

Beachburg Drinking Water System

Waterworks # 220003449
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Township of Whitewater Region

Reporting Period of January 1st – December 31st 2021

Issued: February 28th, 2022

Revision: 0

Operating Authority:



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

The annual report will be available to residents at the Township of Whitewater Region's Municipal Office and copies provided free of charge if requested. The Township of Whitewater Region's Municipal Office is located at 44 Main Street, Cobden, Ontario.

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

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 MECP Inspection on October 26 th 2021 100% Rating
Ministry of Labour Inspections	0
QEMS External Audit	1 Audit completed on February 17 th 2021 by SAI Global. No major or minor non-conformances were identified.
AWQI's/BWA	0/0
Non-Compliance	0
Community Complaints	4
Spills	0
Watermain Breaks	2

System Process Description

Raw Source

The Beachburg drinking water system consists of one (1) dug well and one (1) drilled well. Both wells are considered to be Groundwater Under the Direct Influence of surface water (GUDI). The principal water source is the dug well which is 3.6 m in diameter, and 7.6 m deep. The well is located within a pump house, approximately 20 m south of the water treatment plant. The well is beneath a concrete floor in the pump house and is equipped with four centrifugal low lift pumps, each with a rated capacity of 5.7 L/s (342 L/min). Water entry holes are constructed in the casing at various levels and are reported to be at depths of 3.8 m, 3.5 m, 3.2 m, 2.9 m and 2.6 m below the top of casing. A 150 mm discharge line connects the dug well to the treatment plant.

The second well, drilled in 1991 to a depth of 30.5 m, acts as a standby well to provide water in the summer when the demand increases. The drilled well is located on a hill in an fenced in enclosure approximately 60 m southwest of the dug well. The well is equipped with one submersible turbine well pump with rated capacity of 11.4 L/s (684 L/min). Raw water from the drilled well travels through a 100 mm diameter discharge line, that is connects to the 150 mm discharge header from

the dug well. A raw water flow meter is installed on the 150 mm line to monitor flows of both wells. An interlock device between the pumps for the dug well and the drilled backup well ensures that only one well can operate at a time and elapsed running time meters for the well pumps allow for precise records of operating times.

Treatment

The raw water from the dug or drilled well is directed to the treatment plant through the common header where sodium hypochlorite (pre-chlorination) and PAS-8 are injected then mixed via an inline static mixer. Further sodium hypochlorite addition (post-chlorination) is available, however it is generally not required as chlorine residuals are maintained without further chemical addition.

After the chemical addition water enters the Ecodyne treatment tank, travelling through a cone-shaped solids contact unit equipped with an mixer for coagulation and flocculation. The solids are settled via tube settlers as water levels rise in the clarifier. Clarified water is collected in troughs and distributed to the two-cell dual media (sand/antracite) gravity filters. A common underdrain collects filter effluent from both cells, and a continuous online turbidimeter monitor's filter effluent turbidity. Water then enters the three-chambered clearwell with a total storage capacity of 656 m³ which provides sufficient contact time to meet primary disinfection. Four high lift pumps, plus one standby fire pump direct water from the clearwell into the distribution system. Treated flow leaving the clearwell is measured using a flow meter.

The wastewater produced from filter backwashing and clarifier blowdown is discharged to a two-cell storage tank with a total usable capacity of 45.9 m³. This tank provides settling for sludge, which is pumped and hauled to another location. The plant directs the storage tank supernatant from the wastewater storage to Jackson Lake, located south of the plant.

Distribution

The Beachburg Distribution System is a Class 1 Distribution System that serves a population of approximately 900, and consists of approximately 10 km of watermains, and 63 fire hydrants. The distribution system does not include any reservoirs, booster stations or re-chlorination stations. Five dry wells are available on Lapasse Road, Anderson Drive, Cardell Street, Beachburg Road and Robertson Drive to facilitate distribution sampling and provide adequate chlorine residuals in the distributed water.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
PAS-8	Coagulation & Flocculation	Kemira Canada Inc.
Sodium Hypochlorite	Disinfection	Brenntag Canada Inc.

