

Western Trent-Palmina Drinking Water System

Waterworks # 220008131
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2023

Issued: February 21, 2024

Revision: 0

Operating Authorities:



This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22

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Report Availability

This system does not serve more than 10,000 residences. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office and on the City’s website at: www.kawarthalakes.ca. Notification that 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.

Compliance Report Card

Drinking Water System Number: 220008131

Drinking Water System Name: Western Trent/Palmina DWS

Drinking Water System Owner: City of Kawartha Lakes

Drinking Water System Category: Large Municipal Residential

Period Being Reported: January 1, 2023 - December 31, 2023

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	January 10, 2024	Announced-Detailed Drinking Water Inspection – Final inspection rating was 100%
AWQI's	3	November 17, 2023	Treated water bacti sample had results of no data-overgrown with bacteria (NDOGT). Distribution bacti sample had results of no data-overgrown with bacteria (NDOGT)
		December 08, 2023	Sodium Exceedances
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Western Trent/Palmina Water Treatment Plant is supplied with raw groundwater from two GUDI wells: Well # 1 (Palmina Well) and Well # 2 (Western Trent Well).

Treatment

The treatment system consists of the following:

- Two drilled groundwater production wells deemed GUDI
- Raw and treated water flow meters
- Cartridge filtration system
- Chlorine contact chamber
- Treated water storage reservoir
- Two vertical turbine high lift pumps
- Chemical feed system consisting of four metering pumps for pre and post-chlorination and two sodium hypochlorite storage tanks with spill containment
- Standby power generator on site

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
November 17, 2023	164040	Treated Water	Total Coliform, E. Coli	NDOGT (No Data: Overgrown with Target Bacteria)	O. Reg. 170/03	Flushed, resample
November 17, 2023	164043	Distribution	Total Coliform, E. Coli	NDOGT	O. Reg. 170/03	Flushed, resampled
December 08, 2023	164172	Treated Water	Sodium	Sodium results in the treated water exceeded 20 mg/L	O. Reg. 170/03	Resampled the treated water, result exceeded 20 mg/L. Residents notified of sodium levels.

Non-Compliance

There were no non-compliance issues reported during the reporting period.

Non-Compliance Identified in a Ministry Inspection:

There were no non-compliances identified in a Ministry Inspection for 2023/2024 inspection report.

Flows

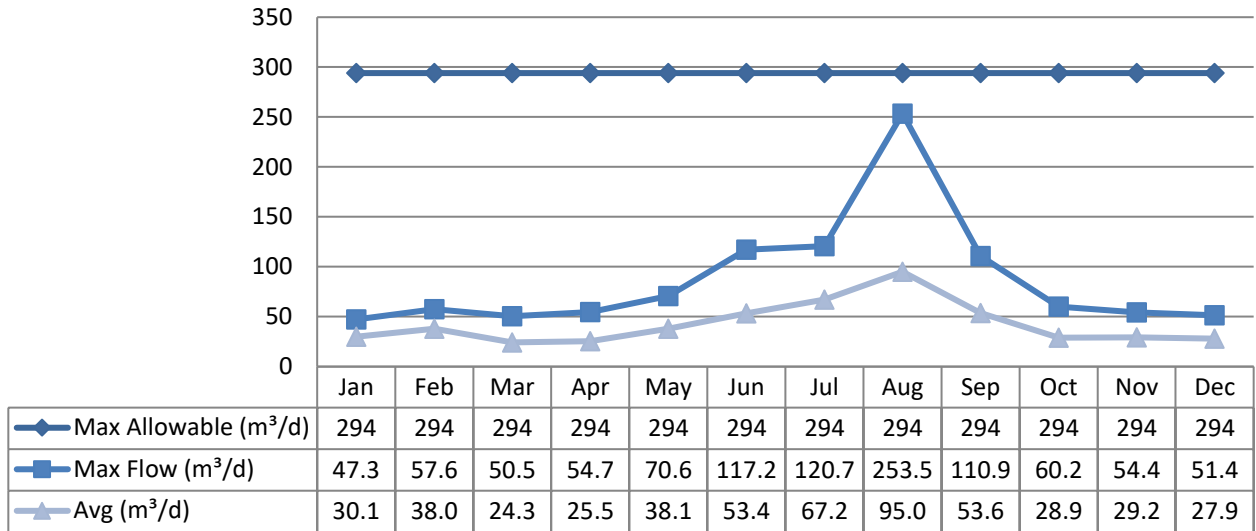
The Western Trent/Palmina Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2023 Raw Flow Data was submitted to the Ministry electronically under permit PTTW # 2180-B4CKK3. The confirmation for the data that was submitted is attached in Appendix A.

