

# Lansdowne Drinking Water System

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Waterworks # 210001022  
System Category – Large Municipal Residential

## Annual Report

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2019

Issued: February 24, 2020

Revision: 0

Operating Authority:



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

As Lansdowne’s drinking water system is considered a large municipal residential system under O. Reg. 170/03, this report must be made available to the public. It can be found at the Township of Leeds and the Thousands Islands municipal office located at 1233 Prince Street, Lansdowne, Ontario and on the Township website ([www.leeds1000islands.ca](http://www.leeds1000islands.ca)).

## Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1
Ministry of Labour Inspections	0
QEMS External Audit	1
AWQI's/BWA	0/0
Non-Compliance	0
Spills	0
Watermain Breaks	0

## System Process Description

### Raw Source

Lansdowne’s drinking water is drawn from two groundwater production wells. Well #1 is situated inside the water treatment plant, which is located at the north end of Garden Street in Lansdowne. Well #2 is located in a building approximately 150 meters north of the water treatment plant. Both wells are 200 mm in diameter with submersible pumps rated at 8.3 L/s. They were both drilled in 1975 to a depth of 50 m. Lansdowne’s well supply is considered groundwater under the direct influence of surface water (GUDI).

### Treatment

Raw water from the wells water flows through two of three parallel filter trains. Each filter train consists of a series of three filters: coarse, medium, and fine. The filters remove particulate matter greater than 1 micron in size. The water then passes through one of two ultra violet (UV) reactors for primary disinfection. UV intensity is monitored continuously. Sodium hypochlorite is then injected by one of two chemical metering pumps to provide secondary disinfection. Treated water leaving the plant is continuously monitored for flow, chlorine residual and turbidity.

## Distribution

Watermains in the village were originally installed in 1976. The majority of the mains are composed of polyvinyl chloride (PVC). The distribution system has one standpipe located approximately 150 meters from the water treatment plant with a storage capacity of approximately 2,700 m<sup>3</sup>. The standpipe provides for peak hour demands and fire flows.

### 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
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

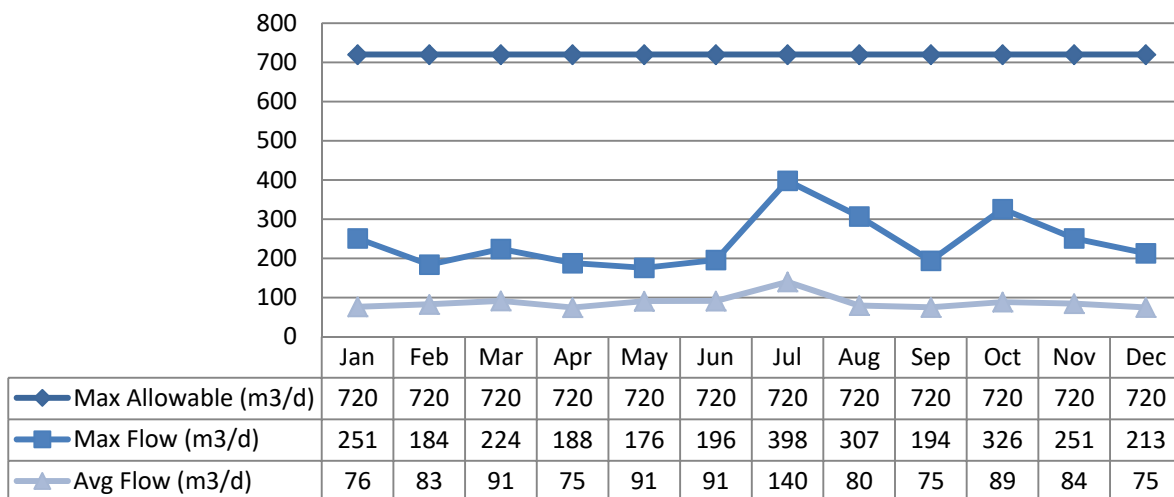
Lansdowne’s drinking water system is operating on average under half the rated capacity.

