

King's Bay Drinking Water System

Waterworks # 260002954
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2022

Issued: February 17, 2023

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 by appointment and on the [City's website](#). 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: 260002954

Drinking Water System Name: King's Bay DWS

Drinking Water System Owner: City of Kawartha Lakes

Drinking Water System Category: Large Municipal Residential

Period Being Reported: January 1, 2022 - December 31, 2022

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	Aug. 17, 2022	Unannounced - Focused Drinking Water Inspection - Final Inspection Rating has not been received at the time this report was issued.
AWQI's	3	Jun. 29, 2022	1 TC at 189 Southcrest Dr.
		Jul. 13, 2022	34 TC at 189 Southcrest Dr.
		Aug. 31, 2022	54 TC at 189 Southcrest Dr.
Number of Non-Compliances; Other Inspection Findings	1	Jan. 16, 2023*	Lack of documentation of adjustment to alarm set-points
Number of Boil Water Advisories	0		

*Note: The date indicated was the date the Inspection Report was issued by the Provincial Officer responsible for the annual inspection of the Drinking Water System.

System Process Description

Raw Source

The water supply for the DWS comes from three (3) groundwater wells that are considered to be non-GUDI (groundwater under direct influence).

Treatment

The treatment system consists of the following:

- a sodium hypochlorite disinfection system
- reservoir
- high lift pumping station
- Stand-by diesel generator on-site

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi Water Technologies

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jun. 29, 2022	158930	Distribution (189 Southcrest Dr.)	Total Coliforms	1	O. Reg. 169/03	Disinfect sample tap, flush, resample. Resample result was clear, 0 TC.
Jul. 13, 2022	159121	Distribution (189 Southcrest Dr.)	Total Coliforms	34	O. Reg. 169/03	Disinfect sample tap, flush, resample. Resample result was clear, 0 TC.
Aug. 31, 2022	159791	Distribution (189 Southcrest Dr.)	Total Coliforms	54	O. Reg. 169/03	Disinfect sample tap, flush, resample. Resample result was clear, 0 TC.

Non-Compliance

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

Non-Compliance Identified in a Ministry Inspection

Note: The MECP issued the Inspection Report with a finding listed under Other Inspection Findings. This was an administrative issue.

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
Not applicable	O. Reg. 128/04 Section 26 (2)	Not applicable	Develop Standard Operating Procedure for Alarm Set Point Adjustments.	Complete

Flows

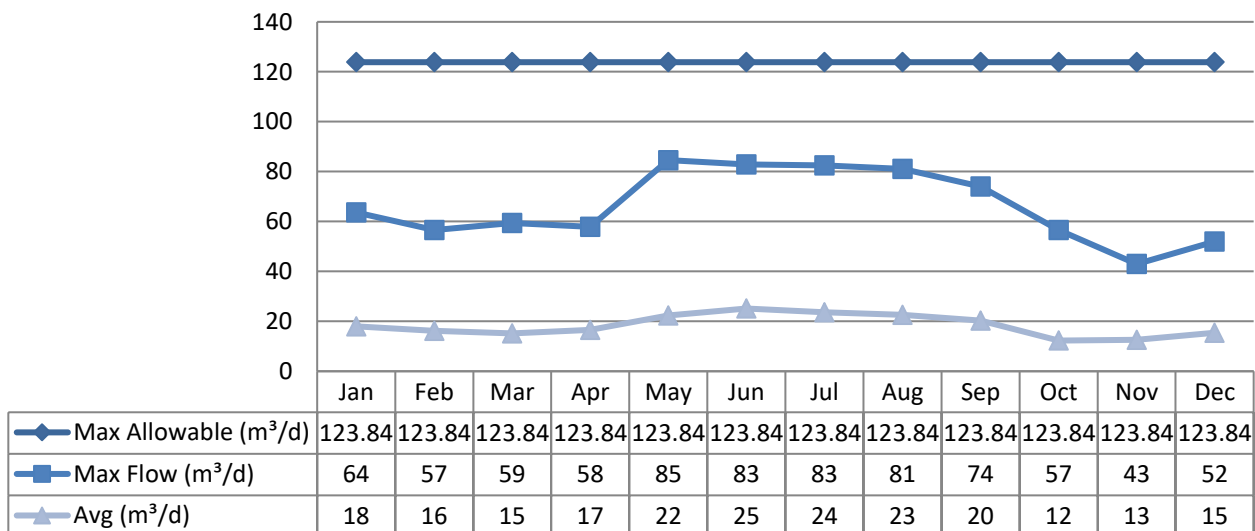
The King's Bay Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2022 Raw Flow Data was submitted to the Ministry electronically under permits #1087-AYSGRN. The confirmation that the data was submitted is attached in Appendix A.