Total Monthly Flows (m³/d)

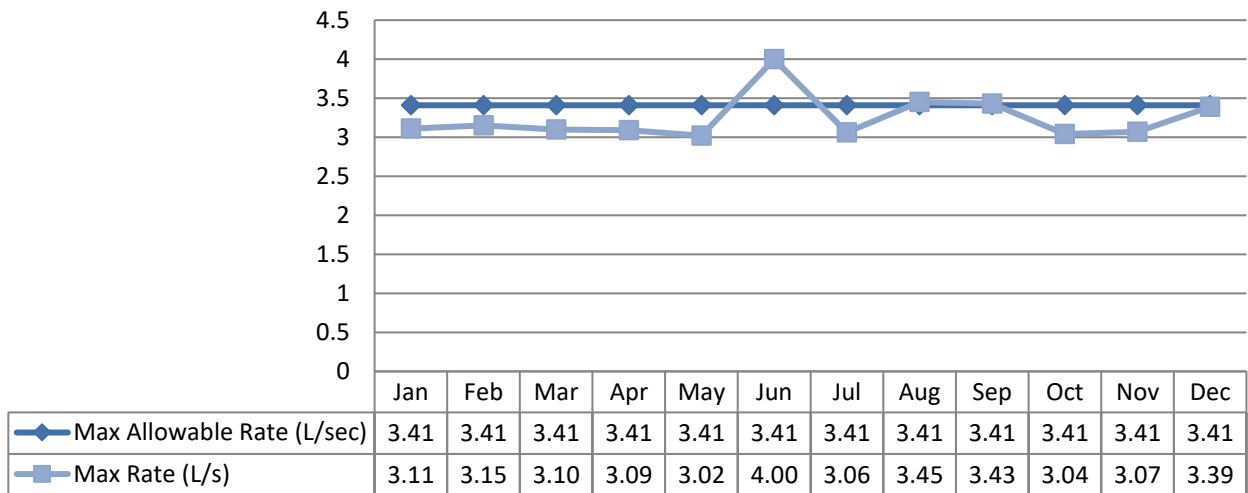
Max Allowable PTTW- Well #1



Note: The above table shows a spike in August 2023. There was a distribution leak in August 2023.

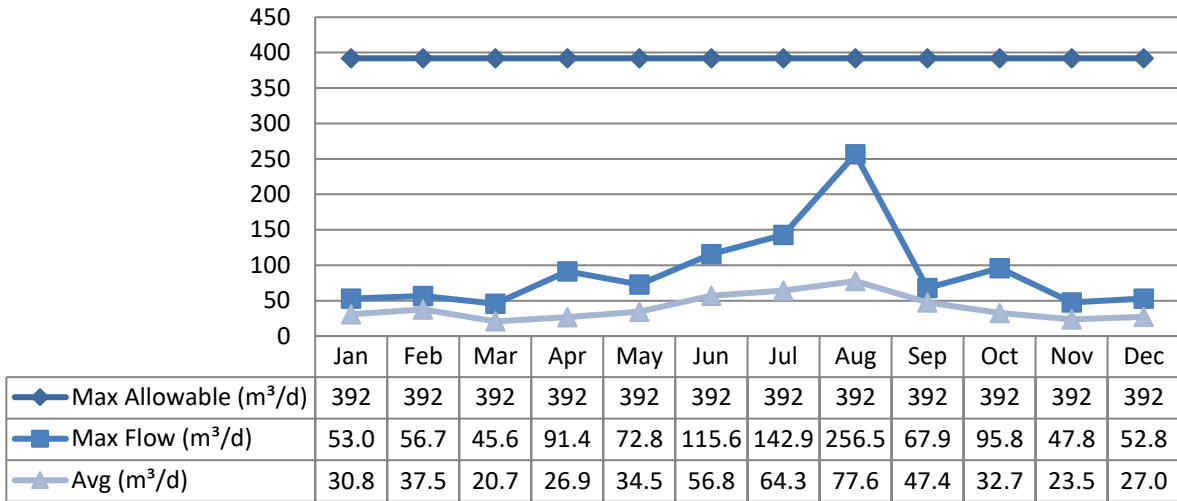
Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Well #1

