

Bobcaygeon Drinking Water System

Waterworks # 210000318

System Category – Large Municipal Residential

Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2021

Issued: February 23, 2022

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 residences. The annual reports will be available to residents free of charge at the City of Kawartha Lakes Public Works Administration Office and on [the City website](#). The City of Kawartha Lakes Public Works Administration Office is located at 322 Kent Street West in Lindsay, Ontario.

Compliance Report Card

Drinking Water System Number: 210000318
Drinking Water System Name: Bobcaygeon DWS
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Large Municipal Residential
Reporting Period: January 1, 2021 - December 31, 2021

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	August 25, 2021	Announced - Focused Drinking Water Inspection - Final Inspection Rating of 100%
AWQI's	1	February 9, 2021	AWQI 153541 – Loss of continuous monitoring
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Bobcaygeon WTP sources its water from the Big Bob River.

Treatment

The treatment system consists of the following:

- Three lowlifts
- SternPAC feed system with metering pumps
- Two solids re-circulating reactivator type flocculator/clarifier units in parallel which includes flash mixing, flocculation and sedimentation chambers
- Two dual media (anthracite/sand) high rate gravity filters in parallel
- Continuous online turbidity analyzers
- Sodium hypochlorite feed system with metering pumps
- Continuous online chlorine analyzers
- Four clear wells
- Ammonium sulfate feed system with metering pumps
- Continuous online flow meters
- Three highlifts
- Water storage standpipe with a capacity of 4400 m³
- One surge equalization tank for the sludge from the settling tanks and the backwash wastewater from the filters
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
SternPAC	Coagulant	Kemira
Ammonium Sulphate	Chloramination	FloChem

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
February 9, 2021	153541	Filter effluent	Filter turbidity analyzer sensor failure resulting in loss of	Filter 1 NTU analyzer had equipment failure	O. Reg. 170/03 Schedule 6-5	Corrective actions on the day of the failure include replacing

			continuous monitoring.	(sensor missing error) resulting in loss of continuous monitoring. Sensor replaced, analyzer and plant back in service.		failed sensor, set up the analyzer, and to change the 4-20ma signal to drop below 4ma if the analyzer malfunctions. The SCADA recognizes the <4ma signal as an analyzer failure.
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Non-Compliance

There were no non-compliances identified during this period

Non-Compliance Identified in a Ministry Inspection:

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

Flows

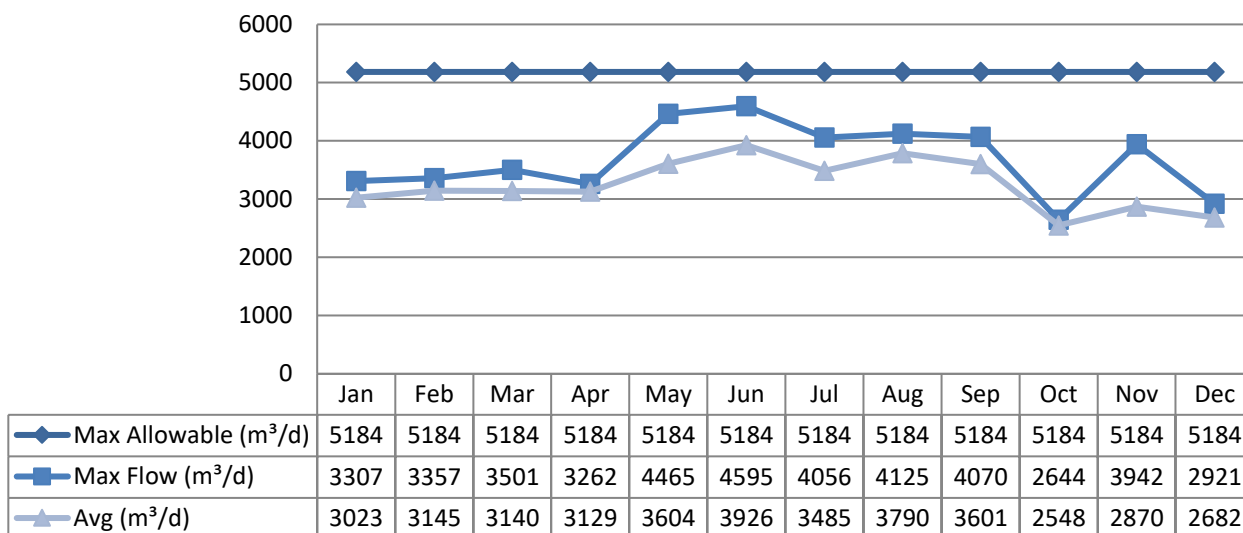
The Bobcaygeon Drinking Water System is operating near or over half the rated capacity.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2021 Raw Flow Data was submitted to the Ministry electronically under permit #7640-AQJHCV. The confirmation and a copy of the data that was submitted are attached in Appendix A.

