Bayshore Village Drinking Water System

Waterworks # 220012724
System Category – Large Municipal Residential

Annual Water Report

Prepared For: The Township of Ramara

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

Issued: February 25, 2022

Revision: 0

Operating Authority:

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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 residence and the annual reports will be available to residents at the Township Of Ramara Administration Office and on the Township's website at www.ramara.ca. Notification that reports are available free of charge will be made on the Township of Ramara website. The Township of Ramara Administration Office is located at 2297 Highway 12, Brechin, ON L0K 1B0.

Compliance Report Card

Drinking Water System Number: 220012724
Drinking Water System Name: Bayshore Village DWS
Drinking Water System Owner: Township of Ramara
Drinking Water System Category: Large Municipal Residential
Period Being Reported: January 1, 2021 - December 31, 2021

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	December 14, 2021	Announced –Detailed Drinking Water Inspection –Final Inspection Rating not available at time of issuance
AWQI	0		
Number of Non-Compliances	1	December 14, 2021	Identified during inspection: monthly raw water turbidity handheld samples were missed for all 3 wells in September and October of 2020
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Bayshore Village DWS is supplied with raw groundwater from three non-GUDI wells: Well # 3, # 4 and #5.

Treatment

The treatment system consists of the following:

- Sodium hypochlorite primary disinfection system
- One (1) reservoir
- A high lift pumping system
- Stand-by diesel generator on-site

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There were no adverse water quality incidents during this period.						

Non-Compliance

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliances during this 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
O. Reg 170/03	Schedule 7.3 of O.Reg 170/03- Monthly Raw Water Turbidity Samples	September and October 2020	Operations Staff are provided and trained on facility sampling calendars which list the requirement for monthly raw turbidity sampling from each raw water source. A monthly work order was created to provide additional direction. MECP was notified at the time of discovery.	Complete

Flows

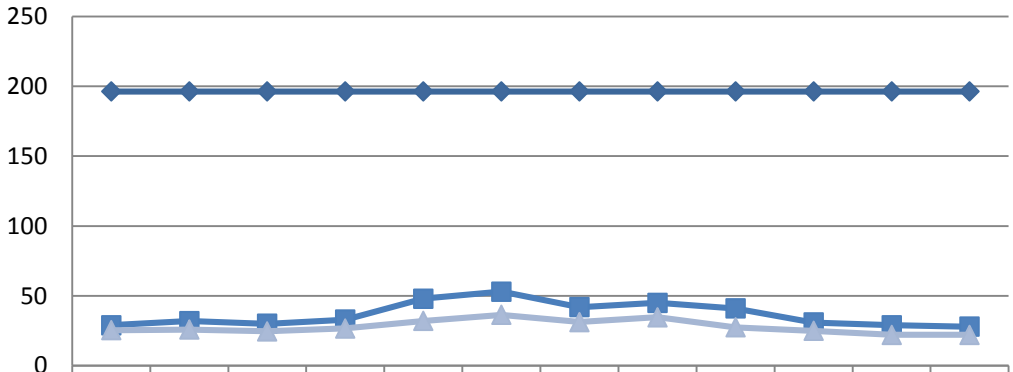
The Bayshore Village Drinking Water System is operating on average under half the rated capacity.

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 #5467-9TFT9U. The confirmation and a copy of the data that was submitted are attached in Appendix A.

Total Monthly Flows (m³/d)

