

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 2019

Issued: April 16, 2020

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

This system serves more than 10,100 residence and the annual reports will be available to residence 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 systems additional drinking water systems that receive water from this facility.

Compliance Report Card

Compliance Event	# of Events	Details
Ministry of Environment Inspections	1	The inspection was January 23-24th, 2019 <ul style="list-style-type: none"> Inspection Rating - 96.73%
Ministry of Labour Inspections	0	No Inspections during the reporting period
QEMS External Audit	1	One (1) External Surveillance Audit
AWQI's	1	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 a raw water well. The wet well is equipped low lift pumps which moves 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 is 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 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

AWQI #	Date	Legislation	Problem	Details	Corrective Action Taken
148157	2019-09-20	Reg. 170/03	Five (5) minute treated chlorine residual was missed.	The monthly preventive maintenance generator run was performed at the Carleton Place Water Treatment Plant. While switching back to Municipal power, trending was lost from 10:13 to 10:23am. 5 minute treated chlorine residual was missed.	Staff ran the generator again September 24th, 2019. SCADA trends were reviewed before and after the generator switched back to municipal power. All trends were recording and reading correctly.

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no non-compliance issues reported during the reporting period.				

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
170/03	Filter 1A and 2A malfunctioned and lost trending	June 29-2018 August 4 2018 September 1 2018	Disabled features on the analyzer that cause the non-compliance	Closed

Flows

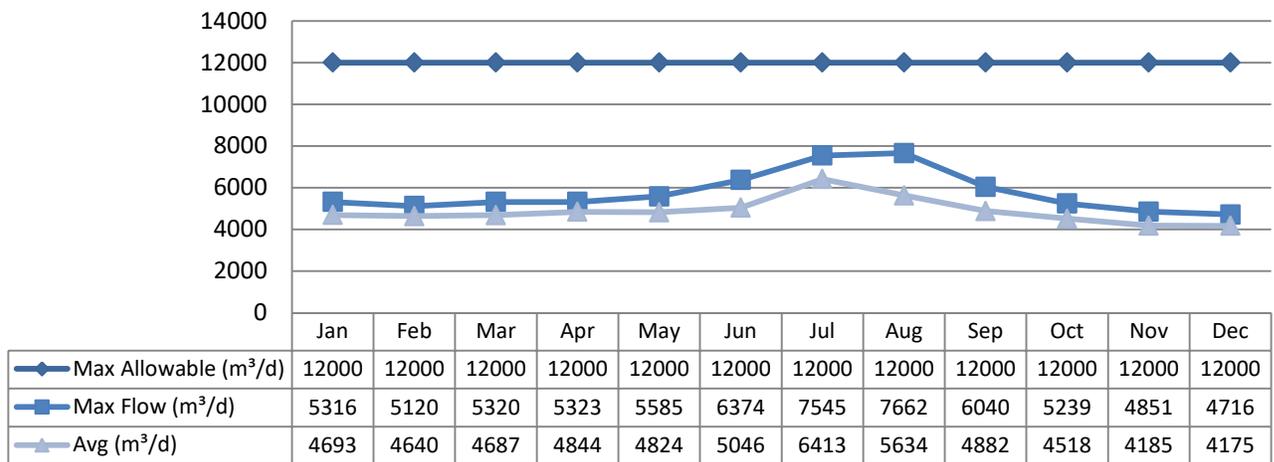
The Carleton Place Drinking Water System exceeded half the rated capacity on average in the month of July. Max daily flows exceeded half the capacity in June, July, August and September.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2019 Raw Flow Data was submitted to the Ministry electronically under permit #1310-9UHPPW. The confirmation and a copy of the data that was submitted are attached in Appendix A.

