Memorandum to the Council of

Corporation of the Municipality of Temagami

Subject: Overview of the 2024 Temagami North and South Drinking Water Systems

Memo No: 2025-M-050

Date: March 13, 2025

Attachment: Appendix A - OCWA 2024 Annual Water Report - Temagami North DWS

Appendix B - OCWA 2024 Annual Water Report - Temagami South

Prepared By: Laala Jahanshahloo - CAO/ Treasurer

Recommendation

BE IT RESOLVED THAT Council receives Memo 2025-M-050 as presented.

Contents

Executive Summary

This report provides an overview of the 2024 Annual Water Reports for the Temagami North and South Drinking Water Systems (DWS), prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Municipality of Temagami.

- Both systems operated within regulatory standards under Ontario Regulation 170/03 of the Safe Drinking Water Act (SDWA).
- No adverse water quality incidents (AWQIs) were reported in 2024.
- Temagami North experienced flow exceedances due to infrastructure leaks, while Temagami South remained within limits, except for a brief flow spike during maintenance.
- All microbiological and chemical testing met regulatory limits, with the exception of sodium levels exceeding 20 mg/L, which were reported to the Medical Officer of Health (MOH) as required.
- Infrastructure investments were made in both systems, including SCADA upgrades, flow meter replacements, and emergency repairs.

System Overview

Feature	Temagami North (N)	Temagami South (S)
Water Source	Net Lake	Lake Temagami
System Classification	Class 2 Treatment, Class 1 Distribution	Class 2 Treatment, Class 1 Distribution
Population Served	~300 residents	~350 residents
Service Connections	189	182
Storage Capacity	732 m^3 Standpipe	570 m^3 Elevated Tower
Emergency Power	80 kW Diesel Generator	100 kW Diesel Generator
Supervision	SCADA & Remote Monitoring	SCADA & Remote Monitoring

Regulatory Compliance

Compliance Criteria	Temagami North	Temagami South
Adverse Water Quality Incidents (AWQI)	None reported	None reported
Flow Rate & Volume Compliance	Exceeded limits due to leaks	One maintenance-related spike, otherwise compliant
Lead Testing (2024)	Below MAC (0.1 µg/L)	Below MAC (4.1 µg/L)
Sodium Exceedance (>20 mg/L)	29.6 mg/L (MOH notified)	25.6 mg/L (MOH notified)
Fluoride Compliance	< 0.05 mg/L	< 0.05 mg/L

Flow Rate Exceedances

- **Temagami North**
  - January 29 - February 4, 2024: Watermain break on Birch Street caused a daily flow exceedance above the 328 m^3/day limit.
  - October 8, 2024: Service line break on Hillcrest Drive caused another exceedance during flushing operations.
- **Temagami South (S)**
  - April 9, 2024: Momentary flow spike to 900 L/min occurred during cleaning and flushing of the raw water inlet pipe.

Water Quality & Chemical Testing

Parameter	MAC (Max Allowable Limit)	Temagami North	Temagami South
Trihalomethanes (THMs)	100 µg/L	**63.1 µg/L**	**43.1 µg/L**
Haloacetic Acids (HAAs)	80 µg/L	**53.3 µg/L**	**44.8 µg/L**
Nitrate	10 mg/L	**0.2 mg/L**	**< 0.1 mg/L**
Nitrite	1 mg/L	**< 0.05 mg/L**	**< 0.05 mg/L**
Sodium	>20 mg/L (MOH notification required)	**29.6 mg/L**	**25.6 mg/L**

- No microbiological contamination was detected in treated or distributed water.
- Sodium levels exceeded 20 mg/L in both systems, requiring Medical Officer of Health (MOH) notification.
- All other chemical parameters were within regulatory limits.

4. Key Maintenance & Upgrades

- **Temagami North**
  - SCADA reporting system installed.
  - Replaced chlorine analyzer (CL-17), pH probe and, HMI panel.
  - Emergency watermain break repair on Birch Street.
  - Upgraded flow control and chemical feed systems.
  - QEMS external audit completed.
- **Temagami South**
  - SCADA reporting system installed.
  - Replaced raw water flow meter, pH probes and sodium hypochlorite feed lines.

- Emergency repair at Temagami School.
- Installed alkalinity testing equipment & PLC remote access.
- QEMS external audit completed.

Conclusion

- Both systems operated within regulatory standards and provided safe drinking water throughout 2024.
- Temagami North (N) experienced flow exceedances due to watermain and service line breaks, while Temagami South (S) remained compliant except for a brief maintenance-related flow spike.
- No adverse water quality incidents (AWQIs) were reported in either system.
- All chemical and microbiological testing met health and safety standards, with the exception of sodium levels exceeding 20 mg/L, which were reported to the MOH as required.
- Infrastructure investments, including SCADA upgrades, flow meter replacements, and emergency repairs, were completed in both systems to improve operational efficiency and reliability.
- Both systems continue to provide high-quality drinking water to the residents of Temagami, with regular monitoring and scheduled improvements ensuring ongoing compliance and performance.

ONTARIO CLEAN WATER AGENCY
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2024 Annual/Summary Report for the Temagami North Drinking Water System

PREPARED BY

Ontario Clean Water Agency
on behalf of the Municipality of Temagami

Date: February 6, 2025
Rev: 0

Revision History

Rev. No.	Date	Prepared by:	Approved by:	Description
0	February 6, 2025	I. Bruneau, PCT	B. Logan, Senior Operations Manager	Revision 0 issued

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Background

Municipalities throughout Ontario are required to comply with Ontario Regulation 170/03 made under the Safe Drinking Water Act (SDWA) since June 2003. 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. Summary of any adverse water quality reports and corrective actions
3. Summary of all required testing
4. Description of any major expenses incurred to install, repair or replace equipment

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

The regulation also requires a Summary Report which must be presented and accepted by Council by March 31st 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 regulatory requirement 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 prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Owner and presented to council as the 2024 Annual/Summary Report.

Section 11 – Annual Report

1. Introduction

Drinking-Water System Name	**Temagami North Drinking Water System**
Drinking-Water System Number	220000433
Drinking-Water System Owner	The Corporation of the Municipality of Temagami
Drinking-Water System Category	Large Municipal, Residential System
Municipal Drinking Water Licence No.	201-102-3 (issued July 10, 2021)
Drinking Water Work Permit No.	201-202-4 (issued July 10, 2021)
Permit to Take Water No.	4505-AS3NUQ (issued October 26, 2017)
Reporting Period	January 1, 2024 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?

Yes at: https://www.temagami.ca

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

Temagami Municipal Office
7 Lakeshore Drive
Temagami, ON P0H 2H0

Drinking Water Systems that receive drinking water from the Temagami North Drinking Water System

The Temagami North Drinking Water System provides all of its drinking water to the community of Temagami North within the Municipality of Temagami.

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 Temagami North Drinking Water System and provided a copy to the system owner; the Municipality of Temagami.

System Users are notified that the Annual Report is available for viewing through:

- Notice on the Municipality's website and at the Municipal Office.

2. Description of the Temagami North Drinking Water System

The Temagami North Drinking Water System is owned by the Corporation of the Municipality of Temagami and consists of a Class 2 water treatment subsystem and a Class 1 water distribution subsystem. The Ontario Clean Water Agency (OCWA) is the accredited operating authority and is designated as the Overall Responsible Operator for both the water treatment and water distribution facilities.

Raw Water Supply

The water treatment plant is located at 5 Cedar Avenue South and obtains its raw water from Net Lake. The intake pipe for the plant is located approximately 165 m off the west shore of the lake at 10 m below the low water level of the lake. The raw water is directed by gravity via a 222 m long, 250 mm diameter intake pipe to a low lift pumping station consisting of a wet well and two submersible low lift pumps, each rated at 3.8 L/s (328 m3/day). These pumps are controlled by the system programmable logic controller (PLC) and discharge to the two BCA Pre-Fabricated package treatment plants.

A magnetic flow meter is located in the water treatment plant to monitor raw water flows. The raw water is also continuously monitored for pH, turbidity and temperature.

Water Treatment

The BCA plants each consist of 2 flash mixing chambers, 2 flocculation tanks, two clarification chambers, and two deep dual media filters (sand/anthracite). Aluminum sulphate and polymer are added for the coagulation/flocculation process, sodium carbonate for pH adjustment and sodium hypochlorite for disinfection. All chemicals are added using metering pumps. The plant is equipped with an automated monitoring system that records various components of the process including system flows and chemical dosages.

Filter backwashes are initiated by head loss, turbidity levels, and time or manually by the operator. The backwash wastewater and sedimentation sludge is directed to a drainage system that leads to the Municipal sanitary sewer system for disposal.

Water Storage

The treated water is directed to three clearwells, which have a combined capacity of 268.9 m^3 at a depth of 2.9 meters. The two high lift pumps direct the treated water into the distribution system, which is equipped with a standpipe that helps to maintain water pressure within the system. The water leaving the plant is continuously monitored for flow, pH, temperature, turbidity and free chlorine residual to ensure the water is of acceptable quality before entering the distribution system.

Control System

Control System Supervisory Control and Data Acquisition (SCADA) is the method of control implemented for the Temagami North Water Treatment System. All analyzing, monitoring and control module equipment information is routed through the SCADA system for operator monitoring and control. Control of equipment can be accomplished locally using the SCADA computer located at the Temagami North water treatment plant or remotely using operator computers or cell phones. Alarm capability and set point adjustment are available through SCADA and trend monitoring via data logger.

Emergency Power

A 80 kW diesel generator with automatic start and a fuel tank volume of 620 L is located adjacent to the water treatment plant in a nearby sewage pumping station. It is available to provide emergency power for the entire facility in the event of a power interruption.

Distribution System

The Temagami North Drinking Water System is classified as a Large Municipal Residential Drinking Water System which serves an estimated population of 300 residents. It is a standalone system not connected to another drinking water system.

