Lansdowne Drinking Water System

Waterworks # 210001022
System Category – Large Municipal Residential

Annual Report

Reporting Period of January 1st – December 31st 2020

Issued: February 27, 2021

Revision: 1

Operating Authority:

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22

Table of Contents

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).

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1
Ministry of Labour Inspections	0
QEMS External Audit	1
AWQI's/BWA	1/0
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^3. 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	Corrective Action Taken
July 27th 2020	150966	Lansdowne SPS - 104 Railway St.	Total Coliform detected, 34 cfu/100 mL	The sample was collected at 8:12 am, the free chlorine residual at the time of sample was 1.32 mg/L	Resampled & tested upstream, downstream and at AWQI location, on July 28, 2020 and results came back indicating no issue with the water quality

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

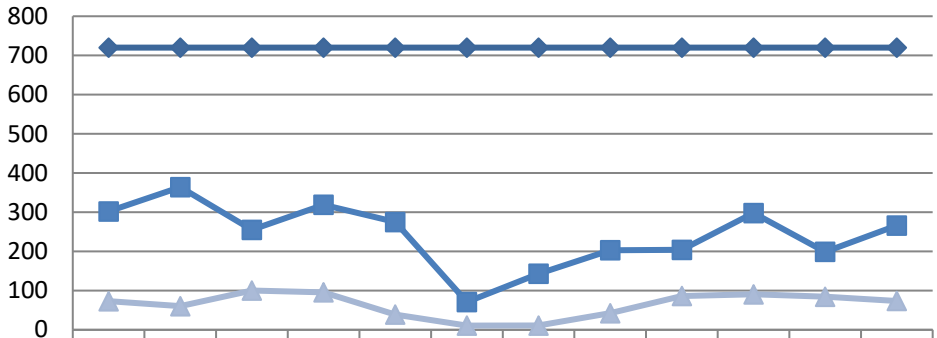
Lansdowne's drinking water system is operating on average under half the rated capacity.

Raw Water Flows

Raw water flows are regulated under the Permit to Take Water (PTTW). Raw flow data for 2020 was submitted to the Ministry electronically under Permit # 0262-8RRQA4. The submission confirmation can be found attached in Appendix A.

Well #1 - Flows

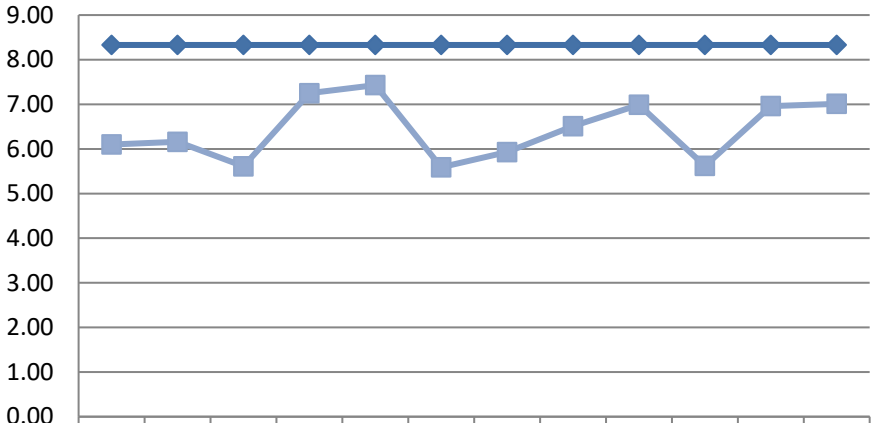
Max. Allowable Flow - PTTW



	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)	302	364	255	319	275	71	143	203	204	298	199	266
Avg Flow (m3/d)	73	60	100	96	39	11	11	42	86	91	84	74

