

# Carleton Place Drinking Water System

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Waterworks # 210000372

System Category – Large Municipal Residential

## Annual Water Report

Prepared For: The Town of Carleton Place

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2020

Issued: March 3, 2021

Revision: 1

Operating Authority:



This report has been prepared to satisfy the annual reporting requirements in O.Reg 170/03

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## Report Availability

The Carleton Place Drinking Water system serves more than 10,100 residents and the annual report will be available to residents at the Town of Carleton Place Municipal Office and on the website ([www.carletonplace.ca](http://www.carletonplace.ca)). Notification will be provided on the website and at the Municipal Office and copies provided free of charge if requested.

The Town of Carleton Place Municipal Office is located at 175 Bridge Street, Carleton Place, Ontario.

There are no additional drinking water systems that receive water from this facility.

## Compliance Report Card

Compliance Event	# of Events	Details
Ministry of Environment Inspections	1	An inspection was conducted: February 20, 2020 - Inspection Rating - 86.86% December 15, 2020 – No report received
Ministry of Labour Inspections	0	No Inspections during the reporting period
QEMS External Audit	1	One (1) External Surveillance Audit
AWQI's	3	See AWQI section
Non-Compliance	0	See Non-Compliance section

## System Process Description

Raw water is directed from the Mississippi River through a series of screens and into raw water well. The wet well is equipped with low lift pumps which move the raw water to the two (2) Actiflo™ treatment process trains. The common raw water header is equipped with a flow meter. An in-line static mixer and coagulant injection point are located just upstream of the flow meter. The system is designed to provide pre-chlorination and zebra mussel control.

Each Actiflo™ treatment train consists of a coagulation tank, an injection tank, a maturation tank and lamella settling tubes. Each treatment train is complete with Microsand recirculation pumps, piping and Hydrocyclones, which are used to separate the Microsand from residual solids. A polymer coagulant aid is added to the process at the Hydrocyclones.

The effluent from the two (2) Actiflo™ settling tanks is discharged to a concrete splitter box which divides the flow to three (3) cylindrical double compartment dual media (sand/anthracite) gravity filters. The filters are each equipped with underdrains, self-contained backwash storage compartments, air scour systems and automated control valves for backwash operations. Filtered water is chlorinated and fluoridated prior to being directed to two (2) underground storage reservoirs, which include isolation gates and piping for flow control. The Carleton Place DWS has provision to add lime to the filtered water. Four (4) high lift pumps discharge treated water into the distribution system.

Backwash wastewater and Actiflo™ residuals are discharged to a two compartment settling tank equipped with two sludge pumps and two supernatant pumps. One compartment is configured to receive the Actiflo residuals and one compartment is configured to receive the filter backwash residue. The Actiflo compartment is configured to send all residues to the on-site pumping station. The pumping station pumps the residue to the sewer collection system.

The filter backwash compartment is configured to pump the supernatant discharged to the Mississippi River while settled sludge is discharged to the sanitary sewer.

The distribution system for the Town of Carleton Place includes a 3,180 m<sup>3</sup> elevated water storage tower located on Nelson Street, east of Park Street. The water tower has provision for chlorine boosting with sodium hypochlorite.

### Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
PAS8	Primary Coagulation	Kemira
Polymer	Coagulation Aid	BASF
Hydrofluorosilic Acid	Fluoridation	Brenntag
Chlorine Gas	Primary Disinfection	Brenntag
Sodium Hypochlorite	Distribution Disinfection Boosting	Brenntag

## Summary of Non-Compliance

### Adverse Water Quality Incidents

AWQI #	Date	Legislation	Problem	Details	Corrective Action Taken
149520	2020-01-27	Reg. 170/03	Missed samples	1 Treated water sample missed 1 Raw water sample missed 4 Distribution samples missed	A review of the Sampling Standard Operating Procedure, O.Reg 170/03 sampling and testing was completed with review of the sample calendar
149904	2020-04-23	Reg.170/03	Haloacetic Acid (HAA)	Rolling Annual Average was 93.5ug/L. New Reg.170/03 limit of 80 ug/L was introduced in 2020	Operating plant without dosing pre chlorine
149520	2020-07-06	Reg.170/03	Haloacetic Acid (HAA)	Rolling Annual Average was 87.1ug/L. New Reg.170/03 limit of 80ug/L was introduced in 2020	Operating plant without dosing pre chlorine

### Non-Compliance's Reported by the Operating Authority

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliance issues reported by the operating authority.				

