

Southview Estates Drinking Water System

Waterworks # 220012260
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: 220012260

Drinking Water System Name: Southview Estates WTP

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	November 9, 2022	2022/2023 Announced Focused Drinking Water Inspection. Rating not received before Annual Report date.
AWQI's	3	January 5, 2022	AWQI 157529 – The Q4 2021 Rolling Annual Average (RAA) for THM was 110.7 ug/L. The RAA limit is 100 ug/L.
		April 6, 2022	AWQI 158134 -The Q1 2022 Rolling Annual Average (RAA) for THM was 110.8ug/L. The RAA limit is 100 ug/L.
		July 4, 2022	AWQI 159002 -The Q2 2022 Rolling Annual Average (RAA) for THM was 107.4ug/L. The RAA limit is 100 ug/L.
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Southview Estates Drinking Water System draws water from Sturgeon Lake.

Treatment

The treatment system consists of the following:

- Dual train conventional filtration package plant
- Inline static mixer
- Coagulant feed system with addition of SternPAC
- Coagulant aid feed system with addition of polymer
- Two mono-media upflow clarifier units
- Two dual media rapid gravity filters
- Sodium hypochlorite feed system for primary disinfection
- Dual celled chlorine contact tanks (274 m³) located beneath the plant
- Two highlift pump chambers housing five pumps; three highlift and two backwash
- Sodium hypochlorite feed system for post chlorination
- Online analyzers to monitor both free treated chlorine and filter effluent turbidity
- Wastewater treatment system that consists of two backwash pumps and two settling tanks that receive backwash water and clarifier sludge
- SCADA computer control system
- Zebra mussel control system
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi
SternPAC	Coagulant	Kemira
Magnafloc	Coagulant Aid	BASF

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
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Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jan 5, 2022	157529	Distribution	The Q4 2021 Rolling Annual Average (RAA) for THM was 110.7 ug/L.	The RAA limit is 100 ug/L	O. Reg. 169 & 170/03 Schedule 13-6	- Continue a THM Preventative Maintenance Flushing Standard Operating Procedure - Continue routine Jar Testing for coagulant dose monitoring - Continue sampling for TOC/DOC to monitor organics
Apr 6, 2022	158134	Distribution	The Q1 2022 RAA for THM was 110.8ug/L.	The RAA limit is 100 ug/L	O. Reg. 169 & 170/03 Schedule 13-6	- Continue with lowered clearwell volume to reduce detention time - Continue with lowered chlorine residual
Jul 4, 2022	159002	Distribution	The Q2 2022 RAA for THM was 107.4ug/L.	The RAA limit is 100 ug/L	O. Reg. 169 & 170/03 Schedule 13-6	- Continue to rotate highlifts to promote better mixing of clearwell Drinking Water System Owner, City of Kawartha Lakes submitted a THM Action Plan to MECP Inspector Bryan Armstrong on February 11, 2022 detailing further steps to remediate THM exceedances. Additional measures: - Investigation of installation of a flushing hydrant on the dead end watermain located on Anderson Drive. - Increase flushing in dead end areas in order to maintain distribution chlorine

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
						residuals to help lower clearwell chlorine levels. - Work to optimize coagulation to help improve organics removal. - OCWA to involve optimization team to determine if additional operational adjustments can be made.

Non-Compliance

There were no non-compliances identified during this period.

Non-Compliance Identified in a Ministry Inspection:

There were no non-compliances identified during this period.