Well #1 - Maximum Flow Rates

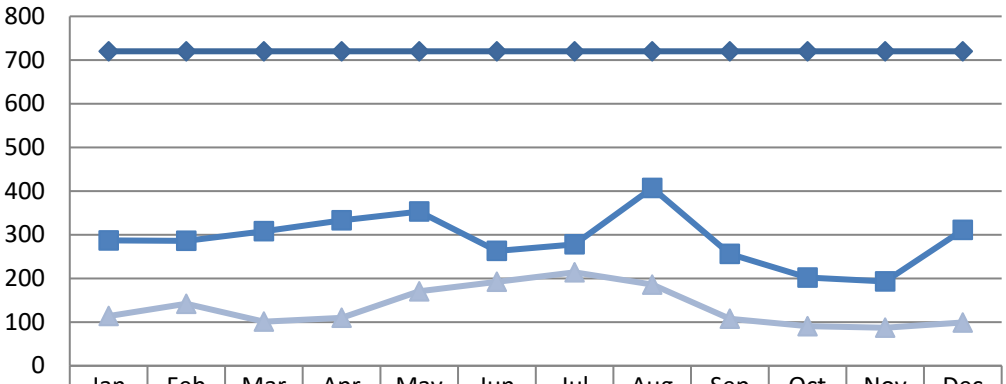
Max. Allowable Rate - PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
Max Rate (L/s)	6.10	6.16	5.61	7.25	7.43	5.59	5.93	6.51	6.99	5.62	6.96	7.01

Well #2 - Flows

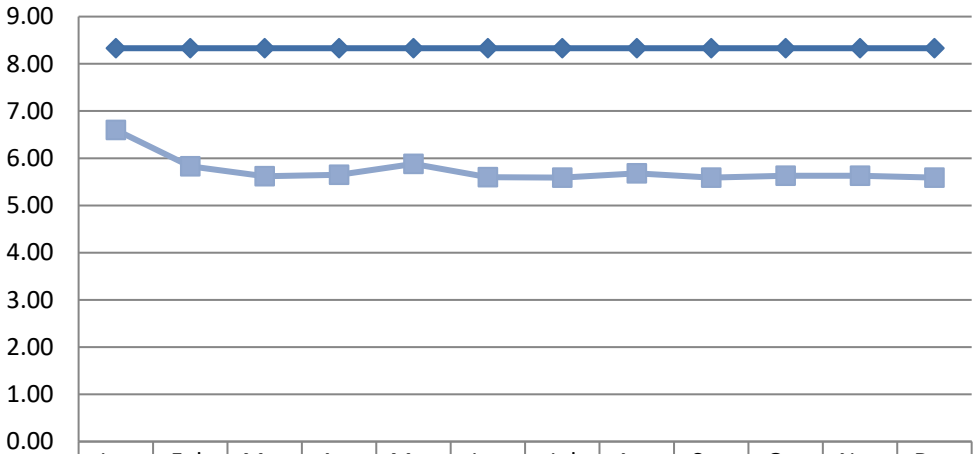
Max. Allowable Flow - PTTW



	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)	287	286	308	333	353	263	278	407	256	202	193	311
Avg Flow (m3/d)	114	142	101	110	170	192	214	186	108	91	87	99

Well #2 - Maximum Flow Rates

Max. Allowable Rate - PTTW



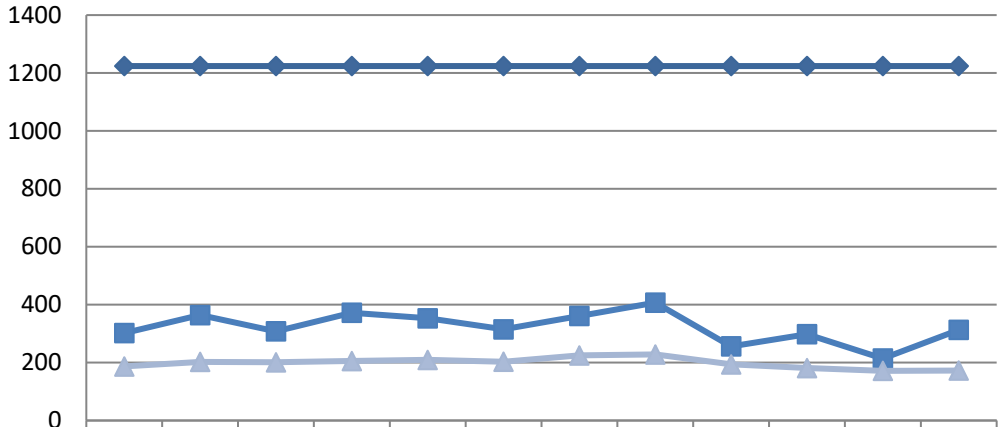
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
Max Rate (L/s)	6.60	5.83	5.62	5.65	5.88	5.60	5.59	5.68	5.59	5.63	5.63	5.59