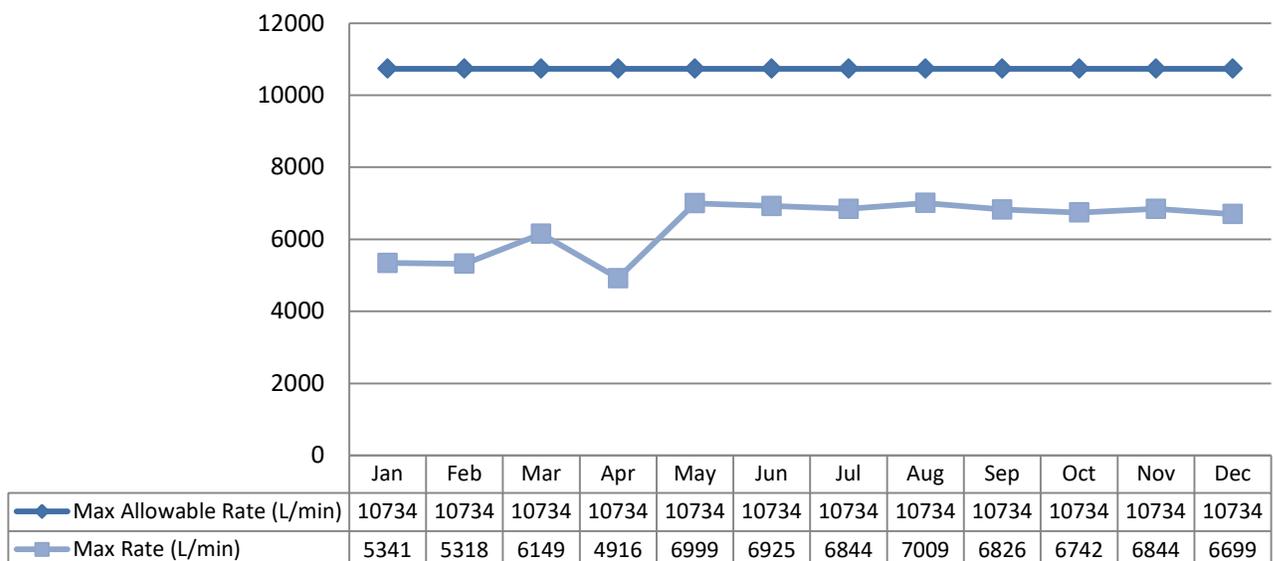
Total Monthly Flows (m³/d)

Max Allowable PTTW



Monthly Rated Flows (L/min)

