Lansdowne Drinking Water System

Waterworks # 210001022
System Category – Large Municipal Residential

Annual Water Report

Prepared For: Township of Leeds and the Thousand Islands

Reporting Period of January 1st – December 31st 2023

Issued: February 26, 2024

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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Revision History

Date	Revision #	Revision Notes
February 26, 2024	0	Issued Annual Report

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 Leeds and the Thousand Islands municipal office, located at 1233 Prince Street, Lansdowne, ON. The report is also available on the Township website (www.leeds1000islands.ca).

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	- 1 Inspection on December 7th, 2023 o 1 Non-compliance identified, details in report
Ministry of Labour Inspections	- There was no Ministry of Labour Inspections in 2023
QEMS External Audit	- There was 1 QEMS Audit on May 19th, 2023 - There were no Non-Conformances or OFI's
AWQI's/BWA	- There was 1 AWQI in 2023 referenced in Summary of Non-Compliances
Non-Compliance	- There were no non-compliances in 2023
Community Complaints	- There were no community complaints in 2023
Spills	- There were no spills in 2023
Watermain Breaks	- There were no watermain breaks in 2023

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 21 Church 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 flow through 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.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Jutzi

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^3. The standpipe provides for peak hour demands and fire flows.

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
May 29, 2023	162051	Treated Water	1 TC cfu/100 mL	Total Coliform in treated sample, suspected sampling error. The free chlorine residual at the time of the sample was 1.73 mg/L	Reg 170	Took direction from the Health Unit, re-sampled at AWQI location and downstream. Re-samples clear, no further action.

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no non-compliance issues reported during the reporting period.				

Non-Compliance Identified in a Ministry Inspection:

Legislation	requirement(s) system failed to meet	duration of the failure	Corrective Action	Status
MDWL	Reference UV sensors shall be checked against a Master Reference Assembly at a minimum frequency of once every three years or on a more frequent basis depending upon the recommendations of the equipment manufacturer.	N/A	Sensor was re-calibrated before the inspection report was issued.	Complete

Flows

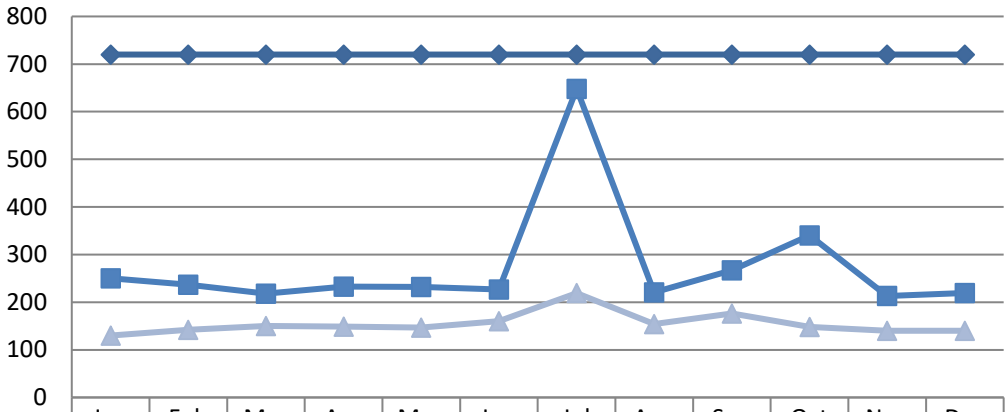
The Lansdowne Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. Raw flow data for 2023 was submitted to the Ministry electronically under Permit #P-300-7152129863. The submission confirmation can be found attached in Appendix A.

Well #1 Flows (m3/d)

