

# Norland Drinking Water System

## 2024 Annual Water Report

Drinking Water System Number: 250001910

Drinking Water System Operating Authorities: City of Kawartha Lakes and Ontario  
Clean Water Agency

Drinking Water System Category: Small Municipal Residential

Reporting Period: January 1 – December 31, 2024



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# 2024 Annual Drinking Water System Summary Report

## General Information

The City of Kawartha Lakes prepares a report summarizing system operation and water quality for every municipal drinking water system annually. This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office by appointment and the [City's website](#). Notification that the reports are available free of charge will be made on the City of Kawartha Lakes website. The City of Kawartha Lakes Public Works Administration Office is located at 322 Kent Street West in Lindsay, Ontario.

This system does not serve more than 10,000 residences.

**Drinking Water System Number:** 250001910

**Drinking Water System Name:** Norland Drinking Water System

**Drinking Water System Owner:** City of Kawartha Lakes

**Drinking Water System Category:** Small Municipal Residential

**Reporting Period:** January 1, 2024 – December 31, 2024

## Compliance Summary

**Table 1. Drinking Water Compliance Summary**

	Number of Events	Date	Details
Ministry (MECP) Inspections	1	May 13, 2024	2024/2025 Announced Focused Drinking Water Inspection – Final Inspection Rating of 100%
Adverse Water Quality Incidents (AWQIs)	1	September 6, 2024	AWQI #166234 Low System Pressure
Non-Compliances	0		
Boil Water Advisories	0		
Health and Safety	0		

## Drinking Water System Description

The Norland drinking water system is a small municipal residential drinking water system that serves the Village of Norland, Ontario. The drinking water system is classified as a Class III Water Treatment and Class I Water Distribution subsystems under O. Reg. 128/04

### Source Water

The water supply for the system comes from the Gull River, which is a surface water source.

### Water Treatment Facility

The Norland drinking water system consists of a dual train conventional filtration package system. Each train consists of a two stage variable speed flocculator, tube settler clarifier, and one (1) dual media rapid gravity filter. Sodium hypochlorite is used for primary and secondary disinfection. Chlorine contact time is achieved by the use of a twin-cell clearwell. Treated water is directed to the distribution system using four (4) high lift vertical turbine pumps. The backwash wastewater system consists of a concrete settling tank that receives the filter backwash wastewater and clarifier desludging wastes. A composite sampler monitors the supernatant quality before discharging.

A diesel generator is onsite to provide standby power to the water treatment facility in the event of a power failure.

### Distribution System

The distribution system has approximately 3.1 kilometers of watermains and is not rated for fire protection. There is no storage, chlorine boosting, secondary disinfection or pressure boosting capabilities within the control of the distribution system. The watermains in the Norland Distribution System are all PVC.

**Table 2. Treatment Chemicals Used**

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi Water Technology
Polyaluminum Chloride	Flocculation	Univar Solutions
Polymer	Flocculation	Basf
Sodium Hydroxide	pH Adjustment	Not required in 2024

## Summary of Non-Compliance

### Adverse Water Quality Incidents

**Table 3. Adverse Water Quality Incidents**

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
2024 09 06	166234	Distribution	Low system pressure caused by highlift pump lockout due to chlorine analyzer malfunction	Low system pressure (<20psi) occurred from 20:56 – 20:58 (~12 minutes). Pressure restored at 20:58	O. Reg. 170/03	Disinfection Restored – pressure restored, verified chlorine analyzer, verified DW residual

### Non-Compliance

There were no non-compliances reported during the reporting period.

### Non-Compliance Identified in a Ministry Inspection

There were no non-compliances identified in a Ministry Inspection during this period.

