

# **Fenelon Falls Drinking Water System**

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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> to December 31<sup>st</sup> 2019

Issued: February 13, 2020

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 residents. The annual reports are available to residents free of charge at the City of Kawartha Lakes – Public Works Administration Office located at 12 Peel Street in Lindsay, Ontario. The reports are also available online at the [City of Kawartha Lakes website](http://www.kawarthalakes.ca). (www.kawarthalakes.ca)

## 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, 2019 - December 31, 2019

	# of Events	Date	Details
Health & Safety	0		
Number of Incidents	0		
Drinking Water			
MECP Inspections (Ministry of Environment, Conservation and Parks)	1	February 5, 2020	Announced-Focused Drinking Water Inspection - Final Inspection – not complete at time of issuance.
AWQI's (Adverse Water Quality Issues)	4	Q4 2018 Q1 2019 Q2 2019 Q3 2019	THM Running Average exceeded last quarter of 2018 and first, second and third quarters of 2019.
	1	July 3, 2019	Filter 2 monthly filter effluent turbidity $\leq$ 0.1 NTU performance criteria of 99% not met.
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 two 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
- Chlorine 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
- Chlorine residual and pH analyzers prior to distribution connection
- Water tower
- SCADA computer control system
- Standby power generator

### **Treatment Chemicals used during the reporting year:**

<b>Chemical Name</b>	<b>Use</b>	<b>Supplier</b>
Sodium Hypochlorite	Disinfection	Brenntag
Polyalumunium Chloride	Flocculation	FloChem

## Summary of Non-Compliance

### Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Q4 2018	144445	Treated Water	Trihalomethane	RAA of 142ug/L	O. Reg. 170/03	Process upgrades to UV and chloramination to be completed in 2020
Q1 2019	145125	Treated Water	Trihalomethane	RAA of 145ug/L	O. Reg. 170/03	Process upgrades to UV and chloramination to be completed in 2020
Q2 2019	146112	Treated Water	Trihalomethane	RAA of 141ug/L	O. Reg. 170/03	Process upgrades to UV and chloramination to be completed in 2020
Q3 2019	148443	Treated Water	Trihalomethane	RAA of 143ug/L	O. Reg. 170/03	Process upgrades to UV and chloramination to be completed in 2020
2019 07 19 (yyyymmdd)	146075	Filter 2 Effluent	Monthly filter effluent turbidity $\leq 0.1$ NTU performance criteria of 99% not met	89.3% for Filter 2 – filter replacement induced air, affected flow to meter	O. Reg. 170/03	Air removed and flow adjusted

RAA is the Running Annual Average of four consecutive quarterly sampling results. The RAA limit is 100ug/L.

### Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
Part X of EPA	Water tower overflowed	07:17 – 10:30 on 2019 06 28	Adjusted level setpoints, replaced level transmitter	Complete

Issued: February 12, 2020

**Non-Compliance Identified in a Ministry Inspection:**

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

**Flows**

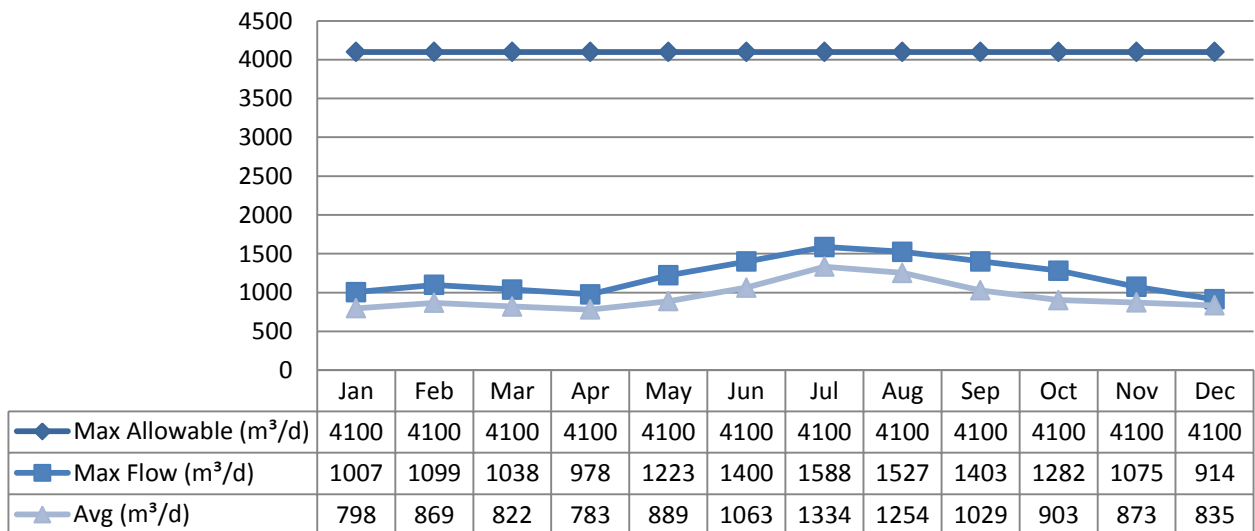
The Fenelon Falls Drinking Water System is operating on average under half the rated capacity.