Max allowable rate - PTTW

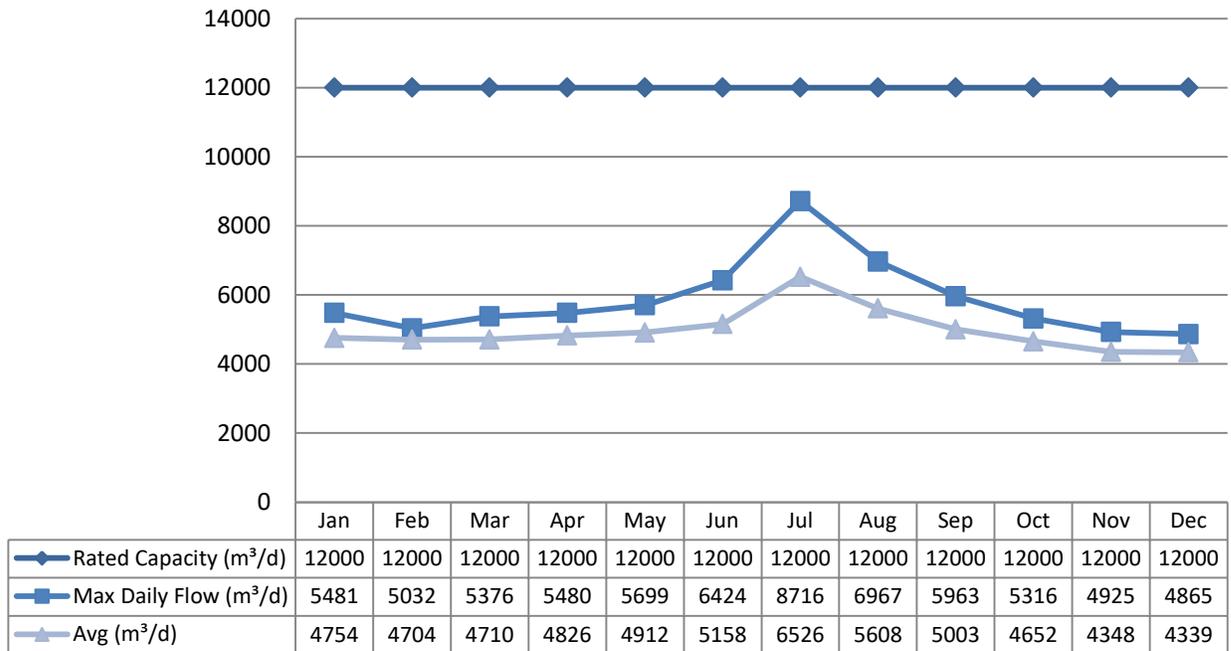


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

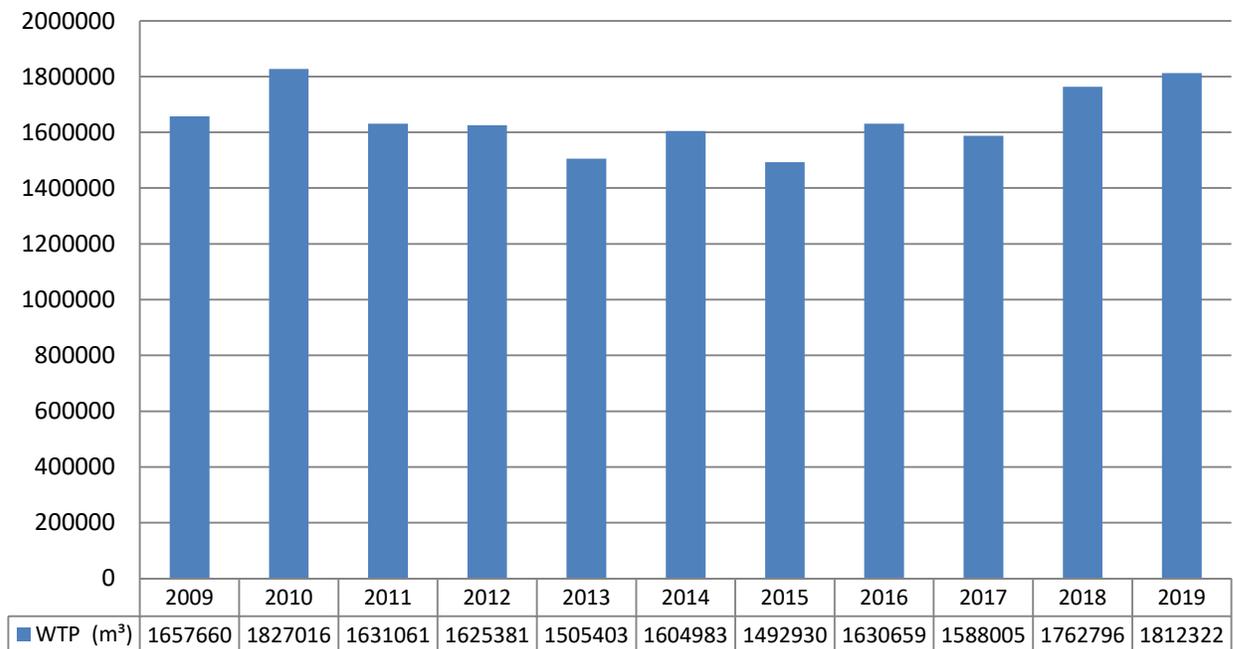
Monthly Rated Flows

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	53	0	18	0	72			
Treated Water	53	0	0	0	0	53	2	4
Distribution Water	375	0	0	0	0	110	2	2