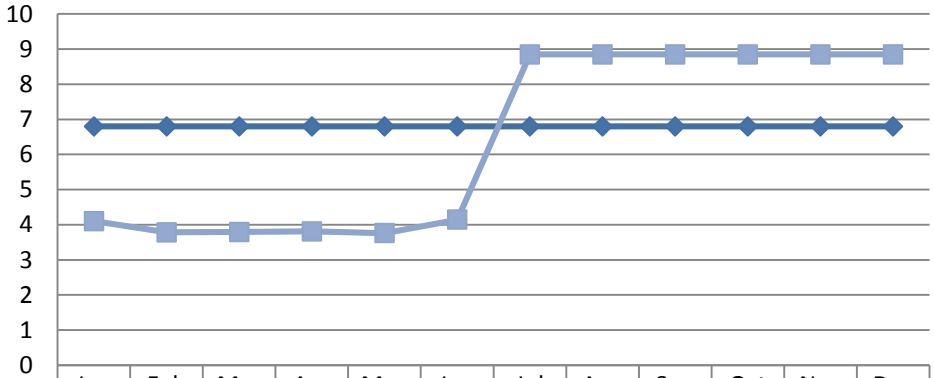
Max Allowable PTTW − Well #3



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	196.3	196.3	196.3	196.3	196.3	196.3	196.3	196.3	196.3	196.3	196.3	196.3
Max Flow (m³/d)	29	32	30	33	48	53	42	45	41	31	29	28
Avg (m³/d)	25.4	25.9	24.7	26.8	32.2	36.4	31.3	34.7	27.5	25.0	22.2	22.1

Monthly Rated Flows (L/s)

Max allowable rate – PTTW − Well #3

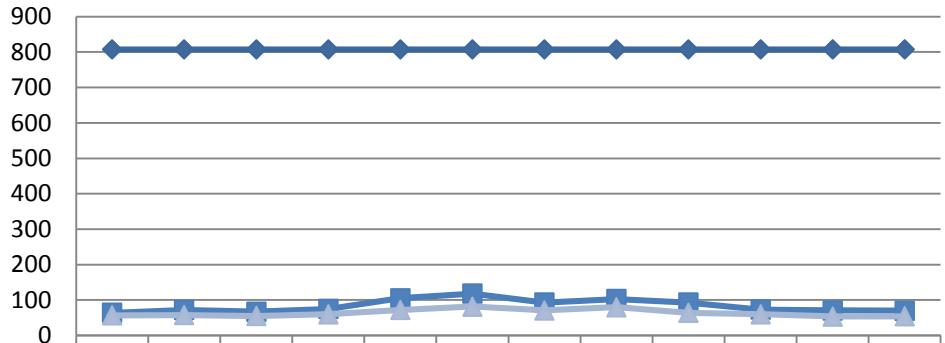


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Max Rate (L/s)	4.1	3.8	3.8	3.8	3.8	4.1	8.9	8.9	8.9	8.9	8.9	8.9

Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) this is due to well pump start-up and was not sustained. The actual limit in the PTTW is 409L/min. All spikes are reviewed for compliance.

Total Monthly Flows (m³/d)

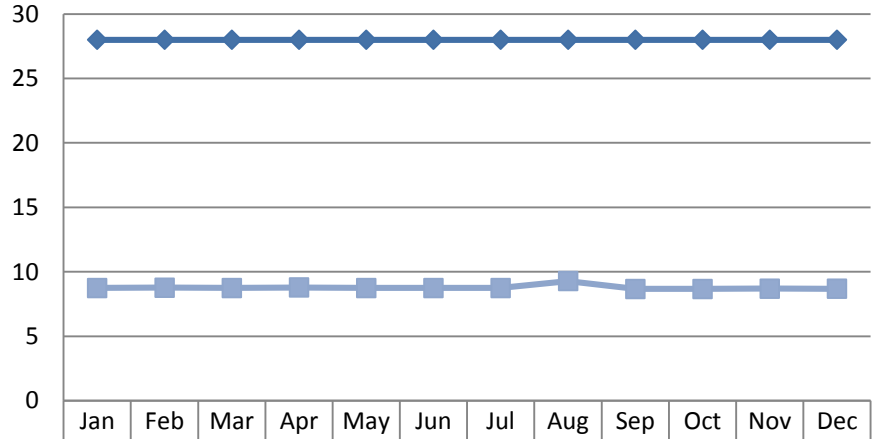
Max Allowable PTTW – Well #4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	807.5	807.5	807.5	807.5	807.5	807.5	807.5	807.5	807.5	807.5	807.5	807.5
Max Flow (m³/d)	64	72	67	75	105	118	93	103	93	73	71	70
Avg (m³/d)	56.7	57.5	55.0	60.1	72.4	81.5	70.8	79.7	64.1	60.1	53.6	53.9

Monthly Rated Flows (L/s)