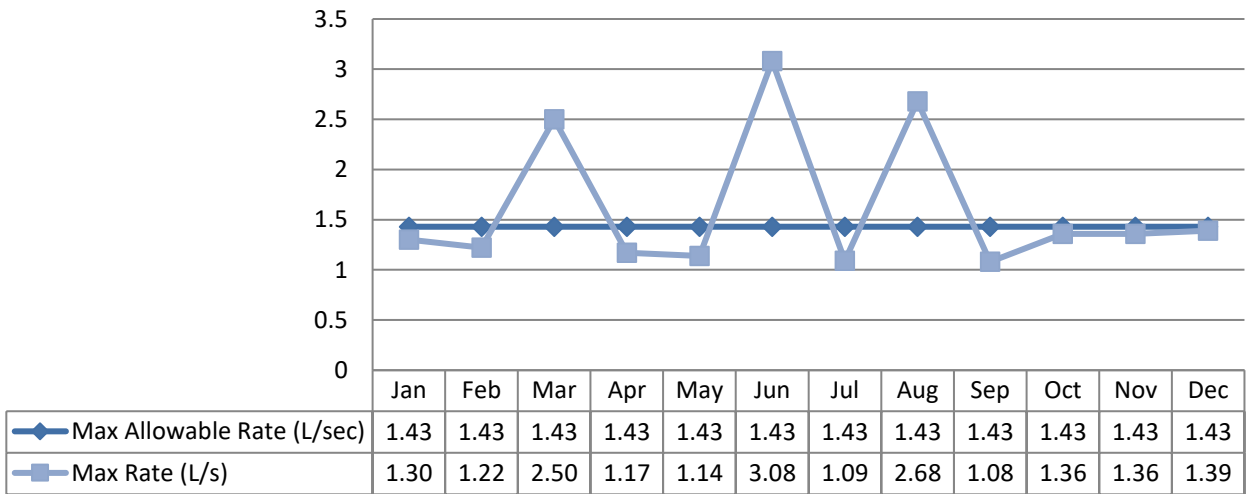
Total Monthly Flows (m³/d)

Max Allowable PTTW – Well #2



Monthly Rated Flows (L/s)

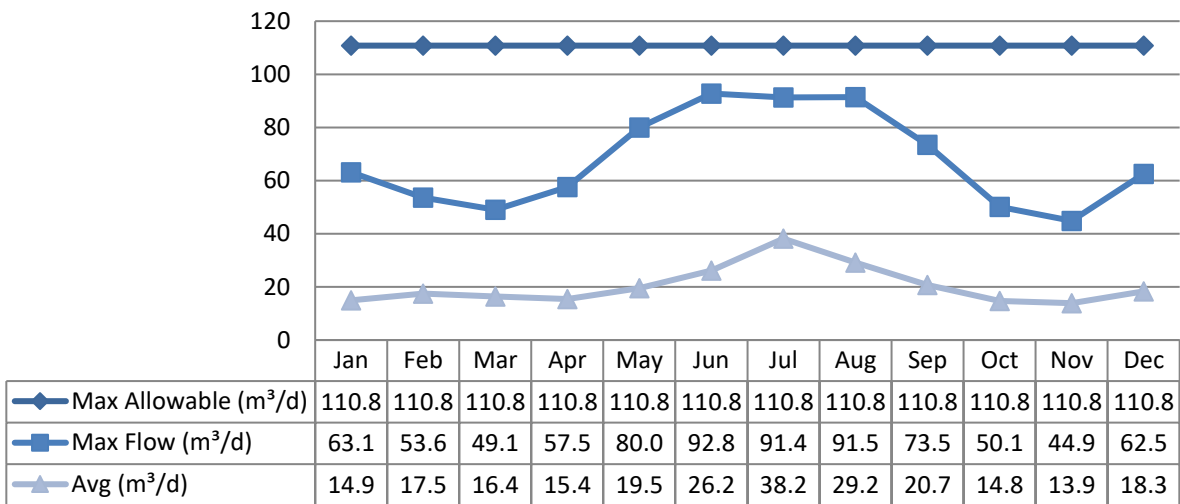
Max allowable rate – PTTW – Well #2



Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s). The spikes are instantaneous and are due to pump start-up after power outages.