**Raw Water Flows**

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2019 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 (m<sup>3</sup>/d)**

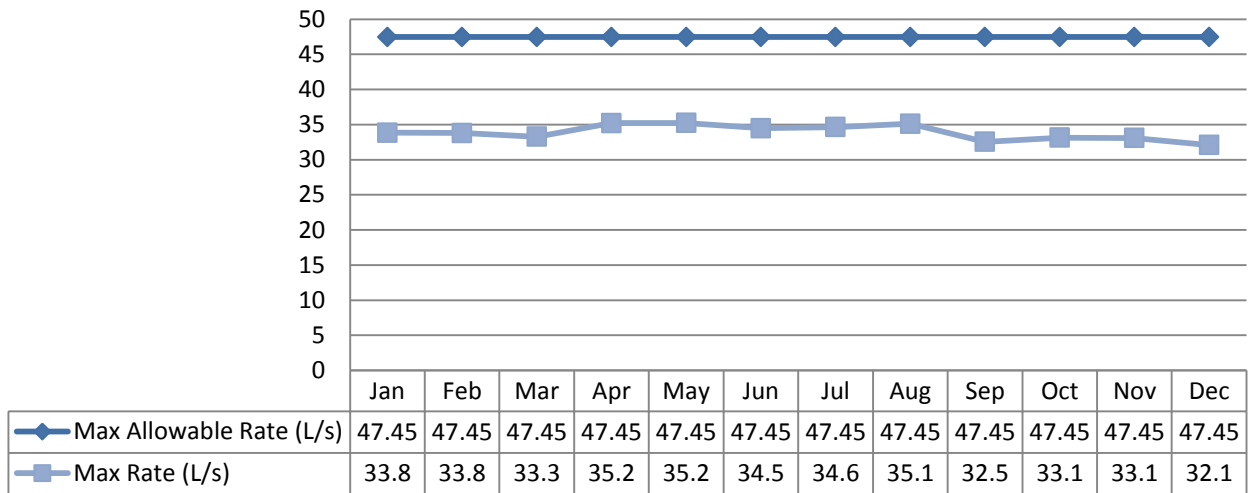
Max Allowable PTTW- Raw



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Monthly Rated Flows (L/s)

