

Park Lane Subdivision Drinking Water System

Waterworks # 220007132
System Category – Small 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:



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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: 220007132

Drinking Water System Name: Park Lane Subdivision DWS

Drinking Water System Owner: Township of Ramara

Drinking Water System Category: Small 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	November 19, 2021	Unannounced – Detailed-Drinking Water Inspection – Final Inspection Rating of 98.65%
AWQI’s	4	June 23, 2021	Received results of 720 Total Coliform and 720 E. Coli for a distribution sample
		June 24, 2021	Results from first set of resamples. Results of 21 Total coliform and 12 E. Coli and 35 Total Coliform for a distribution sample
		June 30, 2021	Treated Water Free Chlorine Analyzer Malfuction
		October 06, 2021	Received lab results of 6 Total Coliform for a distribution sample.
Number of Non-Compliances	1	January 20, 2022	Identified during inspection: monthly raw water turbidity handheld samples were missed for well #1 & 2 in September 2020
Number of Boil Water Advisories	1	June 23, 2021	Boil Water Advisory due to lab results with Total Coliform and E. Coli

System Process Description

Raw Source

The Park Lane DWS is supplied with raw groundwater from two non-GUDI wells: Well # 1, # 2.

Treatment

The treatment system consists of the following:

- Pre-chlorination system and potassium permanganate system for iron and manganese oxidation
- Two (2) greensand filters with backwash equipment and backwash waste storage/decant tank system
- Sodium hypochlorite secondary disinfection system
- One (1) standpipe reservoir for potable water storage
- A high lift pumping system
- Stand-by propane generator on-site

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
Potassium Permanganate	Iron and Manganese Oxidation	Carus Chemical Company

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
June 23, 2021	154377	Distribution	Presence of Total Coliform and E. Coli	Results of 270 Total Coliform and 270 E. Coli	O. Reg 170	Boil Water Advisory issued. System flushed, resampled two sets of samples
June 24, 2021	154410	Distribution	Presence of Total Coliform and E. Coli	Results from first set of resamples from AWQI 154377. Results of 21 Total	O. Reg 170	Boil Water Advisory continued. System flushed, resampled two sets of samples. Raw

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
				coliform and 12 E. Coli and 35 Total Coliform		water samples collected along with a treated water sample.
June 30, 2021	154462	Treated Water	Regulatory treated water free chlorine analyzer malfunction	Regulatory chlorine analyzer had no readings for more than 5 minutes	O. Reg 170	Electrolytete refilled in chlorine analyzer probe, distribution chlorine residuals collect.
October 06, 2021	155830	Distribution	Presence of Total Coliform	Results of 6 Total Coliform	O. Reg 170	System flushed, resampled two sets of samples.

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 identified in a Ministry Inspection 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 2020	Operations Staff are provided and trained on facility sampling calendars which list the requirement for monthly raw turbidity sampling form each raw water source. A monthly work order was created to provide additional direction.	Complete