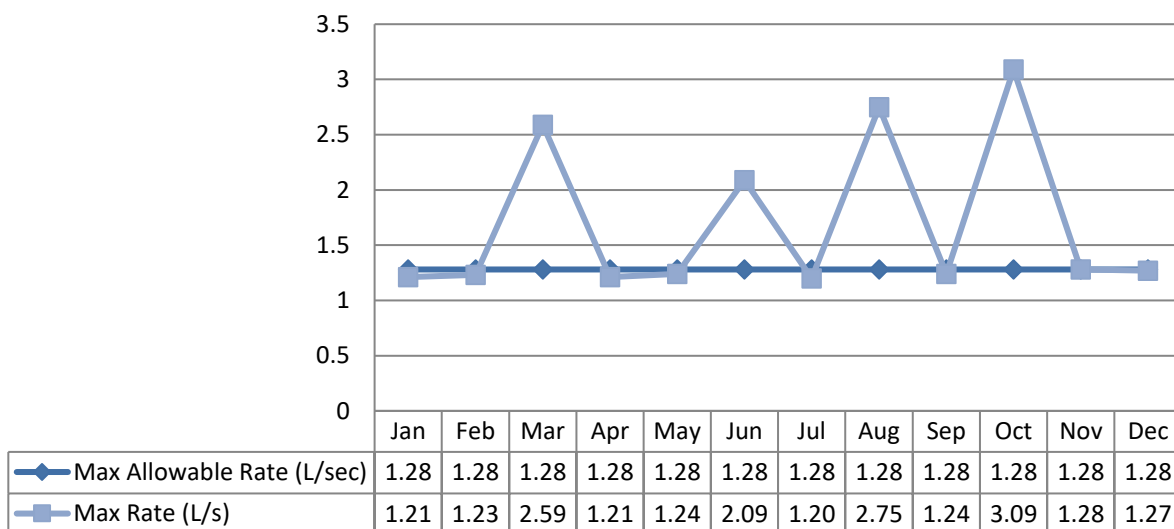
Total Monthly Flows (m³/d)

Max Allowable PTTW – Well #3



Monthly Rated Flows (L/s)

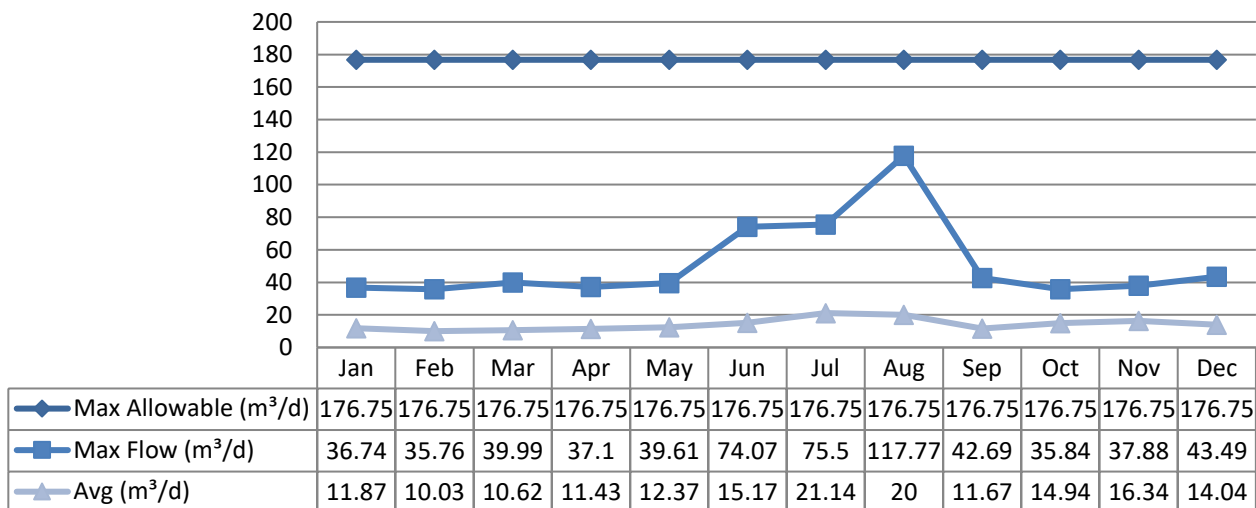
Max allowable rate – PTTW – Well #3



Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s). The spikes are instantaneous and are due to pump start-up after power outages. The spike in October was due to scheduled well maintenance.

