

# Fenelon Falls Drinking Water System

---

Waterworks # 210000327  
System Category – Large Municipal Residential

## Annual Water Report

Prepared For: The City of Kawartha Lakes  
Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2020

Issued: February 16, 2021

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

## Table of Contents

Annual Water Report .....	1
Report Availability .....	1
Compliance Report Card .....	1
System Process Description .....	2
Raw Source.....	2
Treatment.....	2
Treatment Chemicals used during the reporting year: .....	2
Summary of Non-Compliance.....	3
Adverse Water Quality Incidents .....	3
Non-Compliance.....	3
Non-Compliance Identified in a Ministry Inspection: .....	3
Flows .....	4
Raw Water Flows .....	4
Total Monthly Flows (m <sup>3</sup> /d).....	4
Monthly Rate Flows (L/s) .....	4
Treated Water Flows .....	5
Monthly Rated Flows.....	5
Annual Total Flow Comparison .....	5
Regulatory Sample Results Summary .....	6
Microbiological Testing.....	6
Operational Testing .....	6
Inorganic Parameters .....	6
Schedule 15 Sampling: .....	7
Organic Parameters .....	7
Additional Legislated Samples .....	9
Major Maintenance Summary .....	10
WTRS Data Submission Confirmation.....	A

## Report Availability

This system does not serve more than 10,000 residences. The annual reports are available to residents free of charge at the City of Kawartha Lakes – Public Works Administration Office located at 322 Kent Street West in Lindsay, Ontario. The reports are also available online at the [Water and Wastewater pages of the City of Kawartha Lakes website.](#)

## Compliance Report Card

**Drinking Water System Number:** 210000327

**Drinking Water System Name:** Fenelon Falls DWS

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

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

**Period Being Reported:** January 1, 2020 - December 31, 2020

	# of Events	Date	Details
<b>Health &amp; Safety</b>			
Number of Incidents	0		
<b>Drinking Water</b>			
MECP Inspections	1	December 10, 2020	Announced-Focused Drinking Water Inspection - Final Inspection – not complete at time of issuance.
AWQI's	4	Q4 2019 Q1 2020 Q2 2020 Q3 2020	THM Running Average exceeded last quarter of 2019 and first, second and third quarters of 2020.
	4	Q4 2019 Q1 2020 Q2 2020 Q3 2020	HAA Running Average exceeded last quarter of 2019 and first, second and third quarters of 2020.
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

## System Process Description

### Raw Source

The Fenelon Falls Water Treatment Plant is supplied with surface water from Cameron Lake.

### Treatment

The treatment system is a dual train conventional filtration package plant consisting of the following:

- Raw water is sourced from Cameron Lake through a wooden intake crib and then directed to the intake chamber and further to the low lift pumping station consisting of three low lift pumps
- Inlet line connected to sodium hypochlorite diffuser for seasonal zebra mussel control, if required
- Raw water flow meter and turbidity analyzer
- Coagulant injection system with inline static mixer
- Two inground flocculation tanks each equipped with three mechanical flocculators
- Dual train microfiltration system (Zeeweed) consisting of two compartments each containing two sets of six membrane modules.
- Continuously monitoring particle counters and turbidity analyzers on each filter line
- Waste backwash holding tank with discharge to sanitary sewer
- UV disinfection system consisting of two medium pressure units (duty and standby) and UVT monitor
- Chlorine dosing and injection system
- Single in-ground clearwell consisting of two interconnected baffled cells
- In-ground dual celled high lift wet well consisting of four highlift pumps
- Ammonia sulphate dosing and injection system
- Chlorine residual (free and total) and pH analyzers prior to distribution connection
- Water tower
- SCADA computer control system
- Standby power generator

### Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
Polyaluminium Chloride	Flocculation	FloChem
Ammonia Sulphate	Secondary Disinfection	FloChem

## Summary of Non-Compliance

### Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Q4 2019	149385	Treated Water	Trihalomethanes	RAA of 137ug/L	O.Reg 170/03	Process upgrades to UV and chloramination completed in the fall of 2020
	149383	Treated Water	HAA	RAA of 102.55	O.Reg 170/03	
Q1 2020	149821	Treated Water	Trihalomethanes	RAA of 135.3ug/L	O.Reg 170/03	
	149823	Treated Water	HAA	RAA of 98.1ug/L	O.Reg 170/03	
Q2 2020	150516	Treated Water	Trihalomethanes	RAA of 138ug/L	O.Reg 170/03	
	150517	Treated Water	HAA	RAA of 99.4ug/L	O.Reg 170/03	
Q3 2020	152440	Treated Water	Trihalomethanes	RAA of 129.8ug/L	O.Reg 170/03	
	152439	Treated Water	HAA	RAA of 84.9ug/L	O.Reg 170/03	