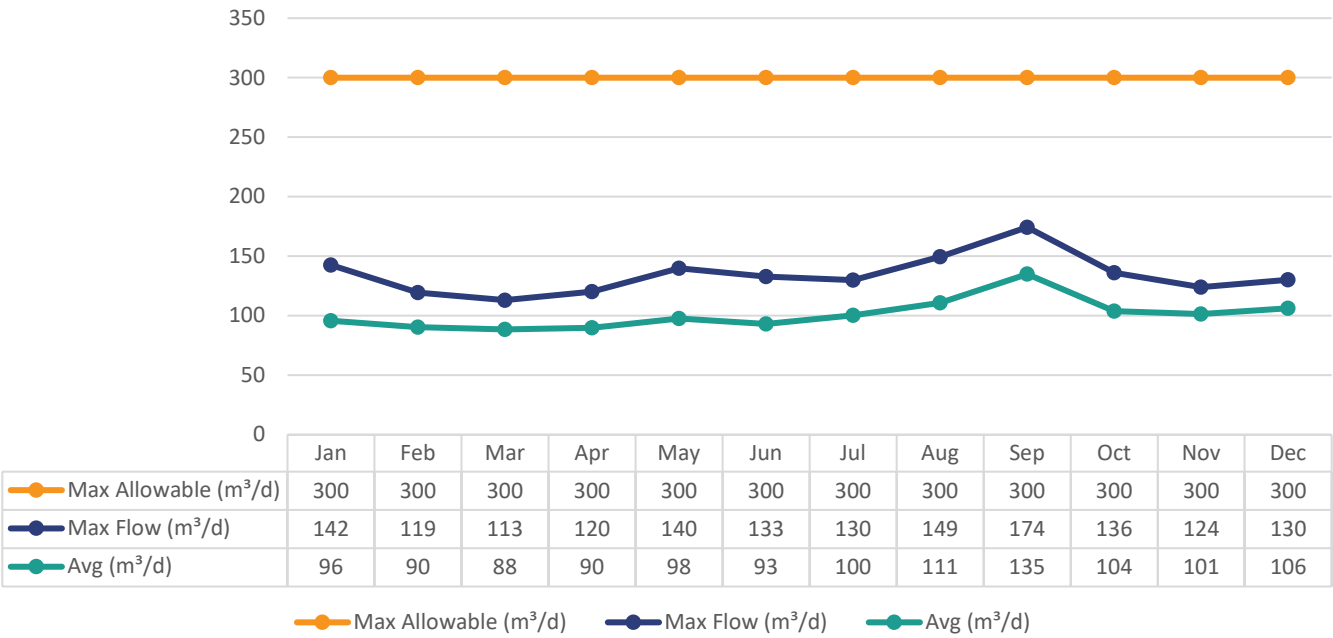
## Flows

The Norland Drinking Water System is operating on average under half the rated capacity. The rated capacity of the system (treated water flows) is 264 m<sup>3</sup>/day.