### Raw Water Flows

Raw water flows are regulated under the Permit to Take Water (PTTW). Raw flow data for 2019 was submitted to the Ministry electronically under Permit # 0262-8RRQA4. The submission confirmation can be found attached in Appendix A.

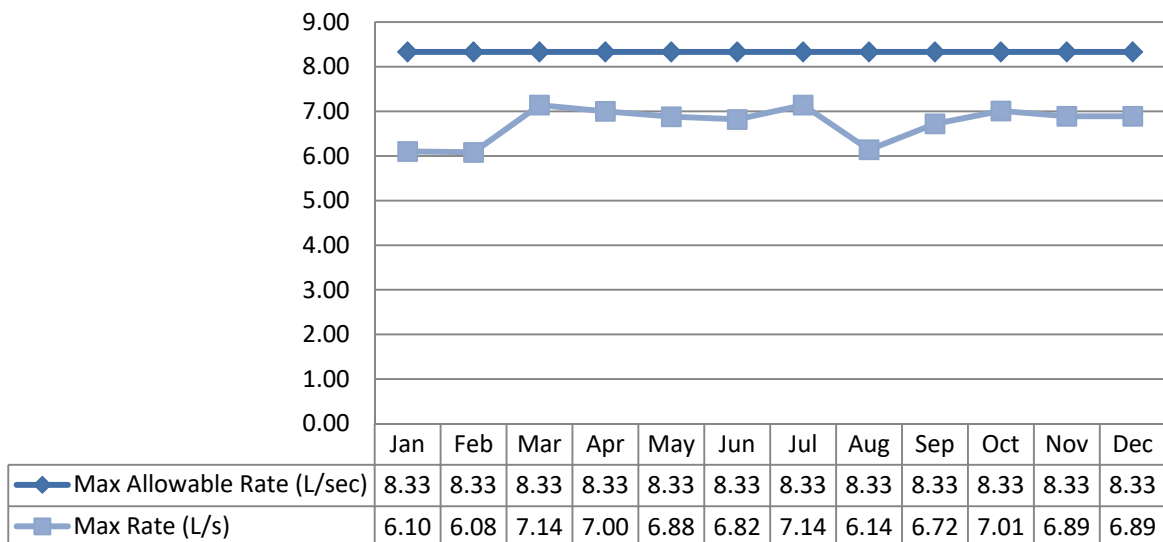
#### Well #1 - Flows

Max. Allowable Flow - PTTW



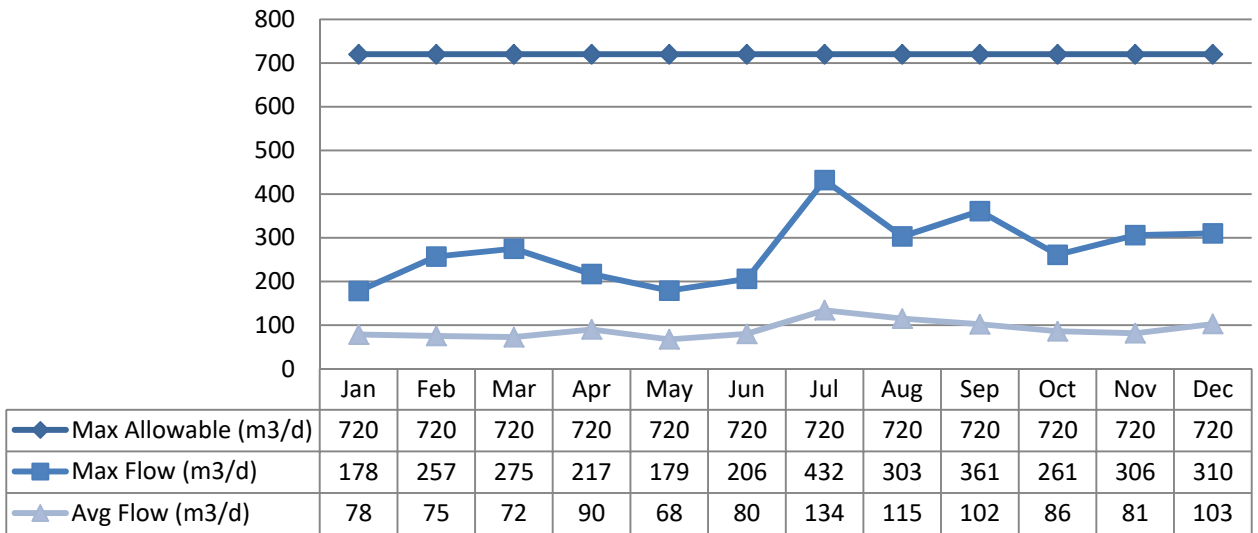
#### Well #1 - Maximum Flow Rates

Max. Allowable Rate - PTTW



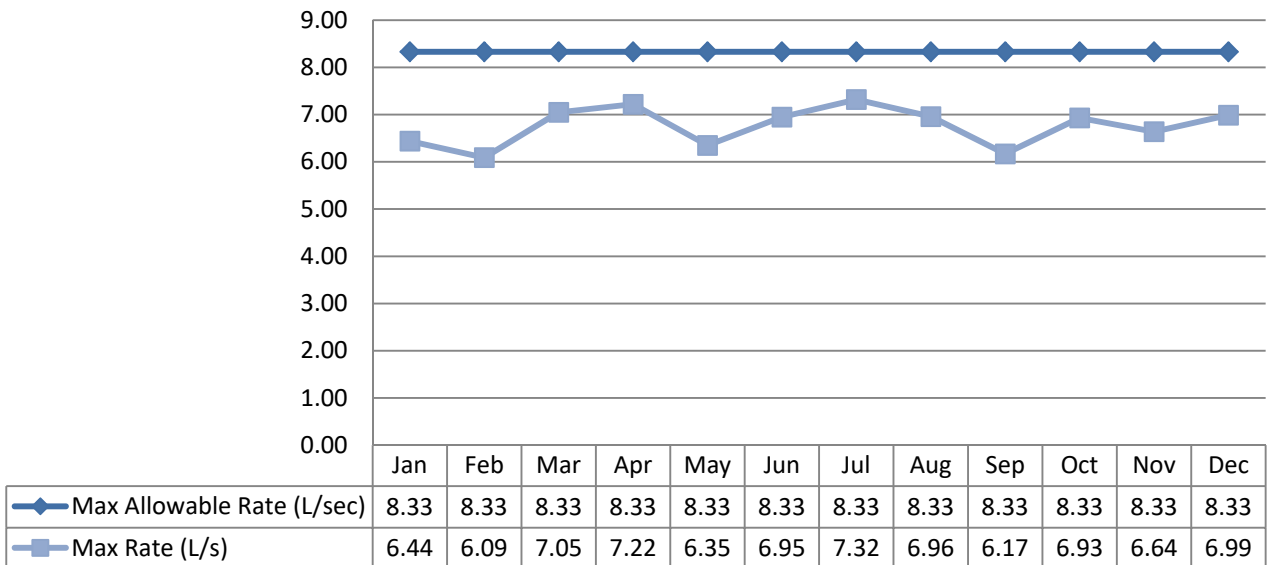
Well #2 - Flows

Max. Allowable Flow - PTTW