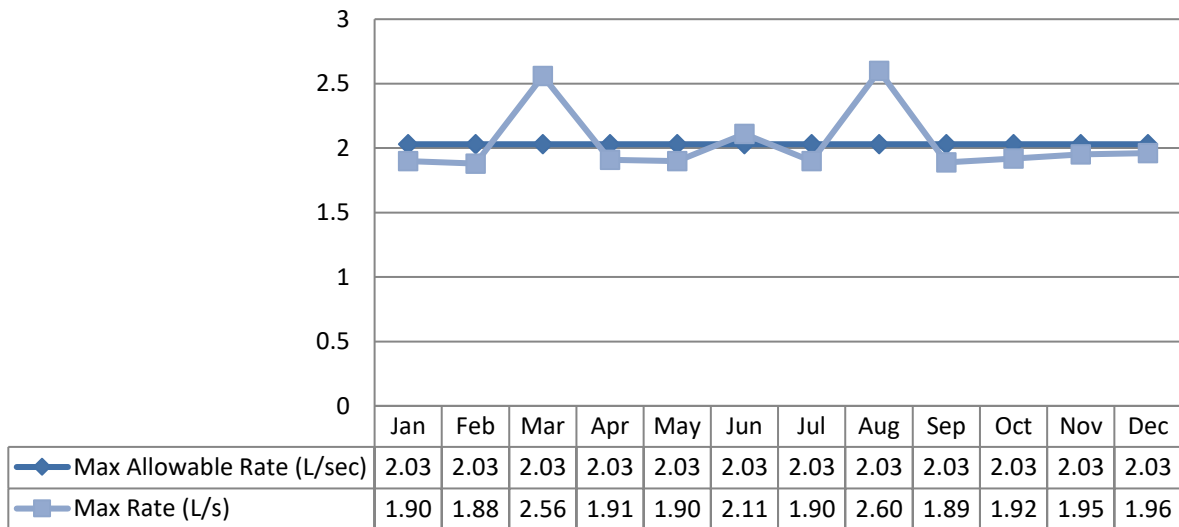
Total Monthly Flows (m³/d)

Max Allowable PTTW – Well #4



Monthly Rated Flows (L/s)

Max allowable rate – PTTW – Well #4



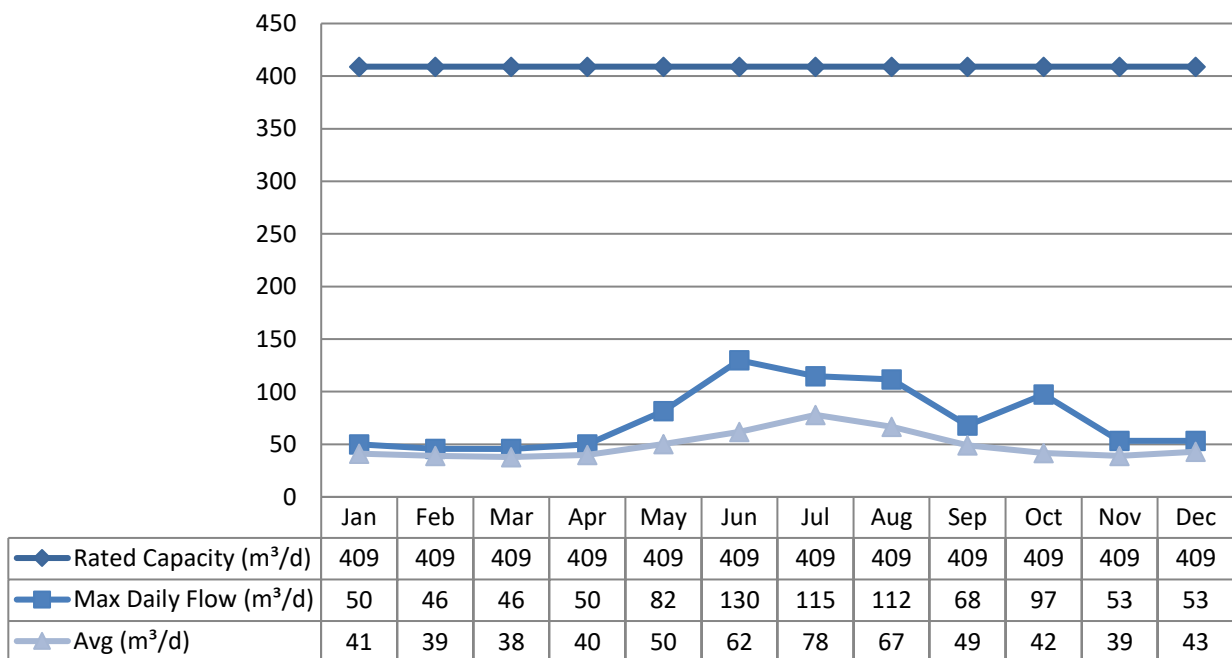
Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s). The spikes are instantaneous and are due to pump start-up after power outages.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

