter, 45.36 m deep drilled groundwater production well, which is equipped with a submersible deep well pump rated at 318 L/min at a TDH of 65 m. Discharge from this well is through a 75 mm diameter discharge line.

Well No. 3 is a standby well consisting of a 400 mm diameter, 43.26 m deep drilled groundwater production well. This well is equipped with a submersible deep well pump rated at 180 L/min at a TDH of 65 m. Discharge from this well is through a 50 mm diameter discharge line.

The pumphouse contains the disinfection equipment, system controls and two 500 litre pressure tanks. The sodium hypochlorite disinfection system consists of one 60 litre chemical storage tank and three chemical metering pumps (two duty and one standby). The feed of sodium hypochlorite is directed into the well pump discharge header immediately downstream from the pump. The sodium silicate injection system consists of one 60 litre chemical storage tank and two metering pumps (one duty and one standby). The sodium silicate feed is directed into the well pump discharge header immediately downstream from the pump. The sodium silicate injection system is usually only used when Well No. 3 is operating. Chlorine contact is provided by a below ground contact chamber consisting of a 35 m (105 feet) x 750 mm (24 inch) HDPE (high density polyethylene) water main before discharge to the distribution system.

The distribution system serves an approximate population of 300 people residing in approximately 50 private residences. The total number of service connections is estimated to be 98, the difference of which being commercial properties and serviced undeveloped properties. The distribution system piping consists mainly of four (4) inch asbestos concrete constructed watermain.

A stand-by diesel generator is on-site to supply power to the entire facility during power failures.

3.0 LIST OF ALL WATER TREATMENT CHEMICALS USED

- Sodium Hypochlorite - disinfection
- Sodium Silicate - Iron & Manganese Sequestering (Well 3 only)

4.0 SIGNIFICANT EXPENSES INCCURRED

- UPS Replacement
- Pressure tank
- Genset servicing
- Flow meters for wells #4 and #5
- Chlorination spare parts kits

5.0 NOTICES REPORTED & SUBMITTED TO THE SPILLS ACTION CENTER

There were no notices submitted

6.0 MICROBIOLOGICAL TESTING

Sample Type	No. of Samples	*E. coli* Results *(min to max)*	Total Coliform Results *(min to max)*	# of HPC Samples	HPC Results *(min to max)*
Raw - Well 3	14	0 to 0	0 to 0	N/A	N/A
Raw - Well 4	14	0 to 0	0 to 0	N/A	N/A
Raw - Well 5	14	0 to 0	0 to 0	N/A	N/A
Distribution	28	0 to 0	0 to 0	27	10 to 40

Maximum Allowable Concentration (MAC) for distribution samples: *E. coli* = 0 Counts/100 mL and Total Coliforms = 0 Counts/100 mL
"<" denotes less than the laboratory's method detection limit.

Note: One microbiological sample is collected and tested each month from each raw water supply and one every two weeks from the distribution system.

7.0 OPERATIONAL TESTING

Raw Water Turbidity

Location	No. of Samples	Range of Results *(min to max)*	Unit of Measure
Well 3	14	0.51 to 1.65	NTU
Well 4	14	0.17 to 0.58	
Well 5	14	0.23 to 0.99	

Continuous Monitoring in the Treatment Process

Parameter	No. of Samples	Range of Results *(min to max)*	Unit of Measure	Standard
Free Chlorine	8760	0.13 to 1.98	mg/L	N/A

Notes: For continuous monitors 8760 is used as the number of samples.

Chlorine Residuals from the Distribution System

Parameter	No. of Samples	Range of Results *(min to max)*	Unit of Measure	Standard
Free Chlorine	108	0.49 to 132.00	mg/L	0.05

Note: in the distribution system, at least two samples for free chlorine residual testing must be taken at least 48-hours apart and taken during the same week, each week.