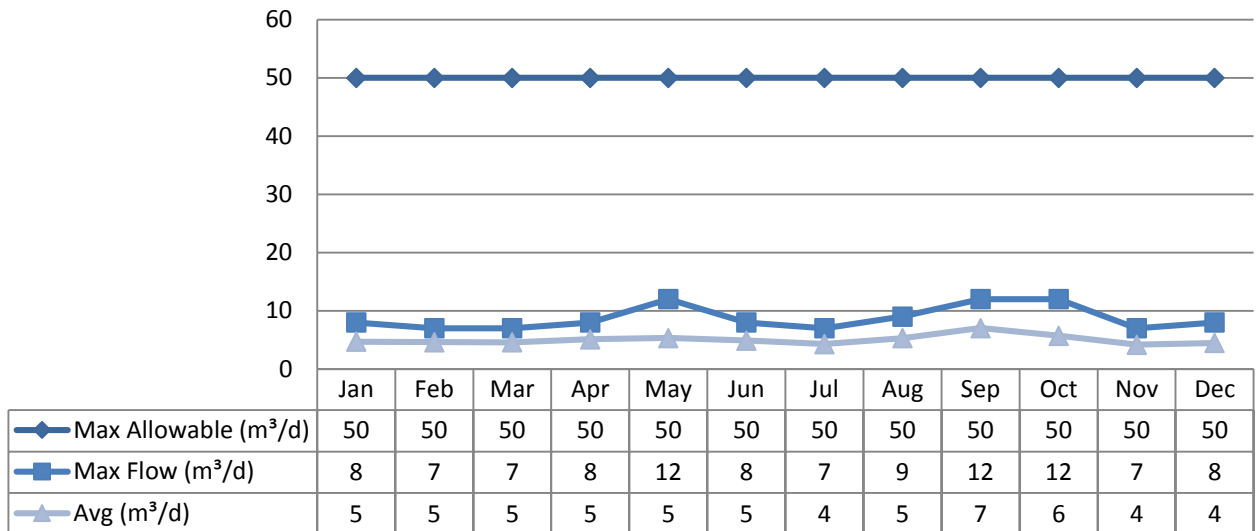
Flows

Raw Water Flows

The Raw Water flows are not regulated under a Permit to Take Water as they remain below 50m³/day. The Raw Water flows are regulated under the Municipal Licence.

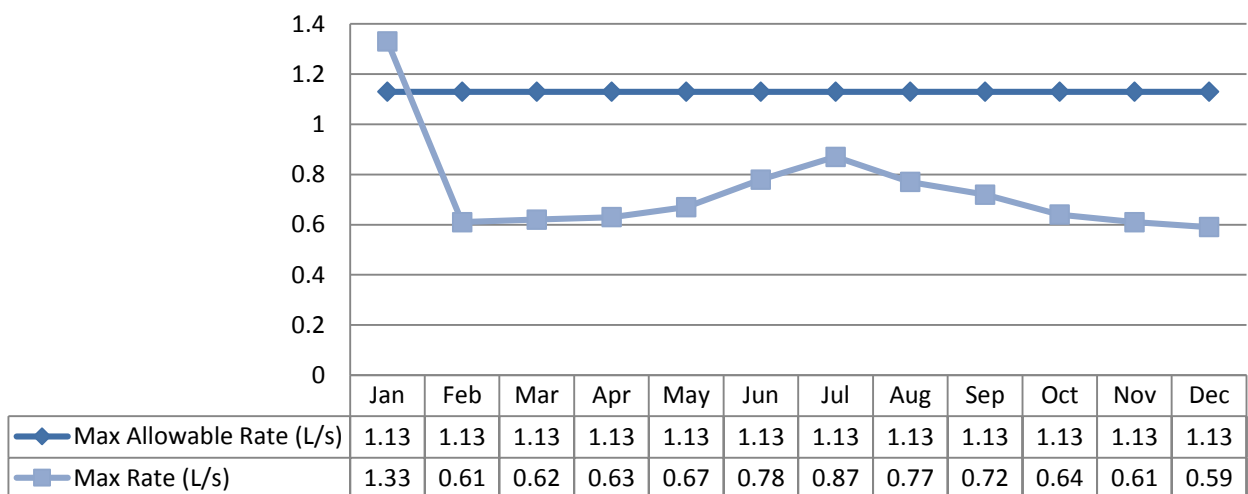
Total Monthly Flows (m³/d)

Max Allowable-MDWL- Well #1



Monthly Rated Flows (L/s)