The system is equipped with a standpipe known as the "North Tower" which has a storage capacity of 732 m^3 and assists with maintaining water pressure in system.

The distribution system consists of 189 service connections, 20 fire hydrants, and 7 dead end locations. The watermains are mostly made of cast iron material and range in size from 6” to 8”. A small section on Spruce Drive consists of PVC pipe. There is one bleeder in the trailer park and one bleeder on Spruce Drive. Only the Spruce Drive bleeder runs full time to maintain water quality. The bleeder in the trailer park is for prevention of freezing in the winter months.

3. List of Water Treatment Chemicals Used

- Aluminum Sulphate – coagulation/flocculation
- Polyelectrolyte (Polymer) - coagulant aid
- Soda Carbonate (Soda Ash) – pH and alkalinity adjustment
- Sodium Hypochlorite – disinfection

All treatment chemicals meet AWWA and NSF/ANSI standards.

4. Significant Expense Incurred in 2024

OCWA is committed to maintaining the assets of the drinking water system and sustains a program of scheduled inspection and maintenance activities using a computerized Work Management System (WMS).

Significant maintenance and capital expenses incurred in the system include the following:

- Replaced treated water chlorine residual analyzer (CL-17),
- Replaced raw water pH and temperature probe,
- Replaced faulty UPS and isolation card,
- Replaced Human Machine Interface (HMI) in MCC panel,
- Installed SCADA reporting package
- Replaced raw flow control valve on Filter No. 1,
- Replaced filter level control floats,
- Replaced broken soda ash transfer pump,
- Replaced polymer and soda ash chemical feed panels,
- Replaced failed backpressure valve and sodium hypochlorite injection point,
- Repaired leaking fittings in high lift pump room.
- Sodium hypochlorite pump repair by SCG,
- Installed radio communication alarming for the lagoon,
- Generator service,
- Emergency watermain break on Birch Street,
- Distribution flow testing for capacity study conducted by Tulloch,
- Quality and Environmental Management System (QEMS) external re-accreditation audit conducted by Intertek-SAI Global.

5. Details of Notices Reported & Submitted to the Spills Action Center

Based on information kept on record by OCWA, no adverse water quality incidents (AWQIs) were reported to the Ministry's Spills Action Centre in 2024.

6. Microbiological Testing

Table 1: Summary of Microbiological Results

Sample Type	# of Samples	*Range of E.coli* Results *(min to max)*	Range of Total Coliform Results *(min to max)*	# of HPC Samples	Range of HPC Results *(min to max)*
Raw	53	0 to 20/NDOGN&T	0 to 452/NDOGN&T	N/A	N/A
Treated	54	0 to 0	0 to 0	54	< 10 to 5880
Distribution	106	0 to 0	0 to 0	52	< 10 to 190/NDOGHPC

Maximum Acceptable Concentration (MAC) for treated and distribution samples: *E. coli* = 0 CFUs/100 mL and MAC for Total Coliforms = 0 CFUs/100 mL

NDOGN = No Data, Overgrown with Non-Target bacteria

NDOGT = No Data, Overgrown with Target bacteria

NDOGHPC = No Data, Overgrown with HPC bacteria

"<" denotes less than the laboratory's method detection limit

Note: One microbiological sample is collected and tested each week from the raw and treated water supply. A total of two microbiological samples are collected and tested each week from the distribution system. At least 25% of the distribution samples must be tested for HPC bacteria.

7. Operational Testing

Table 2: Continuous Monitoring in the Treatment Process

Parameter	# of Samples	Range of Results *(min to max)*	Unit of Measure	Standard
Turbidity (Filer No. 1)	8760 Note 1	0.00 to 0.98	NTU	≤ 1.0 Note 2
Turbidity (Filer No. 2)	8760	0.00 to 0.79	NTU	
Free Chlorine Residual	8760	0.99 to 2.90	mg/L	CT Note 3

Notes:

1. For continuous monitors 8760 is used as the number of samples.
2. Effective backwash procedures, including filter to waste and automatic filter shut down features are in place to ensure that the effluent turbidity requirements as described in the Filter Performance Criteria are met all times. Turbidity exceedances occur when two (2) readings are above 1 NTU for 15 minutes or more in a 24 hour period. Filters will alarm if turbidity reaches 0.9 NTU and will shut down at 1.0 NTU. The system performed as programmed and no high turbidity water was directed to the next phase of the process.
3. CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the Temagami North water plant if the free chlorine residual level drops below 0.85 mg/L to ensure primary disinfection is achieved.

Table 3: Summary of Chlorine Residuals in the Distribution System

Parameter	# of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine Residual	368	0.20 to 2.46	mg/L	≥ 0.05

Note: A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

Refer to *Appendix A* for a monthly summary of the above microbiological and operational test results.

8. Chemical Testing

Table 4: Summary of Nitrate & Nitrite Data from the Water Treatment Plant

Date of Sample	Nitrate Result	Nitrite Result	Unit of Measure	Exceedance
January 8	< 0.05	< 0.05	mg/L	No
April 8	0.11	< 0.05	mg/L	No
July 8	< 0.05	< 0.05	mg/L	No
October 7	0.2	< 0.01	mg/L	No

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

Table 5: Summary of Total Trihalomethane Results from the Distribution System

Date of Sample	THM Result	Unit of Measure	Running Average	Exceedance
January 8	54.9	ug/L	Q1 = 64.2	No
April 8	35.2	ug/L	Q2 = 62.8	No
July 8	120	ug/L	Q3 = 76.3	No
October 7	42.2	ug/L	Q4 = 63.1	No

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

Table 6: Summary of Total Haloacetic Acid Results from the Distribution System

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 8	39	ug/L	Q1 = 47.5	No
April 8	29	ug/L	Q2 = 43.3	No
July 8	90	ug/L	Q3 – 58.5	No
October 7	55	ug/L	Q4 = 53.3	No

Maximum Allowable Concentration (MAC) for Total Haloacetic Acid = 80 ug/L (Four Quarter Running Average)

Table 7: Summary of Lead Results under Schedule 15.1 (from the distribution system)

Date of Sample	# of Samples	Field pH *(min to max)*	Field Temperature (°C) *(min to max)*	Alkalinity (mg/L) *(min to max)*	Lead (ug/L) *(min to max)*
March 21	1	7.04	4.6	41	< 0.1
September 9	1	7.10	17.2	39	<0.1

Maximum Allowable Concentration (MAC) for Lead = 10 ug/L

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 (winter period) and one distribution sample during the period of June 15 to October 15 (summer period). This testing is required in every 12-month period with lead testing in every third 12-month period. Lead testing was performed in 2024.

Next lead sampling is scheduled for 2027.

Table 8: Most Recent Schedule 23 Inorganic Results from the Water Treatment Plant

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
Antimony	< 0.5	ug/L	6	No	No
Arsenic	< 1.0	ug/L	10	No	No
Barium	5	ug/L	1000	No	No
Boron	< 2	ug/L	5000	No	No
Cadmium	< 0.1	ug/L	5	No	No
Chromium	< 1	ug/L	50	No	No
Mercury	< 0.1	ug/L	1	No	No
Selenium	< 0.2	ug/L	50	No	No
Uranium	< 1	ug/L	20	No	No

Note: Sample required every 12 months (sample date = *October 7, 2024)*

Table 9: Most Recent Schedule 24 Organic Results from the Water Treatment Plant

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Alachlor	< 0.271	ug/L	5	No	No

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Atrazine + N-dealkylated metobolites	< 0.5	ug/L	5	No	No
Azinphos-methyl	< 0.203	ug/L	20	No	No
Benzene	< 0.1	ug/L	1	No	No
Benzo(a)pyrene	< 0.01	ug/L	0.01	No	No
Bromoxynil	< 0.131	ug/L	5	No	No
Carbaryl	< 3	ug/L	90	No	No
Carbofuran	< 5	ug/L	90	No	No
Carbon Tetrachloride	< 0.2	ug/L	2	No	No
Chlorpyrifos	< 0.203	ug/L	90	No	No
Diazinon	< 0.203	ug/L	20	No	No
Dicamba	< 0.114	ug/L	120	No	No
1,2-Dichlorobenzene	< 0.2	ug/L	200	No	No
1,4-Dichlorobenzene	< 0.3	ug/L	5	No	No
1,2-Dichloroethane	< 0.2	ug/L	5	No	No
1,1-Dichloroethylene (vinylidene chloride)	< 0.3	ug/L	14	No	No
Dichloromethane	< 1	ug/L	50	No	No
2-4 Dichlorophenol	< 0.2	ug/L	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	< 0.489	ug/L	100	No	No
Diclofop-methyl	< 0.163	ug/L	9	No	No
Dimethoate	< 0.203	ug/L	20	No	No
Diquat	< 0.2	ug/L	70	No	No
Diuron	< 20	ug/L	150	No	No
Glyphosate	< 20	ug/L	280	No	No
Malathion	< 0.203	ug/L	190	No	No
Metolachlor	< 0.136	ug/L	50	No	No

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Metribuzin	< 0.136	ug/L	80	No	No
Monochlorobenzene	< 0.5	ug/L	80	No	No
Paraquat	< 0.2	ug/L	10	No	No
Polychlorinated Biphenyls (PCBs)	< 0.06	ug/L	3	No	No
Pentachlorophenol	< 0.3	ug/L	60	No	No
Phorate	< 0.136	ug/L	2	No	No
Picloram	< 0.114	ug/L	190	No	No
Prometryne	< 0.0678	ug/L	1	No	No
Simazine	< 0.203	ug/L	10	No	No
Terbufos	< 0.136	ug/L	1	No	No
Tetrachloroethylene	< 0.3	ug/L	10	No	No
2,3,4,6-Tetrachlorophenol	< 0.3	ug/L	100	No	No
Triallate	< 0.136	ug/L	230	No	No
Trichloroethylene	< 0.2	ug/L	5	No	No
2,4,6-Trichlorophenol	< 0.2	ug/L	5	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA)	< 8.16	ug/L	100	No	No
Trifluralin	< 0.136	ug/L	45	No	No
Vinyl Chloride	< 0.1	ug/L	1	No	No

Note: Sample required every 12 months (sample date = *October 7, 2024)*

Inorganic or Organic Parameter(s) that Exceeded Half the Standard Prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 (parameters listed in Table 8 and Table 9 of this report) exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg.169/03) during the reporting period.