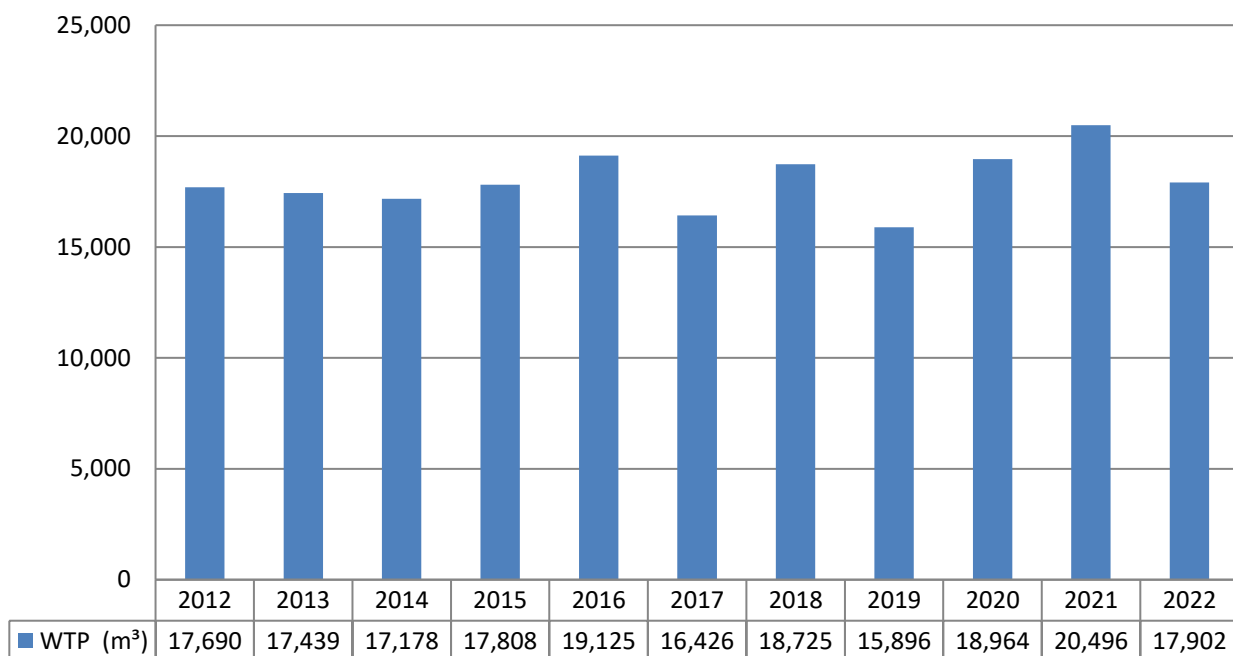
Monthly Rated Flows

Rated Capacity – MDWL



Annual Total Flow Comparison

Total Annual m³



Regulatory Sample Results Summary

Microbiological Testing

Source	No. of Samples Collected	Range Of E. Coli Results MIN	Range of E. Coli Results MAX	Range of Total Coliform Results MIN	Range of Total Coliform Results MAX	Range of HPC Results MIN	Range of HPC Results MAX
Raw Well 2	52	0	0	0	23		
Raw Well 3	53	0	0	0	8		
Raw Well 4	53	0	0	0	2		
Treated	51	0	0	0	0	0	3
Distribution	162	0	0	0	54	0	35