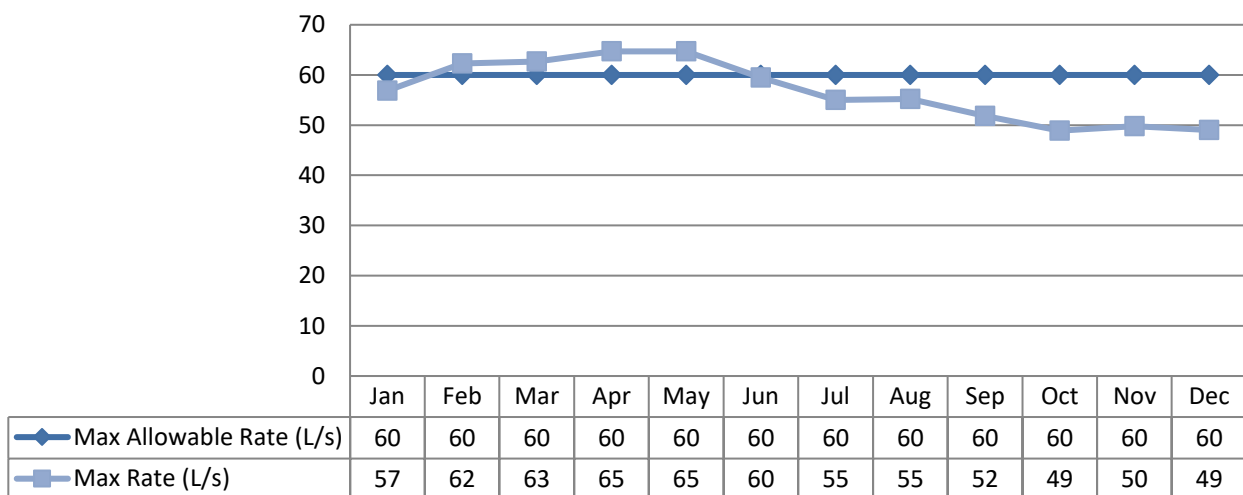
Total Monthly Flows (m³/d)

Max Allowable PTTW- Raw



Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Raw



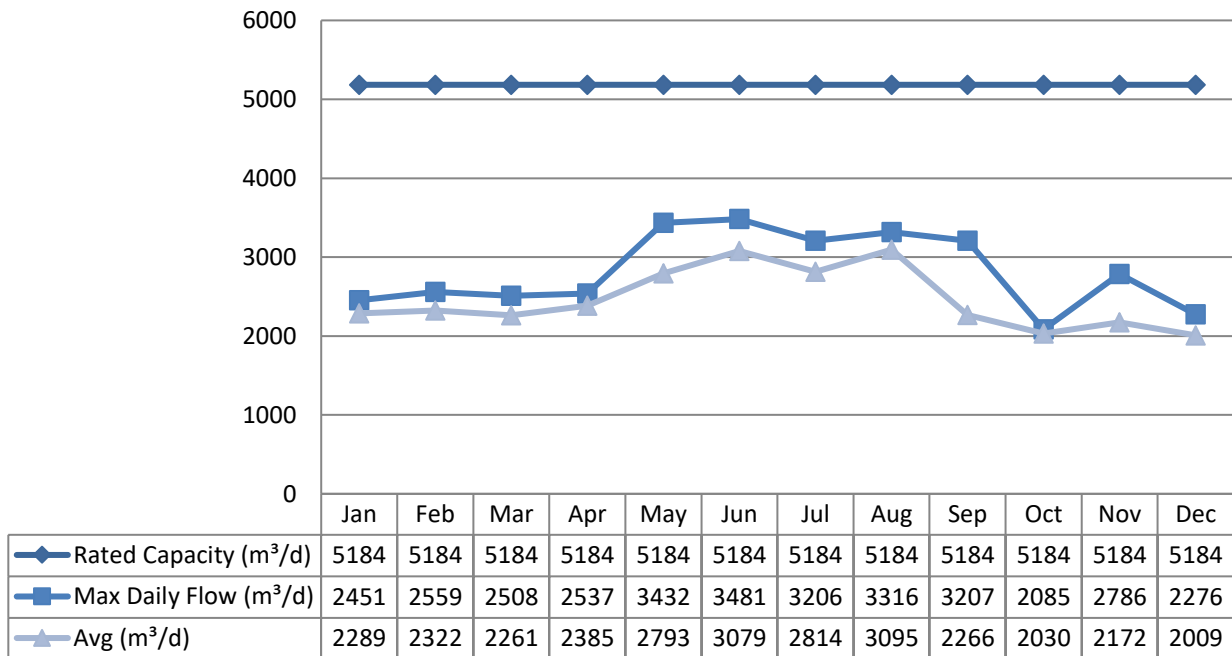
Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) which were short in duration. The scheduled Flow Meter calibration was in August.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