Table 10: Most Recent Sodium Data (from the Water Treatment Plant)

Date of Sample	# of Samples	Result Value	Unit of Measure	MAC	Exceedance
October 17, 2022	1	29.2	mg/L	20	Yes
October 24, 2022 (resample)	1	29.6	mg/L	20	Yes

Note: Sample required every 60 months. Next sampling scheduled for October 2027.

The aesthetic objective for sodium in drinking water is 200 mg/L at which it can be detected by a salty taste. It is required that the local Medical Officer of Health be notified when the concentration exceeds 20 mg/L so that persons on sodium restricted diets can be notified by their physicians. The adverse sodium result was reported to the Ministry's SAC and the Timiskaming Health Unit on October 21, 2022 as required under Schedule 16 of Ontario Regulation 170/03 (AWQI No. 160396).

Table 11: Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	MAC	Exceedance
October 17, 2022	1	< 0.05	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2027.

9. Additional Testing Performed in Accordance with a Legal Instrument

Harmful Algae Bloom Monitoring

Condition 6.0 (6.1) of Schedule C to MDWL No. 201-102 requires a Harmful Algal Bloom (HAB) monitoring, sampling and reporting plan. The plan must be implemented during the harmful algae bloom season, during but not limited to the warm seasonal period between June 1st and October 31st of each year, or as otherwise directed by the Medical Officer of Health. A Plan has been developed and is in effect for the Temagami North Drinking Water System during the HAB season. The Plan includes visual inspection of the HAB monitoring area at least once per week. Sampling and testing for microcystins on the raw and treated water is only required if a HAB is suspected or occurring in the HAB monitoring area. Reporting to the local Health Unit and the Ministry's Spills Actions Center if a suspected bloom is observed or if microcystins are detected in either the raw or treated water samples.

Table 12: Summary of Microcystin Results

Sample Type	# of Samples	*Range of Microcystin* Results *(min to max)*	Unit of Measure	Exceedance
No incidents of suspected and/or confirmed harmful blue green algal blooms were observed in the HAB monitoring area during the 2024 season.				

Maximum Allowable Concentration (MAC) for Microcystin-LR = 1.5 ug/L

Schedule 22 – Summary Reports for Municipalities

10. Requirements the System Failed to Meet

The following table lists the requirements of the Safe Drinking Water Act (2002), the drinking water regulations, the Permit to Take Water (PTTW), the Municipal Drinking Water Licence (MDWL), the Drinking Water Works Permit (DWWP), and any other orders applicable to the system that were not met at any time during the reporting period.

According to information kept on record by OCWA, the Temagami North Drinking Water System failed to meet the following requirements.

Table 13: Requirements the System Failed to Meet

Legislation	Requirement(s) not Met	Duration	Corrective Action(s)
Municipal Drinking Water License (MDWL) No. 201-102	Condition 1.0 of Schedule C of the MDWL identifies the rated capacity for the Temagami North Water Treatment Plant (WTP) as 328 m^3/day of total flow into the distribution system on any given calendar day. The total daily flow exceeded this limit on the following days: January 29 = 329 m3 January 30 = 329 m3 February 1 = 349 m3 February 3 = 368 m3 February 4 = 341 m3 The cause of the flow exceedance was a watermain break on Birch Street.	January 29 to February 4, 2024	The watermain break was located and repaired on February 6, 2024. No further exceedances of the rated capacity occurred after repairs were completed.
Municipal Drinking Water License (MDWL) No. 201-102	The MDWL allows a maximum volume of 328 m^3 per day of treated water to enter the distribution system. The total daily flow on October 8th was 385 m^3 which exceeded this limit. The suspected cause of the exceedance was a service line break on Hillcrest Drive along with distribution flushing.	October 8, 2024	Distribution flushing was stopped until the service line was repaired. The service line was repaired on October 10th and no further exceedances occurred.

11. Summary of Quantities and Flow Rates

11.1 Flow Monitoring

Municipal Drinking Water Licence (MDWL) No. 201-102 requires the owner to install a sufficient number of flow measuring devices to permit the continuous measurement and recording of:

- the flow rate and daily volume of water conveyed from the treatment system to the distribution system,
- the flow rate and daily volume of water conveyed into the treatment system.

The systems' Permit to Take Water (PTTW) No.4505-AS3NUQ requires that on each day water is taken from the source, the date, the volume of water taken on that date and the rate at which it was taken be recorded.

The Temagami North drinking water system has one flow meter to monitor the raw water entering the treatment plant and one to monitor the treated water leaving the plant and entering an the distribution system. These flow metering devices are calibrated in accordance to manufacturers' specifications on an annual basis and are operating as required.

11.2 Rated Capacity & Flow Rates

The system's Permit to take Water (PTTW) No. 4505-AS3NUQ allows the plant to withdraw a maximum volume of 460 cubic meters from Net Lake each day. A review of the raw water flow data indicates that the system did not exceed this allowable limit having a maximum volume of 395 m^3.

The Permit also allows a maximum flow rate of 456 L/minute which was exceeded on four occasions during the reporting period. April 5th = 814 L/minute, June 24th = 701 L/minute, October 1st = 480 L/minute and November 21st = 654 L/minute during maintenance and flushing if the raw inlet pipe.

Condition 1.0 (1.1) to Schedule C of MDWL No. 201-102 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 of 328 m^3 on any calendar day. The Temagami North DWS failed to comply with this limit from January 29th to February 4th due to a watermain break and on October 8th due to a service line break in conjunction with distribution flushing. Both events were reported to the MECP.

The following tables (Table 14 and Table 15) indicate the quantities and flow rates of water taken and produced during the reporting period, including monthly average flows, maximum daily flows and 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.

Figure 1 is a comparison of the maximum allowed water taking identified in the system's PTTW to the average and maximum raw water flows entering the water treatment plant.

Figure 2 is a comparison of the maximum rated capacity specified in the system's MDWL to the average and maximum treated water flows entering the distribution system.

Table 17 lists historical maximum raw and treated flows from 2018 to 2024.

Table 14: 2024 – Monthly Summary of Water Takings from the Source (Net Lake)

Regulated by Permit to Take Water (PTTW) #4505-AS3NUQ , issued October 26, 2017

Raw Water Usage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Volume (m^3)	7492	5825	5074	4482	4157	4517	5013	4848	4233	5414	5324	5154	61533
Average Volume (m^3 /day)	242	201	164	149	134	151	162	156	141	175	177	166	168
Maximum Volume (m^3 /day)	326	372	210	181	213	323	227	227	186	395	241	224	395
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)	411	403	382	814	440	701	437	437	437	480	654	433	814
PTTW - Maximum Allowable Flow Rate (L/min)	456	456	456	456	456	456	456	456	456	456	456	456	456

April 5, 2024 - raw flow rate spiked to 814 L/minute for approximately 10 minutes during maintenance and cleaning of the raw water inlet pipe.
June 24, 2024 - raw flow rate spiked to 701 L/minutefor approximately 6 minutes during maintenance and cleaning of the raw water inlet pipe.
October 1 - raw flow rate spiked to 480 L/minute for approximately 1 minute during maintenance and cleaning of the raw water inlet pipe.
November 21 - raw flow rate spiked to 654 L/minute for approximately 14 minutes during maintenance and cleaning of the raw water inlet pipe.

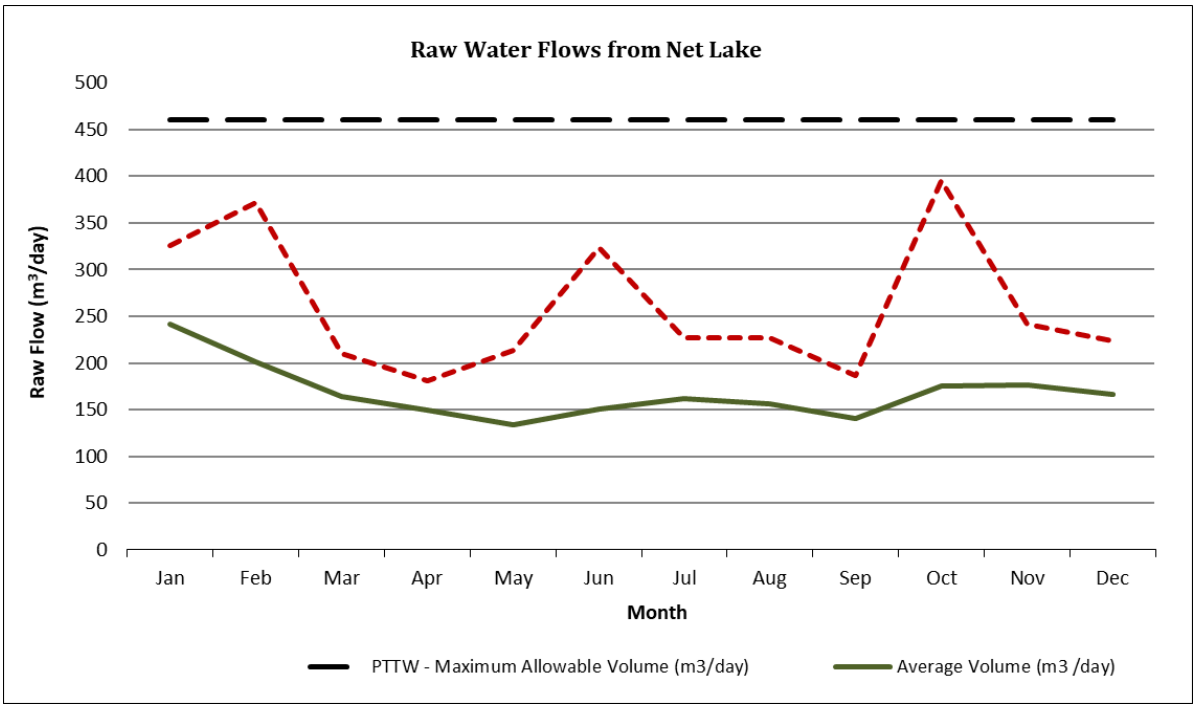

Figure 1: Comparison of Raw Water Flows to the Maximum Allowable Water Taking

Table 15: 2024 – Monthly Summary of Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence (MDWL) #201-102-3, issued July 10, 2021

Treated Water Usage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Volume (m^3)	7338	5524	4611	4014	3722	3773	4416	4437	4209	5209	4590	4716	56559
Average Volume (m^3 /day)	237	190	149	134	120	126	142	143	140	168	153	152	155
Maximum Volume (m^3 /day)	329	368	199	150	188	276	226	209	187	385	202	202	385
MDWL - Rated Capacity (m^3/day)	328	328	328	328	328	328	328	328	328	328	328	328	328

January 29 to February 4 - high treated water flows occurred during a watermain break.
October 8 - high treated water flows occurred during a service break in conjunction with distribution flushing.