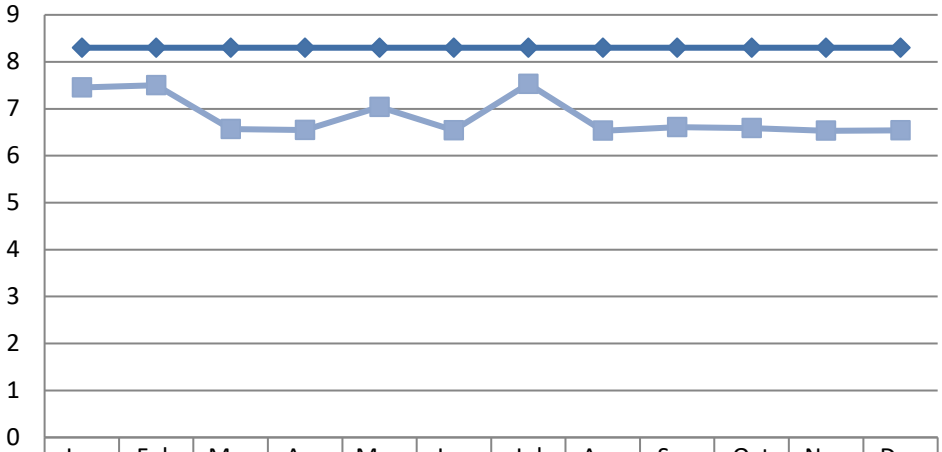
Max Allowable Flow PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m3/d)	720	720	720	720	720	720	720	720	720	720	720	720
Max Flow (m3/d)	250	237	218	233	232	227	648	221	267	340	213	219
Avg (m3/d)	130	142	150	149	147	160	219	154	176	148	140	140

Well #1 – Maximum Flow Rate (L/s)

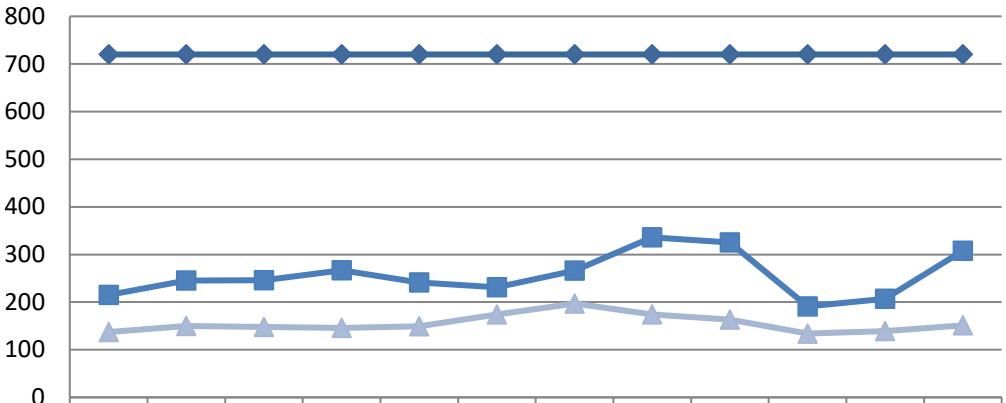
Max allowable rate - PTTW



	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)	7.45	7.50	6.57	6.55	7.04	6.54	7.53	6.53	6.61	6.59	6.53	6.54

Well #2 Flows (m3/d)

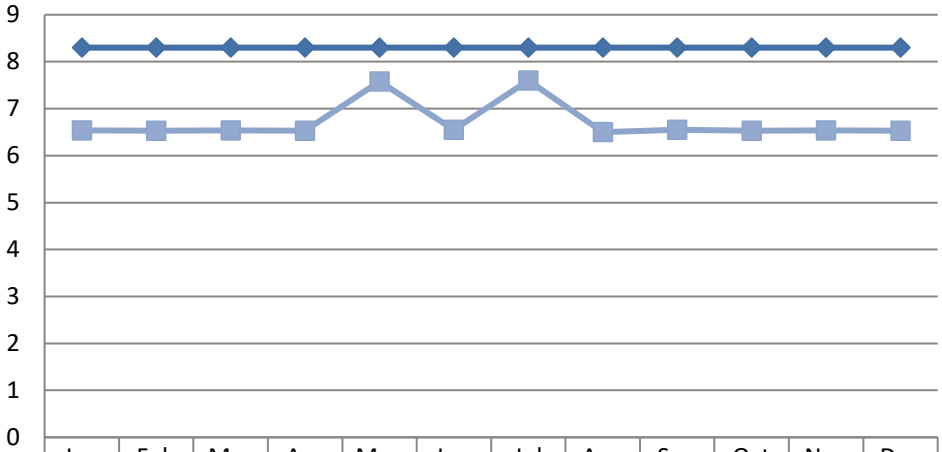
Max Allowable Flow PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m3/d)	720	720	720	720	720	720	720	720	720	720	720	720
Max Flow (m3/d)	215	245	246	267	241	231	266	336	325	191	207	308
Avg (m3/d)	137	150	148	146	149	174	197	174	163	134	139	151

