

Carleton Place Drinking Water System

Waterworks # 210000372

System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Town of Carleton Place

Reporting Period of January 1st – December 31st 2022

Issued: March 1st, 2023

Revision: 1

Operating Authority:



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

Table of Contents

Annual Water Report	1
Report Availability	A
Compliance Report Card	A
System Process Description	B
Treatment Chemicals used during the reporting year:	B
Summary of Non-Compliance	C
Adverse Water Quality Incidents.....	C
Non-Compliance	C
Non-Compliance Identified in a Ministry Inspection:.....	C
Flows	C
Raw Water Flows	D
Total Monthly Flows (m ³ /d)	D
Monthly Rated Flows (L/min).....	D
Treated Water Flows	E
Monthly Rated Flows	E
Annual Total Flow Comparison	E
Regulatory Sample Results Summary	F
Microbiological Testing.....	F
Operational Testing	F
Inorganic Parameters	G
Schedule 15 Sampling:	H
Organic Parameters	H
Additional Legislated Samples.....	I
Backwash Effluent.....	I
Hazardous Algae Bloom (HAB) Sampling	I
Major Maintenance Summary	J
Distribution Maintenance	K
WTRS Data and Submission Confirmation	L

Report Availability

The Carleton Place Drinking Water system (DWS) serves more than 12,000 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). 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	Last Inspection was January 25 th 2022
Municipal Drinking Water Licence Drinking Water Works Permit	N/A	Expiry Date 2026-02-25
Ministry of Labour Inspections	0	No Inspections during the reporting period
QEMS External Audit	1	One (1) External Surveillance Audit
AWQI's	0	No AWQI's during the reporting period
Non-Compliance	1	See Non-Compliance section
Spill Incidents	1	See Spill section

System Process Description

Raw water is directed from the Mississippi River through a series of screens and into the 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/antracite) 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 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 m³ 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

There were no adverse water quality incidents.

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
Schedule C - MDWL	Flow meter Calibration	12 months	Flow meters were calibrated	Closed

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
No non-compliances during the Ministry Inspection				

Spill Incident

Date	Location	Details	Corrective Action
August 28, 2022	Water Tower 265 Nelson St.	Communication issues between tower and water plant	<ul style="list-style-type: none"> • Communication issues rectified by Bell • Alarm integration and testing was completed by Capital Controls to avoid future overflows

Flows

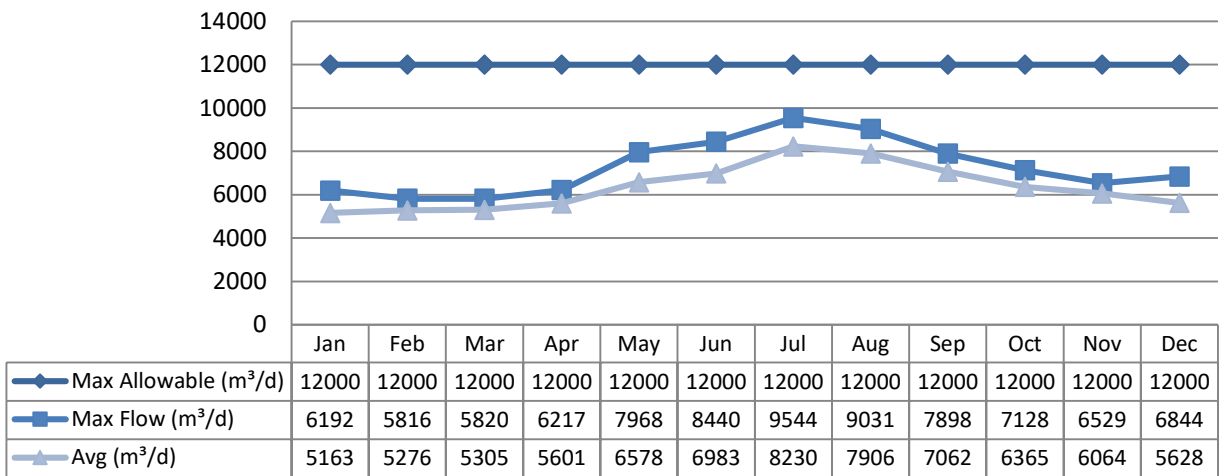
The Carleton Place Drinking Water System exceeded half the rated capacity on average the months of May, June, July, August, September and October. Max daily flows exceeded half the capacity in May, June, July and August.