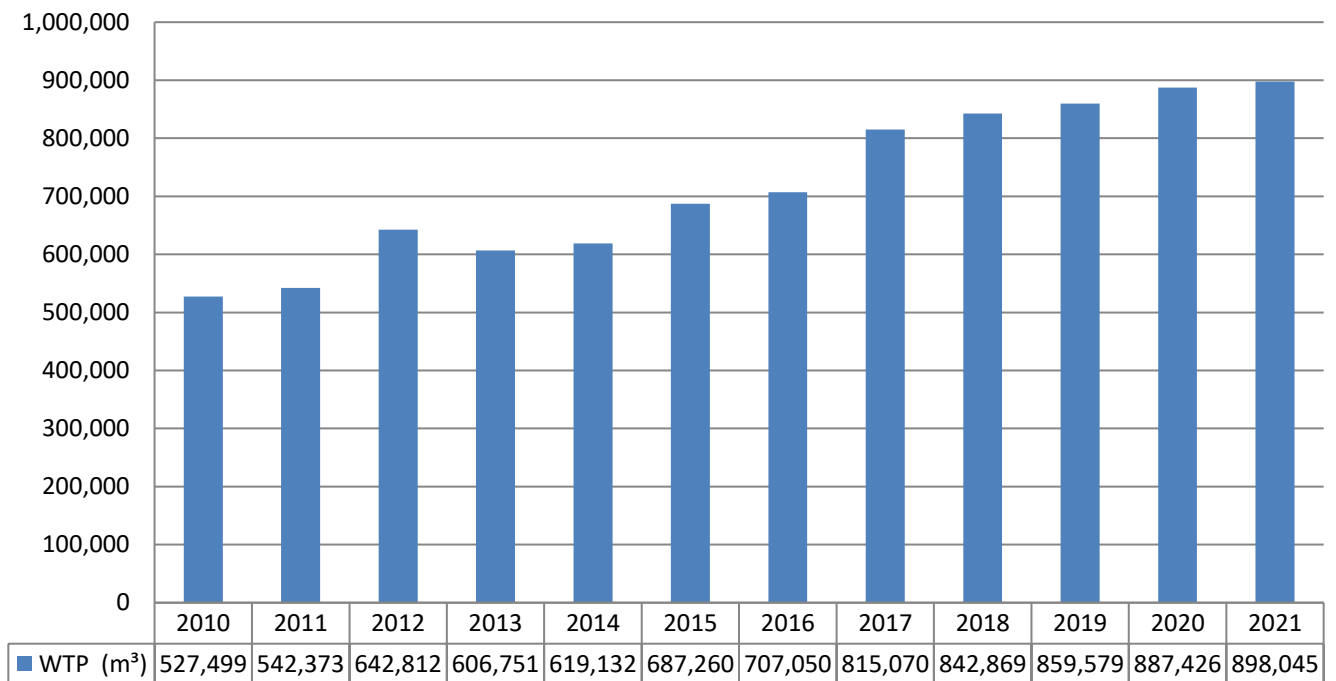
Monthly Rated Flows

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		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw	52	0	8	0	580		
Treated	52	0	0	0	0	0	40
Distribution	156	0	0	0	0	0	460