Well #2 - Maximum Flow Rates

Max. Allowable Rate - PTTW

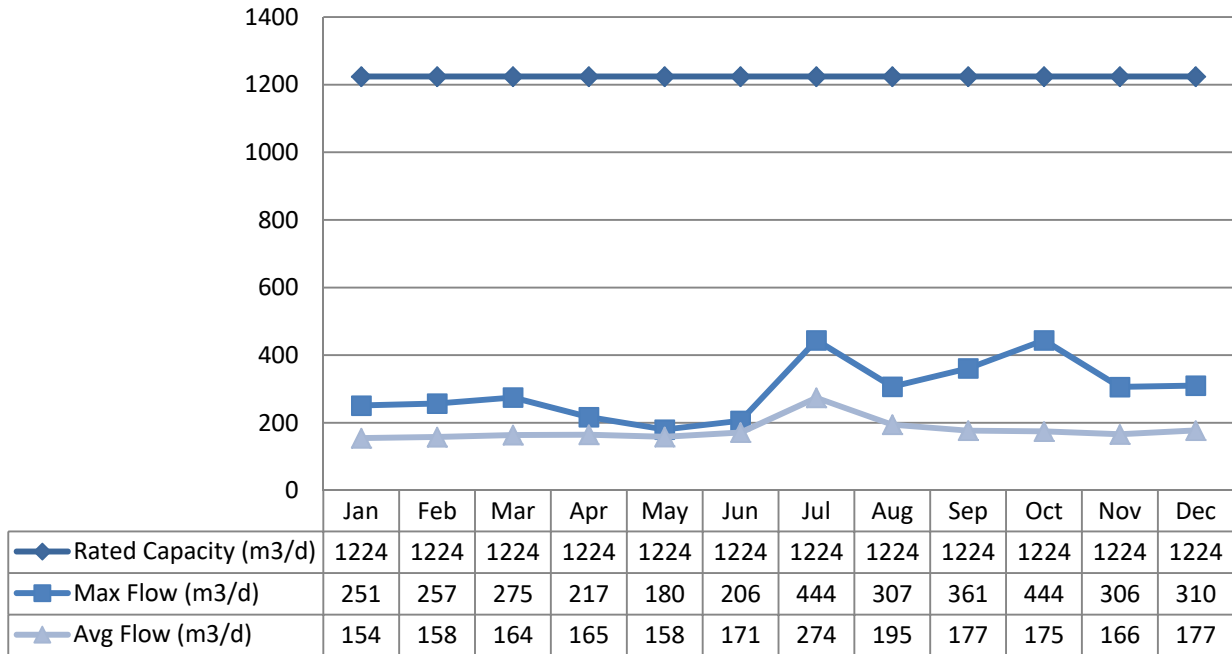


**Treated Water Flows**

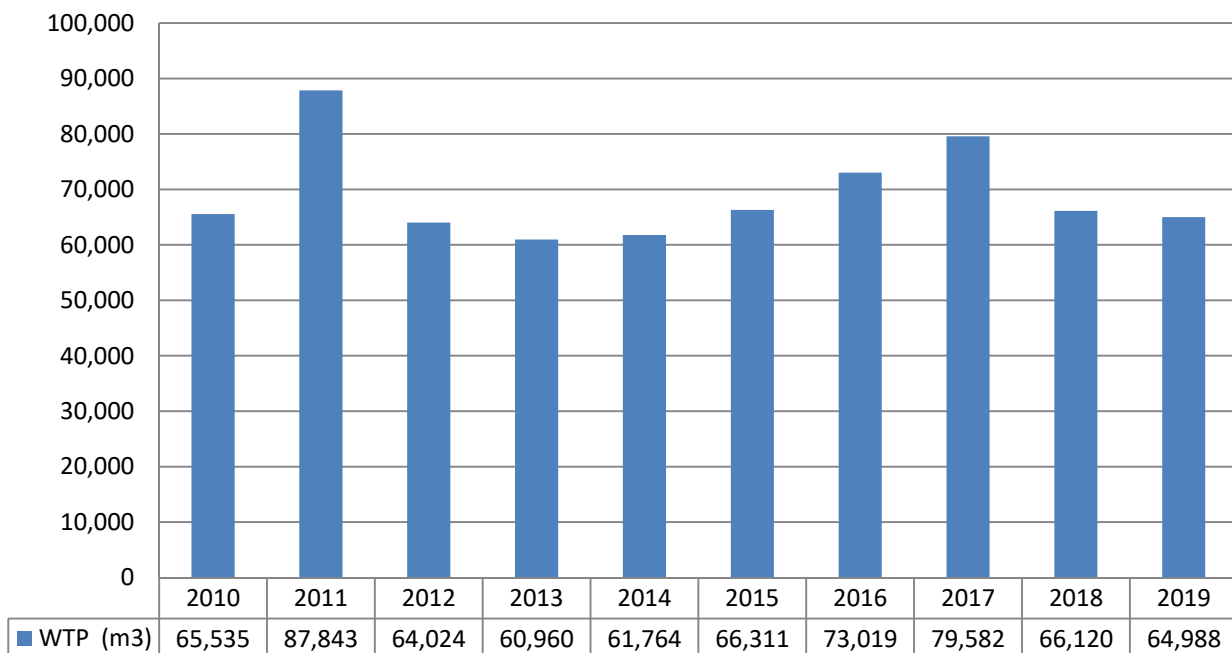
Treated water flows are regulated under the Municipal Drinking Water Licence (MDWL).