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 #1310-9UHPPW. The confirmation is attached in Appendix A.

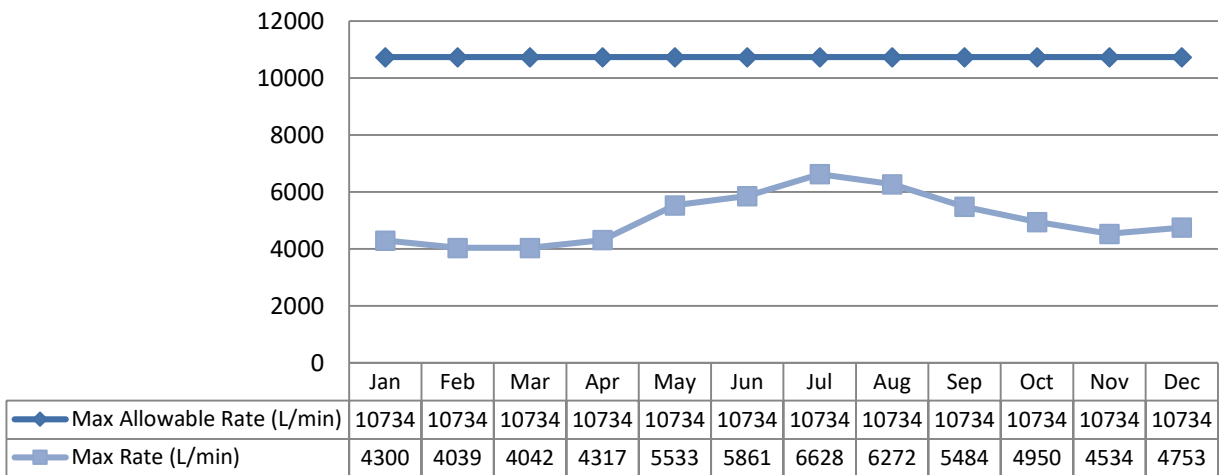
Total Monthly Flows (m³/d)

Max Allowable PTTW



Monthly Rated Flows (L/min)