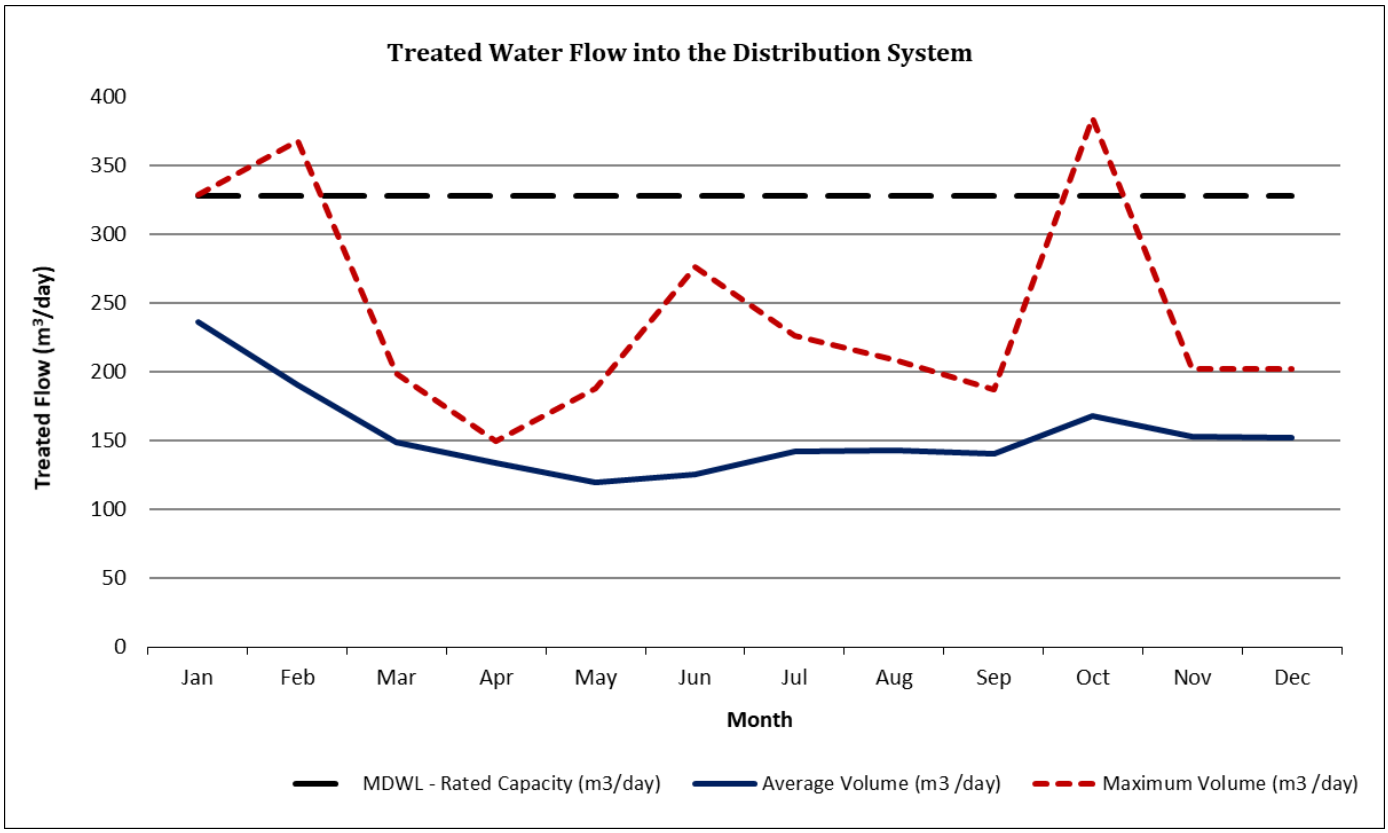

Figure 2: Comparison of Treated Flows to the Maximum Rated Capacity

System Performance

The following information is provided to enable the Owner to assess the capability of the system to meet existing and future water usage needs:

Rated Capacity of the Plant (MDWL)	328 m^3/day	
Average Daily Flow for 2024	155 m^3/day	47 % of the rated capacity
Maximum Daily Flow for 2024	385 m^3/day	117 % of the rated capacity
Total Treated Water Produced in 2024	56,559 m^3	

Table 16: 2023 – Historical Maximum Flows (2018 to 2023)

Year	Maximum Raw Flow (m^3/d)	Max. Day % of PTTW Allowable (460 m3/d)	Maximum Treated Flow (m^3/d)	Max. Day % of MDWL Capacity (328 m^3/d)
2024	395	86%	385	118%
2023	405	88%	367	112%
2022	531	115%	303	92%
2021	516	112%	473	144%
2020	498	108%	553	169%
2019	372	81%	332	101%
2018	330	72%	308	94%

Notes:

July 2019 – high treated water flows due to distribution flushing.

December 2020 – high raw and treated water flows due to a watermain break.

July 2021 – high raw and treated water flows due to increased demand and maintenance issues with the filters.

October 2022 – high raw water flows due to distribution flushing.

September 3, 2023 - high treated water flow occurred when filling the clearwell and tower after the high lift pumps were left off after equipment maintenance.

January 29 to February 4, 2024 - high treated water flows occurred during a watermain break.

October 8, 2024 - high treated water flows occurred during a service break in conjunction with distribution flushing.

Conclusion

The water quality data collected in 2024 demonstrates that the Temagami North drinking water system provided high quality drinking water to its users.

The system was able to operate in accordance with the terms and conditions of the Permit to Take Water, but failed to meet the allowable rated capacity of the Municipal Drinking Water

Licence for 5 days from January 29th to February 4th due to a watermain break. The system also failed to meet the rated capacity on October 8th due to distribution flushing in conjunction with a service line break. No further exceedances occurred after the breaks were repaired.

No Adverse Water Quality Incidents were reported to the Ministry's Spills Action Center in 2024. All non-compliances that were identified during the reporting period were resolved as soon as possible.

APPENDIX A

Monthly Summary of Microbiologcal & Operational Test Results

Raw Water

Net Lake	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	130/NDOGT	72.00	> 400.00	106.00	160.00	445.00	20.00	1/NDOGN	452.00	60.00	78.00	108.00			452/NDOGN&T	
Lab Month.Mean	84.00	37.00	> 144.00	68.00	104.00	148.50	12.00	0.33	224.00	35.20	49.00	58.80		> 79.39		
Lab Month.Min	66.00	22.00	14.00	32.00	30.00	24.00	6.00	0.00	2.00	12.00	30.00	14.00				0.00
E. Coli: EC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	< 2.00	2.00	2.00	< 2.00	< 2.00	20.00	< 2.00	1/NDOGN	1.00	2.00	4.00	< 2.00			20/NDOGN	
Lab Month.Mean	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 8.75	< 1.40	0.33	0.25	< 2.00	< 2.50	< 2.00		< 2.27		
Lab Month.Min	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 5.00	0.00	0.00	0.00	< 2.00	< 2.00	< 2.00				0.00

Filtered Water

Filter 1	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Turbidity (Max 1 NTU) - NTU																
OL Month.Max	0.26	0.23	0.25	0.31	0.35	0.30	0.10	0.20	0.30	0.63	0.39	0.98			0.98	
OL Month.Mean	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03		0.03		
OL Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.02				0.00

Filter 2	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Turbidity (Max 1 NTU) - NTU																
OL Month.Max	0.26	0.48	0.34	0.60	0.33	0.19	0.68	0.20	0.19	0.65	0.39	0.79			0.79	
OL Month.Mean	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.03		0.04		
OL Month.Min	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01	0.02				0.00

Treated Water

Treated Water (POE)	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free (Min 0.85 mg/L) - mg/L																
OL Month.Max	2.09	1.92	1.94	1.78	2.29	2.90	2.49	1.87	1.97	2.57	2.33	2.29			2.90	
OL Month.Mean	1.82	1.64	1.67	1.50	1.59	1.83	1.65	1.61	1.76	1.88	1.79	1.87		1.72		
OL Month.Min	1.34	1.33	1.20	1.20	1.03	1.33	1.35	1.38	1.43	0.99	1.51	1.63				0.99
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	6.00	54.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00

E. Coli: EC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	6.00	54.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
HPC - cfu/mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	6.00	54.00			
Lab Month.Max	< 10.00	10.00	340.00	< 10.00	10.00	20.00	< 10.00	5880.00	< 10.00	30.00	< 10.00	< 10.00			5880.00	
Lab Month.Mean	< 10.00	< 10.00	< 92.50	< 10.00	< 10.00	< 12.50	< 10.00	< 1477.50	< 10.00	< 14.00	< 10.00	< 10.00		< 125.37		
Lab Month.Min	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00				< 10.00