Flows

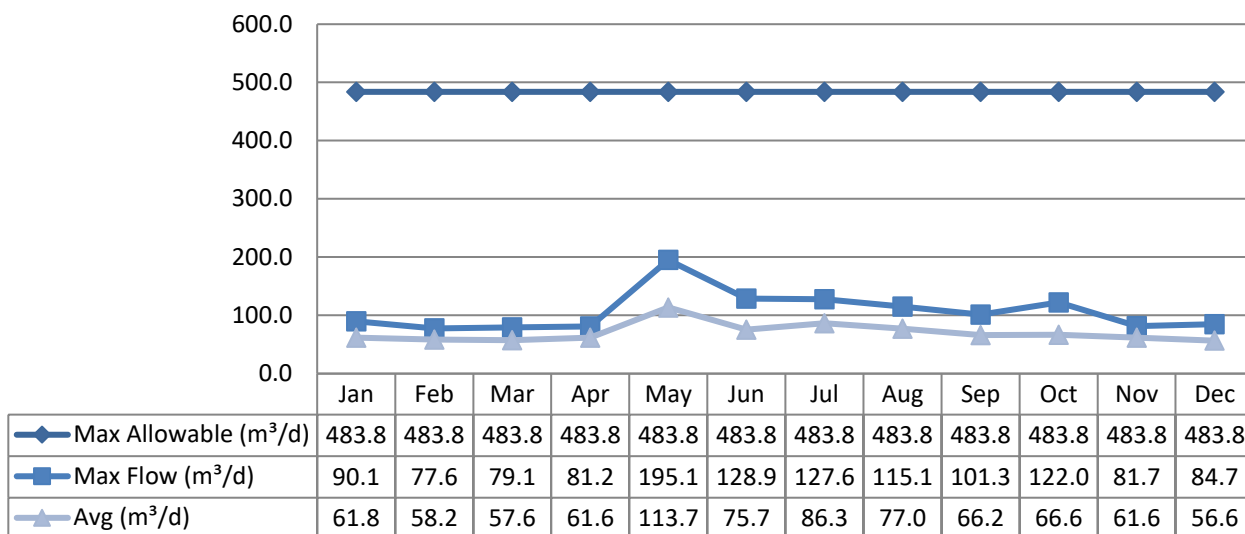
The Southview Estates Drinking Water System is operating under half the rated capacity.

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 permit #8118-AW2NZT. The confirmation and a copy of the data that was submitted are attached in Appendix A.

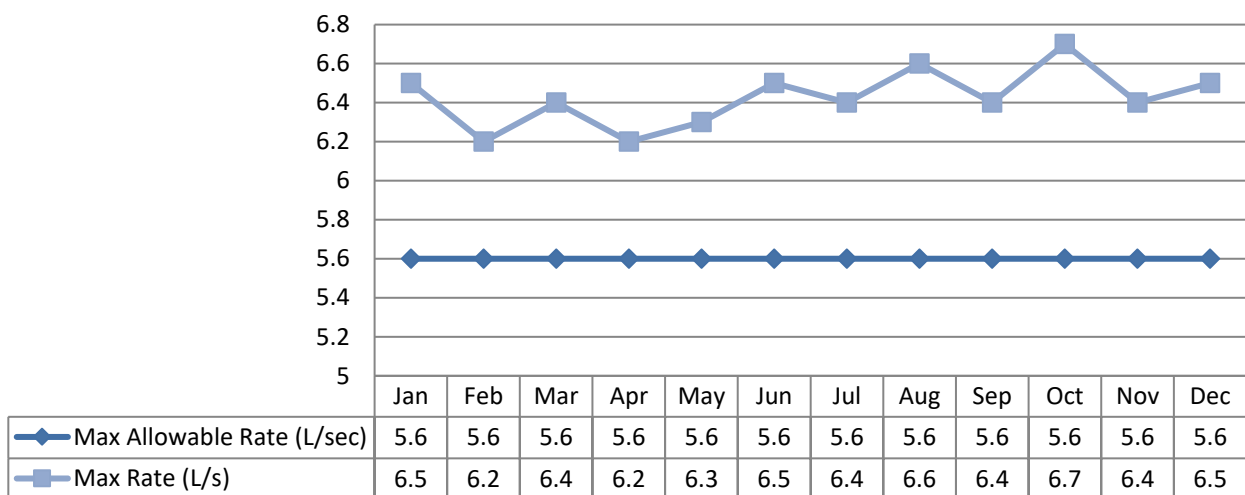
Total Monthly Flows (m³/d)