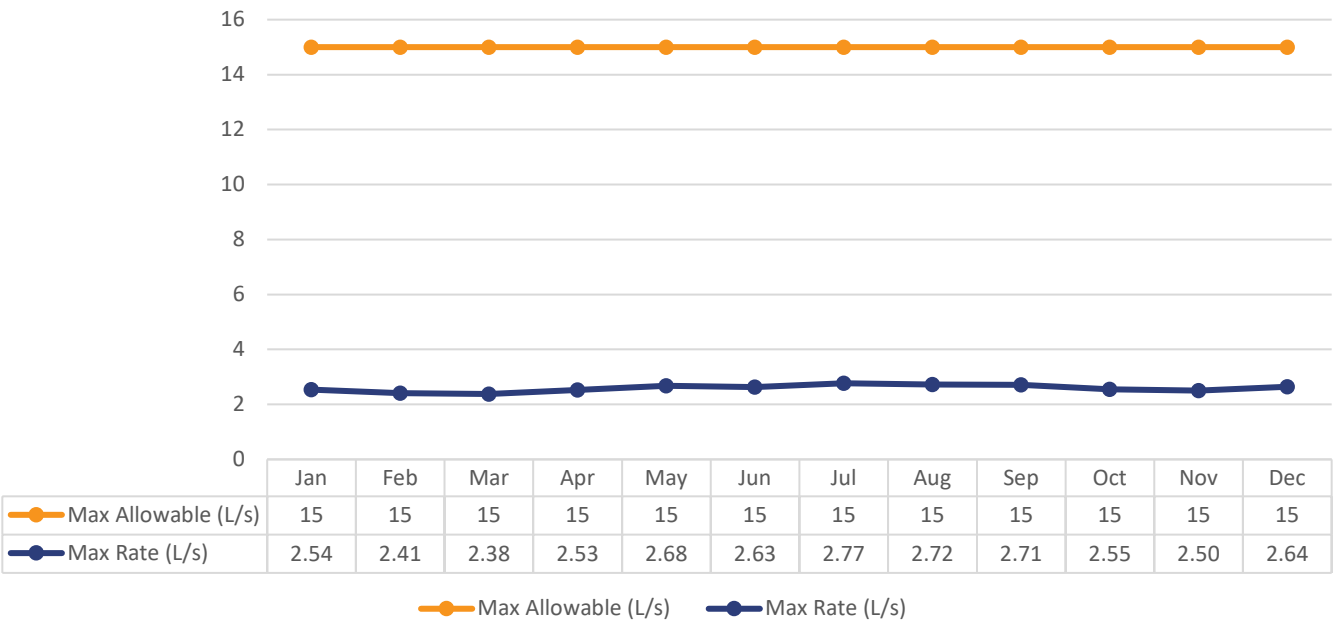
### Raw Water Flows

The raw water flows are regulated under the Permit to Take Water. Raw flow data for 2024 was submitted to the Ministry of Environment, Conservation and Parks (MECP) electronically under permit #6033-AQ5HFW. The confirmation of the data that was submitted is attached in Appendix A.

**Graph 1. Total Monthly Flows (m³/d) – Gull River (Max Allowable PTTW)**



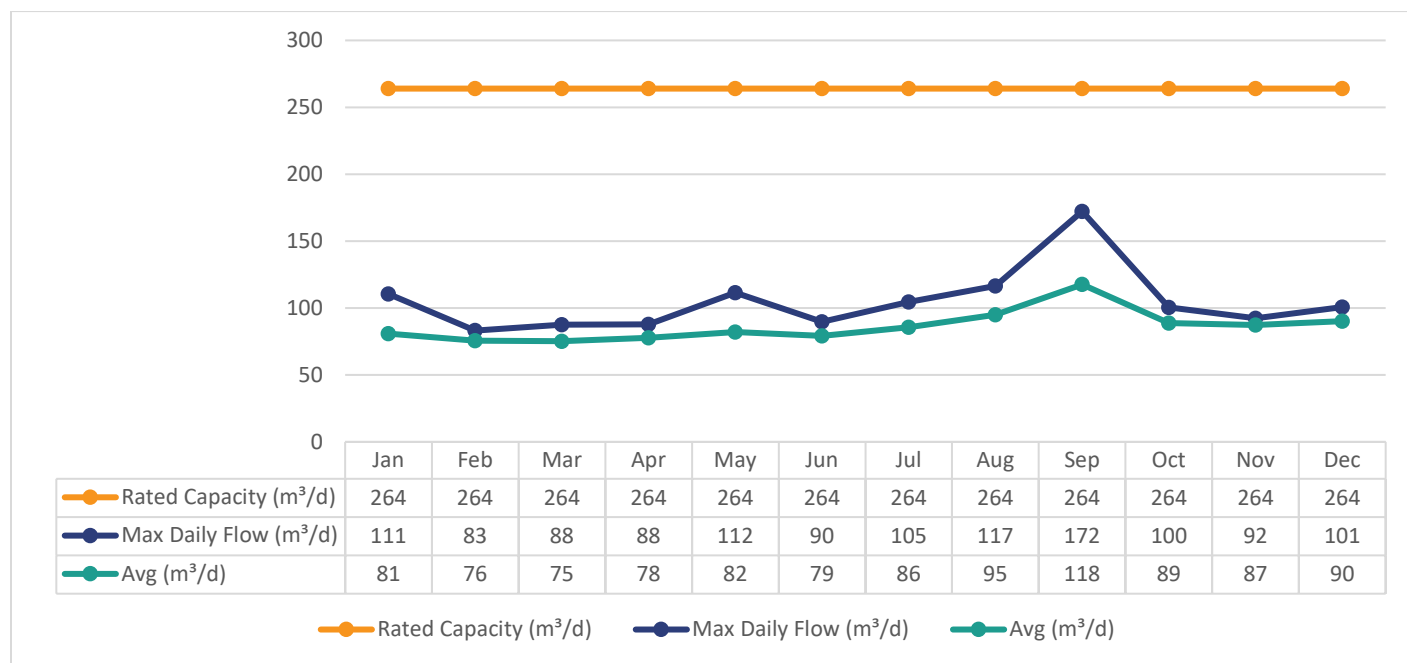
**Graph 2. Monthly Rated Flows (L/s) – Gull River (Max Allowable Rate PTTW)**