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
None to report.						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
None to report.				

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
None to report.				

Flows

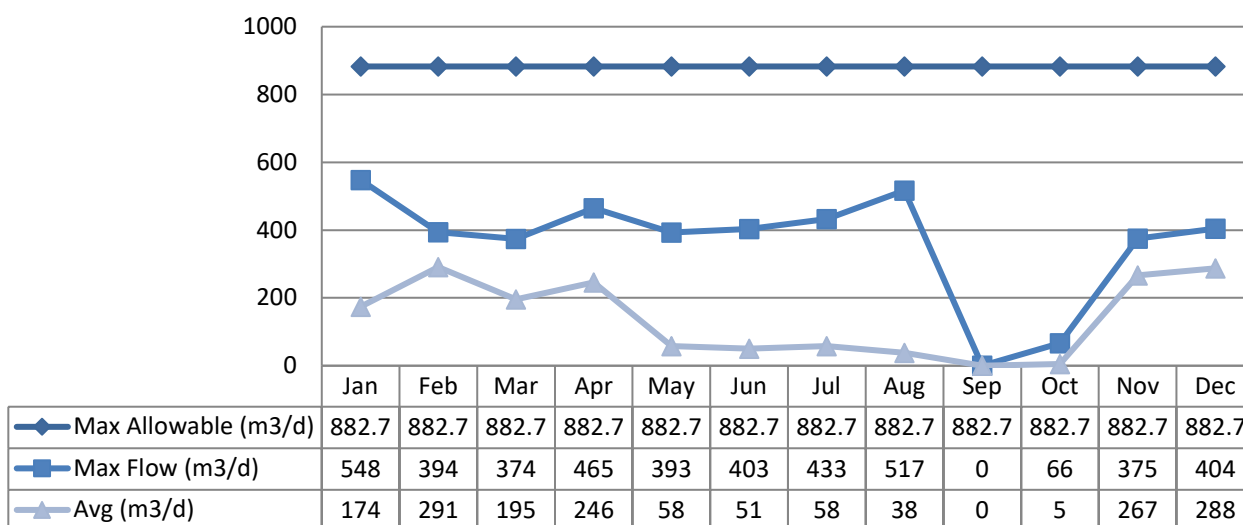
The Beachburg Drinking Water System is operating on average under half the rated capacity.

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 # 3055-8W5KCG. The confirmation and a copy of the data that was submitted are attached in Appendix A.