Nitrate & Nitrite Results from the Water Treatment Plant

Date of Sample	Nitrate Result Value (mg/L)	Nitrite Result Value (mg/L)	Exceedance
January 15	0.6	<0.05	No
April 8	0.63	<0.05	No
July 15	0.51	<0.05	No
October 7	0.7	<0.01	No

Maximum Acceptable Concentration (MAC) for Nitrate = 10 mg/L MAC for Nitrite = 1.0 mg/L

Total Trihalomethane (THM's) Results from the Distribution System

Date of Sample	Result Value (ug/L)	Four Quarter Running Average	Exceedance
January 3	7.5	6.6	No
April 3	7.8	7.1	No
July 4	10	7.8	No
October 10	9.7	8.8	No

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

Total Haleoacetic Acid (HAA's) Results from the Distribution System

Date of Sample	Result Value (ug/L)	Four Quarter Running Average	Exceedance
January 3	8	8.3	No
April 3	8	8.3	No
July 4	9	8.5	No
October 10	9	8.5	No

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

Lead (most recent), pH & Alkalinity Results (from the distribution system)

Date of Sample	# of Samples	Range of Results (min to max)		
		pH	Alkalinity (mg/L)	Lead (ug/L)
April 13, 2023	1	-	-	0.4
April 2, 2024	1	7.59	322	-
October 3, 2023	1 & Dup	-	-	<0.1 – <0.1
October 2, 2024	1	8.17	331	-

MAC for Lead -10 ug/L

Note: *The system is required to test for total alkalinity and pH in one distribution sample collected during the period of December 15 to April 15 and one distribution sample during the period of June 15 to October 15. This testing is required in every 12-month period with lead testing in every third 12-month period. The next round of lead sampling will be completed in April and October of 2026.*

Summary of Most Recent Schedule 23 Inorganic Results from the Water Treatment Plant

Sample Date: September 21, 2020

Parameter (ug/L)	Result Value	Maximum Acceptable Concentration	Exceedance
Antimony	<0.5	6	No
Arsenic	2	10	No
Barium	21	1000	No
Boron	23	5000	No
Cadmium	<0.1	5	No
Chromium	<1	50	No
Mercury	<0.1	0.001	No
Selenium	0.3	10	No
Uranium	<1	20	No

Note: Sampling required once every 60 months (next sample scheduled for October 2025

Summary of Most Recent Schedule 24 Organic Results from the Water Treatment Plant

Sample Date: September 21, 2020

Parameter	Result Value	Unit of Measure	Standard	Exceedance
1,1-Dichloroethylene	<0.3	ug/L	14	No
1,2-Dichlorobenzene	<0.3	ug/L	200	No
1,2-Dichloroethane	<0.3	ug/L	5	No
1,4-Dichlorobenzene	<0.3	ug/L	5	No
2,3,4,6-Tetrachlorophenol	<0.3	ug/L	100	No
2,4,6-Trichlorophenol	<0.2	ug/L	100	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	<0.739	ug/L	100	No
2-4 Dichlorophenol	<0.2	ug/L	900	No
Alachlor	<0.241	ug/L	5	No
Atrazine + N-dealkylated metobolites	<0.5	ug/L	5	No
Azinphos-methyl	<0.181	ug/L	20	No
Benzene	<0.1	ug/L	1	No
Benzo(a)pyrene	<0.01	ug/L	0	No
Bromoxynil	<0.118	ug/L	5	No
Carbaryl	<2	ug/L	90	No
Carbofuran	<2	ug/L	90	No
Carbon Tetrachloride	<0.2	ug/L	2	No
Chlorobenzene	<0.5	ug/L	80	No
Chlorpyrifos	<0.181	ug/L	90	No
Diazinon	<0.181	ug/L	20	No
Dicamba	<0.104	ug/L	120	No
Dichloromethane	<1	ug/L	50	No
Diclofop-methyl	<0.148	ug/L	9	No
Dimethoate	<0.181	ug/L	20	No
Diquat	<0.2	ug/L	70	No
Diuron	<8	ug/L	150	No
Glyphosate	<20	ug/L	280	No

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Malathion	<0.181	ug/L	190	No
MCPA	<7.39	ug/L	230	N/A
Metolachlor	<0.121	ug/L	50	No
Metribuzin	<0.121	ug/L	80	No
Paraquat	<0.2	ug/L	10	No
Pentachlorophenol	<0.3	ug/L	3	No
Phorate	<0.121	ug/L	60	No
Picloram	<0.104	ug/L	2	No
Prometryne	<0.0603	ug/L	1	No
Simazine	<0.181	ug/L	10	No
Terbufos	<0.121	ug/L	1	No
Tetrachloroethylene	<0.3	ug/L	10	No
Total PCB's	<0.07	ug/L	190	No
Triallate	<0.121	ug/L	5	No
Trichloroethylene	<0.2	ug/L	5	No
Trifluralin	<0.121	ug/L	45	No
Vinyl Chloride	<0.1	ug/L	1	No