Distribution Water

1st Bacti/Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	2.14	1.66	1.45	1.43	1.15	1.61	1.78	1.47	1.31	2.13	1.81	1.65			2.14	
IH Month.Mean	1.66	1.36	1.16	1.08	0.78	0.95	1.16	0.67	0.72	1.05	1.26	1.25		1.09		
IH Month.Min	1.06	1.05	1.05	0.64	0.55	0.50	0.60	0.37	0.48	0.77	0.98	1.08				0.37
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
E. Coli - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00

2nd Bacti/Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	2.20	1.69	1.31	1.22	1.04	1.75	0.66	1.05	1.71	1.59	1.56	1.71			2.20	
IH Month.Mean	1.40	1.36	1.08	0.71	0.64	0.83	0.48	0.55	0.98	1.17	1.05	1.26		0.96		
IH Month.Min	0.71	0.75	0.79	0.38	0.26	0.31	0.21	0.31	0.33	0.76	0.71	1.03				0.21

Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
E. Coli - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
HPC - cfu/mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	4.00	4.00	4.00	5.00	4.00	5.00	52.00			
Lab Month.Max	10.00	20.00	10.00	30.00	20.00	20/NDOGNPC	150.00	10.00	< 10.00	< 10.00	< 10.00	190.00			190/NDOGHPC	
Lab Month.Mean	< 10.00	< 12.50	< 10.00	< 14.00	< 12.50	< 13.33	< 72.50	< 10.00	< 10.00	< 10.00	< 10.00	< 46.00		< 19.41		
Lab Month.Min	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00				< 10.00
3rd Bacti/Residual	**Jan 2024**	**Feb 2024**	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**	**Sep 2024**	**Oct 2024**	**Nov 2024**	**Dec 2024**	**Total**	**Avg**	**Max**	**Min**
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	1.92	1.86	1.61	1.34	1.86	1.39	1.62	1.52	1.80	2.46	1.83	1.51			2.46	
IH Month.Mean	1.46	1.44	1.10	0.76	0.99	1.01	0.90	0.75	1.31	1.27	1.30	1.15		1.12		
IH Month.Min	0.78	1.25	0.73	0.46	0.39	0.34	0.48	0.41	0.40	0.40	0.84	0.76				0.34
4th Residual	**Jan 2024**	**Feb 2024**	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**	**Sep 2024**	**Oct 2024**	**Nov 2024**	**Dec 2024**	**Total**	**Avg**	**Max**	**Min**
Cl Residual: Free - mg/L																
IH Edited Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
IH Month.Max	2.28	1.79	1.64	1.50	1.30	1.69	0.95	1.32	1.61	1.80	1.83	1.80			2.28	
IH Month.Mean	1.78	1.62	1.54	1.16	0.79	1.11	0.64	0.82	0.74	1.46	1.69	1.57		1.25		
IH Month.Min	1.06	1.32	1.45	0.49	0.31	0.29	0.35	0.36	0.20	0.76	1.61	1.39				0.20

NOTES:
NDOGN = No data, sample overgrown with non-target bacteria
NDOGT = No data, sample overgrown with target bacteria
NDOGHPC = No data, sample overgrown with HPC bacteria

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

2024 Annual/Summary Report for the Temagami South Drinking Water System

PREPARED BY

Ontario Clean Water Agency
on behalf of the Municipality of Temagami

Date: February 6, 2025
Rev: 0

Revision History

Rev. No.	Date	Prepared by:	Approved by:	Description
0	February 6, 2025	I. Bruneau, PCT	B. Logan, Senior Operations Manager	Revision 0 issued

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Appendices

Background

Municipalities throughout Ontario are required to comply with Ontario Regulation 170/03 made under the Safe Drinking Water Act (SDWA) since June 2003. 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. Summary of any adverse water quality reports and corrective actions
3. Summary of all required testing
4. Description of any major expenses incurred to install, repair or replace equipment

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

The regulation also requires a Summary Report which must be presented and accepted by Council by March 31st 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 regulatory requirement 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 prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Owner and presented to council as the 2024 Annual/Summary Report.

Section 11 – Annual Report

1. Introduction

Drinking-Water System Name	**Temagami South Drinking Water System**
Drinking-Water System Number	220000424
Drinking-Water System Owner	The Corporation of the Municipality of Temagami
Drinking-Water System Category	Large Municipal, Residential System
Municipal Drinking Water Licence No.	201-101-3 (issued July 10, 2021)
Drinking Water Work Permit No.	201-201-3 (issued July 10, 2021)
Permit to Take Water No.	4505-AS3NUQ (issued October 26, 2017)
Reporting Period	January 1, 2024 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?

Yes at: https://www.temagami.ca

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

Temagami Municipal Office
7 Lakeshore Drive
Temagami, ON P0H 2H0

Drinking Water Systems that receive drinking water from the Temagami South Drinking Water System

The Temagami South Drinking Water System provides all of its drinking water to the community of Temagami South within the Municipality of Temagami.

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 Temagami South Drinking Water System and provided a copy to the system owner; the Municipality of Temagami.

System Users are notified that the Annual Report is available for viewing through:

- Notice on the Municipality's website and at the Municipal Office.

2. Description of the Temagami South Drinking Water System

The Temagami South Drinking Water System is owned by the Corporation of the Municipality of Temagami and consists of a Class 2 water treatment subsystem and a Class 1 water distribution subsystem. The Ontario Clean Water Agency (OCWA) is the accredited operating authority and is designated as the Overall Responsible Operator for both the water treatment and water distribution facilities.

Raw Water Supply

The water treatment plant is located at 39 Lake Shore Drive and obtains its raw water from Lake Temagami. The water is drawn through a 20 m long, 200 mm diameter intake pipe that extends from a submerged intake structure 5.7 m below the average water level. The intake pipe directs water by gravity to a low lift pumping station consisting of a wet well and two submersible low lift pumps, each rated at 11 L/s (950 m3/day). These pumps are controlled by the treatment systems' programmable logic controller (PLC) and discharge to the two package plants located with the water plant.

A magnetic flow meter is located in the water treatment plant to monitor raw water flows. The raw water is also continuously monitored for pH, turbidity and temperature.

Water Treatment

The treatment systems are two different package plants. One is a BCA Pre-Fabricated package treatment plant which operates automatically and the other is a Neptune Microfloc "Trident" package treatment plant which is currently off-line, but can be operated manually if needed. Each plant provides chemically assisted filtration through coagulation, flocculation, sedimentation and filtration operations. Aluminum sulphate and polymer are added to the raw water upstream of the static mixer for the coagulation/flocculation process. Sodium carbonate is injected for pH adjustment and sodium hypochlorite is used for disinfection. All chemicals are added using metering pumps. The plant is equipped with an automated monitoring system that records various components of the process.

Filter backwashes are initiated by head loss, turbidity levels, and timer or manually by the operator. Filter backwash and clarifier waste are stored in a wastewater holding tank before being pumped to the Municipal sewer system for disposal.

Water Storage

The filtered water is then directed to two clearwells having a total capacity of 280.68 m^3. Two high lift pumps rated at 916 m^3/day direct finished water to the distribution system and an elevated tower, which maintains pressure to the distribution system. The water leaving the plant is continuously monitored for flow, pH, temperature, turbidity and free chlorine residual to ensure the water is of acceptable quality before entering the distribution system.

Control System

Control System Supervisory Control and Data Acquisition (SCADA) is the method of control implemented for the Temagami South Water Treatment System. All analyzing, monitoring and control module equipment information is routed through the SCADA system for operator monitoring and control. Control of equipment can be accomplished locally using the SCADA computer located at the Temagami South water treatment plant or remotely using operator computers and cell phones. Alarm capability and set point adjustment are available through SCADA and trend monitoring via data logger.

Emergency Power

For emergency purposes, a 100 kW diesel generator with a fuel tank capacity of 900 L is located outside the water treatment plant and is available to provide emergency power to the entire facility in the event of a power outage.

Distribution System

The Temagami South Drinking Water System is classified as a Large Municipal Residential Drinking Water System which serves an estimated population of 350 residents. It is a stand alone system not connected to another drinking water system.

The distribution system is equipped with an elevated storage reservoir known as the "South Tower" which has a working storage capacity of 570 m^3 and assists with maintaining water pressure in the system.

The distribution system consists of 182 service connections and approximately 12 fire hydrants for fire protection. The watermains are made of cast iron and some PVC material that range in size from 6" to 8".

3. List of Water Treatment Chemicals Used

- Aluminum Sulphate – coagulation/flocculation
- Polyelectrolyte (Polymer) - coagulant aid
- Soda Carbonate (Soda Ash) – pH and alkalinity adjustment
- Sodium Hypochlorite – disinfection

All treatment chemicals meet AWWA and NSF/ANSI standards.

4. Significant Expense Incurred in 2024

OCWA is committed to maintaining the assets of the drinking water system and sustains a program of scheduled inspection and maintenance activities using a computerized Work Management System (WMS).

Significant maintenance and capital expenses incurred in the system include the following:

- Replaced raw water flow meter,
- Replaced raw and treated water pH probes,
- Replaced sodium hypochlorite feed lines,
- Repaired waste pit pump,
- Repaired Hach SC 1000 controller,
- Sodium hypochlorite diaphragm kits,
- Installed a SCADA reporting package,
- Replaced alum and polymer chemical feed panels,
- Generator service,
- Alkalinity testing equipment,
- PLC remote access license,
- Emergency distribution break at the Temagami School
- Quality and Environmental Management System (QEMS) external re-accreditation audit conducted by Intertek-SAI Global.

5. Details of Notices Reported & Submitted to the Spills Action Center

Based on information kept on record by OCWA, no adverse water quality incidents (AWQIs) were reported to the Ministry's Spills Action Centre in 2024.