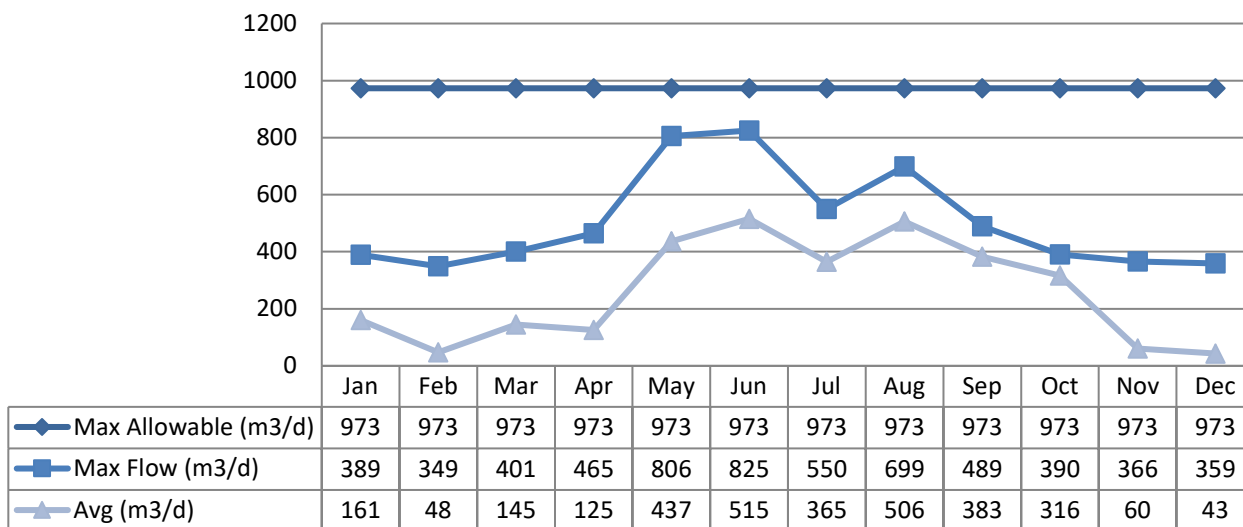
Dug Well Total Monthly Flows

Max Allowable - PTTW



Drilled Well Total Monthly Flows

Max Allowable - PTTW

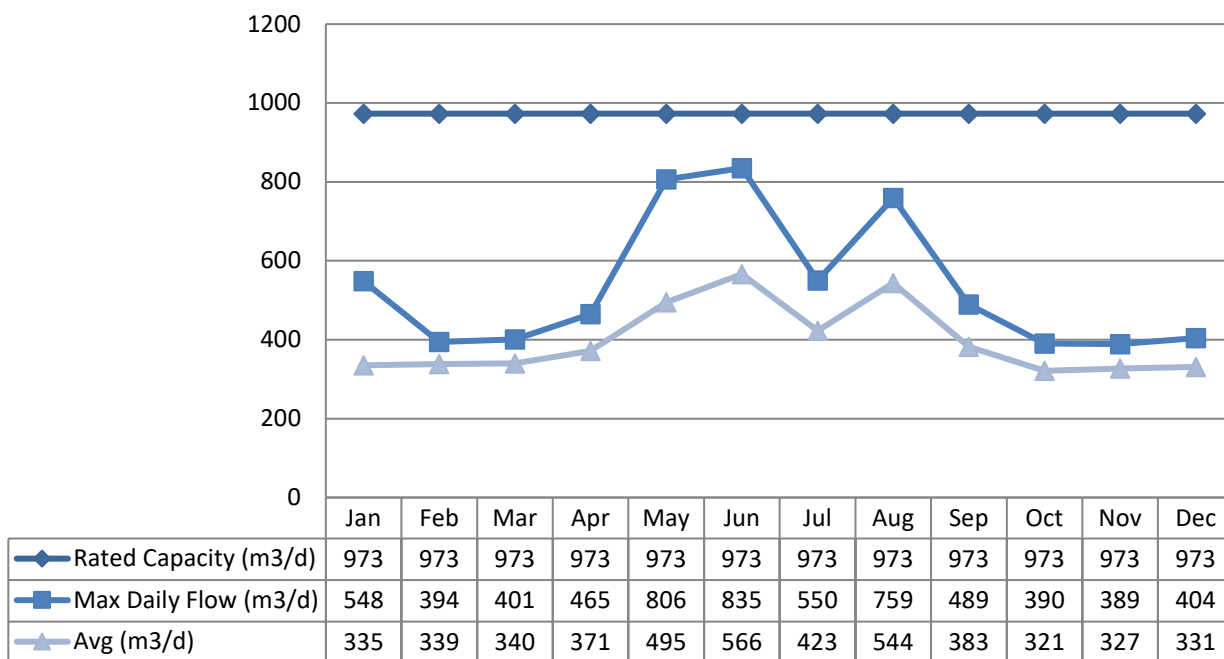


Treated Water Flows

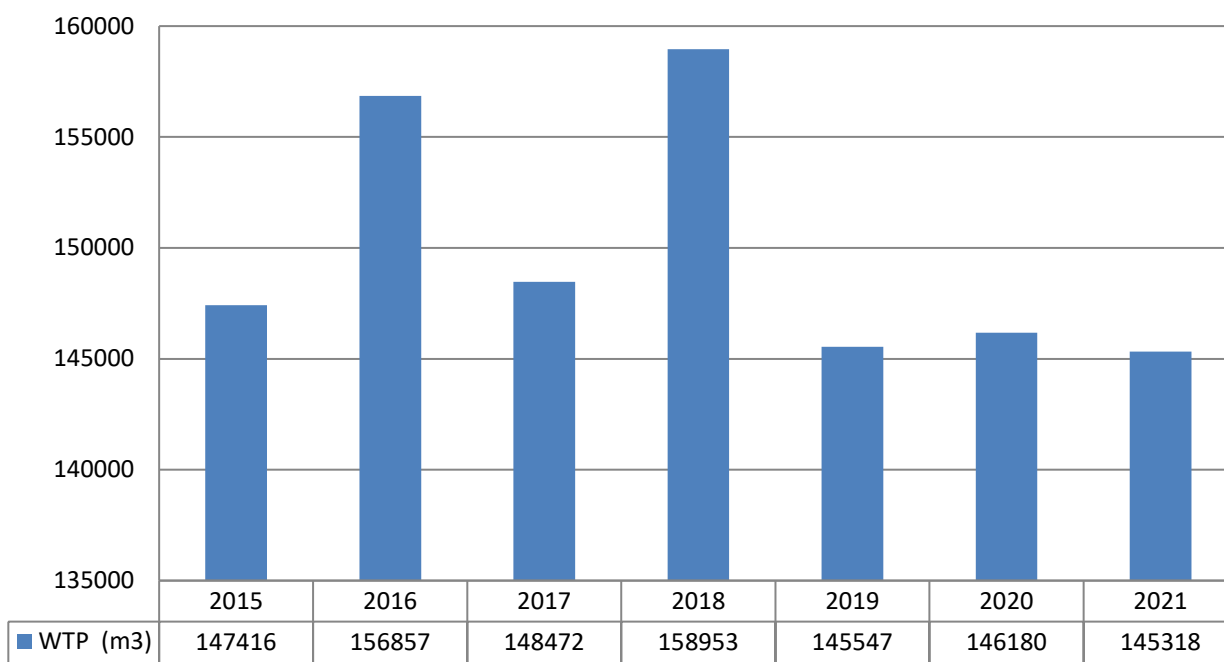
The Treated Water flows are regulated under the Municipal Drinking Water Licence.

Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison



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
Dug Well	51*	0	8	0	11	N/A	N/A
Drilled Well	52	0	0	0	0	N/A	N/A
Treated Water	52	0	0	0	0	0	2000
Distribution Water	116	0	0	0	0	0	2

NOTE: 52 samples were collected from the Dug well though the sample collected September 28th 2021 were NDOGT - No Data: Overgrown with Target Bacteria.

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) – RW1	22	0.19	3.51
Turbidity, In-House (NTU) – RW2	26	0.10	1.33
Turbidity, In-House (NTU) - TW	247	0.04	1.13
Turbidity, Online (NTU) – Filt1	8760	0	0.73
Free Chlorine Residual, Online (mg/L) - TW	8760	0.85	1.99
Free Chlorine Residual, In-House (mg/L) - DW	365	0.18	1.90

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 60 months. Nitrate and Nitrite are tested quarterly and metals are tested annually as required under O. Reg. 170/03. In the event any parameter exceeds half the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- <MDL = Less than Method Detection Limit