Max Allowable PTTW- Raw



Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Raw



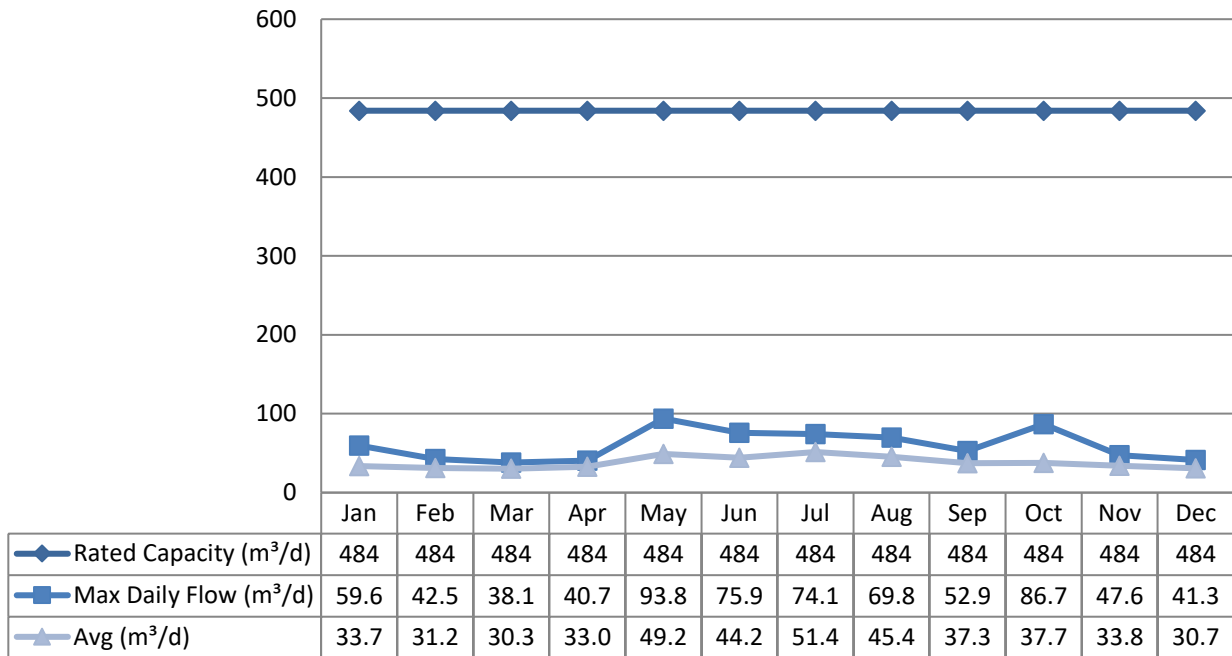
Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) and exceedances were short in duration. The scheduled Flow Meter calibration was in August 2022.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

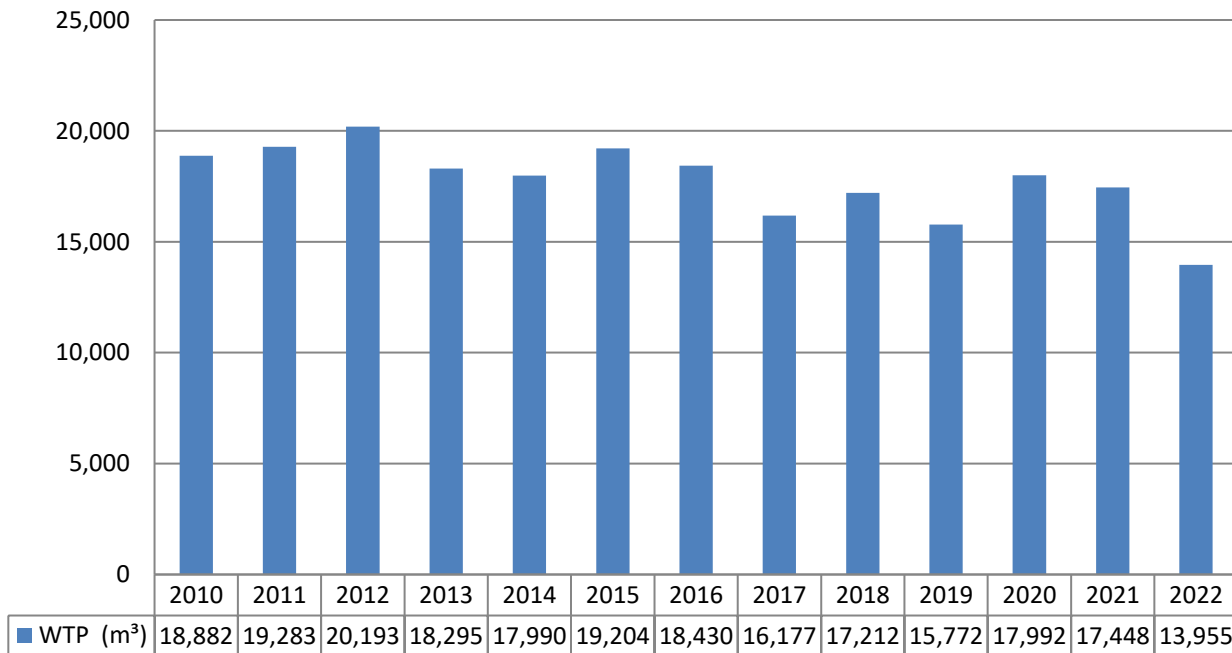
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m³