6. Microbiological Testing

Table 1: Summary of Microbiological Results

Sample Type	# of Samples	*Range of E.coli* Results *(min to max)*	Range of Total Coliform Results *(min to max)*	# of HPC Samples	Range of HPC Results *(min to max)*
Raw	53	0 to 38/NDOGN	2 to 120/NDOGN	N/A	N/A
Treated	53	0 to 0	0 to 0	53	< 10 to 670
Distribution	106	0 to 0	0 to 0	53	< 10 to 130/NDOGN

Maximum Acceptable Concentration (MAC) for treated and distribution samples: *E. coli* = 0 CFUs/100 mL and MAC for Total Coliforms = 0 CFUs/100 mL

NDOGN = No Data, Overgrown with Non-Target bacteria

"<" denotes less than the laboratory's method detection limit

Note: One microbiological sample is collected and tested each week from the raw and treated water supply. A total of two microbiological samples are collected and tested each week from the distribution system. At least 25% of the distribution samples must be tested for HPC bacteria.

7. Operational Testing

Table 2: Continuous Monitoring in the Treatment Process

Parameter	# of Samples	Range of Results *(min to max)*	Unit of Measure	Standard
Turbidity (Filter No. 1) Note 1	-	-	NTU	≤ 1.0 Note 3
Turbidity (Filter No. 2)	8760 Note 2	0.00 to 0.70	NTU	
Free Chlorine Residual	8760	0.79 to 2.30	mg/L	CT Note 4

Notes:

1. Filter 1 not in use in 2024. The Neptune Plant only operates manually.
2. For continuous monitors 8760 is used as the number of samples.
3. Effective backwash procedures, including filter to waste and automatic filter shut down features are in place to ensure that the effluent turbidity requirements as described in the Filter Performance Criteria are met all times. Turbidity exceedances occur when two (2) readings are above 1 NTU for 15 minutes or more in a 24 hour period. Filters will alarm if turbidity reaches 0.8 NTU and will shut down at 1.0 NTU. The system performed as programmed and no high turbidity water was directed to the next phase of the process.
4. CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the Temagami South water plant if the free chlorine residual level drops below 1.0 mg/L. CT calculations were performed on five occasions in 2024 when the free chlorine residuals fell below 1.0 mg/L and each time primary disinfection was achieved.

Table 3: Summary of Chlorine Residuals in the Distribution System

Parameter	No. of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine Residual	368	0.76 to 2.16	mg/L	≥ 0.05

Note: A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

Refer to *Appendix A* for a monthly summary of the above microbiological and operational test results.

8. Chemical Testing

Table 4: Summary of Nitrate & Nitrite Data from the Water Treatment Plant

Date of Sample	Nitrate Result	Nitrite Result	Unit of Measure	Exceedance
January 8	< 0.05	< 0.05	mg/L	No
April 8	< 0.05	< 0.05	mg/L	No
July 8	< 0.05	< 0.05	mg/L	No
October 7	< 0.1	< 0.01	mg/L	No

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

Table 5: Summary of Total Trihalomethane Results from the Distribution System

Date of Sample	THM Result	Unit of Measure	Running Average	Exceedance
January 8	36.8	ug/L	Q1 = 43.1	No
April 8	29.3	ug/L	Q2 = 44.0	No
July 8	65.8	ug/L	Q3 = 53.5	No
October 7	40.5	ug/L	Q4 = 43.1	No

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

Table 6: Summary of Total Haloacetic Acid Results from the Distribution System

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 8	20	ug/L	Q1 = 40.5	No
April 8	41	ug/L	Q2 = 37.8	No
July 8	69	ug/L	Q3 = 49.5	No
October 7	49	ug/L	Q4 = 44.8	No

Maximum Allowable Concentration (MAC) for Total Haloacetic Acid = 80 ug/L (Four Quarter Running Average)

Table 7: Summary of Lead Results under Schedule 15.1 (from the distribution system)

Date of Sample	# of Samples	Field pH *(min to max)*	Field Temperature (°C) *(min to max)*	Alkalinity (mg/L) *(min to max)*	Lead (ug/L) *(min to max)*
March 21	1	7.03	3.9	32	4.1

Date of Sample	# of Samples	Field pH *(min to max)*	Field Temperature (°C) *(min to max)*	Alkalinity (mg/L) *(min to max)*	Lead (ug/L) *(min to max)*
September 9	1	7.29	18.9	35	0.3

Maximum Allowable Concentration (MAC) for Lead = 10 ug/L

The system is required to test for total alkalinity and pH in one distribution samples collected during the period of December 15 to April 15 (winter period) and one distribution sample during the period of June 15 to October 15 (summer period). This testing is required in every 12-month period with lead testing in every third 12-month period. Lead testing was performed in 2024.

Next lead sampling is scheduled for 2027.

Table 8: Most Recent Schedule 23 Inorganic Results from the Water Treatment Plant

Parameter	Result Value	Unit of Measure	MAC	MAC Exceedance	½ MAC Exceedance
Antimony	< 0.5	ug/L	6	No	No
Arsenic	< 1.0	ug/L	10	No	No
Barium	5	ug/L	1000	No	No
Boron	2	ug/L	5000	No	No
Cadmium	< 0.1	ug/L	5	No	No
Chromium	< 1	ug/L	50	No	No
Mercury	< 0.1	ug/L	1	No	No
Selenium	0.2	ug/L	50	No	No
Uranium	< 1	ug/L	20	No	No

Note: Sample required every 12 months (sample date = *October 7, 2024)*

Table 9: Most Recent Schedule 24 Organic Results from the Water Treatment Plant

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Alachlor	< 0.277	ug/L	5	No	No
Atrazine + N-dealkylated metobolites	< 0.5	ug/L	5	No	No

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Azinphos-methyl	< 0.208	ug/L	20	No	No
Benzene	< 0.1	ug/L	1	No	No
Benzo(a)pyrene	< 0.01	ug/L	0.01	No	No
Bromoxynil	< 0.113	ug/L	5	No	No
Carbaryl	< 3	ug/L	90	No	No
Carbofuran	< 4	ug/L	90	No	No
Carbon Tetrachloride	< 0.2	ug/L	2	No	No
Chlorpyrifos	< 0.208	ug/L	90	No	No
Diazinon	< 0.208	ug/L	20	No	No
Dicamba	< 0.0992	ug/L	120	No	No
1,2-Dichlorobenzene	< 0.2	ug/L	200	No	No
1,4-Dichlorobenzene	< 0.3	ug/L	5	No	No
1,2-Dichloroethane	< 0.2	ug/L	5	No	No
1,1-Dichloroethylene (vinylidene chloride)	< 0.3	ug/L	14	No	No
Dichloromethane	< 1	ug/L	50	No	No
2-4 Dichlorophenol	< 0.2	ug/L	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	< 0.425	ug/L	100	No	No
Diclofop-methyl	< 0.142	ug/L	9	No	No
Dimethoate	< 0.208	ug/L	20	No	No
Diquat	< 0.2	ug/L	70	No	No
Diuron	< 10	ug/L	150	No	No
Glyphosate	< 20	ug/L	280	No	No
Malathion	< 0.208	ug/L	190	No	No
Metolachlor	< 0.139	ug/L	50	No	No
Metribuzin	< 0.139	ug/L	80	No	No
Monochlorobenzene	< 0.5	ug/L	80	No	No
Paraquat	< 0.2	ug/L	10	No	No

Parameter	Result Value	Unit of Measure	Standard	MAC Exceedance	½ MAC Exceedance
Polychlorinated Biphenyls (PCBs)	< 0.06	ug/L	3	No	No
Pentachlorophenol	< 0.3	ug/L	60	No	No
Phorate	< 0.139	ug/L	2	No	No
Picloram	< 0.0992	ug/L	190	No	No
Prometryne	< 0.0694	ug/L	1	No	No
Simazine	< 0.208	ug/L	10	No	No
Terbufos	< 0.139	ug/L	1	No	No
Tetrachloroethylene	< 0.3	ug/L	10	No	No
2,3,4,6-Tetrachlorophenol	< 0.3	ug/L	100	No	No
Triallate	< 0.139	ug/L	230	No	No
Trichloroethylene	< 0.2	ug/L	5	No	No
2,4,6-Trichlorophenol	< 0.2	ug/L	5	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA)	< 7.08	ug/L	100	No	No
Trifluralin	< 0.139	ug/L	45	No	No
Vinyl Chloride	< 0.1	ug/L	1	No	No

Note: Sample required every 12 months (sample date = *October 7, 2024)*

Inorganic or Organic Parameter(s) that Exceeded Half the Standard Prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 (parameters listed in Table 8 and Table 9 of this report) exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg.169/03) during the reporting period.

Table 10: Most Recent Sodium Data (from the Water Treatment Plant)

Date of Sample	# of Samples	Result Value	Unit of Measure	MAC	Exceedance
October 17, 2022	1	23.5	mg/L	20	Yes
October 24, 2022 (resample)	1	25.6	mg/L	20	Yes

Note: Sample required every 60 months. Next sampling scheduled for October 2027.

The aesthetic objective for sodium in drinking water is 200 mg/L at which it can be detected by a salty taste. It is required that the local Medical Officer of Health be notified when the concentration exceeds 20 mg/L so that persons on sodium restricted diets can be notified by their physicians. The adverse sodium result was reported to the Ministry's SAC and the Timiskaming Health Unit on October 21, 2022 as required under Schedule 16 of Ontario Regulation 170/03 (AWQI No. 160395).

Table 11: Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	# of Samples	Result Value	Unit of Measure	MAC	Exceedance
October 17, 2022	1	< 0.05	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for October 2027.