Max allowable rate - PTTW

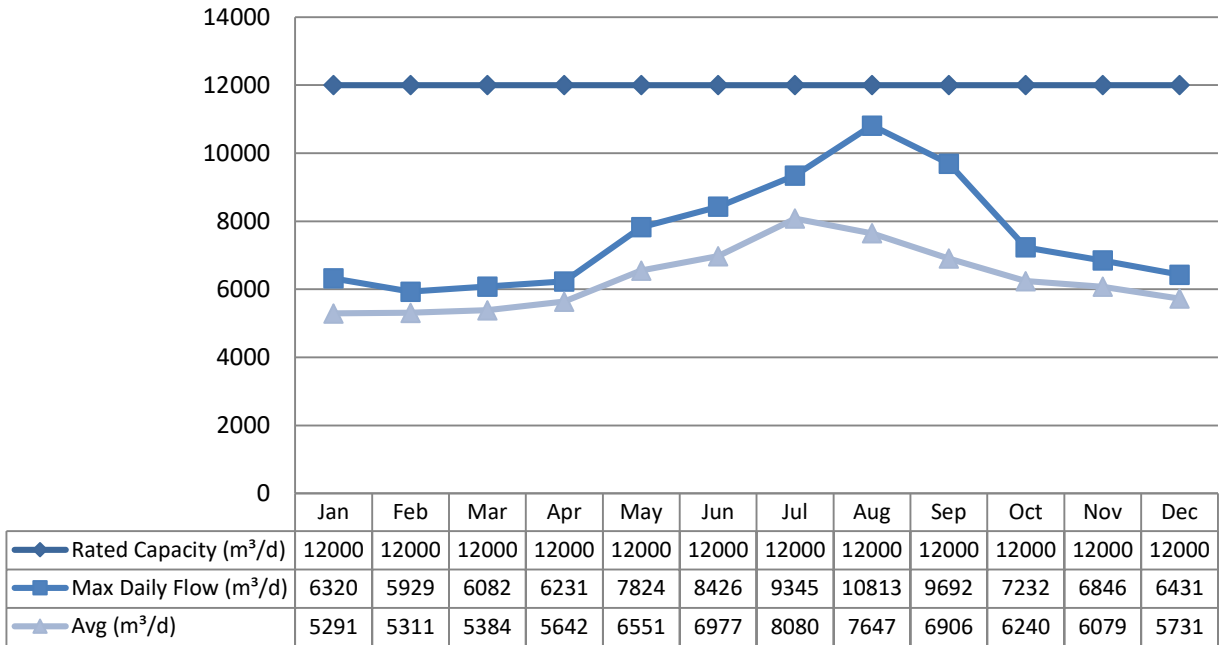


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

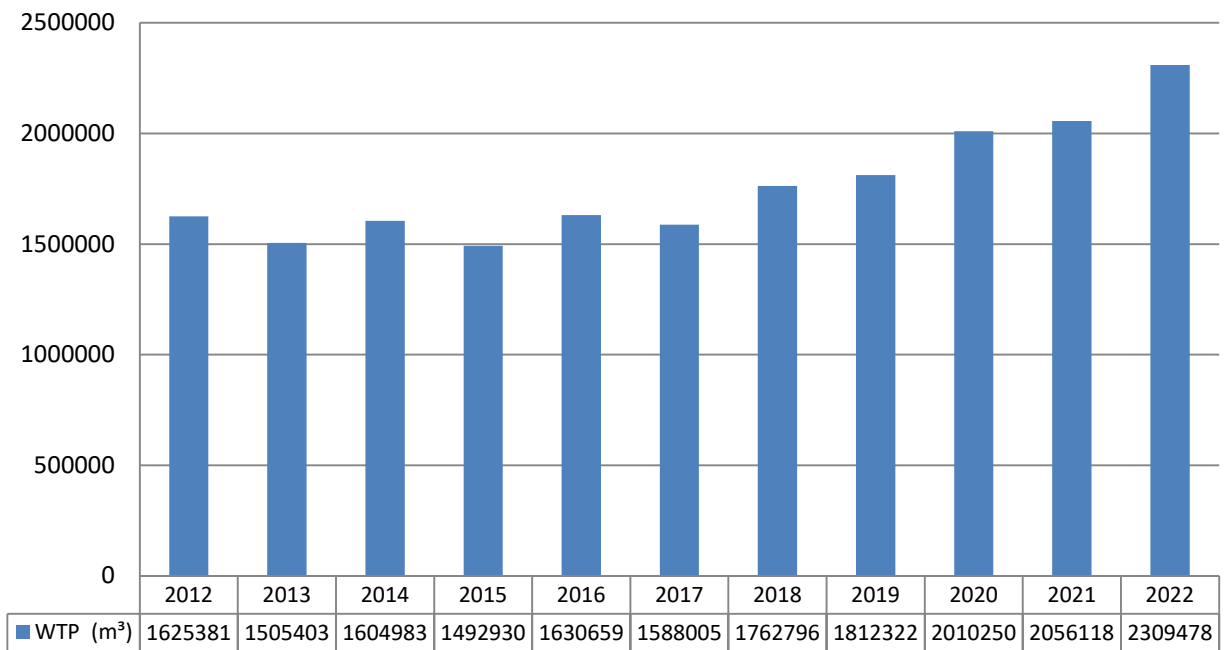
Monthly Rated Flows

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	52	0	29	5	180			
Treated Water	52	0	0	0	0	52	2	2
Distribution Water	321	0	0	0	0	207	2	34