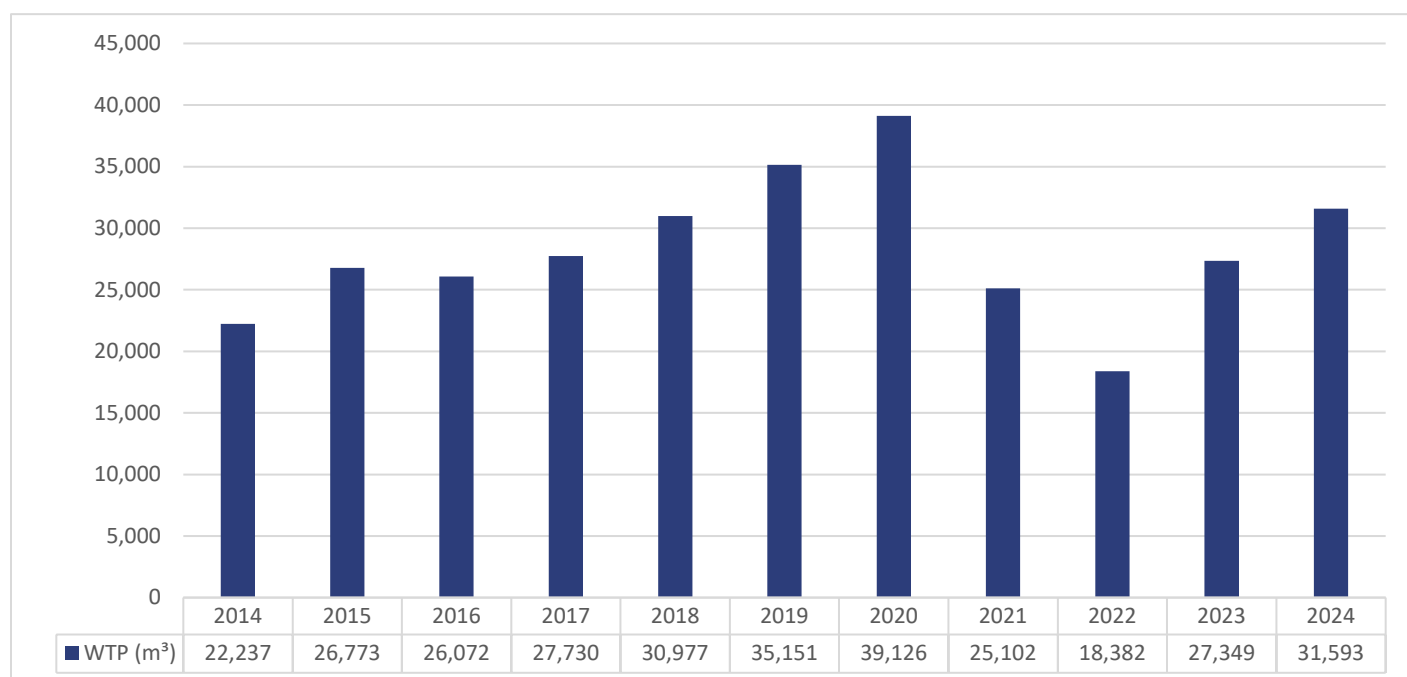
## Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence 141-103.