9. Additional Testing Performed in Accordance with a Legal Instrument

Harmful Algae Bloom Monitoring

Condition 6.0 (6.1) of Schedule C to MDWL No. 201-101 requires a Harmful Algal Bloom (HAB) monitoring, sampling and reporting plan. The plan must be implemented during the harmful algae bloom season, during but not limited to the warm seasonal period between June 1st and October 31st of each year, or as otherwise directed by the Medical Officer of Health. A Plan has been developed and is in effect for the Temagami South Drinking Water System during the HAB season. The Plan includes visual inspection of the HAB monitoring area at least once per week. Sampling and testing for microcystins on the raw and treated water is only required if a HAB is suspected or occurring in the HAB monitoring area. Reporting to the local Health Unit and the Ministry's Spills Actions Center if a suspected bloom is observed or if microcystins are detected in either the raw or treated water samples.

Table 12: Summary of Microcystin Results

Sample Type	# of Samples	*Range of Microcystin* Results *(min to max)*	Unit of Measure	Exceedance
No incidents of suspected and/or confirmed harmful blue green algal blooms were observed in the HAB monitoring area during the 2024 season.				

Maximum Allowable Concentration (MAC) for Microcystin-LR = 1.5 ug/L

Schedule 22 – Summary Reports for Municipalities

10. Requirements the System Failed to Meet

The following table lists the requirements of the Safe Drinking Water Act (2002), the drinking water regulations, the Permit to Take Water (PTTW), the Municipal Drinking Water Licence (MDWL), the Drinking Water Works Permit (DWWP), and any other orders applicable to the system that were not met at any time during the reporting period.

According to information kept on record by OCWA, the Temagami South Drinking Water System complied with all the requirements set out in the above mentioned legal instruments.

Table 13: Requirements the System Failed to Meet

Legislation	Requirement(s) not Met	Duration	Corrective Action(s)
	N/A		

11. Summary of Quantities and Flow Rates

11.1 Flow Monitoring

Municipal Drinking Water Licence (MDWL) No. 201-101 requires the owner to install a sufficient number of flow measuring devices to permit the continuous measurement and recording of:

- the flow rate and daily volume of water conveyed from the treatment system to the distribution system,
- the flow rate and daily volume of water conveyed into the treatment system.

The systems' Permit to Take Water (PTTW) No. 4505-AS3NUQ requires that on each day water is taken from the source, the date, the volume of water taken on that date and the rate at which it was taken be recorded.

The Temagami South drinking water system has one flow meter to monitor the raw water entering the treatment plant and one to monitor the treated water leaving the plant and entering an the distribution system. These flow metering devices are calibrated in accordance to manufacturers' specifications on an annual basis and are operating as required.

11.2 Rated Capacity & Flow Rates

The system's Permit to take Water (PTTW) No. 4505-AS3NUQ allows the plant to withdraw a maximum volume of 1005.7 cubic meters from Lake Temagami each day. A review of the raw water flow data indicates that the system did not exceed this allowable limit having a maximum volume of 440 m^3.

The Permit also allows a maximum flow rate of 700 L/minute which was exceeded on April 9th during the cleaning and flushing of the raw water inlet pipe (900 L/minute).

Condition 1.0 (1.1) to Schedule C of MDWL No. 201-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system not exceed a maximum flow of 950 m^3 on any calendar day. The Temagami South DWS complied with this limit having a recorded maximum volume of 370 m^3/day, which is 39% of the rated capacity.

The following tables (Table 14 and Table 15) indicate the quantities and flow rates of water taken and produced during the reporting period, including monthly average flows, maximum daily flows and 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.

Figure 1 is a comparison of the maximum allowed water taking identified in the system's PTTW to the average and maximum raw water flows entering the water treatment plant.

Figure 2 is a comparison of the maximum rated capacity specified in the system's MDWL to the average and maximum treated water flows entering the distribution system.

Table 16 lists historical maximum raw and treated flows from 2018 to 2024.

Table 14: 2024 – Monthly Summary of Water Takings from the Source (Lake Temagami)

Regulated by Permit to Take Water (PTTW) # 4505-AS3NUQ, issued October 26, 2017

Raw Water Usage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Volume (m^3)	4707	4651	5477	4808	5835	7708	8831	9997	8514	8300	8061	6039	82928
Average Volume (m^3 /day)	152	160	177	160	188	257	285	322	284	268	269	195	226
Maximum Volume (m^3 /day)	220	229	251	216	264	440	376	401	359	324	344	330	440
PTTW - Maximum Allowable Volume (m^3/day)	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1005.7	1006
Maximum Flow Rate (L/min)	627	610	617	900	625	703	697	700	637	689	674	654	900
PTTW - Maximum Allowable Flow Rate (L/min)	700	700	700	700	700	700	700	700	700	700	700	700	700

April 9, 2024 - raw flow rate spiked to 900 L/minute for approximately 1 minute during maintenance and cleaning of the raw water inlet pipe.

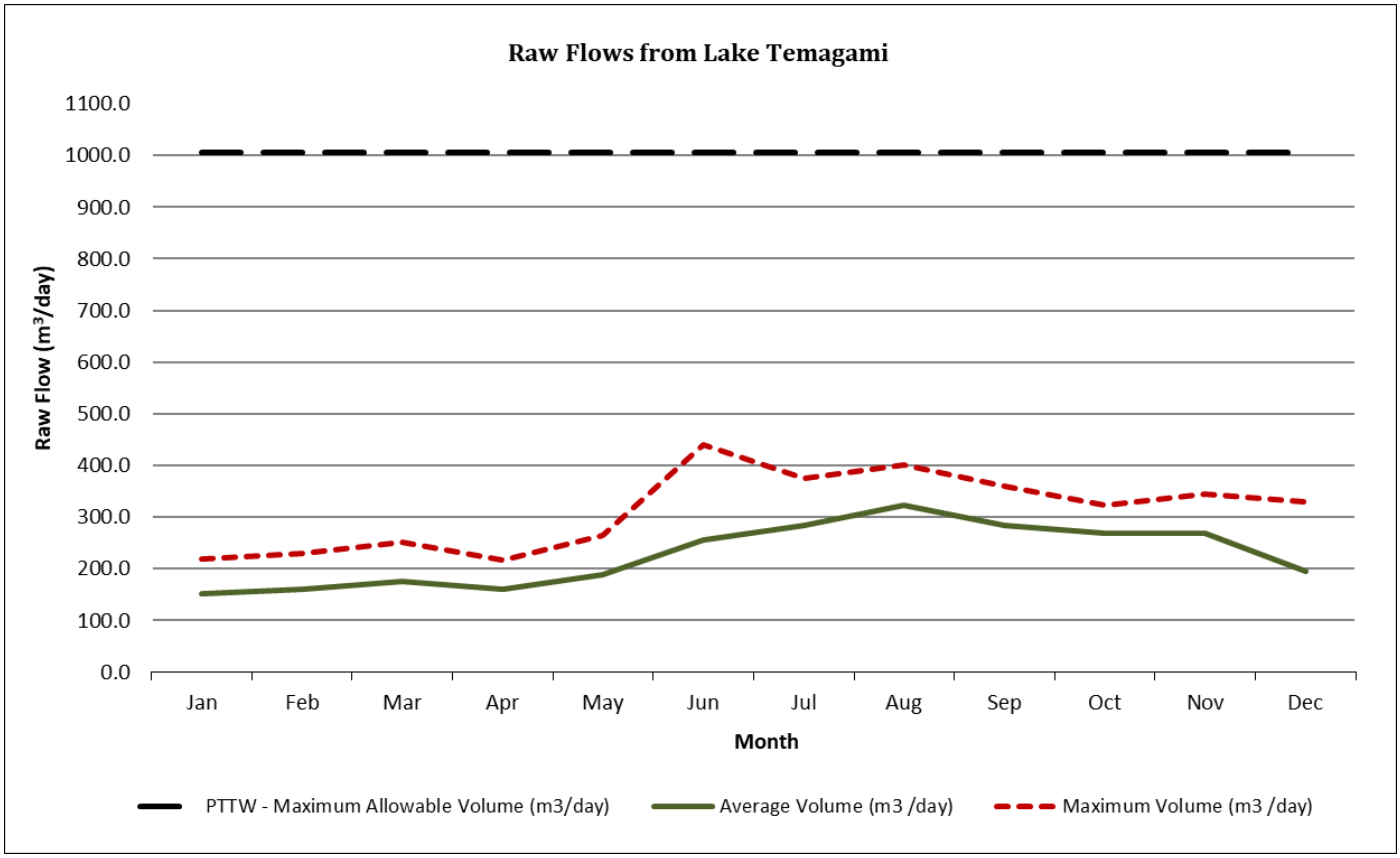

Figure 1: Comparison of Raw Water Flows to the Maximum Allowable Water Taking

Table 15: 2024 – Monthly Summary of Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence #201-101-3, issued July 10, 2021

Treated Water Usage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Volume (m^3)	4197	4160	4863	4267	5278	6898	7933	8986	7622	7385	7148	5270	74007
Average Volume (m^3 /day)	135	143	157	142	170	230	260	290	254	238	238	170	202
Maximum Volume (m^3 /day)	177	191	192	184	243	370	341	360	317	303	320	293	370
MDWL - Rated Capacity (m^3/day)	950	950	950	950	950	950	950	950	950	950	950	950	950