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

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
Schedule B of DWWP	A Form 2 is required to be completed for new Actiflo Turbidimeter	January 31 2020	Form 2 completed and submitted to MECP	Completed
O. Reg. 170/03	The loss of trending was reported sampling and testing for free chlorine for undertaken every 5 minutes	September 19 2019	Manual generator test runs are initiated when the plant is off	Completed
O. Reg. 170/03	The Operating Authority missed the distribution, treated water and raw water samples for microbiological parameters	Week of January 27, 2020	A review of the Sampling Standard Operating Procedure, O. Reg. 170/03 sampling and testing was completed with review of the sample calendar	Closed
O. Reg. 170/03	The 2019 Annual Water Report for the Carleton Place included discrepancies.	February 2020	The Annual report has been reviewed and discrepancies were amended	Closed

## Flows

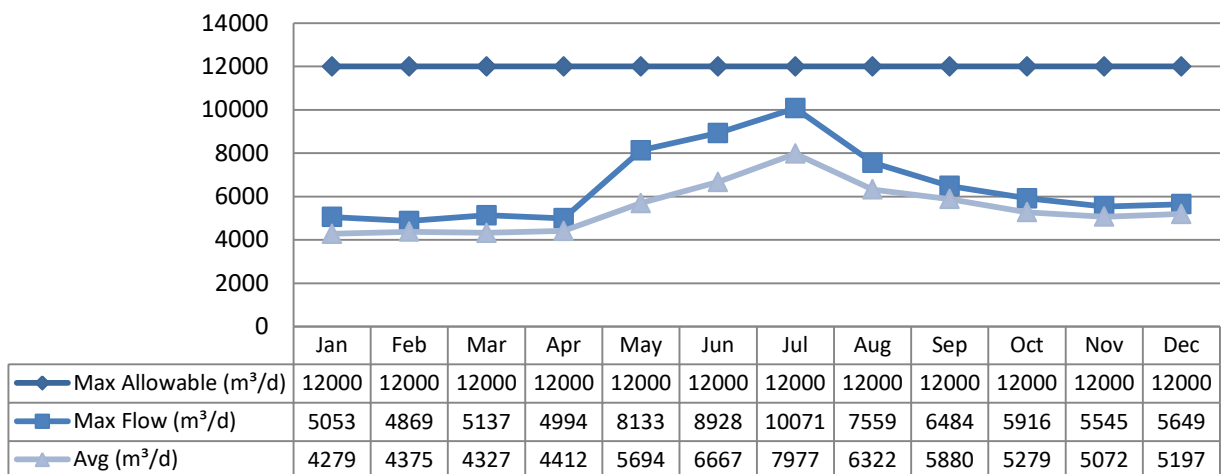
The Carleton Place Drinking Water System exceeded half the rated capacity on average in the month of July. Max daily flows exceeded half the capacity in June, July and August.

### Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2020 Raw Flow Data was submitted to the Ministry electronically under permit #1310-9UHPPW. The confirmation is attached in Appendix A.

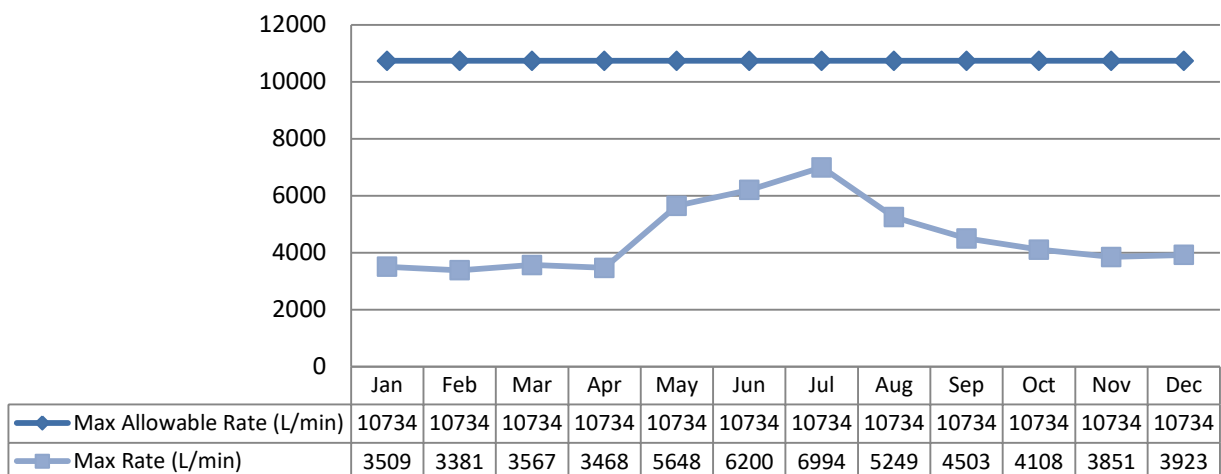
#### Total Monthly Flows (m<sup>3</sup>/d)