Max allowable rate – PTTW – Well #4

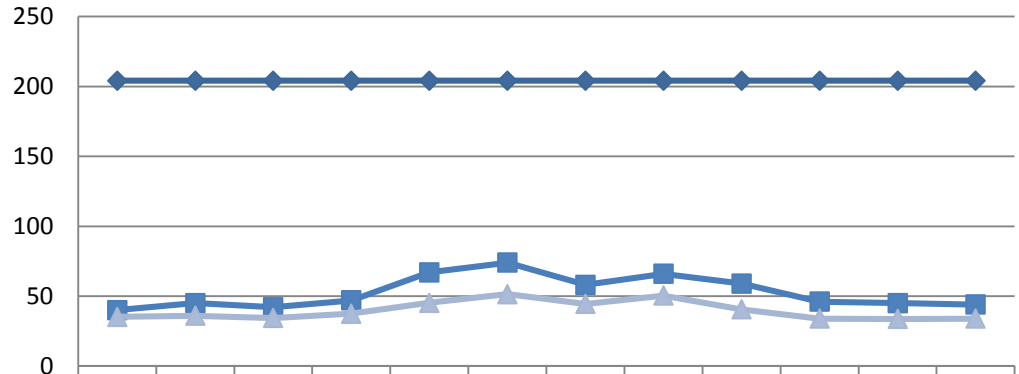


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	28	28	28	28	28	28	28	28	28	28	28	28
Max Rate (L/s)	8.7	8.8	8.7	8.8	8.8	8.8	8.8	9.3	8.7	8.7	8.7	8.7

Note: All spikes are reviewed for compliance.

Total Monthly Flows (m³/d)

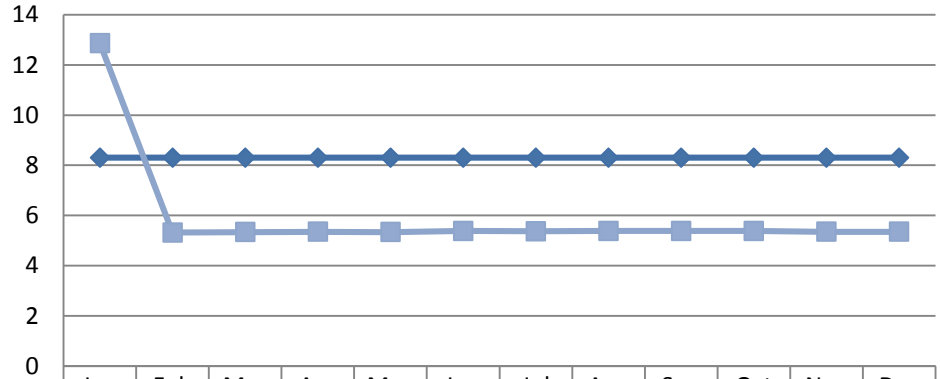
Max Allowable PTTW − Well #5



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	204.1	204.1	204.1	204.1	204.1	204.1	204.1	204.1	204.1	204.1	204.1	204.1
Max Flow (m³/d)	40	45	42	47	67	74	58	66	59	46	45	44
Avg (m³/d)	35.2	35.9	34.3	37.5	45.3	51.4	44.4	50.4	40.5	33.9	33.7	33.8

Monthly Rated Flows (L/s)

Max allowable rate – PTTW − Well #5



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Max Rate (L/s)	12.9	5.3	5.3	5.4	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4

Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s), the spike in January was due to scheduled Flow Meter calibration. All spikes are reviewed for compliance.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence. The average water consumption for the Bayshore Village Drinking Water System during 2021 was: 148 m³/day.

Bayshore Village Drinking Water System Historical Demands

Year	Number of Connections	Average Daily Demand (m^3)	Maximum Daily Demand (m^3/day)	Rated Capacity	Per Capita Consumption* (L/p/day)	
					Average	Maximum
2012	318	155	318	1244	188	384
2013	319	150	355	1244	195	370
2014	319	161	307	1244	195	370
2015	320	174	286	1244	209	344
2016	322	170	332	1244	203	397
2017	328	152	238	1244	178	279
2018	335	150	316	1244	172	362
2019	340	133	277	1244	157	313
2020	342	147	316	1244	165	355
2021	342	148	276	1244	166	310
3 Year Average/Max		143	316		162	355

*Based on 2.6 people per dwelling
Note: Excluding pipe leaks/breaks & system flushing
Note: This calculation was completed based on current connections in the system, growth within the drinking water system has not been considered.