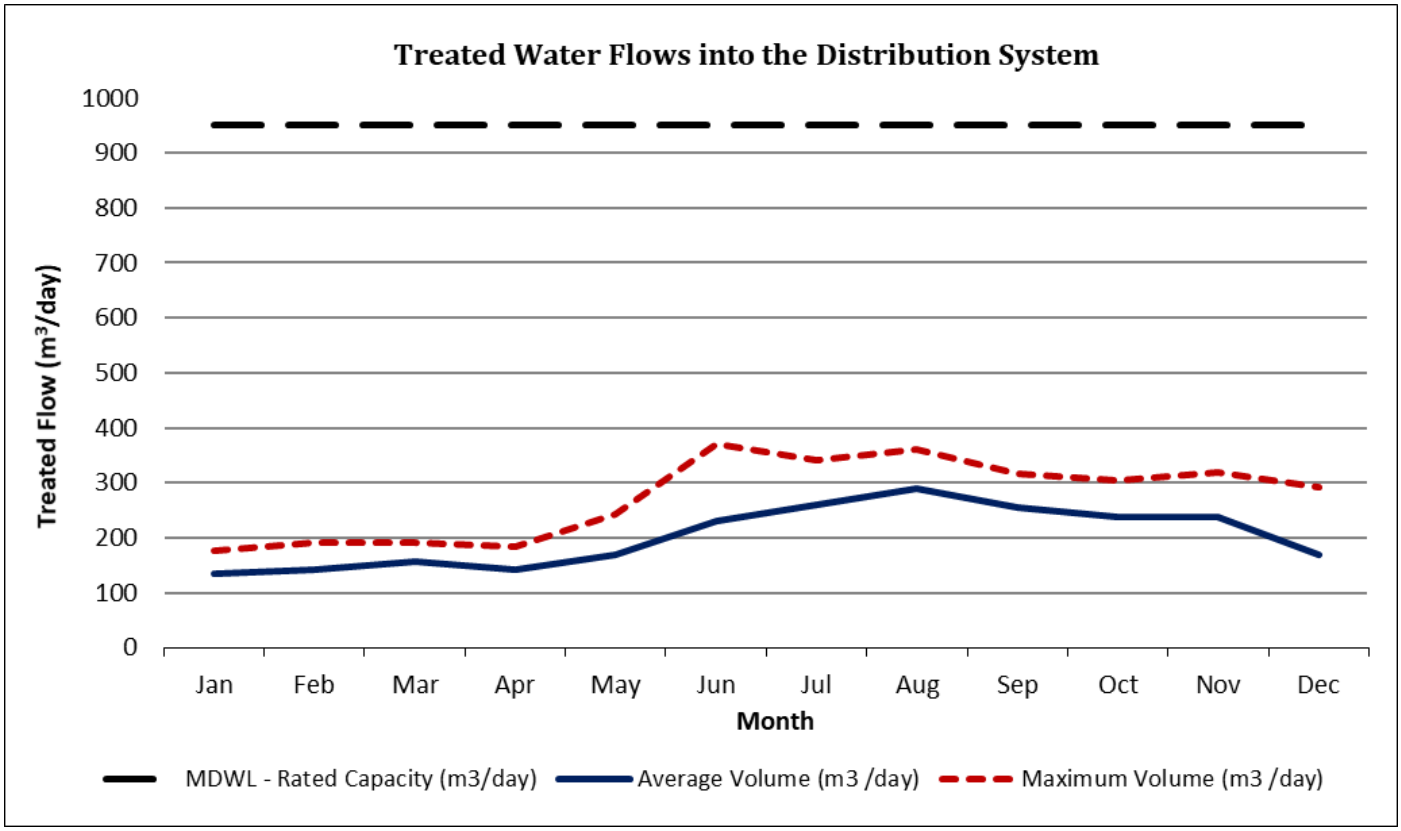

Figure 2: Comparison of Treated Flows to the Maximum Rated Capacity

System Performance

The following information is provided to enable the Owner to assess the capability of the system to meet existing and future water usage needs:

Rated Capacity of the Plant (MDWL)	950 m^3/day	
Average Daily Flow for 2024	202 m^3/day	20 % of the rated capacity
Maximum Daily Flow for 2024	370 m^3/day	39 % of the rated capacity
Total Treated Water Produced in 2024	74,007 m^3	

Table 16: 2024 – Historical Maximum Flows (2018 to 2024)

Year	Maximum Raw Flow (m^3/d)	Max. Day % of PTTW Allowable (1005.7 m3/d)	Maximum Treated Flow (m^3/d)	Max. Day % of MDWL Capacity (950 m^3/d)
2024	440	44%	370	39%
2023	346	34%	293	31%
2022	343	43%	289	30%
2021	454	45%	367	39%
2020	280	28%	269	28%
2019	313	31%	302	32%
2018	413	41%	418	44%

Conclusion

The water quality data collected in 2024 demonstrates that the Temagami South drinking water system provided high quality drinking water to its users.

The system was able to operate in accordance with the terms and conditions of the Permit to Take Water and in accordance with the rated capacity of the Municipal Drinking Water Licence while meeting the community's demand for water use.

The system complied with all regulatory requirements of the Safe Drinking Water Act and its Regulations and met the terms and conditions outlined in its Municipal Drinking Water License and Drinking Water Works Permit. No Adverse Water Quality Incidents were reported to the Ministry's Spills Action Center and no non-compliances were identified during the reporting period.

APPENDIX A

Monthly Summary of Microbiologcal & Operational Test Results

Raw Water

Lake Temagami	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	68.00	40.00	80.00	120.00	106.00	75.00	72.00	23/NDOGN	58.00	42.00	78.00	94.00			120/NDOGN	
Lab Month.Mean	31.60	20.00	49.00	74.80	69.00	56.75	26.20	16.67	21.75	32.80	62.00	55.20		43.60		
Lab Month.Min	10.00	10.00	16.00	2.00	30.00	20.00	9.00	13.00	7.00	4.00	34.00	22.00				2.00
E. Coli: EC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 5.00	38.00	11/NDOGN	5.00	8.00	4.00	< 2.00			38/NDOGN	
Lab Month.Mean	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 4.25	9.00	8.00	2.50	4.00	3.00	< 2.00		< 3.50		
Lab Month.Min	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	0.00	6.00	1.00	2.00	2.00	< 2.00				0.00

Filtered Water

Filter 2	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Turbidity (Max 1 NTU) - NTU																
OL Month.Max	0.43	0.57	0.58	0.32	0.37	0.70	0.40	0.38	0.29	0.23	0.38	0.38			0.70	
OL Month.Mean	0.06	0.05	0.06	0.11	0.10	0.11	0.08	0.14	0.07	0.11	0.15	0.06		0.09		
OL Month.Min	0.00	0.00	0.05	0.06	0.06	0.06	0.05	0.04	0.04	0.08	0.11	0.04				0.00

Treated Water

Treated Water (POE)	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free (Min 1.0 mg/L) - mg/L																
OL Month.Max	2.30	1.93	1.85	2.05	2.24	2.16	1.91	2.09	1.79	1.88	2.03	2.08			2.30	
OL Month.Mean	1.72	1.73	1.54	1.75	1.91	1.66	1.64	1.76	1.53	1.63	1.81	1.77		1.71		
OL Month.Min	1.35	1.06	0.79	0.90	1.71	0.82	1.23	1.44	1.36	1.45	1.47	0.87				0.79
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
E. Coli: EC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00

HPC - cfu/mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	20.00	10.00	70.00	670.00	20.00	10.00	< 10.00	< 10.00	10.00	20.00	< 10.00	10.00			670.00	
Lab Month.Mean	< 12.00	< 10.00	< 25.00	< 144.00	< 12.50	< 10.00	< 10.00	< 10.00	< 10.00	< 12.00	< 10.00	< 10.00		< 24.34		
Lab Month.Min	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00				< 10.00

Distribution Water

1st Bacti/Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	2.02	1.84	1.34	1.30	1.56	1.58	1.63	1.58	1.48	1.87	1.68	1.76			2.02	
IH Month.Mean	1.60	1.60	1.22	1.19	1.37	1.25	1.43	1.33	1.29	1.26	1.52	1.47		1.38		
IH Month.Min	1.26	1.18	1.08	1.10	1.22	0.97	1.04	1.17	0.93	0.98	1.38	1.17				0.93
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
E. Coli - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00

2nd Bacti/Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	1.94	1.80	1.49	1.76	1.75	1.54	1.56	1.77	1.47	1.50	1.71	1.51			1.94	
IH Month.Mean	1.67	1.63	1.25	1.28	1.56	1.31	1.32	1.43	1.27	1.28	1.40	1.33		1.40		
IH Month.Min	1.40	1.39	1.07	0.87	1.30	1.04	0.94	1.09	1.01	1.13	1.10	1.02				0.87
Total Coliform: TC - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00

	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
E. Coli - cfu/100mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Lab Month.Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		
Lab Month.Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00
HPC - cfu/mL																
Lab Count	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			
Lab Month.Max	< 10.00	10.00	10.00	130.00	< 10.00	60.00	10.00	< 10.00	10/NDOGN	10.00	20.00	10.00			130/NDOGN	
Lab Month.Mean	< 10.00	< 10.00	< 10.00	< 34.00	< 10.00	< 27.50	< 10.00	< 10.00	< 10.00	< 10.00	< 12.50	< 10.00		< 13.85		
Lab Month.Min	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00	< 10.00				< 10.00

3rd Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	9.00	9.00	8.00	9.00	9.00	8.00	9.00	9.00	8.00	10.00	8.00	9.00	105.00			
IH Month.Max	2.16	1.76	1.63	1.72	1.84	1.71	1.60	1.80	1.56	1.45	1.63	1.76			2.16	
IH Month.Mean	1.67	1.54	1.32	1.48	1.57	1.35	1.36	1.39	1.23	1.29	1.43	1.43		1.42		
IH Month.Min	1.41	1.38	1.01	1.05	1.30	0.99	1.03	1.11	1.05	1.02	1.23	0.78				0.78

4th Residual	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
Cl Residual: Free - mg/L																
IH Edited Count	5.00	4.00	4.00	5.00	3.00	4.00	6.00	4.00	4.00	5.00	4.00	5.00	53.00			
IH Month.Max	2.15	1.85	1.57	1.62	1.70	1.61	1.53	1.57	1.43	1.52	1.69	1.83			2.15	
IH Month.Mean	1.63	1.67	1.35	1.42	1.59	1.33	1.15	1.31	1.27	1.33	1.55	1.50		1.42		
IH Month.Min	1.18	1.33	1.15	1.11	1.46	1.12	1.03	1.00	1.04	1.18	1.39	0.76				0.76

NOTES:
NDOGN = No data, sample overgrown with non-target bacteria