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Raw	46	0.39	4.09
Turbidity Filter 1	8760	0	1.73
Turbidity Filter 2	8760	0	1.64
Chlorine	8760	0	6.27
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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L)	2021/01/12	<MDL 0.9	6.0	No	No
Arsenic: As (ug/L)	2021/01/12	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L)	2021/01/12	21.4	1000.0	No	No
Boron: B (ug/L)	2021/01/12	8.0	5000.0	No	No
Cadmium: Cd (ug/L)	2021/01/12	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L)	2021/01/12	0.5	50.0	No	No
Mercury: Hg (ug/L)	2021/01/12	<MDL 0.01	1.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Selenium: Se (ug/L)	2021/01/12	0.04	50.0	No	No
Uranium: U (ug/L)	2021/01/12	0.012	20.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2018/01/08	<MDL 0.06	1.5	No	No
Nitrite (mg/L)	2021/01/12	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2021/04/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2021/07/19	0.005	1.0	No	No
Nitrite (mg/L)	2021/10/18	<MDL 0.003	1.0	No	No
Nitrate (mg/L)	2021/01/12	0.11	10.0	No	No
Nitrate (mg/L)	2021/04/06	0.835	10.0	No	No
Nitrate (mg/L)	2021/07/19	0.095	10.0	No	No
Nitrate (mg/L)	2021/10/18	0.074	10.0	No	No
Sodium: Na (mg/L)	2018/01/08	8.54	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	48	70	N/A	N/A
pH	6	6	7.24	8.42	N/A	N/A
Lead (ug/l)	6	0	N/A	N/A	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)	2021/01/12	<MDL 0.02	5.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Atrazine + N-dealkylated metabolites (ug/L)	2021/01/12	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L)	2021/01/12	<MDL 0.05	20.0	No	No
Benzene (ug/L)	2021/01/12	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L)	2021/01/12	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L)	2021/01/12	<MDL 0.33	5.0	No	No
Carbaryl (ug/L)	2021/01/12	<MDL 0.05	90.0	No	No
Carbofuran (ug/L)	2021/01/12	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L)	2021/01/12	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L)	2021/01/12	<MDL 0.02	90.0	No	No
Diazinon (ug/L)	2021/01/12	<MDL 0.02	20.0	No	No
Dicamba (ug/L)	2021/01/12	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2021/01/12	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2021/01/12	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L)	2021/01/12	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L)	2021/01/12	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2021/01/12	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L)	2021/01/12	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2021/01/12	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L)	2021/01/12	<MDL 0.4	9.0	No	No
Dimethoate (ug/L)	2021/01/12	<MDL 0.06	20.0	No	No
Diquat (ug/L)	2021/01/12	<MDL 1.0	70.0	No	No
Diuron (ug/L)	2021/01/12	<MDL 0.03	150.0	No	No
Glyphosate (ug/L)	2021/01/12	<MDL 1.0	280.0	No	No
Malathion (ug/L)	2021/01/12	<MDL 0.02	190.0	No	No
Metolachlor (ug/L)	2021/01/12	<MDL 0.01	50.0	No	No
Metribuzin (ug/L)	2021/01/12	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2021/01/12	<MDL 0.3	80.0	No	No
Paraquat (ug/L)	2021/01/12	<MDL 1.0	10.0	No	No
PCB (ug/L)	2021/01/12	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L)	2021/01/12	<MDL 0.15	60.0	No	No
Phorate (ug/L)	2021/01/12	<MDL 0.01	2.0	No	No
Picloram (ug/L)	2021/01/12	<MDL 1.0	190.0	No	No
Prometryne (ug/L)	2021/01/12	<MDL 0.03	1.0	No	No
Simazine (ug/L)	2021/01/12	<MDL 0.01	10.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Terbufos (ug/L)	2021/01/12	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L)	2021/01/12	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2021/01/12	<MDL 0.2	100.0	No	No
Triallate (ug/L)	2021/01/12	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L)	2021/01/12	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2021/01/12	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)	2021/01/12	<MDL 0.12	100.0	No	No
Trifluralin (ug/L)	2021/01/12	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L)	2021/01/12	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2021	50.5	100.0	No	Yes
HAA Total (ug/L) Annual Average - DW	2021	36.9	80.0	No	No

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

MDL = Method Detection Limit

Additional Legislated Samples

There was no additional sampling required.

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

WO #	Description
2130780	Optimization and Capacity Review
1623827	Highlift VFD Installation
1623828	Lowlift VFD Installation

Appendix A

WTRS Data and 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: 7640-AQJHCV

Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.

Received on: Jan 31, 2022 11:19 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.