Well #2 – Maximum Flow Rate (L/s)

Max allowable rate - PTTW



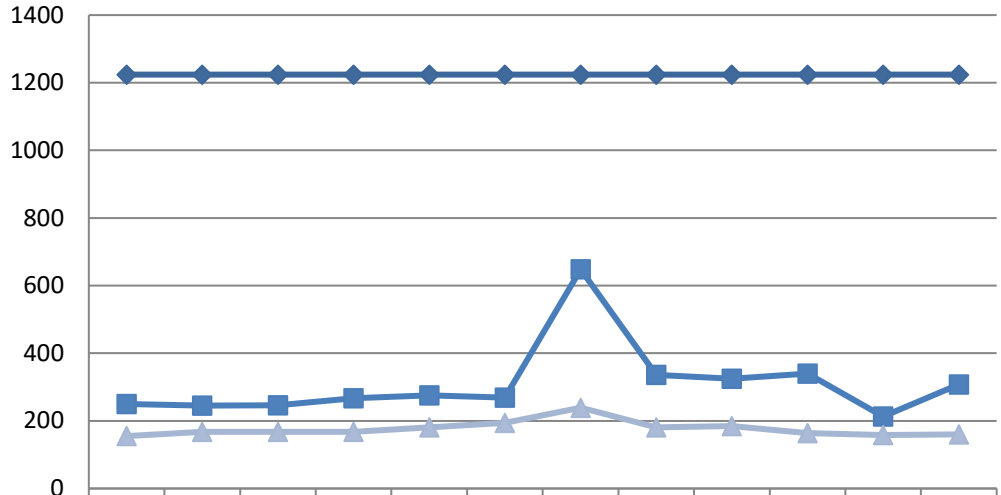
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Max Rate (L/s)	6.54	6.53	6.54	6.53	7.58	6.55	7.60	6.50	6.55	6.53	6.54	6.53

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

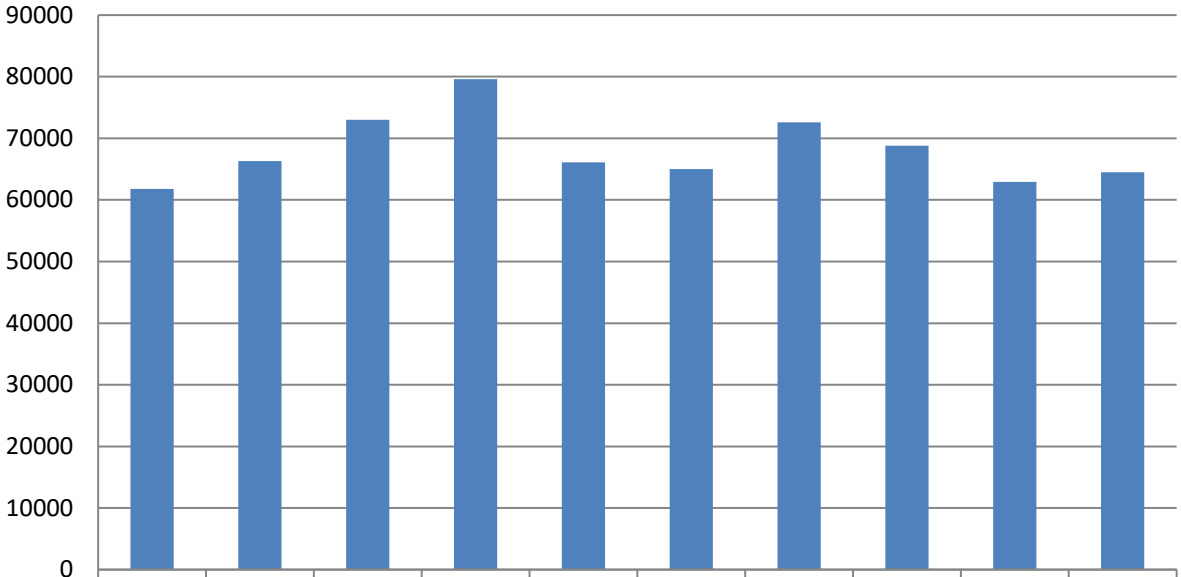
Treated Flows

Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m3/d)	1224	1224	1224	1224	1224	1224	1224	1224	1224	1224	1224	1224
Max Daily Flow (m3/d)	250	245	246	267	275	269	648	336	325	340	213	308
Avg (m3/d)	155	168	168	167	181	194	239	181	185	164	158	160