System Reserve Capacity

In accordance with the MECP Procedure D-5-1, the reserve capacity is calculated by the following formula:

Reserve Capacity= Design Flow- Committed Flow

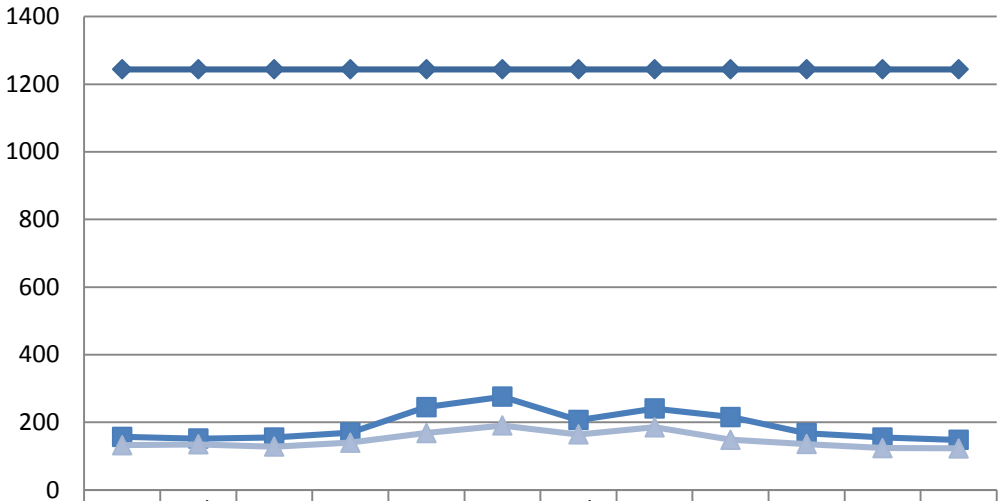
Design flow is the maximum permissible flow approved by the MDWL and/or PTTW. Bayshore Village Water Works maximum daily rated capacity is 1244 m^3/day.

The committed flow is the total expected water demand from the existing and proposed connections based on the previous three years of data. The committed number of service connections is: 382.The three-year (2019-2021) maximum per capita water consumption is:355 L/p/day. At this water consumption rate, the committed flow is: 353 m^3/day.

As a result, the calculated reserve capacity is: 891 m^3/day.

Monthly Rated Flows

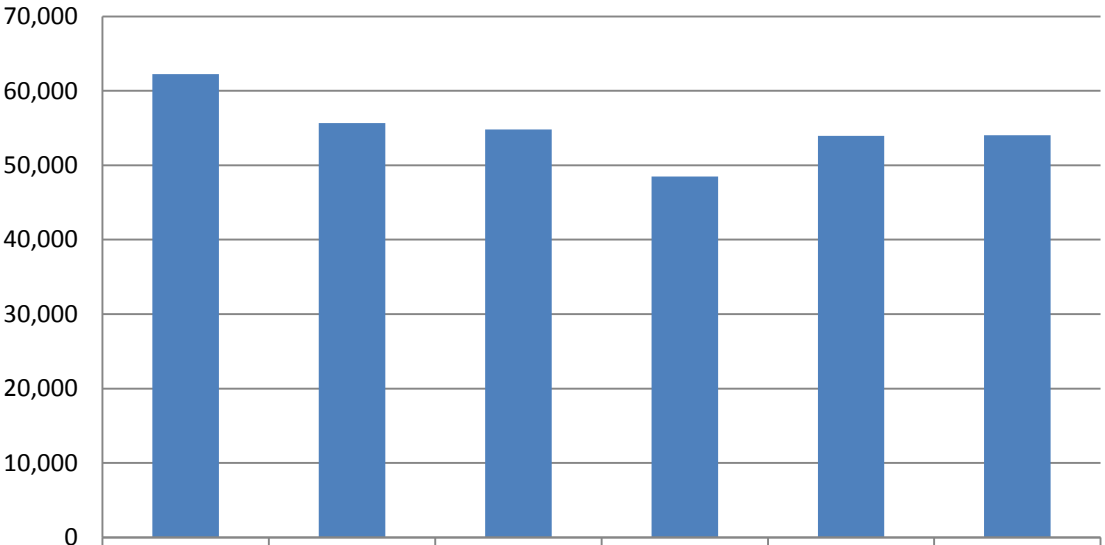
Rated Capacity – MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m³/d)	1244	1244	1244	1244	1244	1244	1244	1244	1244	1244	1244	1244
Max Daily Flow (m³/d)	157	152	155	170	245	276	207	241	216	168	155	148
Avg (m³/d)	132.6	134.8	128.4	139.9	168.4	190.7	164.1	185.5	148.5	135.9	123.9	123.2