Note: RAA is the Running Annual Average of four consecutive quarterly sampling results. The RAA limit for Trihalomethanes is 100ug/L and the RAA limit for Haloacetic acids (HAA) is 80ug/L.

### 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

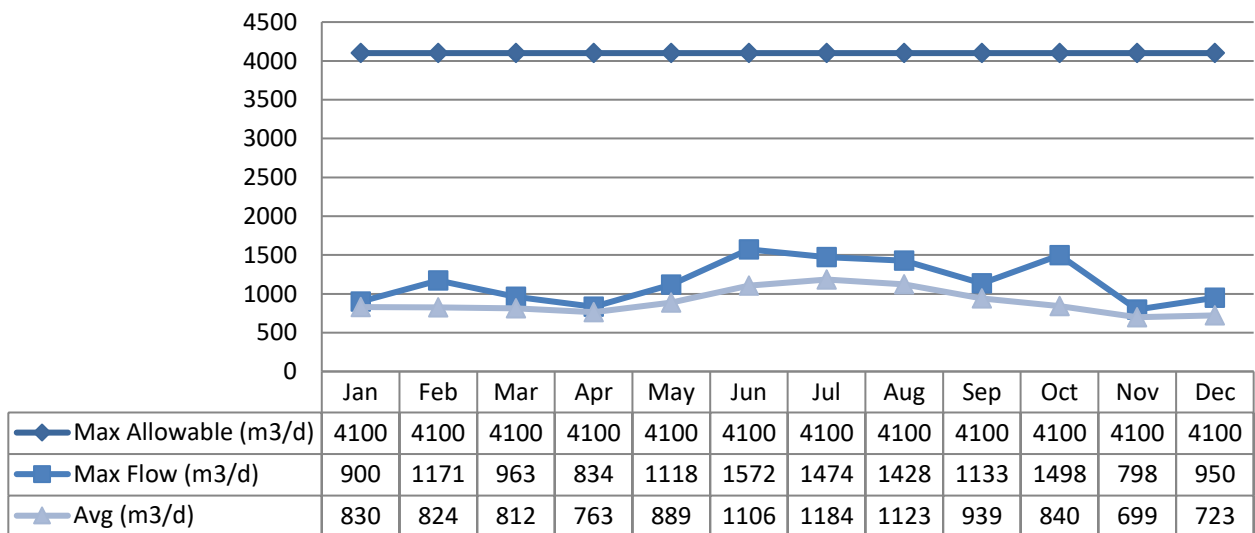
The Fenelon Falls Drinking Water System is operating on average under half the rated capacity.

## Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2020 Raw Flow Data was submitted to the Ministry electronically under permit #6033-AQ5HFW. The confirmation for the data that was submitted is attached in Appendix A.

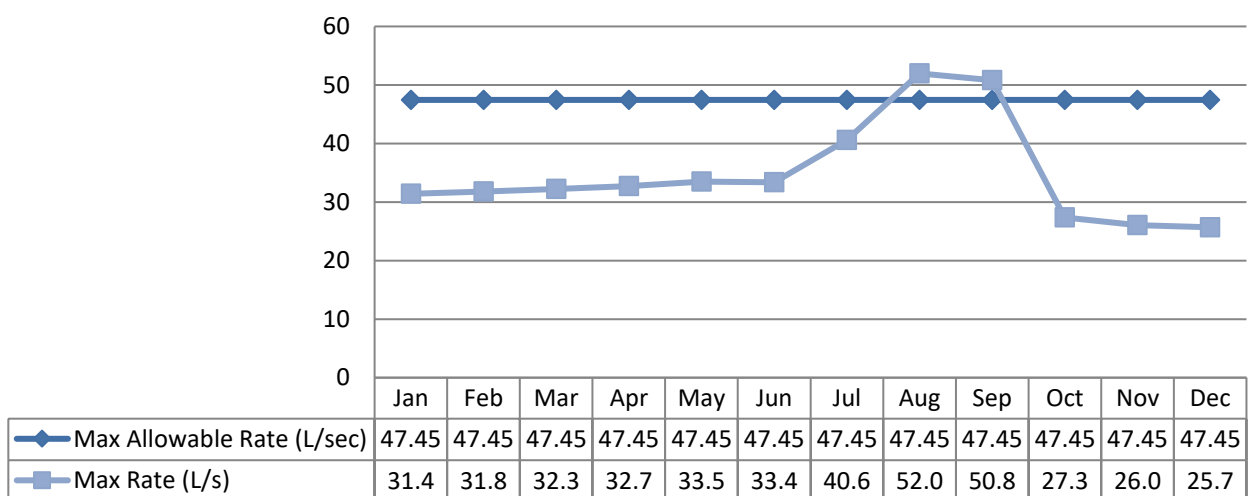
### Total Monthly Flows (m3/d)