Annual Total Flow Comparison



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
WTP (m3)	61764	66311	73019	79582	66120	64988	72604	68820	62925	64503

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	104	0	0	0	3		
Treated Water	54	0	0	0	1	10	460
Distribution Water	105	0	0	0	0	10	60

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) – RW 1	12	0.13	0.45
Turbidity, In-House (NTU) – RW 2	12	0.15	0.57
Turbidity, On-Line (NTU) - Filt1	8760	N/A	0.98
Turbidity, On-Line (NTU) - Filt2	8760	N/A	0.70
Turbidity, On-Line (NTU) - Filt3	8760	N/A	1.13
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.81	3.51
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.43	2.16
Free Chlorine Residual, DW Field (mg/L) - DW	105	0.52	1.83
UV Intensity (W/m^2)	8760	43.9	N/A
UV Transmittance (%) – Well #1	52	85	N/A
UV Transmittance (%) – Well #2	52	88	N/A

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 170/03. Sodium and Fluoride are required to be tested every 60 months. 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
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2023/01/09	<BDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2023/01/09	<BDL 0.1	10.0	No	No
Barium: Ba (ug/L) - TW	2023/01/09	147.0	1000.0	No	No
Boron: B (ug/L) - TW	2023/01/09	34.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2023/01/09	<BDL 0.01	5.0	No	No
Chromium: Cr (ug/L) - TW	2023/01/09	<BDL 2.0	50.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Mercury: Hg (ug/L) - TW	2023/01/09	<BDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2023/01/09	<BDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2023/01/09	1.63	20.0	No	No
Additional Inorganics					
Nitrite (mg/L) - TW	2023/01/09	0.1	1.0	No	No
Nitrite (mg/L) - TW	2023/04/11	< 0.05	1.0	No	No
Nitrite (mg/L) - TW	2023/07/04	< 0.05	1.0	No	No
Nitrite (mg/L) - TW	2023/10/03	< 0.05	1.0	No	No
Nitrate (mg/L) - TW	2023/01/09	0.8	10.0	No	No
Nitrate (mg/L) - TW	2023/04/11	1.24	10.0	No	No
Nitrate (mg/L) - TW	2023/07/04	1.69	10.0	No	No
Nitrate (mg/L) - TW	2023/10/03	0.15	10.0	No	No
Sodium: Na (mg/L) - TW	2022/01/13	58.4	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. Lead samples are to be collected in June 2025 and January 2026. Lead samples collected January 9, 2023