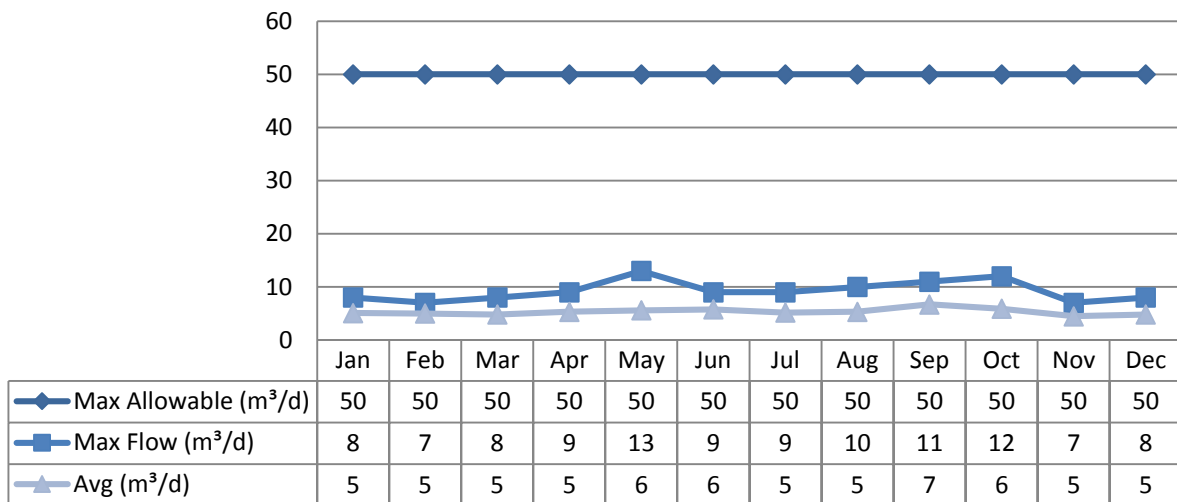
Max Allowable Rate-MDWL- Well #1



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.

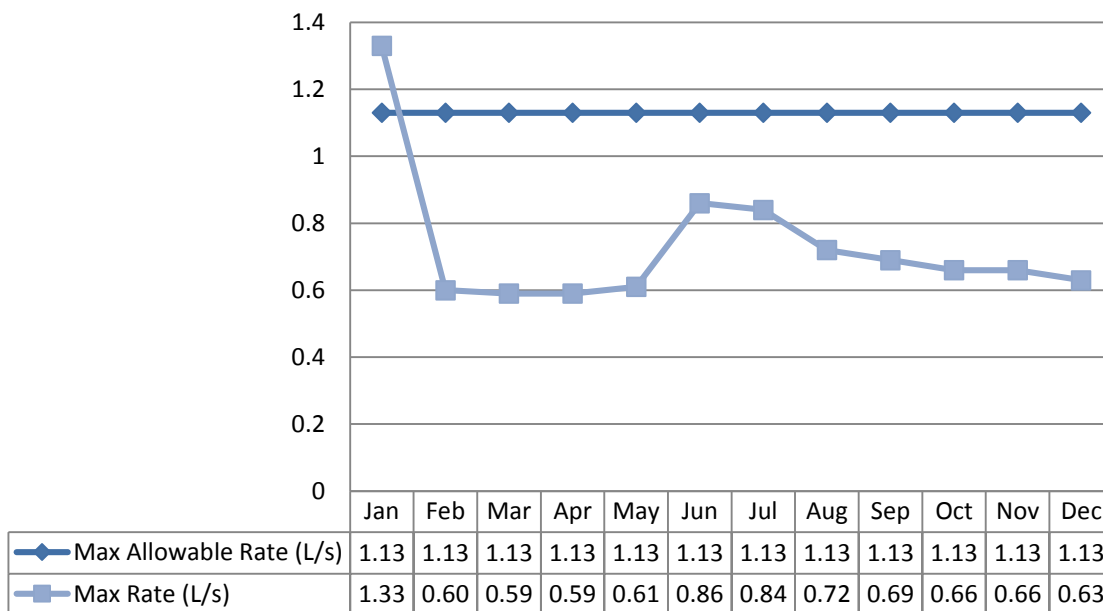
Total Monthly Flows (m³/d)

Max Allowable-MDWL- Well #2



Monthly Rated Flows (L/s)

Max Allowable Rate-MDWL- Well #2



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 Park Lane Drinking Water System during 2021 was: 9.1 m³/day.