Treated 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
Raw Water	106	0	0	0	1	n/a	n/a
Treated Water	53	0	0	0	1	10	20
Distribution Water	106	0	0	0	0	10	20

### Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW1	12	0.17	0.62
Turbidity, In-House (NTU) - RW2	12	0.20	0.50
Turbidity, On-Line (NTU) - Filt1	8760	0.06	0.53
Turbidity, On-Line (NTU) - Filt2	8760	0.22	0.82
Turbidity, On-Line (NTU) - Filt3	8760	0.16	0.88
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.72	5.00
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.42	2.60
Free Chlorine Residual, DW Field (mg/L) - DW	106	0.31	1.87
UV Intensity (W/m <sup>2</sup> )	8760	41.6	n/a
UV Transmittance (%)	106	89.2	97.9

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 = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Antimony: Sb (ug/L) - TW	2019/01/14	< 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2019/01/14	< 0.1	10.0	No	No
Barium: Ba (ug/L) - TW	2019/01/14	149.0	1000.0	No	No
Boron: B (ug/L) - TW	2019/01/14	13.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2019/01/14	< 0.015	5.0	No	No
Chromium: Cr (ug/L) - TW	2019/01/14	2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2019/01/14	< 0.02	1.0	No	No



	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Selenium: Se (ug/L) - TW	2019/01/14	< 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2019/01/14	1.84	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2017/01/11	0.4	1.5	No	No
Nitrite (mg/L) - TW	2019/01/14	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/04/02	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/07/02	< 0.1	1.0	No	No
Nitrite (mg/L) - TW	2019/10/07	< 0.1	1.0	No	No
Nitrate (mg/L) - TW	2019/01/14	1.4	10.0	No	No
Nitrate (mg/L) - TW	2019/04/02	0.8	10.0	No	No
Nitrate (mg/L) - TW	2019/07/02	0.9	10.0	No	No
Nitrate (mg/L) - TW	2019/10/07	1.2	10.0	No	No
Sodium: Na (mg/L) - TW	2017/01/11	66.3	20*	n/a	n/a

\*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 a reduced sampling schedule. 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)	4	4	265	299	n/a	-
pH	4	4	7.06	7.28	n/a	-
Lead (ug/l)	2	2	0.27	0.30	10	0