Max Allowable PTTW



#### Monthly Rated Flows (L/min)

Max allowable rate - PTTW

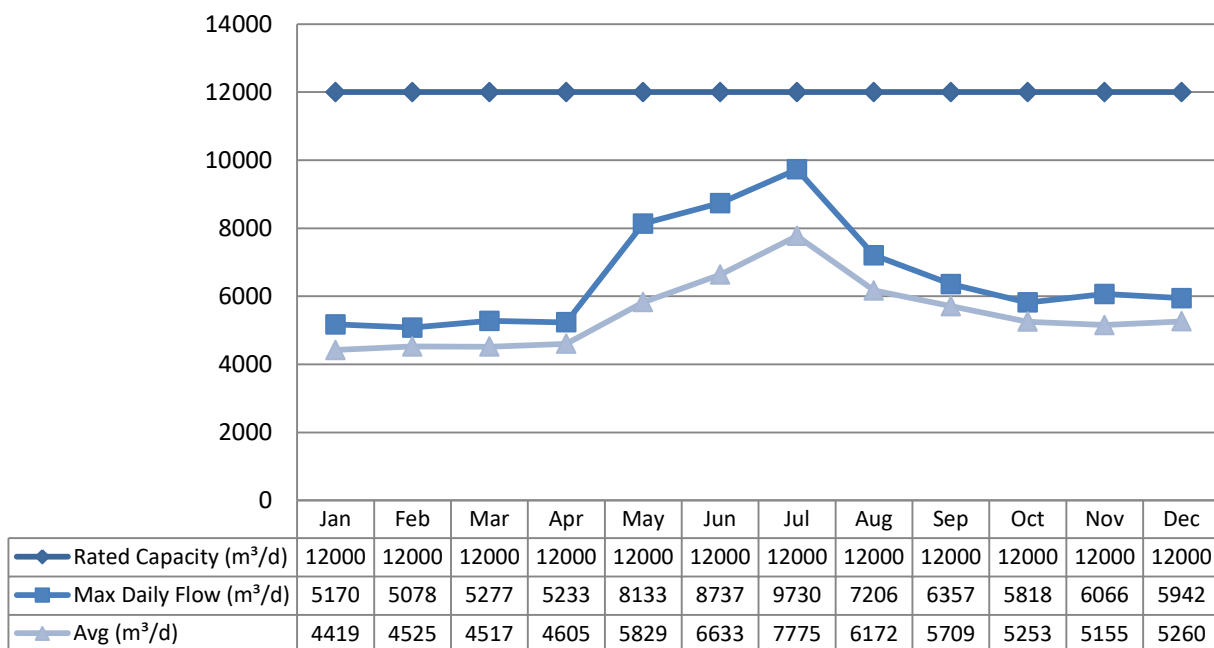


## Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

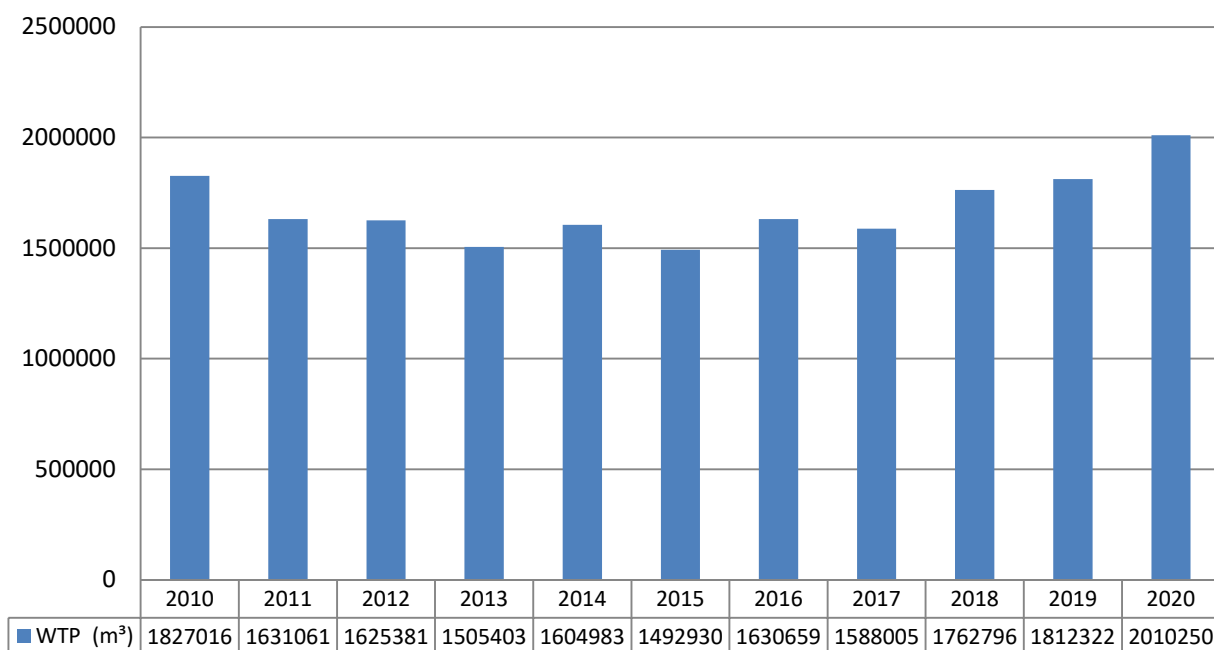
### Monthly Rated Flows

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 Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
Raw Water	*51	0	12	0	44			
Treated Water	*51	0	0	0	0	*51	2	4
Distribution Water	279	0	0	0	0	102	2	500

\*Refer to Adverse Water Quality Incident number 149520 for 51 samples collected

### Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	85	0.015	19.99
Turbidity, On-Line (NTU) - TW	8760	0.058	2.0
Turbidity, On-Line (NTU) - Filt1A	8760	0.04	2.0
Turbidity, On-Line (NTU) - Filt1B	8760	0.03	1.45
Turbidity, On-Line (NTU) - Filt2A	8760	0.04	2.0
Turbidity, On-Line (NTU) - Filt2B	8760	0.045	2.0
Turbidity, On-Line (NTU) - Filt3A	8760	0.03	2.0
Turbidity, On-Line (NTU) - Filt3B	8760	0.04	2.0
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.92	2.98
Free Chlorine Residual, In-House (mg/L) - TW	123	1.41	2.35
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	*51	1.51	2.2
Total Chlorine Residual, In-House (mg/L) - TW	118	1.74	2.68
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.51	1.62
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	279	0.73	2.11
Fluoride Residual, On-Line (mg/L) - TW	8760	0.08	0.89
Fluoride Residual, In-House (mg/L) - TW	114	0.23	0.69

NOTE: \*Refer to Adverse Water Quality Incident number 149520 for 51 samples collected. 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
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Antimony: Sb (ug/L) - TW	2020/01/20	< 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/20	0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/20	43.0	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/20	5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/20	< 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/20	< 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/20	< 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/20	< 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/20	< 0.05	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2020-01/2020-12	Min 0.4- Max 0.8	1.5	No	No
Nitrite (mg/L) - TW	2020/01/14	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/04/14	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/07/13	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/10/19	< 0.1	1.0	No	No
Nitrate (mg/L) - TW	2020/01/14	0.1	10.0	No	No
Nitrate (mg/L) - TW	2020/04/14	< 0.1	10.0	No	No
Nitrate (mg/L) - TW	2020/07/13	< 0.1	10.0	No	No
Nitrate (mg/L) - TW	2020/10/19	< 0.1	10.0	No	No
Sodium: Na (mg/L) - TW	2020/02/25	5.3	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. Lead samples will be collected in February and July 2023.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	6	6	45	55		
pH	6	6	6.78	7.11		