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). The actual limit in the PTTW is 2,847L/min. Weather related power issues affected various flow meters and analyzers at the plant in August. The peak

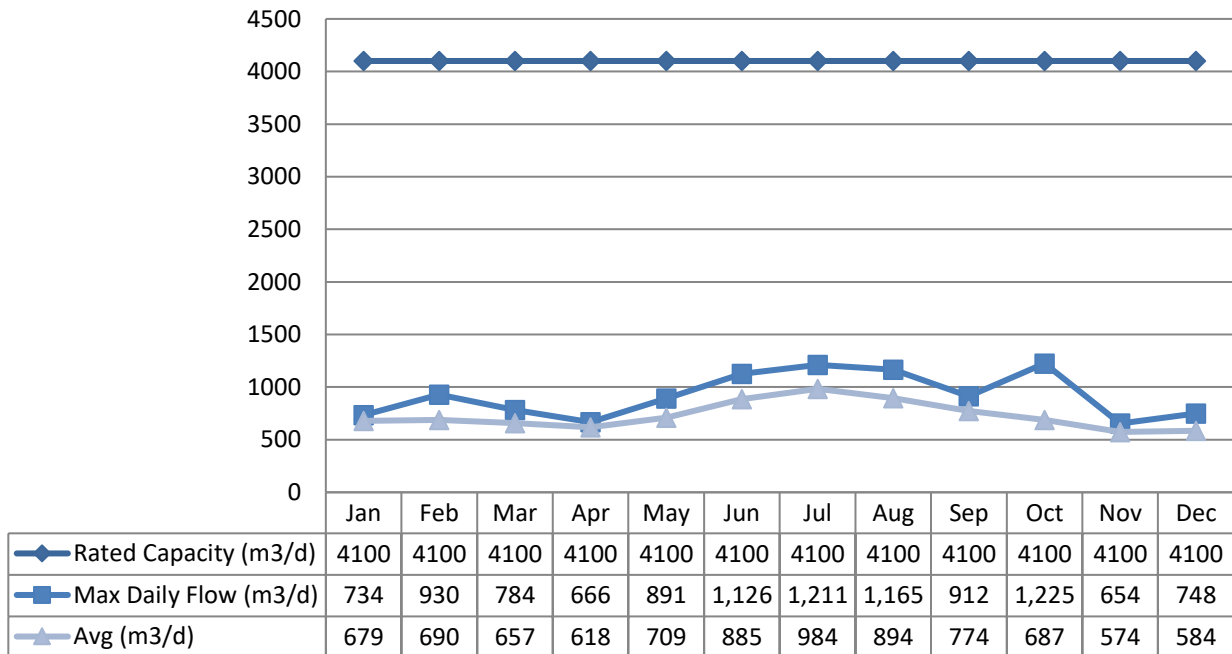
flow in September occurred during troubleshooting activities for the UV units.

**Treated Water Flows**

The Treated Water flows are regulated under the Municipal Licence.