### Graph 3. Monthly Rated Flows (m<sup>3</sup>/d) – Rated Capacity - MDWL



### Graph 4. Annual Total Flow Comparison (m<sup>3</sup>)



# Regulatory Sample Results Summary

## Microbiological Testing

**Table 4. Microbiological Test Results**

	No. of Samples Collected	Range of E. Coli Results	Range of E. Coli Results	Range of Total Coliform Results	Range of Total Coliform Results	Range of HPC Results	Range of HPC Results
		Min	Max	Min	Max	Min	Max
<b>Raw</b>	26	0	23	13	122	N/A	N/A
<b>Distribution</b>	53	0	0	0	0	0	2

OG = Overgrowth

HPC = Heterotrophic Plate Count

## Operational Testing

**Table 5. Operational Test Results**

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
<b>Turbidity Filter 1 (NTU)</b>	8760	0.00	2.00
<b>Turbidity Filter 2 (NTU)</b>	8760	0.00	2.00
<b>Chlorine</b>	8760	0.00	5.00
<b>Fluoride</b> (If the DWS provides fluoridation)	N/A	N/A	N/A

**Note:** Record the unit of measurement if it is **not** milligrams per litre.

**Note:** For continuous monitors 8760 is used as the number of samples. Spikes recorded by online instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03.

## Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every five years. Nitrate and Nitrate are tested quarterly and the metals are tested every five years as required under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be samples quarterly. Based on the latest test results no additional testing is required.



**Table 6. Inorganic Parameters Test Results**

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
<b>Treated Water</b>					
Antimony	2020 01 13	0.12	µg/L	6.0	No
Arsenic	2020 01 13	<MDL 0.2	µg/L	10.0	No
Barium	2020 01 13	19.2	µg/L	1000.0	No
Boron	2020 01 13	20.0	µg/L	5000.0	No
Cadmium	2020 01 13	<MDL 0.003	µg/L	5.0	No
Chromium	2020 01 13	0.11	µg/L	50.0	No
Mercury	2020 01 13	<MDL 0.01	µg/L	1.0	No
Selenium	2020 01 13	0.04	µg/L	50.0	No
Uranium	2020 01 13	0.024	µg/L	20.0	No
<b>Additional Inorganics</b>					
Fluoride	2020 01 13	<MDL 0.06	mg/L	1.5	No
Nitrite	2024 01 15	<MDL 0.003	mg/L	1.0	No
Nitrite	2024 04 08	<MDL 0.003	mg/L	1.0	No
Nitrite	2024 07 02	<MDL 0.003	mg/L	1.0	No
Nitrite	2024 10 07	<MDL 0.003	mg/L	1.0	No
Nitrate	2024 01 15	0.099	mg/L	10.0	No
Nitrate	2024 04 08	0.077	mg/L	10.0	No
Nitrate	2024 07 02	0.019	mg/L	10.0	No
Nitrate	2024 10 07	0.009	mg/L	10.0	No
Sodium	2020 01 06	7.77	mg/L	20*	No

MAC = Maximum Allowable Concentration as per O. Reg. 169/03

MDL = Method Detection Limit

\*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. Sodium results exceeding 20 mg/L are to be reported to the Medical Officer of Health as per Schedule 16-3 (8) of O. Reg. 170/03.

### **Schedule 15 Sampling (Lead)**

The Schedule 15 sampling is required under O. Reg. 170/03. This system is under reduced sampling. Only distribution samples were collected, and no plumbing samples were collected.