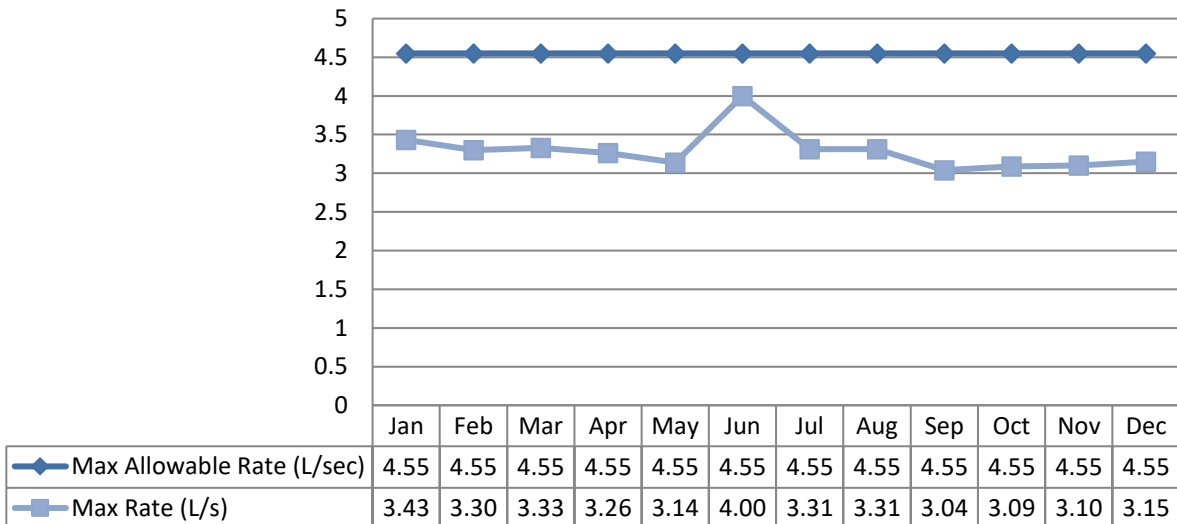


Note: The above table shows exceedances in instantaneous peak flow rate (L/s) in June, August and September. The actual limit in the PTTW is 205L/min. Spike in June due to flow meter calibration. Spike in August was < 2minute in duration. Spike in September brief spike while completing filter testing.