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	129	0.049	5.24
Turbidity, On-Line (NTU) - TW	8760	0.06	2.0
Turbidity, On-Line (NTU) - Filt1A	8760	0	1.99
Turbidity, On-Line (NTU) - Filt1B	8760	0	2.0
Turbidity, On-Line (NTU) - Filt2A	8760	0.04	2.0
Turbidity, On-Line (NTU) - Filt2B	8760	0.04	2.0
Turbidity, On-Line (NTU) - Filt3A	8760	0	2.0
Turbidity, On-Line (NTU) - Filt3B	8760	0	1.25
Free Chlorine Residual, On-Line (mg/L) - TW	8760	1.04	2.76
Free Chlorine Residual, In-House (mg/L) - TW	131	1.0	2.44
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	53	1.66	2.25
Total Chlorine Residual, In-House (mg/L) - TW	130	1.81	2.89
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.56	2.56
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	375	0.72	2.1
Fluoride Residual, On-Line (mg/L) - TW	8760	0.1	0.92
Fluoride Residual, In-House (mg/L) - TW	131	0.22	0.91

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	2019/01/08	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2019/01/08	0.3	10.0	No	No
Barium: Ba (ug/L) - TW	2019/01/08	41.0	1000.0	No	No
Boron: B (ug/L) - TW	2019/01/08	<MDL 5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2019/01/08	<MDL 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2019/01/08	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2019/01/08	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2019/01/08	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2019/01/08	<MDL 0.05	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2019/12/09	0.2	1.5	No	No
Nitrite (mg/L) - TW	2019/02/05	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/04/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/07/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/10/09	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2019/02/05	<MDL 0.1	10.0	No	No
Nitrate (mg/L) - TW	2019/04/09	0.2	10.0	No	No
Nitrate (mg/L) - TW	2019/07/09	<MDL 0.1	10.0	No	No
Nitrate (mg/L) - TW	2019/10/09	<MDL 0.1	10.0	No	No
Sodium: Na (mg/L) - TW	2015/02/03	4.0	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.

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	55	66		
pH	6	6	6.66	7.03		
Lead (ug/l)	6	6	0.02	3	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
Treated Water					
Alachlor (ug/L) - TW	2019/01/08	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2019/01/08	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW	2019/01/08	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2019/01/08	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2019/01/08	<MDL 0.3	5.00	No	No
Carbaryl (ug/L) - TW	2019/01/08	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2019/01/08	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2019/01/08	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2019/01/08	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW	2019/01/08	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2019/01/08	<MDL 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2019/01/08	<MDL 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2019/01/08	<MDL 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2019/01/08	<MDL 0.1	5.00	No	No
1,1-Dichloroethane (ug/L) - TW	2019/01/08	<MDL 0.1	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2019/01/08	<MDL 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2019/01/08	<MDL 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2019/01/08	<MDL 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2019/01/08	<MDL 0.5	9.00	No	No
Dimethoate (ug/L) - TW	2019/01/08	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW	2019/01/08	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2019/01/08	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2019/01/08	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW	2019/01/08	<MDL 5.0	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2019/01/08	<MDL 10	100	No	No
Metolachlor (ug/L) - TW	2019/01/08	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2019/01/08	<MDL 3.0	80.00	No	No
Paraquat (ug/L) - TW	2019/01/08	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2019/01/08	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2019/01/08	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW	2019/01/08	<MDL 0.3	2.00	No	No
Picloram (ug/L) - TW	2019/01/08	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2019/01/08	<MDL 0.1	1.00	No	No
Simazine (ug/L) - TW	2019/01/08	<MDL 0.5	10.00	No	No
Terbufos (ug/L) - TW	2019/01/08	<MDL 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2019/01/08	<MDL 0.2	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2019/01/08	<MDL 0.1	100.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Triallate (ug/L) - TW	2019/01/08	<MDL 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2019/01/08	<MDL 0.1	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2019/01/08	<MDL 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2019/01/08	<MDL 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2019/01/08	<MDL 0.2	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	Quarterly	82.3	100.00	No	Yes
Haloacetic Acid: Total (ug/L) Annual Average - DW	Quarterly	76.3	N/A	N/A	N/A