Note: Sampling required once every 60 months (next sample scheduled for October 2025)

Fluoride Results (Most Recent) from the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	Standard	Exceedance
September 21, 2020	1	13.1 mg/L	mg/L	20	No

Note: Sample required every 60 months. Next sample scheduled for October 2025

Fluoride Results (Most Recent) from the Water Treatment Plant

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
September 21, 2020	1	0.07	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2025

Inorganic or Organic Test Results that Exceeded Half the Standard

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg. 169/03) during the reporting period.

Additional Testing Performed in Accordance with a Legal Instrument.

No additional testing was required in 2024.

8.0 REQUIREMENTS THE SYSTEM FAILED TO MEET

1. Incident #1 – Description of the Distribution Components

Legislation	**Section 31 (1) of the Safe Drinking Water Act (SDWA):**
Requirement(s) the System Failed to Meet	The owner did not have up-to-date documents describing the distribution components in accordance with the Drinking Water Works Permit
Corrective Action	This has been an ongoing non-compliance since the inspection completed on January 25, 2023. By no later than December 20, 2024, the owner shall review and make corrections to the drinking water distribution system mapping for the Ramore distribution subsystem and a copy shall be provided to OCWA and Ministry's Water Compliance Officer Rachel Hamelin by email, rachel.hamelin@ontario.ca.
Status	In-progress

2. Incident #2 – Adverse Water Quality Incident Notification

Legislation	**Schedule 16-6 of O. Reg. 170/03**
Requirement(s) the System Failed to Meet	Immediate verbal notification requirements of adverse water quality incidents prescribed by Schedule 16-6 of O. Reg. 170/03 were not met
Corrective Action	No further corrective actions required. However, the owner shall take all appropriate actions if future adverse water quality incidences arise which would require immediate notifications. This relates back to an incident where the on-call person for the owner did not answer the on-call phone because of a Christmas party
Status	Complete

3. Incident #3 – Adverse Water Quality Incident Posting Notices

Legislation	**Schedule 19-2 of O. Reg. 170/03.**
Requirement(s) the System Failed to Meet	The drinking water system was required to post warning notices, but the approved warning notices were not posted in accordance with Schedule 19-2 of O. Reg. 170/03.
Corrective Action	No additional corrective actions required. However, the owner shall take all appropriate actions if future adverse water quality incidences arise which would require posting warning notifications. This relates back to an incident where the on-call person for the owner did not answer the on-call phone because of a Christmas party
Status	Complete

9.0 SUMMARY OF FLOW RATES AND QUANTITIES

The following tables and graphs 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 Permit to Take Water and the Municipal Drinking Water License.

Any raw water flow rate exceedances in 2024 were checked and determined to be inflated numbers due to momentary spikes on pump start up/shutdown that lasted less than 2 minutes and are not representative. The actual maximum flow rates have been depicted in the tables below.

Well 3 - Summary of Water Taking

Regulated by Permit to Take Water (PTTW) P-300-3085151154, issued December 2, 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	28	8	0	0	0	14	35	8	6.7	15	4	7	337
Average Volume (m^3/d)	0.9	0.28	0	0	0	0.47	1.13	0.26	0.22	0.48	0.13	0.23	0.34
Maximum Volume (m^3/d)	14	8	0	0	0	12	12	8	3.7	5	4	4	88
PTTW - Maximum Allowable Volume (m^3/day)	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1	109.1
Maximum Flow Rate (L/min)	179	112	0	0	0	300*	180*	192*	179	170	165	165	300
PTTW - Maximum Allowable Flow Rate (L/min)	182	182	182	182	182	182	182	182	182	182	182	182	182

** There were issues with the analog signal isolator resulting in artificially inflated flow rates*

The system's Permits to Take Water allow the municipality to withdraw a maximum volume of 109.1 cubic meters from Well 3 each day. A review of the raw water flow data indicates that the system never exceeded this allowable limit having a maximum volume of 88 m^3.