Annual Total Flow Comparison

Total Annual m³



	2016	2017	2018	2019	2020	2021
WTP (m³)	62,225	55,667	54,821	48,471	53,936	54,039

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 Well 3	52	0	0	0	1		
Raw Well 4	52	0	0	0	0		
Raw Well 5	52	0	0	0	0		
Treated	52	0	0	0	0	0	1
Distribution	104	0	0	0	0	0	6

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Well 3 (NTU)	12	0.21	0.56
Turbidity Well 4 (NTU)	12	0.12	0.44
Turbidity Well 5 (NTU)	12	0.13	0.70
Turbidity – Treated (NTU)	8760	0.00	2.04
Treated Water Chlorine (mg/L)	8760	0.00	4.34
Distribution Water Chlorine (mg/L)	365	0.47	1.90
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 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
- MDL = Method Detection Limit

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2019/08/21	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2019/08/21	<MDL 0.2	10.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Barium: Ba (ug/L) - TW	2019/08/21	237	1000.0	No	No
Boron: B (ug/L) - TW	2019/08/21	233	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2019/08/21	0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2019/08/21	0.12	50.0	No	No
Mercury: Hg (ug/L) - TW	2019/08/21	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2019/08/21	<MDL 0.04	50.0	No	No
Uranium: U (ug/L) - TW	2019/08/21	0.099	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2017/08/15	0.34	1.5	No	No
Nitrite (mg/L) - TW	2021/02/09	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/05/12	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/08/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/11/02	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2021/02/09	0.012	10.0	No	No
Nitrate (mg/L) - TW	2021/05/12	0.014	10.0	No	No
Nitrate (mg/L) - TW	2021/08/04	0.011	10.0	No	No
Nitrate (mg/L) - TW	2021/11/02	0.007	10.0	No	No
Sodium: Na (mg/L) - TW	2020/08/12	30.1	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2020/08/24	28.0	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 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 Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	4	270	283	N/A	N/A
pH	4	7.2	7.8	N/A	N/A
Lead (ug/l)					

Note: Lead samples were last collected in the distribution system in 2019 as they are only required to be sampled every 36 months. Samples shown above are reflective of the 2021 lead sampling period.

Organic Parameters

These parameters are tested every 3 years 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	2019/08/21	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2019/08/21	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2019/08/21	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2019/08/21	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2019/08/21	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2019/08/21	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2019/08/21	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2019/08/21	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2019/08/21	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2019/08/21	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2019/08/21	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2019/08/21	<MDL 0.20	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2019/08/21	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2019/08/21	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2019/08/21	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2019/08/21	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2019/08/21	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2019/08/21	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2019/08/21	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2019/08/21	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2019/08/21	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2019/08/21	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2019/08/21	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2019/08/21	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2019/08/21	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) (ug/L)	2019/08/21	<MDL 0.00012	1.00	No	No
Metolachlor (ug/L) - TW	2019/08/21	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2019/08/21	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2019/08/21	<MDL 0.3	80.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Paraquat (ug/L) - TW	2019/08/21	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2019/08/21	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2019/08/21	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2019/08/21	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2019/08/21	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2019/08/21	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2019/08/21	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2019/08/21	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2019/08/21	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2019/08/21	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2019/08/21	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2019/08/21	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2019/08/21	<MDL 0.25	5.00	No	No
Trifluralin (ug/L) - TW	2019/08/21	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2019/08/21	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2021	33.5	100	No	No
HAA Total (ug/L) Annual Average - DW	2021	5.9	80	No	No

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

Additional Legislated Samples

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
No additional legislated samples required.				

Inorganic or Organic Parameter Exceedances

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
No exceedances.			

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

Item #	Description
1	New plant computer and switch gear
2	Replace Curb Stop on Sandlewood
3	Sample Station Misty Replaced, well static water level sensors replaced, clearwell hatch replaced.
4	Alarm panel keypad replaced.

Appendix A

WTRS Data Submission Confirmation