**Table 7. Schedule 15 Test Results (Lead)**

	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (µg/L)	Number of Exceedances
<b>Alkalinity (mg/L)</b>	1	2	15	16	N/A	N/A
<b>pH</b>	1	2	6.89	7.06	N/A	N/A
<b>Lead (µg/L)</b>	N/A	N/A	N/A	N/A	10.0	

### Organic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be samples quarterly. Based on the latest test results no additional testing is required.

**Table 8. Organic Parameters Test Results**

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
<b>Treated Water</b>					
Alachlor	2020 01 13	<MDL 0.02	µg/L	5.0	No
Atrazine + N-dealkylated metabolites	2020 01 13	<MDL 0.01	µg/L	5.0	No
Azinphos-methyl	2020 01 13	<MDL 0.05	µg/L	20.0	No
Benzene	2020 01 13	<MDL 0.32	µg/L	1.0	No
Benzo(a)pyrene	2020 01 13	<MDL 0.004	µg/L	0.01	No
Bromoxynil	2020 01 13	<MDL 0.33	µg/L	5.0	No
Carbaryl	2020 01 13	<MDL 0.05	µg/L	90.0	No
Carbofuran	2020 01 13	<MDL 0.01	µg/L	90.0	No
Carbon Tetrachloride	2020 01 13	<MDL 0.17	µg/L	2.0	No
Chlorpyrifos	2020 01 13	<MDL 0.02	µg/L	90.0	No
Diazinon	2020 01 13	<MDL 0.02	µg/L	20.0	No
Dicamba	2020 01 13	<MDL 0.2	µg/L	120.0	No
1,2-Dichlorobenzene	2020 01 13	<MDL 0.41	µg/L	200.0	No
1,4-Dichlorobenzene	2020 01 13	<MDL 0.36	µg/L	5.0	No
1,2-Dichloroethane	2020 01 13	<MDL 0.35	µg/L	5.0	No
1,1-Dichloroethylene	2020 01 13	<MDL 0.33	µg/L	14.0	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Dichloromethane (Methylene Chloride)	2020 01 13	<MDL 0.35	µg/L	50.0	No
2,4-Dichlorophenol	2020 01 13	<MDL 0.15	µg/L	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2020 01 13	<MDL 0.19	µg/L	100.0	No
Diclofop-methyl	2020 01 13	<MDL 0.4	µg/L	9.0	No
Dimethoate	2020 01 13	<MDL 0.06	µg/L	20.0	No
Diquat	2020 01 13	<MDL 1.0	µg/L	70.0	No
Diuron	2020 01 13	<MDL 0.03	µg/L	150.0	No
Glyphosate	2020 01 13	<MDL 1.0	µg/L	280.0	No
Malathion	2020 01 13	<MDL 0.02	µg/L	190.0	No
2-Methyl- 4chlorophenoxyacetic Acid (MCPA)	2020 01 13				
Metolachlor	2020 01 13	<MDL 0.01	µg/L	50.0	No
Metribuzin	2020 01 13	<MDL 0.02	µg/L	80.0	No
Monochlorobenzene (Chlorobenzene)	2020 01 13	<MDL 0.3	µg/L	80.0	No
Paraquat	2020 01 13	<MDL 1.0	µg/L	10.0	No
PCB	2020 01 13	<MDL 0.04	µg/L	3.0	No
Pentachlorophenol	2020 01 13	<MDL 0.15	µg/L	60.0	No
Phorate	2020 01 13	<MDL 0.01	µg/L	2.0	No
Picloram	2020 01 13	<MDL 1.0	µg/L	190.0	No
Prometryne	2020 01 13	<MDL 0.03	µg/L	1.0	No
Simazine	2020 01 13	<MDL 0.01	µg/L	10.0	No
Terbufos	2020 01 13	<MDL 0.01	µg/L	1.0	No
Tetrachloroethylene	2020 01 13	<MDL 0.35	µg/L	10.0	No
2,3,4,6- Tetrachlorophenol	2020 01 13	<MDL 0.2	µg/L	100.0	No
Triallate	2020 01 13	<MDL 0.01	µg/L	230.0	No
Trichloroethylene	2020 01 13	<MDL 0.44	µg/L	5.0	No
2,4,6-Trichlorophenol	2020 01 13	<MDL 0.25	µg/L	5.0	No
Trifluralin	2020 01 13	<MDL 0.02	µg/L	45.0	No
Vinyl Chloride	2020 01 13	<MDL 0.17	µg/L	1.0	No
<b>Distribution Water</b>					
Trihalomethane Total Annual Average Q1	2024 01 15	42	µg/L	100.0	No
Trihalomethane Total Annual Average Q2	2024 04 08	42.5	µg/L	100.0	No
Trihalomethane Total Annual Average Q3	2024 07 02	42.5	µg/L	100.0	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Trihalomethane Total Annual Average Q4	2024 10 07	41.25	µg/L	100.0	No
HAA Total Annual Average Q1	2024 01 15	36	µg/L	80.0	No
HAA Total Annual Average Q2	2024 04 08	35.28	µg/L	80.0	No
HAA Total Annual Average Q3	2024 07 02	33.43	µg/L	80.0	No
HAA Total Annual Average Q4	2024 10 07	34	µg/L	80.0	No