Lead (ug/l)	-	-	-	-	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	Number of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Alachlor (ug/L) - TW	2020/01/20	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2020/01/20	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2020/01/20	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/20	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/20	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2020/01/20	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2020/01/20	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/20	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2020/01/20	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2020/01/20	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2020/01/20	<MDL 10.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/20	<MDL 0.5	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/20	<MDL 0.5	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/20	<MDL 0.5	5.00	No	No
1,1-Dichloroethane (ug/L) - TW	2020/01/20	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/20	<MDL 5.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/20	<MDL 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/20	<MDL 10.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2020/01/20	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2020/01/20	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2020/01/20	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2020/01/20	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2020/01/20	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2020/01/20	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2020/01/20	<MDL 10.0	100	No	No
Metolachlor (ug/L) - TW	2020/01/20	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2020/01/20	<MDL 3.0	80.00	No	No
Paraquat (ug/L) - TW	2020/01/20	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2020/01/20	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2020/01/20	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW	2020/01/20	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2020/01/20	<MDL 15.0	190.00	No	No
Prometryne (ug/L) - TW	2020/01/20	<MDL 0.1	1.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Simazine (ug/L) - TW	2020/01/20	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2020/01/20	<MDL 0.5	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/20	<MDL 0.5	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/20	<MDL 0.1	100.00	No	No
Triallate (ug/L) - TW	2020/01/20	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2020/01/20	<MDL 0.5	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/20	<MDL 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2020/01/20	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2020/01/20	<MDL 0.2	1.00	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	Quarterly	78.3	100.00	No	Yes
Haloacetic Acid: Total (ug/L) Annual Average - DW	Quarterly	64.2	80.0	No	Yes