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	123	0.084	0.87
Turbidity, On-Line (NTU) - TW	8760	0.04	0.31
Turbidity, On-Line (NTU) - Filt1A	8760	0.05	0.41
Turbidity, On-Line (NTU) - Filt1B	8760	0.06	0.28
Turbidity, On-Line (NTU) - Filt2A	8760	0.06	0.29
Turbidity, On-Line (NTU) - Filt2B	8760	0.08	0.36
Turbidity, On-Line (NTU) - Filt3A	8760	0.06	0.5
Turbidity, On-Line (NTU) - Filt3B	8760	0.06	0.59
Free Chlorine Residual, On-Line (mg/L) - TW	8760	1.39	1.85
Free Chlorine Residual, In-House (mg/L) - TW	123	1.44	2.1
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	52	1.55	1.75
Total Chlorine Residual, In-House (mg/L) - TW	10	1.8	1.96
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.82	1.55
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	34	0.87	1.51
Fluoride Residual, On-Line (mg/L) - TW	8760	0.3	1.5
Fluoride Residual, In-House (mg/L) - TW	114	0.21	0.81

NOTE: 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
Treated Water					
Antimony: Sb (ug/L) - TW	2022/01/11	< 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2022/01/11	0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2022/01/11	43.0	1000.0	No	No
Boron: B (ug/L) - TW	2022/01/11	5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2022/01/11	< 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2022/01/11	< 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2022/01/11	< 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2022/01/11	< 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2022/01/11	0.14	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2022	Min 0.0- Max 1.5	1.5	No	No
Nitrite (mg/L) - TW	2022/01/18	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/02/09	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/04/18	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/05/12	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/08/11	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/11/09	< 0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/01/18	0.1	10.0	No	No
Nitrate (mg/L) - TW	2022/02/09	< 0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/04/18	< 0.1	10.0	No	No
Nitrate (mg/L) - TW	2022/05/12	< 0.1	10.0	No	No
Nitrate (mg/L) - TW	2022/08/11	< 0.1	10.0	No	No
Nitrate (mg/L) - TW	2022/11/09	< 0.1	1.0	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 (mg/L)		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	7	7	59	73		
pH	6	6	6.74	7.77		
Lead (ug/l)	Lead samples collected in 2021					

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
Treated Water					
Alachlor (ug/L) - TW	2022/01/11	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2022/01/11	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2022/01/11	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2022/01/11	<MDL 0.006	0.01	No	No
Bromoxynil (ug/L) - TW	2022/01/11	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2022/01/11	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2022/01/11	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2022/01/11	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2022/01/11	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2022/01/11	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2022/01/11	<MDL 1.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/11	<MDL 0.5	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/11	<MDL 0.5	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2022/01/11	<MDL 0.5	5.00	No	No
1,1-Dichloroethane (ug/L) - TW	2022/01/11	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/11	<MDL 5.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/11	<MDL 0.2	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/11	<MDL 1.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2022/01/11	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2022/01/11	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2022/01/11	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2022/01/11	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2022/01/11	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2022/01/11	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2022/01/11	<MDL 10.0	100	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Metolachlor (ug/L) - TW	2022/01/11	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2022/01/11	<MDL 3.0	80.00	No	No
Paraquat (ug/L) - TW	2022/01/11	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2022/01/11	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2022/01/11	<MDL 0.2	60.00	No	No
Phorate (ug/L) - TW	2022/01/11	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2022/01/11	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2022/01/11	<MDL 0.1	1.00	No	No
Simazine (ug/L) - TW	2022/01/11	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2022/01/11	<MDL 0.5	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2022/01/11	<MDL 0.5	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/11	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2022/01/11	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2022/01/11	<MDL 0.5	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/11	<MDL 0.2	5.00	No	No
Trifluralin (ug/L) - TW	2022/01/11	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2022/01/11	<MDL 0.2	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Running Average - DW	Quarterly	80.3	100.00	No	Yes
Haloacetic Acid: Total (ug/L) Annual Running Average - DW	Quarterly	60.1	80.0	No	Yes

MAC = Maximum Allowable Concentration as per O.Reg 169/03
 BDL = Below the laboratory detection level

Additional Legislated Samples

On February 26, 2021 a new and updated Municipal Drinking Water Licence and Drinking Water Works Permit were issued. The filter backwash sampling is now required only when discharging to the Mississippi River. The facility is set up to no longer discharge to the Mississippi River; instead all residual solids are directed to the sanitary sewers.