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	306	327	N/A	N/A
pH	4	4	7.71	7.90	N/A	N/A
Lead (ug/l)	2	2	0.04	0.21	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) - TW	2023/01/11	<BDL 0.3	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2023/01/11	<BDL 0.5	5.0	No	No
Azinphos-methyl (ug/L) - TW	2023/01/11	<BDL 1.0	20.0	No	No
Benzene (ug/L) - TW	2023/01/09	<BDL 0.5	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2023/01/11	<BDL 0.006	0.01	No	Yes
Bromoxynil (ug/L) - TW	2023/01/11	<BDL 0.5	5.0	No	No
Carbaryl (ug/L) - TW	2023/01/11	<BDL 3.0	90.0	No	No
Carbofuran (ug/L) - TW	2023/01/11	<BDL 1.0	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2023/01/09	<BDL 0.2	2.0	No	No
Chlorpyrifos (ug/L) - TW	2023/01/11	<BDL 0.5	90.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Diazinon (ug/L) - TW	2023/01/11	<BDL 1.0	20.0	No	No
Dicamba (ug/L) - TW1	2023/01/09	<BDL 1.0	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW1	2023/01/09	<BDL 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW1	2023/01/09	<BDL 0.5	5.0	No	No
1,2-Dichloroethane (ug/L) - TW1	2023/01/09	<BDL 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW1	2023/01/09	<BDL 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW1	2023/01/09	<BDL 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW1	2023/01/11	<BDL 0.2	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW1	2023/01/09	<BDL 1.0	100.0	No	No
Diclofop-methyl (ug/L) - TW1	2023/01/11	<BDL 0.9	9.0	No	No
Dimethoate (ug/L) - TW1	2023/01/11	<BDL 1.0	20.0	No	No
Diquat (ug/L) - TW1	2023/01/09	<BDL 5.0	70.0	No	No
Diuron (ug/L) - TW1	2023/01/11	<BDL 5.0	150.0	No	No
Glyphosate (ug/L) - TW1	2023/01/09	<BDL 25.0	280.0	No	No
Malathion (ug/L) - TW1	2023/01/11	<BDL 5.0	190.0	No	No
Metolachlor (ug/L) - TW1	2023/01/11	<BDL 3.0	50.0	No	No
Metribuzin (ug/L) - TW1	2023/01/11	<BDL 3.0	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW1	2023/01/09	<BDL 0.5	80.0	No	No
Paraquat (ug/L) - TW1	2023/01/09	<BDL 1.0	10.0	No	No
PCB (ug/L) - TW1	2023/01/09	<BDL 0.05	3.0	No	No
Pentachlorophenol (ug/L) - TW1	2023/01/11	<BDL 0.2	60.0	No	No
Phorate (ug/L) - TW1	2023/01/11	<BDL 0.3	2.0	No	No
Picloram (ug/L) - TW1	2023/01/09	<BDL 5.0	190.0	No	No
Prometryne (ug/L) - TW1	2023/01/11	<BDL 0.1	1.0	No	No
Simazine (ug/L) - TW1	2023/01/11	<BDL 0.5	10.0	No	No
Terbufos (ug/L) - TW1	2023/01/11	<BDL 0.5	1.0	No	No
Tetrachloroethylene (ug/L) - TW1	2023/01/09	<BDL 0.5	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW1	2023/01/11	<BDL 0.2	100.0	No	No
Triallate (ug/L) - TW1	2023/01/11	<BDL 10.0	230.0	No	No
Trichloroethylene (ug/L) - TW1	2023/01/09	<BDL 0.5	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW1	2023/01/11	<BDL 0.2	5.0	No	No
Trifluralin (ug/L) - TW1	2023/01/11	<BDL 0.5	45.0	No	No
Vinyl Chloride (ug/L) - TW1	2023/01/09	<BDL 0.2	1.0	No	No

Distribution Water	Sample Year	RAA	MAC	Number of Exceedances	
				MAC	½ MAC
Trihalomethane: Total (ug/L) RAA - DW	2023	15.75	100	No	No
Haloacetic Acids: Total (ug/L) RAA - DW	2023	7.2	80	No	No

RAA = Running Annual Average
MAC = Maximum Allowable Concentration as per O.Reg 169/03
BDL = Below the laboratory detection level

Additional Legislated Samples

There was no additional sampling required.

Major Maintenance Summary

WO #	Description
3245319	Hydrant rebuilds, painting end caps and tops
3247056	New chlorine injector
3287814	UV ballast and gear motor purchased
3287820	Replace distribution chlorine analyzer
3291332	3” clow valve rebuilt
3575235	Alarm dialer repairs
3482507	Replace UPS at standpipe
3483786	Various curb stop repairs/replacement

Distribution Maintenance

Date	Location Reference	Category	Details	Corrective Repair
02/17/23	1084 Prince St	N/A	Water meter replaced	N/A
08/21/23	Church St. and Wedgewood St., SW corner	N/A	Old water line cut during excavation	Line capped by Contractor
09/20/23	10 King St W	N/A	Damaged curb stop in sidewalk	Curb stop repaired

Appendix A

WTRS Data and Submission Confirmation

Certify Submission

Permit/EASR Registration Number:
P-300-7152129863

Permit Holder/Registrant Name:
The Corporation of the Township of Leeds and the Thousand Islands

All days with no data entered are considered as days when no water was taken.

I agree that days with no data entered are days when no water was taken.

Cancel

I, the undersigned, hereby declare that the information provided in this Report is complete and accurate.

First Name
Kurtis

Last Name
Winkenweder

Company Name
The Corporation of the Township of Leeds and the Thousand Islands

Date
25/01/2024

Reporting Year
2023

Your data has been successfully submitted

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