Regulatory Sample Results Summary

Microbiological Testing

	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	52	0	20	0	154		
Treated	52	0	0	0	0	0	2
Distribution	156	0	0	0	0	0	3

Operational Testing

	No. of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Raw (NTU)	46	0.37	2.23
Turbidity Filter 1 (NTU)	8760	0.02	2.00
Turbidity Filter 2 (NTU)	8760	0.02	2.00
Chlorine	8760	0.48	3.21
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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances MAX	Exceedances ½ MAC
Treated Water					
Antimony: Sb (ug/L)	2022/01/10	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L)	2022/01/10	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L)	2022/01/10	21.1	1000.0	No	No
Boron: B (ug/L)	2022/01/10	12.0	5000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances MAX	Exceedances ½ MAC
Cadmium: Cd (ug/L)	2022/01/10	0.003	5.0	No	No
Chromium: Cr (ug/L)	2022/01/10	0.13	50.0	No	No
Mercury: Hg (ug/L)	2022/01/10	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L)	2022/01/10	0.05	50.0	No	No
Uranium: U (ug/L)	2022/01/10	0.025	20.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2018/01/15	<MDL 0.06	1.5	No	No
Nitrite (mg/L)	2022/01/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2022/04/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2022/07/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2022/10/03	<MDL 0.003	1.0	No	No
Nitrate (mg/L)	2022/01/04	0.484	10.0	No	No
Nitrate (mg/L)	2022/04/04	0.384	10.0	No	No
Nitrate (mg/L)	2022/07/04	0.198	10.0	No	No
Nitrate (mg/L)	2022/10/03	0.204	10.0	No	No
Sodium: Na (mg/L)	2018/01/15	10.7	20*	No	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 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	No. of Sampling Points	No. of Samples	Range of Results Min	Range of Results Max	MAC (ug/L)	No. of Exceedances
Alkalinity (mg/L)	2	2	81	301	N/A	N/A
pH	2	2	6.86	7.83	N/A	N/A
Lead (ug/l)	2	0	N/A	N/A	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.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Treated Water					
Alachlor (ug/L)	2022/01/10	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2022/01/10	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L)	2022/01/10	<MDL 0.05	20.0	No	No
Benzene (ug/L)	2022/01/10	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L)	2022/01/10	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L)	2022/01/10	<MDL 0.33	5.0	No	No
Carbaryl (ug/L)	2022/01/10	<MDL 0.05	90.0	No	No
Carbofuran (ug/L)	2022/01/10	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L)	2022/01/10	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L)	2022/01/10	<MDL 0.02	90.0	No	No
Diazinon (ug/L)	2022/01/10	<MDL 0.02	20.0	No	No
Dicamba (ug/L)	2022/01/10	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2022/01/10	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2022/01/10	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L)	2022/01/10	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L)	2022/01/10	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2022/01/10	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L)	2022/01/10	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2022/01/10	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L)	2022/01/10	<MDL 0.4	9.0	No	No
Dimethoate (ug/L)	2022/01/10	<MDL 0.06	20.0	No	No
Diquat (ug/L)	2022/01/10	<MDL 1.0	70.0	No	No
Diuron (ug/L)	2022/01/10	<MDL 0.03	150.0	No	No
Glyphosate (ug/L)	2022/01/10	<MDL 1.0	280.0	No	No
Malathion (ug/L)	2022/01/10	<MDL 0.02	190.0	No	No
Metolachlor (ug/L)	2022/01/10	<MDL 0.01	50.0	No	No
Metribuzin (ug/L)	2022/01/10	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2022/01/10	<MDL 0.3	80.0	No	No
Paraquat (ug/L)	2022/01/10	<MDL 1.0	10.0	No	No
PCB (ug/L)	2022/01/10	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L)	2022/01/10	<MDL 0.15	60.0	No	No
Phorate (ug/L)	2022/01/10	<MDL 0.01	2.0	No	No
Picloram (ug/L)	2022/01/10	<MDL 1.0	190.0	No	No