The Permit also allows a maximum flow rate of 182 L/minute which was exceeded because of artificially inflated readings caused by a defective analog signal isolator.

Well 4 - Summary of Water Taking

Regulated by Permit to Take Water (PTTW) P-300-3085151154, issued December 2, 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	2365	1941	1762	1907	2222	2149	2104	2645	2403	2342	2449	2554	26843
Average Volume (m^3/d)	76	67	57	64	72	72	70	85	80	76	82	82	74
Maximum Volume (m^3/d)	87	75	71	73	84	94	96	108	98	84	103	99	108
PTTW - Maximum Allowable Volume (m^3/day)	460	460	460	460	460	460	460	460	460	460	460	460	460
Maximum Flow Rate (L/min)	203	224	283	280	204	241	310	182	263	229	205	202	310
PTTW - Maximum Allowable Flow Rate (L/min)	318	318	318	318	318	318	318	318	318	318	318	318	318

The system's Permits to Take Water allow the municipality to withdraw a maximum volume of 460 cubic meters from Well 4 each day. A review of the raw water flow data indicates that the system never exceeded this allowable limit having a maximum volume of 108 m^3.

The Permit also allows a maximum flow rate of 318 L/minute which was not exceeded either as the maximum flow rate was 310 L/minute.

Well 5 - Summary of Water Taking

Regulated by Permit to Take Water (PTTW) P-300-3085151154, issued December 2, 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	7	3	12	3	3	3	8	4	7	15.84	5	4	75
Average Volume (m^3/d)	0.23	0.1	0.39	0.1	0.1	0.1	0.27	0.13	0.23	0.51	0.17	0.13	0.2
Maximum Volume (m^3/d)	5	3	12	3	3	2	6	4	3	4.77	5	2	12
PTTW - Maximum Allowable Volume (m^3/day)	230	230	230	230	230	230	230	230	230	230	230	230	230
Maximum Flow Rate (L/min)	158	155	162	157	158	157	162	155	137	161	160	149	162
PTTW - Maximum Allowable Flow Rate (L/min)	162	162	162	162	162	162	162	162	162	162	162	162	162

The system's Permit to Take Water allows the municipality to withdraw a maximum volume of 230 cubic meters from Well 4 each day. A review of the raw water flow data indicates that the system never exceeded this allowable limit having a maximum volume of 12 m^3.

The Permit also allows a maximum flow rate of 162 L/minute, which was not exceeded either as the maximum flow rate was 162 L/minute.

Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence (MDWL) #204-104 (Issue 6 - March 14, 2022)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	1897	1678	1557	1799	2204	2138	2087	2430	2354	2236	2227	2301	24908
Average Volume (m^3/d)	61	58	50	60	71	71	67	78	78	72	74	74	68
Maximum Volume (m^3/d)	73	65	64	72	83	94	96	104	97	83	92	91	104
MDWL - Rated Capacity (m^3/day)	864	864	864	864	864	864	864	864	864	864	864	864	864
% Rated Capacity	8	8	7	8	10	11	11	12	11	10	11	11	12

Schedule C, Section 1.1 of MDWL No. 204-104 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a maximum flow rate of 864 m^3 on any calendar day. The Ramore DWS complied with this limit having a recorded maximum volume of 104 m^3, which is 12 % of the rated capacity.