Total Monthly Flows (m³/d)
 Max Allowable PTTW- Well #2



Monthly Rated Flows (L/s)
 Max allowable rate – PTTW- Well #2

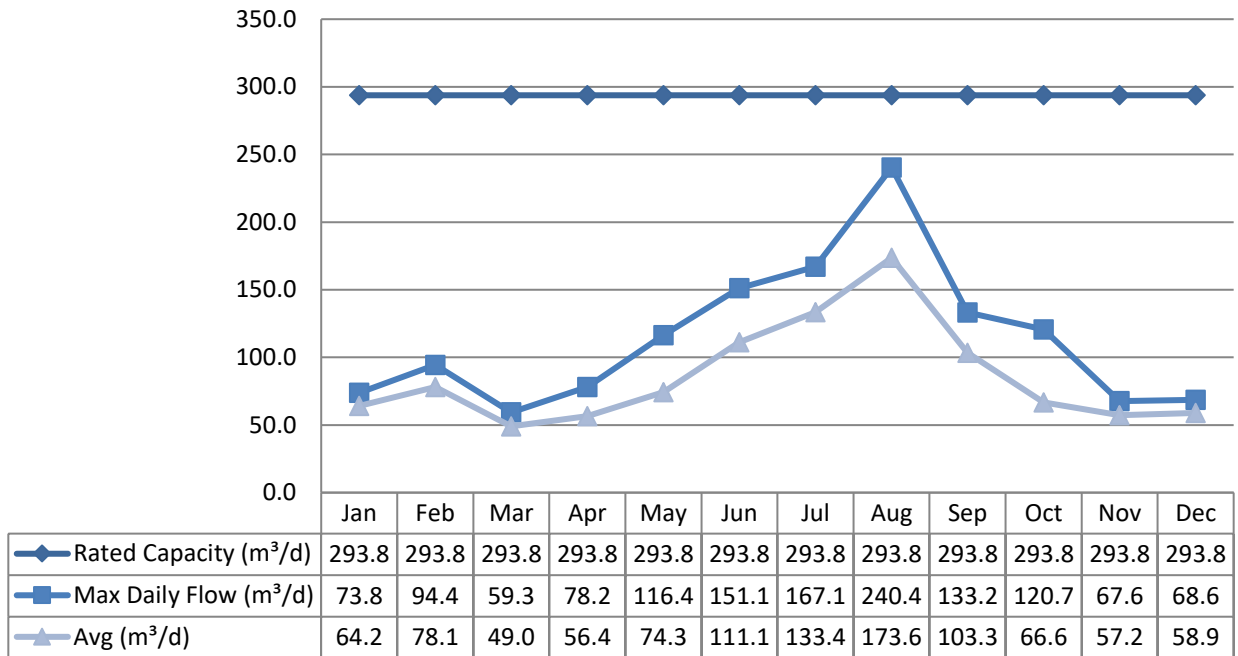


Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence (MDWL) 141-102.

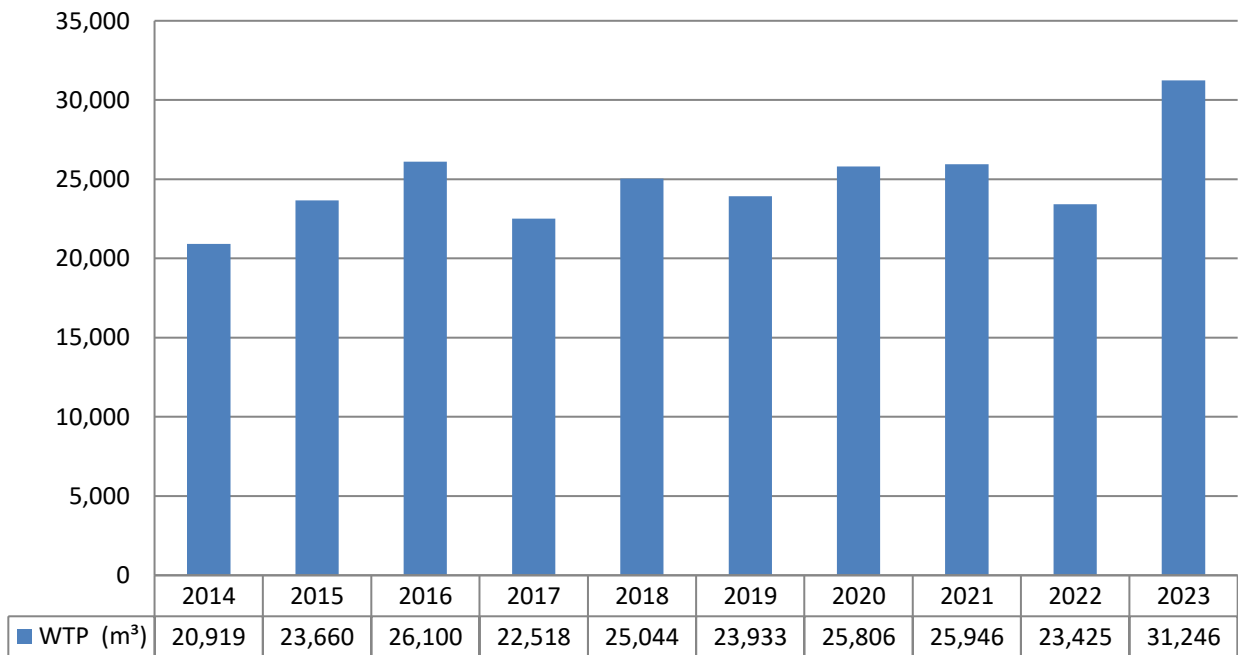
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m³



Note: 2014 data for March to December as DWS operated by the City until Feb 2014.

Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E. Coli Results	Range of E. Coli Results	Range of Total Coliform Results	Range of Total Coliform Results	No. of Samples	Range of HPC Results	Range of HPC Results
		Min	Max	Min	Max		Min	Max
Raw Well 1	104	0	0	0	4			
Raw Well 2	104	0	2	0	7			
Treated	106	0	0	0	0	103	0	7
Distribution	161	0	0	0	0	154	0	10

Operational Testing

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Filter 1 (NTU)	8760	0.00	1.50
Turbidity Filter 2 (NTU)	8760	0.00	1.50
Chlorine	8760	1.15	2.49
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