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

BDL = Below the laboratory detection level

### Additional Legislated Samples

#### Backwash Effluent

Legal Document	Date of Issuance	Parameter	Date Sampled	Result	Unit of measure
Municipal Licence 172-101 Issue 2	March 10, 2016	Suspended Solids (Limit 25 mg/L)	Annual Avg.	17.8	mg/L

#### Hazardous Algae Bloom (HAB) Sampling

There were no blooms identified in the source water in 2020. No microcystin samples were required to be collected in 2020.

## Major Maintenance Summary

WO #	Description
1833127	Capital Turbidity analyzer replacement
1918051	Capital SCADA/PLC Upgrade - Design Phase
1962433	Capital Remote Operated Vehicle Tower inspection
1962614	Capital Carry water for Actiflo solenoids replaced
1583802	Capital Hydro cyclone valve replacement
1584453	Capital Backwash filter control issues
1584776	Capital Fluoride panel spare parts

1662749	Capital Engineering load capacity
1664330	Capital New Touchscreen Backup controls
1751644	Capital SAI Global DWQMS external audit
1793286	Capital Repairs to failed backflow preventers
1832998	Capital SCADA system low lift control review
1834407	Capital Actiflo SCADA control
1834435	Capital Replace fan motor in high lift room
1874121	Capital Replace Actiflo valves
1874123	Capital SCADA report troubleshooting
1919475	Capital SCADA control site visit
1998741	Capital CP Daycare Center Lead Sampling
2036629	Capital Basement heater failure
2040386	Capital Solenoids air leaks
2040387	Capital HL 04 Motor repair
2040393	Capital Actiflo actuator parts and spare

### **Distribution Maintenance**

Distribution Highlights were provided by the Town of Carleton Place.

The Public Works Department responded to approximately 1600 locate requests from January through to November of 2020. During the same period in 2019, the Public Works Department responded to 1485 locate requests. This is an 8% increase in locate requests. Due to the increase in the number of locate requests, staff implemented new Utililocate software to computerize locates. The software has significantly increased the efficiency which locates are completed.

Fire Hydrants for the entire drinking water distribution system were flushed in 2020.

Public Works staff continued to provide the necessary oversight of subdivision/development projects, which includes servicing, identifying deficiencies, and occupancy activations.

Staff participated in the installation of the watermain extension on Costello Drive to allow for future development which will include a new long-term care facility.


Staff assisted with various components of Public Works construction projects.


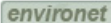
Staff commissioned new watermain in partnership with the developers for the Miller's Crossing (Cardel), Meadow Ridge (Olympia), and Coleman Central (Cavanagh) subdivisions.

With the increased growth within Carleton Place, staff has provided oversight to several servicing projects for infill lots and upgrades to existing service.

# Appendix A

## WTRS Data and Submission Confirmation





Ministry of the Environment,  
Conservation and Parks

| [WT DATA](#) | [USER PROFILE](#) | [CONTACT US](#) | [HELP](#) | [HOME](#) | [LOGOUT](#) |

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: 1310-9UHPPW  
Permit Holder: THE CORPORATION OF THE TOWN OF CARLETON PLACE.  
Received on: Jan 21, 2021 10:17 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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