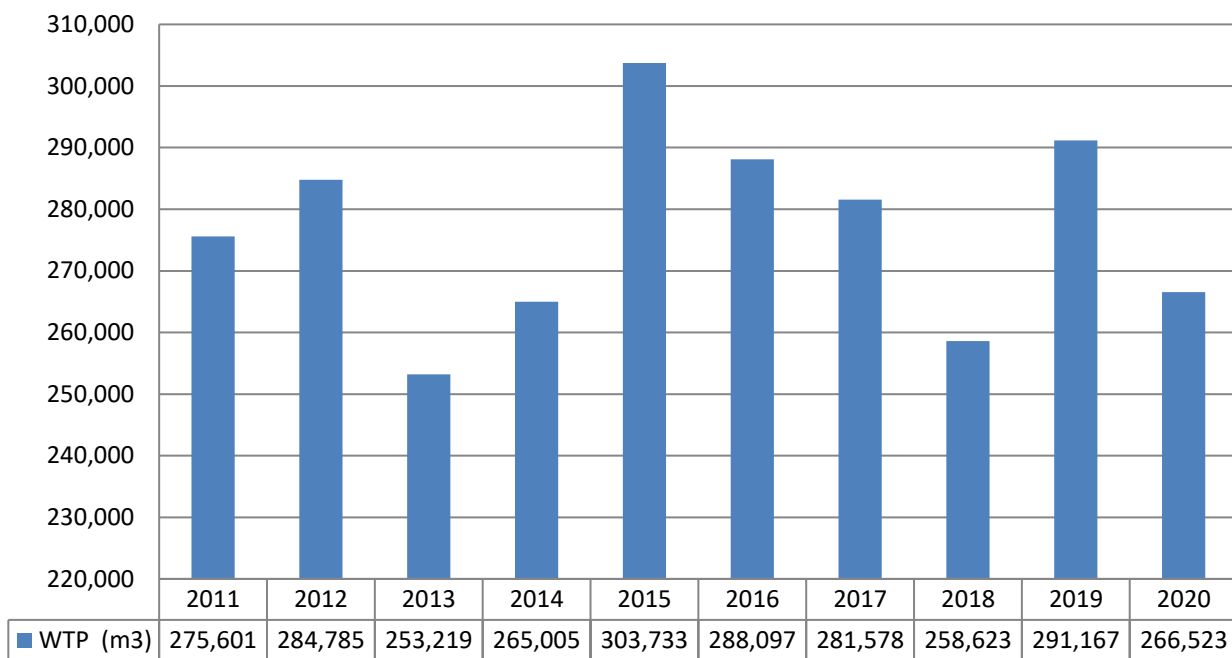
**Monthly Rated Flows**

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	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
Raw	52	0	7	3	172		
Treated	54	0	0	0	0	0	4
Distribution	156	0	0	0	0	0	43

### Operational Testing

	No. of Samples Collected	Range of Results	Range of Results
		Minimum	Maximum
Turbidity Filter 1 (NTU)	8760	0.00	1.84
Turbidity Filter 2 (NTU)	8760	0.00	1.01
Chlorine	8760	0.00	3.44
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 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 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	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	Exceedances
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2020/01/06	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/06	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/06	20.5	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/06	10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/06	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/06	0.14	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/06	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/06	0.06	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/06	0.063	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2018/01/15	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW	2020/01/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/04/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/07/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/10/26	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2020/01/06	0.28	10.0	No	No
Nitrate (mg/L) - TW	2020/04/06	0.117	10.0	No	No
Nitrate (mg/L) - TW	2020/07/06	0.024	10.0	No	No
Nitrate (mg/L) - TW	2020/10/26	0.047	10.0	No	No
Sodium: Na (mg/L) - TW	2018/01/15	7.28	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 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.

<b>Distribution System</b>	<b>Number of Sampling Points</b>	<b>Number of Samples</b>	<b>Range of Results</b>	<b>Range of Results</b>	<b>MAC (ug/L)</b>	<b>Number of Exceedances</b>
			<b>Minimum</b>	<b>Maximum</b>		
Alkalinity (mg/L)	4	4	46	53	N/A	N/A
pH	4	4	8.27	8.77	N/A	N/A
Lead (µg/l)	4	4	0.01	0.14	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.