Filter Backwash Effluent

Legal Document	Date of Issuance	Parameter	Date Sampled	Result	Unit of measure
Municipal Licence 172-101 Issue 3	February 26 2021	Suspended Solids (Limit 25 mg/L)	Annual Avg.	-	mg/L
Municipal Licence 172-101 Issue 3	February 26 2021	Total Chlorine (Limit 0.02 mg/L)	Annual Avg.	-	mg/L

Hazardous Algae Bloom (HAB) Sampling

No microcystin samples were required to be collected in 2022.

Major Maintenance Summary

WO #	Description
2638142	Miscellaneous Capital Items
2822103	Capital Outpost maintenance
2966899	Capital New Polymer Pump
3015974	Capital Fabricate and Install Screen Actiflo Train 1
3017647	Capital Cell Booster
3066634	Capital DWQMS SAI Global External Audit
3104288	Capital Replacement pH Probe
3106666	Capital Backflow Prevention Valve Repairs
3107141	Capital Air Scour Unit Maintenance/Electrical
3145838	Capital New Printer for SCADA Computer
3146091	Capital Critical Spare Actuator
2634778	Capital Failed Heater Replacement - Basement
2634989	Capital Conductivity/TDS Meter Pen
2635008	Capital Chemical Pump Pace to Flow
2638646	Capital SWAN Free Cl ₂ Reference Electrode Replacement
2638801	Capital Service/Maintenance Kits for Poly/PAS-8 Pumps
2640142	Capital Fluoride Pump Valve and Diaphragm Kit
2676563	Capital Tower Inspection
2676570	Capital Service Dehumidifier in Basement
2676645	Capital Chlorinators Servicing
2676838	Capital SCADA Alarm Programming
2678128	Capital Service/Maintenance Kits for Poly/PAS-8 Pumps
2680315	Capital Floor Cleaning and Waxing
2681081	Capital Hot Water Tank Replacement
2721367	Capital Repair Dehumidifier
2722394	Capital Control Valve Failure and SCADA alarming
2723182	Capital UPS Battery Back Up
2726086	Capital Tower Telemetry Equipment
2821620	Capital New Motor for Air Scour

WO #	Description
2822069	Capital Pribusin Failure
2870244	Capital New/Spare Chlorine Analyzer Parts
2874063	Capital SCADA Optimizations
2966171	Capital Purchase Critical Spare Actuator for Filters
2969061	Capital Tower Elevation Change Alarm and Pribusin
3013237	Capital Generator Batteries Replacement

Distribution Maintenance

Distribution Highlights were provided by the Town of Carleton Place.

2022 was a busy year with the reconstruction of our highly travelled Central Bridge and the revitalization of Bridge Street from Lake Avenue to the Central Bridge. The Public Works Department provided assistance to Louis Bray Construction throughout the Central Bridge and Bridge Street projects and took a very active role with the commissioning of both suspended water main crossings on the Gillies Bridge and Central Bridge. In addition to the installation of the water mains, Public Works staff replaced approximately 50 curb stops and stand posts on Bridge Street from Lake Avenue to Mill Street in preparation for the revitalization of Bridge Street. In addition to aiding Louis Bray, staff also assisted Cavanagh Construction with the replacement of a water service on Lyndhurst Street as part of the road reconstruction.

Staff also installed a much-needed water service to the Community Garden located on Townline road adjacent to St. Gregory Catholic School. This new water service will provide water onsite for this valuable asset within our community.



In addition to our construction activities, staff maintained several auto-flushers at strategic locations to maintain chlorine residuals within new developments, completed our annual flushing program, performed water valve maintenance, and completed over 1360 locate requests throughout 2022.

Carleton Place has been a growing community for several years and this year our staff assisted Cavanagh Construction with final connections to municipal services for yet another development, Phase 1 of the Mississippi Shores development on Lake Avenue West. This connection required the developer, Town staff, and OCWA to work together to make this connection in a manner that minimized disruptions to area residents. The connection was also completed on a Saturday to ensure the Carleton Place High School was not adversely impacted by the connection process.

The Carleton Place Public Works Department is proud of the dedication and professionalism demonstrated by both our employees and OCWA staff and we are truly blessed to have such a wonderful community that demonstrated their patience and understanding with so many challenges this past year.

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: Feb 15, 2023 1:41 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.

[Print Confirmation](#) [Return to Main Page](#)

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