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

BDL = Below the laboratory detection level

Additional Legislated Samples

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.	23.0	mg/L

Additional Legislated Samples

Mississippi Lake developed Blue-Green Algae blooms in the summer of 2018. To ensure the drinking water remained unaffected the raw and treated water were sampled weekly for Microcystin during September to November. The raw and treated water results were below the methods detection limit. There were no Microcystin found in either the raw or treated water.

Mississippi Lake developed Blue-Green Algae blooms in the summer of 2019. The Ministry advised that no testing was required for Microcystin due to the great distance from the bloom to the water intake.

Major Maintenance Summary

WO #	Description
1103765	Blanket Items under \$200
1178064	Low Lift 2 fail to stop
1298727	Loss of communication to Actiflo - Capital Controls on site
1299032	Protocol converter for WonderWare
1299645	Annual chlorinator service
1300896	Water Tower Level Pribusin Not Communicating
1301460	Flow meter calibration

1376690	Check valves residual pumping station
1378869	Capital Controls Actiflo communication failure
1380050	Turbidity analyzer filter
1380159	Capital Controls raw water flow meter failure
1421877	Chlorine analyzer replacement
1422298	Clearwell Inspection (ROV)
1463101	Sand Recirculation pump replacement 1& 2
1138504	Tower communication Pribusin
1139567	Sand Recirculation pump repairs
1218029	Replace air scour actuators
1259199	Loss Of PLC Communication To Actiflo
1298940	Isolate water tower for new water main install
1301386	DWQMS Water Quality Management Standard Version 2
1301391	DWQMS Upgrade Audit
1422703	Calcium Gluconate
1422706	DSC replacement
1463118	Loss of tower level
1464949	Actiflo turbidity analyzer replacement
1499734	Chlorine analyzer replacement pH probe
1499822	Carambeck Day Care lead sampling
1501060	Actiflo screening enhancement
1534882	Carleton Place Daycare Center lead sampling

Appendix A

WTRS Data and Submission Confirmation

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 25, 2020 9:27 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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CARLETON PLACE DRINKING WATER SYSTEM / Raw Water

Yearly Summary (Flow) 2019

Report extracted 02/11/2020 10:55

Annual Values and Summary

Units: cubic meter per day

Station:

Daily Max:

7661.73 on August 22

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	4423.02	4806.25	4378.11	5104.31	4900.50	4708.39	5447.96	6112.42	4639.25	4251.14	4851.06	3877.02
2	4938.77	4799.54	5245.27	4864.46	4982.75	4322.72	6583.41	6257.99	5238.84	4290.92	4525.59	4231.13
3	4028.29	4916.23	4704.66	4726.25	4694.37	4359.20	6534.21	5884.29	6040.26	4674.10	4250.47	3876.17
4	4903.33	4448.64	5115.33	4915.79	4745.39	3482.01	6693.68	6064.90	4744.74	4485.04	4181.07	4261.26
5	4327.66	4436.40	4483.53	4798.31	5363.73	4465.77	6488.75	6605.47	5220.02	4818.44	4320.45	4222.55
6	5098.96	4488.21	4540.56	4922.99	4683.09	5794.37	6646.71	5222.68	4820.50	4408.88	3650.56	3609.01
7	4684.25	4512.55	5208.84	4763.08	4981.80	5637.94	6868.68	4990.14	4924.51	4880.00	4187.60	4623.08
8	4650.44	4266.97	4393.26	4960.99	4978.58	5566.40	7003.22	4707.26	4952.38	4847.34	4287.67	3729.01
9	4103.72	4961.87	5101.42	4865.10	4800.73	6373.67	7298.13	4609.53	4315.08	4660.03	4556.33	4528.18
10	4885.05	4698.07	3287.97	4909.11	4834.09	4314.31	7090.96	5068.49	4606.20	4090.86	4220.03	3925.15
11	4641.96	4536.49	5319.93	4819.40	4741.16	5220.99	6143.63	5798.05	4947.04	4557.48	4031.40	3946.52
12	4555.08	4407.51	4432.88	4507.25	5276.73	5283.02	5438.96	4746.63	4961.92	4781.06	4081.41	4332.96
13	5316.28	4465.34	4589.03	5090.51	4490.59	4240.84	5410.84	5554.56	4960.16	4450.43	4181.42	4030.28
14	4497.35	4505.11	4252.84	5074.22	5308.63	3849.76	4876.62	5467.58	4842.23	4706.35	4161.46	3818.31
15	4882.58	4387.10	4731.58	4893.00	4951.64	4588.44	6182.32	6015.06	5299.43	4381.58	4257.06	4553.69
16	4755.09	4494.78	4832.45	4666.91	5414.98	5391.67	6101.37	6039.38	4611.81	4176.05	3832.24	4353.28
17	4933.19	4948.00	4891.29	4632.46	4412.94	5560.13	6617.79	4899.29	5124.25	3948.13	4522.43	4038.40
18	4586.33	4686.74	4778.11	5033.95	5585.00	5045.90	6820.24	4514.34	4969.53	4647.27	4291.70	4290.15
19	4863.45	4215.95	4812.90	4825.62	4675.18	5378.01	7034.91	5620.42	5120.79	5204.39	4356.84	4338.78
20	5128.29	4797.06	4655.87	4796.87	4794.86	5106.99	6018.03	5862.38	5068.49	5129.74	3651.03	4079.26
21	4447.08	4779.76	4874.56	4772.09	5282.15	5169.87	6539.65	5486.90	5183.08	5239.02	3941.54	4402.35
22	4744.88	4490.48	4330.11	4931.37	5105.43	4990.54	6329.94	7661.73	4693.79	4348.07	4195.80	3971.62
23	4644.28	4668.88	4819.59	4659.66	3799.50	6080.77	6342.60	7454.99	4803.22	5124.75	4491.41	4685.77
24	4706.32	4978.96	4637.35	4859.10	4493.18	5797.60	6585.31	5710.46	4944.11	4567.91	3894.40	4079.45
25	4501.34	4537.07	4663.23	4803.08	3780.82	5096.25	6324.42	5936.95	4836.58	4164.69	4460.11	4450.65
26	5103.08	4750.40	4456.26	4409.22	4884.80	4973.90	6706.55	5948.86	4626.20	4774.01	4261.89	3881.92
27	4832.05	5119.70	4515.69	5096.66	5300.32	5114.89	7544.73	5723.96	3890.23	4249.94	3806.29	4213.19
28	4501.81	4821.56	4691.14	5322.69	4732.51	5017.17	7251.88	4997.49	4344.64	3716.66	3728.31	4716.16
29	4544.32		4500.41	4546.86	4062.92	5527.56	6724.27	5402.04	5100.03	4415.60	4119.26	3701.34
30	4508.21		5121.47	4738.19	4996.17	4907.69	5792.12	5022.28	4627.62	4512.59	4249.83	4608.19
31	4737.88		4933.16		4493.17		5375.06	5264.41		3569.12		4042.06
Min	4028.29	4215.95	3287.97	4409.22	3780.82	3482.01	4876.62	4514.34	3890.23	3569.12	3650.56	3609.01
Mean	4692.72	4640.20	4687.06	4843.65	4824.12	5045.56	6413.45	5633.90	4881.90	4518.44	4184.89	4174.74
Max	5316.28	5119.70	5319.93	5322.69	5585.00	6373.67	7544.73	7661.73	6040.26	5239.02	4851.06	4716.16