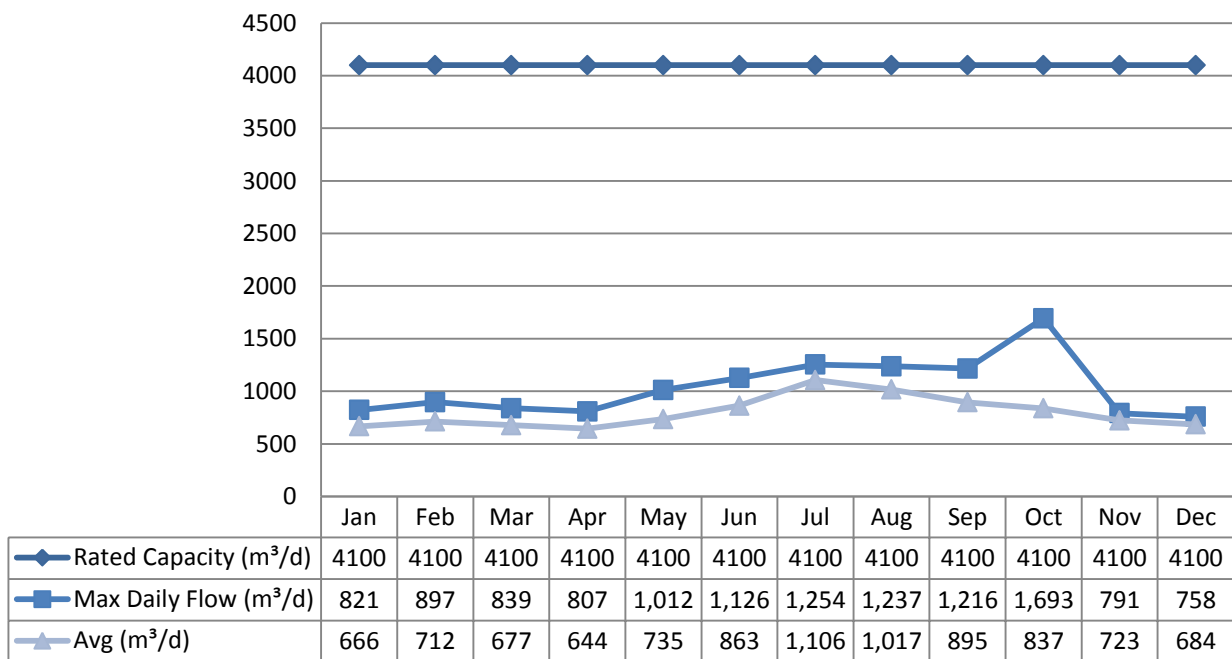
Max allowable rate – PTTW- Raw

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

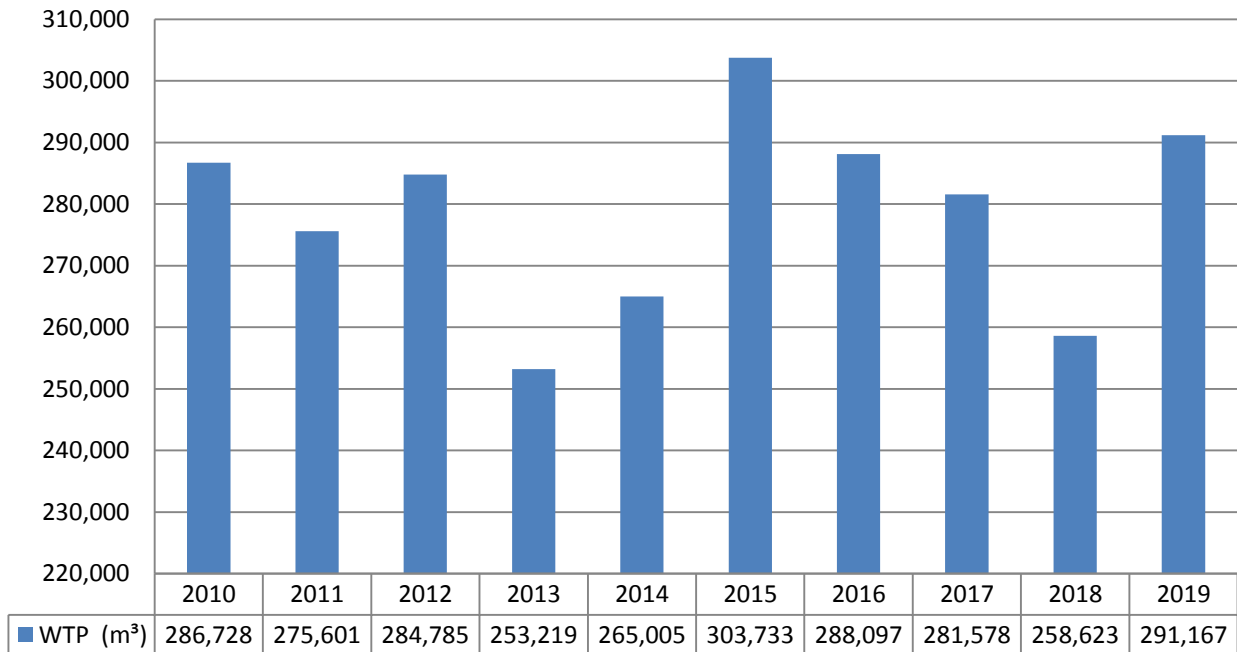
Monthly Rated Flows

Rated Capacity - MDWL



### Annual Total Flow Comparison

Total Annual m<sup>3</sup>



## 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	53	0	16	4	151		
Treated	58	0	0	0	0	0	1
Distribution	159	0	0	0	0	0	85



## **Operational Testing**

	<b>No. of Samples Collected</b>	<b>Range of Results (MIN)</b>	<b>Range of Results (MAX)</b>
<b>Turbidity Filter 1 (NTU)</b>	8760	0.00	0.56
<b>Turbidity Filter 2 (NTU)</b>	8760	0.00	0.87
<b>Chlorine</b>	8760	0.00	4.62
<b>Fluoride</b> (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

<b>Treated Water</b>	<b>Sample Date (yyyy/mm/dd)</b>	<b>Sample Result</b>	<b>MAC</b>	<b>Exceedances MAC</b>	<b>Exceedances 1/2 MAC</b>
Antimony: Sb (ug/L) - TW	2019/01/07	0.06	6.0	No	No
Arsenic: As (ug/L) - TW	2019/01/07	< 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2019/01/07	20.5	1000.0	No	No
Boron: B (ug/L) - TW	2019/01/07	8.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2019/01/07	<0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2019/01/07	0.12	50.0	No	No
Mercury: Hg (ug/L) - TW	2019/01/07	<0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2019/01/07	0.05	50.0	No	No
Uranium: U (ug/L) - TW	2019/01/07	0.068	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	2019/01/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2019/04/01	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2019/07/02	<MDL 0.003	1.0	No	No