<b>Treated Water</b>	<b>Sample Date (yyyy/mm/dd)</b>	<b>Sample Result</b>	<b>MAC</b>	<b>Exceedances</b>	<b>Exceedances</b>
				<b>MAC</b>	<b>1/2 MAC</b>
Alachlor (ug/L) - TW	2020/01/06	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/06	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2020/01/06	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2020/01/06	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/06	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/06	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2020/01/06	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2020/01/06	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/06	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2020/01/06	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2020/01/06	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2020/01/06	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/06	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/06	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/06	<MDL 0.19	100.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	Exceedances
				MAC	1/2 MAC
Diclofop-methyl (ug/L) - TW	2020/01/06	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2020/01/06	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2020/01/06	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2020/01/06	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2020/01/06	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2020/01/06	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2020/01/06	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2020/01/06	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/06	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2020/01/06	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2020/01/06	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2020/01/06	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2020/01/06	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2020/01/06	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2020/01/06	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2020/01/06	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/06	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2020/01/06	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2020/01/06	<MDL 0.12	100.00	No	No
Trifluralin (ug/L) – TW	2020/01/06	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) – TW	2020/01/06	<MDL 0.17	1.00	No	No
<b>Distribution Water</b>					
Trihalomethanes: Total (ug/L) Annual Average - DW	2020	119	100.00	Yes	Yes
HAA Total (ug/L) Annual Average - DW	2020	81	80.00	Yes	Yes

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

MDL = Method Detection Limit

**Additional Legislated Samples**

Municipal Drinking Water Licence	Date Collected	Suspended Solids to Sewer (mg/L)	Suspended Solids to Lake (mg/L)
Settling Tank Discharge Point	January	14	-
	February	22	-
	March	17	-
	April	11	-
	May	16	-
	June	23	-
	July	17	
	August	22	10
	September	13	
	October	20	
	November	15	22
	December	-	17
	Annual Average	17	16

Note: The Suspended Solids annual average limit of 25 mg/L applies to effluent discharged into the natural environment. Effluent is typically discharged to the sewer system; however, issues with the backwash pump resulted in discharges into the natural environment in August, November and December. Pump is scheduled for replacement in 2021.

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

WO #	Description
1102266	Replacement of Lowlift Pumps
1102272	Filter Valve Replacement
1102288	Installation of UV and Chloramination
1102289	PLC Upgrades
1102297	Replacement of Waste Pit Pump
1103986	Replacement/Repair of Heaters
1258777	Replacement of Floc Mixer
1259119	Tower Heater Replacement
1339595	Lifting Device Repairs/Replacement
1586144	Repair of Chlorine Spill Containment


<b>WO #</b>	<b>Description</b>
1665113	Spare Actuators Purchase
1748834	Breaker Replacement
1751734	Additional Local Disconnects for Lowlift Pumps
1751735	Electrical Additions
1836618	UV Panels
1837120	Reject Pumps Check Valves Repaired
1872908	Installation of New SCADA Panel
1873941	Replacement of Flow Meter
1915576	Repair of Leaky Pump Head
1259393	Electric Actuator Highlift Effluent Valve Replacement
1339434	Repair of Permeate Pump
1499163	Purchase of Spare Filter Parts
1535043	Replacement of Chlorine Probe/Membrane Cap
1587439	Dehumidifier Relocation
1621538	Replacement of Train 1 Permeate Flow Meter
1624159	Replacement of Emergency Lighting Unit
1624844	Replacement of Compressor Air Dryer
1706531	Rebuild Spare Actuator
1919064	Storage Shelves for Spare Equipment
1960427	Repair of Leaking Mechanical Seal on Permeate Pump
1962327	Replacement of Coagulant Pump MP2
1963414	Replacement of Breaker From ESA Inspection
2037378	Perimeter Fence Maintenance and Brush Removal
2038692	Backwash Pump Replacement
1749992	Repair of Coagulant Pump #2
1836526	Repair of Reject Pump P341 VFD
1873019	Repair of Sanitary Transfer Pump
1873026	Repair of Coagulant Pump
1873954	Repair of Leaking Pressure Transmitter Control Valve

<b>WO #</b>	<b>Description</b>
1916155	Installation of Process Filtration Reject Waste Tank High Level Alarm
1961148	Purchase of Post Chlorine Trim Pump

# Appendix A

## WTRS Data Submission Confirmation

1/27/2021 Water Taking Reporting System

 WTRS-WT-008

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

**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.


Permit Number: 5830-AQFGZR  
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.  
Received on: Jan 27, 2021 11:55 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.

[Return to Main Page](#)

CITY2 KAWARTHA LAKES2 | 2021/01/27  
version: v4.5.0.21 (build#: 22)  
Last modified: 2018/09/18

---

 This site maintained by the Government of Ontario ©2021 [Queen's Printer for Ontario](#)