MAC = Maximum Allowable Concentration as O. Reg. 169/03

MDL = Method Detection Limit

## Additional Legislated Samples

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Harmful Algal Blooms monitoring is required as a condition within the Municipal Drinking Water Licence between June and October of each reporting year at a minimum. Treated and Raw samples are collected weekly during this time period and tested for Microcystin, which is an indicator for harmful algal blooms.

**Table 9. Microcystin Sample Results**

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (µg/L)	Total Microcystin Treated Water Results Range (µg/L)	Treated Water Total Microcystin Limit 1.5 µg/L Exceeded
Harmful Algal Blooms Monitoring	June	<0.1 - <0.1	<0.1 - <0.1	N
	July	<0.1 - <0.1	<0.1 - <0.1	N
	August	<0.1 - <0.1	<0.1 - <0.1	N
	September	<0.1 - <0.1	<0.1 - <0.1	N
	October	<0.1 - <0.1	<0.1 - <0.1	N

Method Detection Limit is 0.1 µg/L

**Table 10. Suspended Solids Sample Results**

Municipal Drinking Water Licence	Date Collected	Suspended Solids to Sanitary Sewer (mg/L)	Free Chlorine Residual (mg/L)
Settling Tank Discharge Point	January	<2	0.03
	February	<2	0.04
	March	17	0.01
	April	42	0.02
	May	46	0.01
	June	54	0.01
	July	<2	0.01
	August	16	0.01
	September	<2	0.01
	October	2	0.03
	November	<2	0.02
	December	2	0.02
	Average	15.75	

**Note:** The Suspended Solids 12 month running average limit is 25 mg/L.

## Minor Maintenance

- Pressure gauge replacement
- Mixer gearbox repair
- MCC bulb replacement
- Clearwell chlorine analyzer replacement
- Blower 1 replacement
- ESA Corrective Action: Move fridge from blocking main disconnect
- Septic tank repair


## Major Maintenance Expense (above \$10,000)


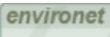
Under Section 11 of O. Reg. 170/03, a description of any major expenses incurred during this reporting period to install, repair or replace required equipment must be included in the annual report. The details of the major expenses for this drinking water system are as follows:

- Norland WTP Highlift Pump Replacement - \$45,518

# APPENDIX A

## WTR Submission Confirmation





Ministry of the Environment,  
Conservation and Parks

| [WT DATA](#) | [USER PROFILE](#) | [CONTACT US](#) | [HELP](#) | [HOME](#) | [LOGOUT](#) |

Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)WTRS-WT-008

**Water Taking Data submitted successfully.**


**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 6033-AQ5HFW  
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.  
Received on: Feb 19, 2025 10:38 AM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

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