<b>Treated Water</b>	<b>Sample Date (yyyy/mm/dd)</b>	<b>Sample Result</b>	<b>MAC</b>	<b>Exceedances MAC</b>	<b>Exceedances 1/2 MAC</b>
Nitrite (mg/L) - TW	2019/10/07	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2019/01/07	0.073	10.0	No	No
Nitrate (mg/L) - TW	2019/04/01	0.135	10.0	No	No
Nitrate (mg/L) - TW	2019/07/02	0.033	10.0	No	No
Nitrate (mg/L) - TW	2019/10/07	0.026	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>No. of Sampling Points</b>	<b>No. of Samples</b>	<b>Range of Results (MIN)</b>	<b>Range of Results (MAX)</b>	<b>MAC (ug/L)</b>	<b>No. of Exceedances</b>
Alkalinity (mg/L)	4	4	45	49	N/A	N/A
pH	4	4	8.12	8.36	N/A	N/A
Lead (ug/l)	N/A	N/A				

### **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>Exceedance Yes or No (MAC)</b>	<b>Exceedance Yes or No (1/2 MAC)</b>
Alachlor (ug/L) - TW	2019/01/07	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2019/01/07	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2019/01/07	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2019/01/07	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2019/01/07	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2019/01/07	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2019/01/07	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2019/01/07	<MDL 0.01	90.00	No	No

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Carbon Tetrachloride (ug/L) - TW	2019/01/07	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2019/01/07	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2019/01/07	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2019/01/07	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2019/01/07	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2019/01/07	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2019/01/07	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2019/01/07	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2019/01/07	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2019/01/07	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2019/01/07	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2019/01/07	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2019/01/07	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2019/01/07	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2019/01/07	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2019/01/07	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2019/01/07	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2019/01/07	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2019/01/07	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2019/01/07	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2019/01/07	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2019/01/07	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2019/01/07	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2019/01/07	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2019/01/07	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2019/01/07	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2019/01/07	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2019/01/07	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2019/01/07	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2019/01/07	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2019/01/07	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2019/01/07	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2019/01/07	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2019/01/07	<MDL 0.12	100.00	No	No
Trifluralin (ug/L) - TW	2019/01/07	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2019/01/07	<MDL 0.17	1.00	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2019	137	100.00	Yes	Yes
HAA Total (ug/L) Annual Average - DW	2019	103	80.00	Yes	Yes

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

MDL = Method Detection Limit

### **Additional Legislated Samples**

<b>Municipal Drinking Water Licence</b>	<b>Date Collected</b>	<b>Suspended Solids (mg/L)</b>
Settling Tank Discharge Point	January	17.0
	February	21.0
	March	21.0
	April	23.0
	May	15.0
	June	19.0
	July	18.0
	August	21.0
	September	5.0
	October	53.0
	November	50.0
	December	77.0
	Annual Average	28.3

Note: The Suspended Solids annual average limit of 25 mg/L applies to effluent discharged into the natural environment. Effluent was not discharged into the natural environment in 2019 but to the sewer system.


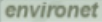

### **Major Maintenance Summary incurred to install, repair or replace required equipment**

<b>WO #</b>	<b>Description</b>
1101939	Replaced Actuator FV35061
1101951	Rebuilt Floc Mixer 4Motor
1102121	Order Spare Actuator
1102269	Highlift Pump Overhaul
1102287	Membrane Filter Replacement
1102296	Replacement Fixed Rail Fall Arrest

WO #	Description
1104769	Replace Raw pH Analyzer
1140312	Repair Floc Mixer M2
1177390	Filter Valve FV35652 Leaking Air
1259064	Actuator Fault
1299208	Repairs to DSC
1338025	Replace Actuator FV35602
1338029	Water Tower Overflow Issue with Level Transmitter (Replaced WO 1380642
1338745	Repair Valve FV35652
1341930	Replaced UPS 2 Water Tower Fault
1376296	Repaired Blower #3 Oil Leak
1380113	Filter 02 Water Hammer
1380642	Replace Tower Level Transmitter
1380788	Lowlift Pump 01 Fault Scheduled for Replacement as Part of Upgrades
1464968	Repaired Distribution Header in Clearwell
1498009	Replaced Outpost UPS
1498837	Repaired Valve FV88652 Leak
1499924	Order Treated CL2 Analyzer Parts
1500965	Water Hauler Tap Repaired
767882	Clear well inspected and cleaned

# Appendix A

## WTRS Data 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: 5830-AQFGZR  
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.  
Received on: Feb 6, 2020 10:33 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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