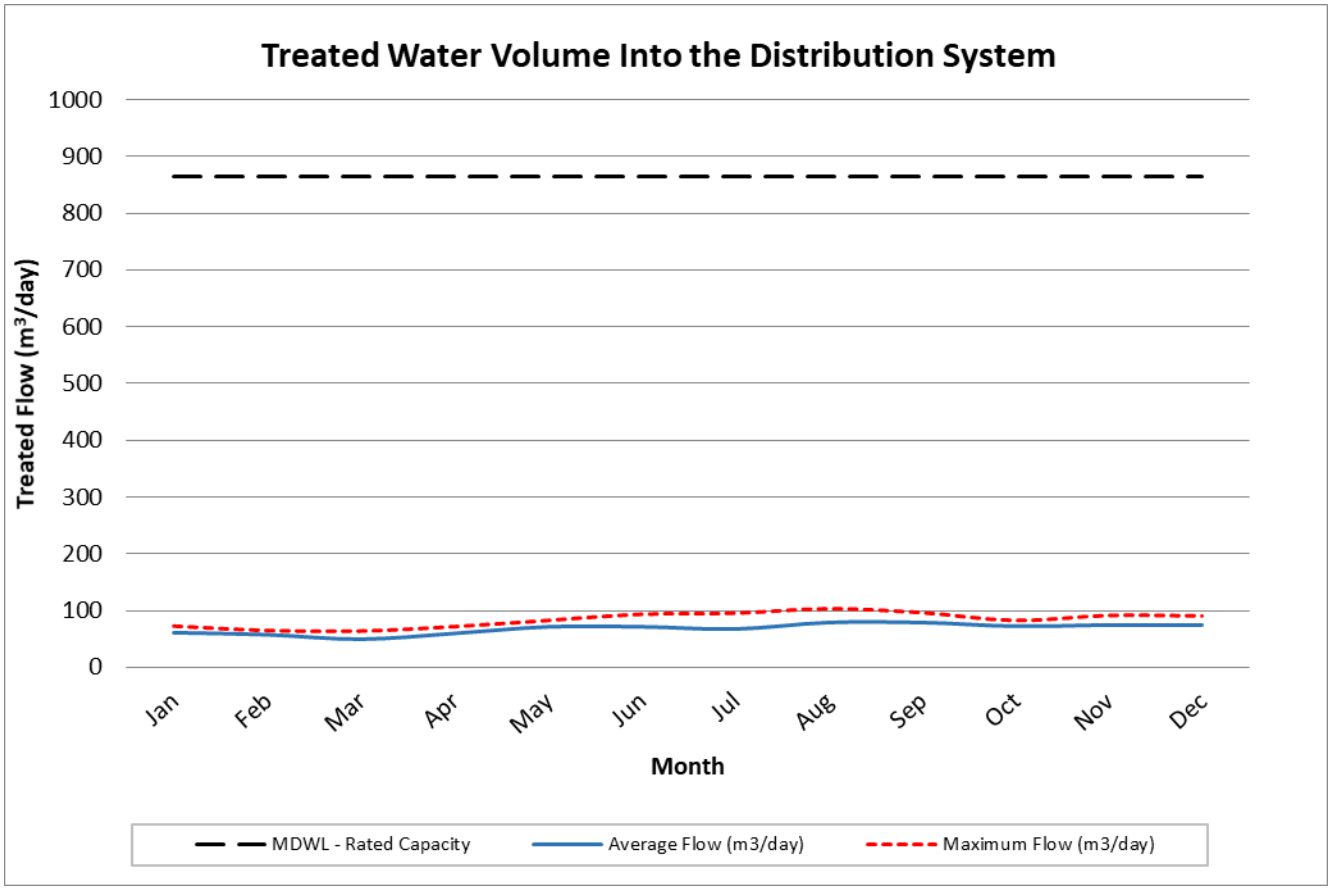

Figure: Volume of Treated Water Supplied to the Distribution System

A comparison of the rate specified in the system's Municipal Drinking Water Licence to the average and maximum volumes entering the distribution system.

Comparison of the Flow Summary to Systems Licence & Permit

Rated Capacity of the Plant (MDWL)	864 m^3/day	
Average Daily Flow for 2024	68 m^3/day	8 % of the rated capacity
Maximum Daily Flow for 2024	104 m^3/day	12 % of the rated capacity
Total Treated Water Produced in 2024	24,908 m^3	

The Ramore water treatment plant is rated at 864 cubic meters of water per day as specified in the system's Municipal Drinking Water Licence. The average daily flow was 68 m^3 per day, which is 8% of the rated capacity. This information clearly shows that the plant is well within its rated capacity and is able to meet current demands of consumers.

10.0 CONCLUSION

The Ramore Drinking Water System completed all required sampling and monitoring in 2024 and was able to meet the community's demand for drinking water other than the loss of service on December 10 as described under Incident #3 in section 5.0. The system complied with the terms and conditions outlined in its Drinking Water Works Permit, Municipal Drinking Water Licence and the regulatory requirements of the Safe Drinking Water Act with the exception of the four incidents listed in section 8.0.