Park Lane 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	17	10	34	50	228	760
2013	17	8	27	50	173	614
2014	17	11	26	50	239	588
2015	17	8	16	50	190	362
2016	17	8	33	50	193	747
2017	18	7.5	20	50	160	425
2018	19	8.3	16	50	168	324
2019	19	12.2	45	50	246	911
2020	19	11.5	42	50	233	850
2021	19	9.1	19	50	184	385
3 Year Average/Max		32.8	45	50	221	911

*Based on 2.6 people per dwelling

Note: Historical data may have included leaks/breaks & system flushing. Previous numbers would need to be reviewed to confirm accuracy.

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:

$$\text{Reserve Capacity} = \text{Design Flow} - \text{Committed Flow}$$

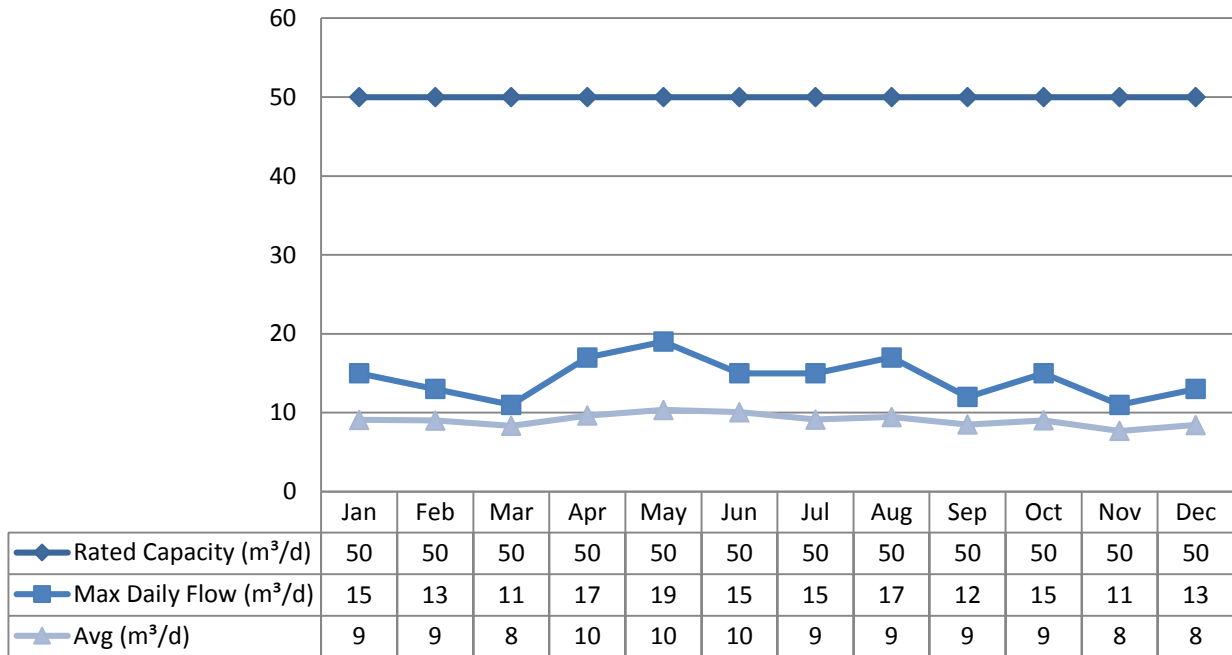
Design flow is the maximum permissible flow approved by the MDWL and/or PTTW. Park Lane Water Works maximum daily rated capacity is 50 m³/day.

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: 19. The three-year (2019-2021) maximum per capita water consumption is: 911 L/p/day. At this water consumption rate, the committed flow is: 45 m³/day.

As a result, the calculated reserve capacity is: 5 m³/day.