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	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Prometryne (ug/L)	2022/01/10	<MDL 0.03	1.0	No	No
Simazine (ug/L)	2022/01/10	<MDL 0.01	10.0	No	No
Terbufos (ug/L)	2022/01/10	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L)	2022/01/10	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2022/01/10	<MDL 0.2	100.0	No	No
Triallate (ug/L)	2022/01/10	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L)	2022/01/10	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2022/01/10	<MDL 0.25	5.0	No	No
2-methyl-4- chlorophenoxyacetic acid (MCPA) (ug/L)	2022/01/10	<MDL 0.12	100.0	No	No
Trifluralin (ug/L)	2022/01/10	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L)	2022/01/10	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average	2022	91.4	100.0	No	Yes
HAA Total (ug/L) Annual Average	2022	66.4	80.0	No	Yes

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

MDL = Method Detection Limit

Additional Legislated Samples

Municipal Drinking Water Licence	Location	No. of Samples Collected	Range of Results MIN	Range of Results MAX
Alkalinity (mg/L as CaCO ₃)	Point of Entrance to Distribution System	4	75.0	86.0
Aluminum (µg/L)	Point of Entrance to Distribution System	4	19.0	60.0
Dissolved Organic Carbon (mg/L)	Point of Entrance to Distribution System	53	2.0	6.0
Total Suspended Solids (mg/L)	Settling Tank Discharge Point	12	2.0	13.0

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (ug/L)	Total Microcystin Treated Water Results Range (ug/L)	Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N
Harmful Algal Blooms Monitoring required June	June	<0.1 – <0.1	<0.1 - <0.1	N

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (ug/L)	Total Microcystin Treated Water Results Range (ug/L)	Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N
to October at a minimum. Treated and Raw Water Samples collected weekly.				
	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
	November	<0.1 - <0.1	<0.1 - <0.1	N

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



WO #	Description
2962360	Polymer Pump #2, Suction Line, Replace
2968766	Backwash Pumps, Installation of Local Disconnects
3106965	Chlorine Pump, Back Pressure Valve, Spare
3145626	Clarifier Air Scour FCV212 Valve, Replacement
3146211	Actuator for Clarifier on Filter 2, Replace
3204595	Filter 2 Clarifier Valve, Repair
2638794	Actuator Calibration and Inspection
2724176	SCADA HMI, Replacement
2775855	Snow and Ice Removal
2820057	Clarifier Air Scour Actuator, Replacement
2822373	HLP Rotation, Upgrade by WSP
2923396	PH Probe, Raw Water, Replace
2967552	Polymer Pump, Repair Kit
2967722	Coagulant Pump, Service Kit, Spares
2967725	Chlorine Pump, Service Kits, Spare
3013200	Tree Removal

3063359	Intake Diving Inspection/Cleaning
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Appendix A

WTRS Data and 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: 8118-AW2NZT
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.
Received on: Feb 6, 2023 1:19 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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