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

Note: For continuous monitors 8760 is used as the number of samples. Spikes recorded by on-line 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 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Antimony: Sb (ug/L) - TW	2023/09/05	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2023/09/05	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2023/09/05	60.2	1000.0	No	No
Boron: B (ug/L) - TW	2023/09/05	60.0	5000.0	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance 1/2 MAC
Cadmium: Cd (ug/L) - TW	2023/09/05	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2023/09/05	0.49	50.0	No	No
Mercury: Hg (ug/L) - TW	2023/09/05	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2023/09/05	0.12	50.0	No	No
Uranium: U (ug/L) - TW	2023/09/05	0.255	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2023/12/04	0.13	1.5	No	No
Nitrite (mg/L) - TW	2023/01/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/04/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/07/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2023/10/03	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2023/01/03	0.163	10.0	No	No
Nitrate (mg/L) - TW	2023/04/03	0.052	10.0	No	No
Nitrate (mg/L) - TW	2023/07/06	0.124	10.0	No	No
Nitrate (mg/L) - TW	2023/10/03	0.648	10.0	No	No
Sodium: Na (mg/L) - TW	2023/12/04	22.9	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2023/12/11	21.5	20*	Yes	Yes

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

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under reduced sampling. No plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	2	2	195	229	N/A	N/A
pH	2	2	7.16	7.49	N/A	N/A
Lead (ug/l)	2	2	0.16	1.36	10	0

Organic Parameters

These parameters are tested annually as a requirement under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Results	MAC	Exceedance MAC	Exceedance ½ MAC
Alachlor (ug/L) - TW	2023/09/05	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2023/09/05	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2023/09/05	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2023/09/05	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2023/09/05	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2023/09/05	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2023/09/05	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2023/09/05	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2023/09/05	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2023/09/05	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2023/09/05	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2023/09/05	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2023/09/05	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2023/09/05	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2023/09/05	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2023/09/05	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2023/09/05	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2023/09/05	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2023/09/05	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2023/09/05	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2023/09/05	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2023/09/05	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2023/09/05	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2023/09/05	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2023/09/05	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2023/09/05	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2023/09/05	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2023/09/05	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2023/09/05	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2023/09/05	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2023/09/05	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2023/09/05	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2023/09/05	<MDL 1.0	190.0	No	No

Treated Water Parameter	Sample Date (yyyy/mm/dd)	Sample Results	MAC	Exceedance MAC	Exceedance ½ MAC
Prometryne (ug/L) - TW	2023/09/05	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2023/09/05	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2023/09/05	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2023/09/05	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2023/09/05	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2023/09/05	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2023/09/05	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2023/09/05	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2023/09/05	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2023/09/05	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2023/09/05	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2023	39.5	100	No	No
HAA Total (ug/L) Annual Average - DW	2023	9.5	80	No	No

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

MDL = Method Detection Limit

Additional Legislated Samples

Under Schedule D of MDWL 141-102 Issue number 6 dated May 10, 2022, Regulatory Relief from ANSI/NSF Standard 53 certification or equivalent was granted for the 1 micron absolute cartridge filters as there are no remaining stock of certified cartridge filters for this drinking water system. Subject to this approval, bacteriological sampling twice per week for all raw sources and treated water is required when the non-certified filters are in use.

As of June 8, 2022, non ANSI/NSF Standard 53 certified 1 micron absolute cartridge filters, as approved by MECP, were installed and twice per week bacteriological sampling for all raw sources and treated water was initiated. The results for this additional sampling are included in the Microbiological Testing table under the Regulatory Sample Results Summary section on page 6 of this report.



In 2023, cartridge filter testing was completed in consultation with the MECP. The MECP accepted granting the use of Graver QCR 0.8 micron cartridge for the pathogen removal credits as stated in the Municipal Drinking Water License- Schedule E for the systems specified in the letter only. The letter is dated January 9, 2024.

Major Maintenance Summary incurred to install, repair or replace required equipment

WO #	Description
3206826	Filter Testing Project
3385662	Replace Generator Transfer Switch Controller
3662649	Replace Hot Water Tank
3104834	Add Thermal Mixing Valve to Eyewash Station/ Shower
3245590	Repair Generator RPM Gauge
3289139	Replace Submersible Pump Capacitor
3571622	Leak Detection

Appendix A

WTRS Data Submission Confirmation



Ministry of the Environment,
Conservation and Parks

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Location: [WTRS](#) / [WT DATA](#) / [Edit Submitted WT Records](#) WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

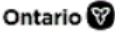
Thank you for submitting your water taking data online.

Permit Number: 2180-B4CKK3
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.
Received on: Feb 6, 2024 10:02 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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