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2021/01/13	<MDL 0.9	6.0	No	No
Arsenic: As (ug/L) - TW	2021/01/13	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2021/01/13	76.0	1000.0	No	No
Boron: B (ug/L) - TW	2021/01/13	12.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2021/01/13	0.006	5.0	No	No
Chromium: Cr (ug/L) - TW	2021/01/13	0.89	50.0	No	No
Mercury: Hg (ug/L) - TW	2021/01/13	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2021/01/13	<MDL 0.04	50.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Uranium: U (ug/L) - TW	2021/01/13	0.126	20.0	No	No
Additional Inorganics					
Nitrite (mg/L) - TW	2021/01/13	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/04/22	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/07/22	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/10/28	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2021/01/13	0.099	10.0	No	No
Nitrate (mg/L) - TW	2021/04/22	0.053	10.0	No	No
Nitrate (mg/L) - TW	2021/07/22	0.181	10.0	No	No
Nitrate (mg/L) - TW	2021/10/28	0.011	10.0	No	No
Fluoride (mg/L) - TW	2019/01/03	<MDL 0.1	1.5	No	No
Sodium: Na (mg/L) - TW	2019/01/03	9	20*	Yes	Yes

*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.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	4	205	227	N/A	N/A
pH	2	4	7.8	8.0	N/A	N/A
Lead (ug/L)	2	4	0.01	0.19	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.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- <MDL = Less than Method Detection Limit

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2021/01/13	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2021/01/13	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2021/01/13	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2021/01/13	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2021/01/13	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2021/01/13	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2021/01/13	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2021/01/13	<MDL 0.01	90.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbon Tetrachloride (ug/L) - TW	2021/01/13	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2021/01/13	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2021/01/13	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2021/01/13	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2021/01/13	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2021/01/13	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2021/01/13	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2021/01/13	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2021/01/13	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2021/01/13	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2021/01/13	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2021/01/13	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2021/01/13	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2021/01/13	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2021/01/13	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2021/01/13	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2021/01/13	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2021/01/13	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2021/01/13	<MDL 0.02	80.0	No	No
MCPA (ug/L) - TW	2021/01/13	<0.12	100.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2021/01/13	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2021/01/13	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2021/01/13	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2021/01/13	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2021/01/13	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2021/01/13	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2021/01/13	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2021/01/13	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2021/01/13	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2021/01/13	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2021/01/13	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2021/01/13	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2021/01/13	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2021/01/13	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2021/01/13	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2021/01/13	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2021/01/13	<MDL 0.17	1.0	No	No

Distribution samples are tested quarterly for THM's and HAA's in accordance with O. Reg. 170/03.

	Sample Year	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Distribution Water					
Trihalomethane (THM) : Total (ug/L) Annual Average - DW	2021	49.3	100.0	No	No
Haloacetic Acid (HAA): Total (ug/L) Annual Average - DW	2021	36.9	80.0	No	No

Additional Legislated Samples

Schedule C: System-Specific Conditions of Municipal Drinking Water License #203-102 requires the Beachburg Drinking Water System to monitor effluent discharged to the natural environment.

Legal Document	Date of Issuance	Parameter	Limit (mg/L)	Result (mg/L)
MDWL #203-102	24-Sept-2020	Backwash Effluent Suspended Solids	Annual Average < 25 mg/L	7
MDWL #203-102	24-Sept-2020	Backwash Effluent Total Chlorine Residual	Annual Average < 0.02 mg/L	0.02

Major Maintenance Summary

WO #	Description
2223710	Repair natural gas heating units throughout facility
2452743	Replaced overload sensors in Highlift Pump #4

Distribution Maintenance

Date	Location Reference	Category	Details	Corrective Repair
April 20, 2021	Dead Ends	N/A	Spring flushing program	N/A
August 5, 2021	14 Caroline Street (Beachburg Arena)	1	Emergency repair of a watermain break	Connect 1" poly service line to main, capped old 4" cast line
August 16, 2021	14 Caroline Street (Beachburg Arena)	1	Continued repair of a watermain break	Install second new 2" service to building
October 20, 2021	Entire System	N/A	Fall flushing program	N/A

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: 3055-8W5KCG

Permit Holder: THE CORPORATION OF THE TOWNSHIP OF WHITEWATER REGION.

Received on: Feb 11, 2022 3:10 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.

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KAYLEE SAAR | 2022/02/11

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