#### Organic Parameters

These parameters are tested annually as a requirement 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 = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
<b>Treated Water</b>					
Alachlor (ug/L) - TW	2019/01/14	< 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW	2019/01/14	< 1.0	20.00	No	No
Benzene (ug/L) - TW	2019/01/14	< 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2019/01/14	< 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	2019/01/14	< 0.3	5.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbaryl (ug/L) - TW	2019/01/14	< 3.0	90.00	No	No
Carbofuran (ug/L) - TW	2019/01/14	< 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2019/01/14	< 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2019/01/14	< 0.5	90.00	No	No
Diazinon (ug/L) - TW	2019/01/14	< 1.0	20.00	No	No
Dicamba (ug/L) - TW	2019/01/14	< 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2019/01/14	< 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2019/01/14	< 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2019/01/14	< 0.1	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2019/01/14	< 0.1	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2019/01/14	< 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2019/01/14	< 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2019/01/14	< 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2019/01/14	< 0.5	9.00	No	No
Dimethoate (ug/L) - TW	2019/01/14	< 1.0	20.00	No	No
Diquat (ug/L) - TW	2019/01/14	< 5.0	70.00	No	No
Diuron (ug/L) - TW	2019/01/14	< 5.0	150.00	No	No
Glyphosate (ug/L) - TW	2019/01/14	< 25.0	280.00	No	No
Malathion (ug/L) - TW	2019/01/14	< 5.0	190.00	No	No
2-Methyl-4-Chlorophenoxyacetic Acid (MCPA) (ug/L) - TW	2019/01/14	< 10	100.00	No	No
Metolachlor (ug/L) - TW	2019/01/14	< 3.0	50.00	No	No
Metribuzin (ug/L) - TW	2019/01/14	< 3.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2019/01/14	< 0.2	80.00	No	No
Paraquat (ug/L) - TW	2019/01/14	< 1.0	10.00	No	No
PCB (ug/L) - TW	2019/01/14	< 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	2019/01/14	< 0.1	60.00	No	No
Phorate (ug/L) - TW	2019/01/14	< 0.3	2.00	No	No
Picloram (ug/L) - TW	2019/01/14	< 5.0	190.00	No	No
Prometryne (ug/L) - TW	2019/01/14	< 0.1	1.00	No	No
Simazine (ug/L) - TW	2019/01/14	< 0.5	10.00	No	No
Terbufos (ug/L) - TW	2019/01/14	< 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2019/01/14	< 0.2	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2019/01/14	< 0.1	100.00	No	No
Triallate (ug/L) - TW	2019/01/14	< 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2019/01/14	< 0.1	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2019/01/14	< 0.1	5.00	No	No
Trifluralin (ug/L) - TW	2019/01/14	< 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	2019/01/14	< 0.2	1.00	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
<b>Distribution Water</b>					
Trihalomethane (THM): Total (ug/L) Annual Average - DW	2019	15.9	100.00	No	No
Haloacetic Acid (HAA): Total (ug/L) Annual Average - DW	2019	9.1	80.00	No	No

### Additional Legislated Samples

No additional sampling required.

## Major Maintenance Summary

Description
<ul style="list-style-type: none"> <li>- Re-coated interior and exterior of standpipe</li> <li>- Installed new activated mixing system in standpipe</li> <li>- Replaced sump pump in standpipe valve chamber</li> <li>- Re-coated floor at WTP</li> <li>- Repaired leak on filter piping at WTP</li> <li>- Purchased &amp; installed new communication antenna</li> <li>- Installed new pressure transmitter at standpipe</li> <li>- Replaced unit heater at Well #2</li> <li>- Replaced air relief valve for UV process</li> <li>- Replaced cartridge filters in Filter Trains 300 and 400</li> <li>- Replaced stainless fittings on Train 300</li> <li>- Replaced bulbs and seals In UV 701</li> <li>- Replaced manifold and PVC piping on chlorination system</li> <li>- Repaired hydrants, curb stops and valve boxes</li> </ul>

# Appendix A

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## WTRS Submission Confirmation



**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 0262-8RRQA4

Permit Holder: THE CORPORATION OF THE TOWNSHIP OF LEEDS AND THE THOUSAND ISLANDS.

Received on: Feb 10, 2020 12:42 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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NORTH2 DUNDAS2 | 2020/02/10

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