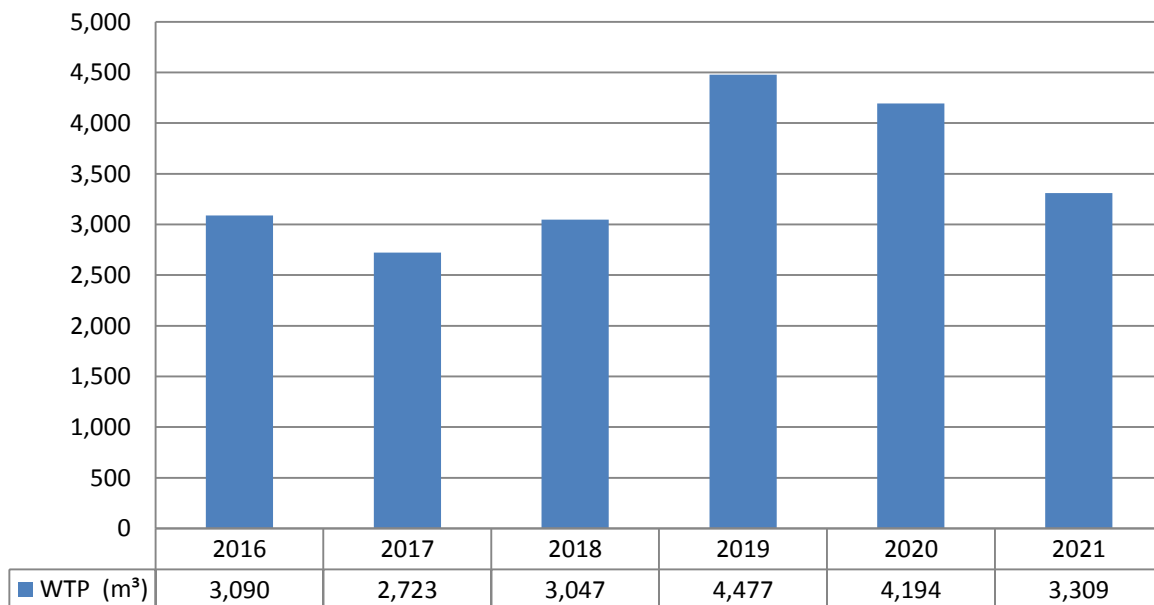
Monthly Rated Flows

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 Well 1	13	0	0	0	0		
Raw Well 2	13	0	0	0	0		
Treated	1	0	0	0	0		
Distribution	43	0	720	0	720	0	23

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Well 1 (NTU)	12	0.46	1.36
Turbidity Well 2 (NTU)	12	0.15	2.10
Turbidity – Treated Water (NTU)	8760	0.00	2.03
Treated Water Chlorine (mg/L)	8760	0.00	4.95
Distribution Water Chlorine (mg/L)	104	0.45	2.40
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
Barium: Ba (ug/L) - TW	2019/08/21	129.0	1000.0	No	No
Boron: B (ug/L) - TW	2019/08/21	152.0	5000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Cadmium: Cd (ug/L) - TW	2019/08/21	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2019/08/21	0.18	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	0.002	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2017/08/15	0.24	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	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2021/05/12	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2021/08/04	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2021/11/02	<MDL 0.006	10.0	No	No
Sodium: Na (mg/L) - TW	2020/08/12	60.9	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2020/08/24	57.6	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)	2	193	198	N/A	N/A
pH	2	7.1	7.30	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 5 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)	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
(ug/L) - TW					
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	74.5	100	No	Yes
HAA Total (ug/L) Annual Average - DW	2021	66.4	80	No	Yes

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

Additional Legislated Samples

Municipal Drinking Water License	Parameter	Date Sampled	Result	Unit of Measure
Settling Tank Discharge Point	Filter Backwash (FBW): Suspended Solids (Composite)	February 2021	3	mg/L
		May 2021	2	mg/L
		August 2021	2	mg/L
		November 2021	2	mg/L
2021 Annual Average	Filter Backwash (FBW): Suspended Solids (Composite)	2021 Annual Average	2.3	mg/L

Note: The Suspended Solids annual average limit is 15 mg/L.

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
Trihalomethane: Total (ug/L) Annual Average - DW	74.5	(ug/L)	2021 Annual Average
HAA Total (ug/L) Annual Average - DW	66.4	(ug/L)	2021 Annual Average

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

Item #	Description
1	Replace computer and network switches.
2	New relay for automatic control valve, backwash effluent pump contact replaced.