Operational Testing

	No. of Samples Collected	Range of Results MIN	Range of Results MAX
Turbidity Well 2 (NTU)	12	0.13	0.42
Turbidity Well 3 (NTU)	12	0.43	0.93
Turbidity Well 4 (NTU)	12	0.26	0.82
Turbidity - TW (NTU)	8760	0	2.01
Chlorine	8760	0	5.01

	No. of Samples Collected	Range of Results MIN	Range of Results MAX
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 five years. Nitrate was tested monthly, while Nitrite was tested quarterly and the metals are tested every three years 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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances MAC	Exceedances ½ MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2022/01/04	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2022/01/04	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2022/01/04	76.9	1000.0	No	No
Boron: B (ug/L) - TW	2022/01/04	8.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2022/01/04	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2022/01/04	0.38	50.0	No	No
Mercury: Hg (ug/L) - TW	2022/01/04	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2022/01/04	0.1	50.0	No	No
Uranium: U (ug/L) - TW	2022/01/04	0.94	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2020/01/06	0.09	1.5	No	No
Nitrite (mg/L) - TW	2022/03/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/06/20	<MDL	1.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances MAC	Exceedances ½ MAC
		0.003			
Nitrite (mg/L) - TW	2022/09/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/12/05	0.01	1.0	No	No
Nitrate (mg/L) - TW	2022/03/07	2.71	10.0	No	No
Nitrate (mg/L) - TW	2022/06/20	2.40	10.0	No	No
Nitrate (mg/L) - TW	2022/09/06	2.78	10.0	No	No
Nitrate (mg/L) - TW	2022/12/05	2.20	10.0	No	No
Sodium: Na (mg/L) - TW	2020/01/06	7.06	20*	No	No

*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 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	No. of Sampling Points	No. of Samples	Range of Results MIN	Range of Results MAX	MAC (ug/L)	Exceedances
Alkalinity (mg/L)	1	2	284	301	N/A	N/A
pH	1	2	7.26	7.48	N/A	N/A
Lead (ug/L)	2	0	N/A	N/A	10	

Organic Parameters

These parameters are tested 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 to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Treated Water					
Alachlor (ug/L) - TW	2022/01/04	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/04	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2022/01/04	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2022/01/04	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2022/01/04	<MDL 0.004	0.01	No	No

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	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Bromoxynil (ug/L) - TW	2022/01/04	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2022/01/04	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2022/01/04	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2022/01/04	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2022/01/04	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2022/01/04	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2022/01/04	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/04	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/04	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2022/01/04	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/04	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/04	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/04	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/04	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2022/01/04	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2022/01/04	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2022/01/04	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2022/01/04	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2022/01/04	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2022/01/04	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2022/01/04	<MDL 0.12	100.00	No	No
Metolachlor (ug/L) - TW	2022/01/04	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2022/01/04	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/04	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2022/01/04	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2022/01/04	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2022/01/04	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2022/01/04	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2022/01/04	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2022/01/04	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2022/01/04	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2022/01/04	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2022/01/04	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/04	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2022/01/04	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2022/01/04	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/04	<MDL 0.25	5.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Trifluralin (ug/L) - TW	2022/01/04	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2022/01/04	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2022	8.1	100	No	No
HAA Total (ug/L) Annual Average - DW	2022	5.3	80	No	No

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

MDL = Method Detection Limit

Additional Legislated Samples

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Jan. 4, 2022	2.22	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Feb. 7, 2022	2.78	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Mar. 7, 2022	2.71	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Apr. 4, 2022	2.61	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	May 2, 2022	2.57	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Jun. 3, 2022	1.98	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Jul. 4, 2022	2.77	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Aug. 2, 2022	1.75	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Sep. 6, 2022	2.78	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Oct. 3, 2022	2.49	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Nov. 7, 2022	3.01	mg/L
MDWL 141-119 (Nov. 10, 2021)	Nitrate	Dec. 5, 2022	2.20	mg/L

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



WO #	Description
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WO #	Description
3016416	Exterior Lighting, Repair
2498847	Well 3, Level Probe, Replace
2638170	Multiple Well Fail, Extreme Cold at Well Heads, Heater Addition
3062911	Toilet, taps, Shower Valve, Repairs

Appendix A

WTRS Submission Confirmation



Ministry of the Environment,
Conservation and Parks

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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: 1087-AYSGRN
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.
Received on: Jan 31, 2023 1:11 PM

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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version: v4.5.0.21 (build#: 22)
Last modified: 2018/09/18

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