Treated Water Flows

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

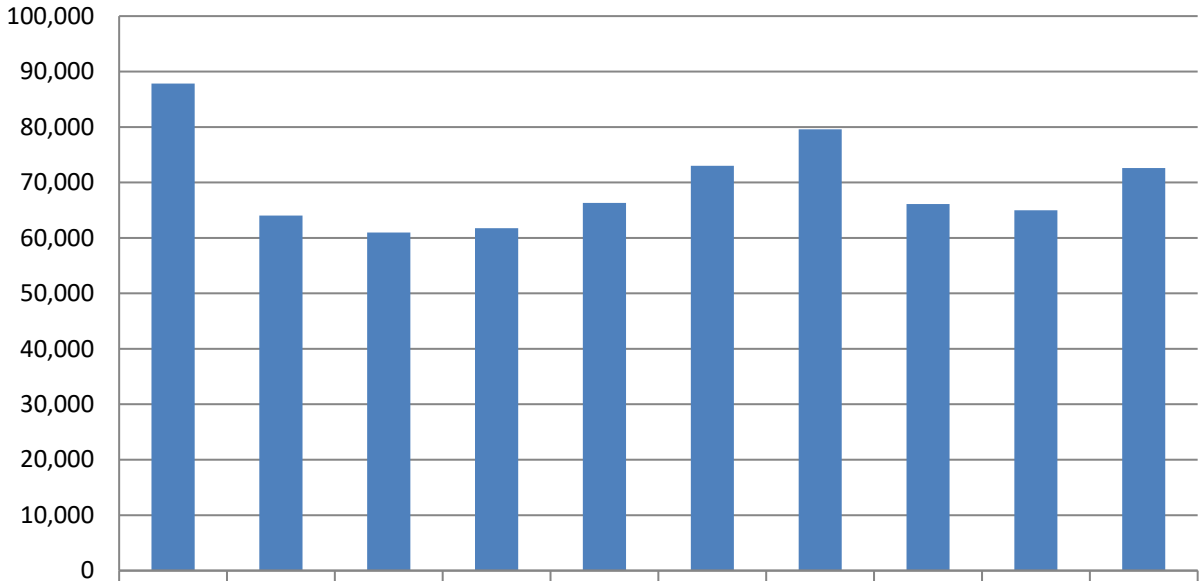
Treated Flows

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 Flow (m3/d)	302	364	308	372	353	315	361	407	256	298	214	313
Avg Flow (m3/d)	187	202	201	206	209	203	225	228	194	181	171	173

Annual Total Flow Comparison



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WTP (m3)	87,843	64,024	60,960	61,764	66,311	73,019	79,582	66,120	64,988	72,604

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	7	n/a	n/a
Treated Water	52	0	0	0	0	10	20
Distribution Water	107	0	0	0	34	10	40

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW1	12	0.27	0.98
Turbidity, In-House (NTU) - RW2	12	0.26	0.65
Turbidity, On-Line (NTU) - Filt1	8760	0	0.72
Turbidity, On-Line (NTU) - Filt2	8760	0	0.86
Turbidity, On-Line (NTU) - Filt3	8760	0	0.93
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.77	3.80
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.69	3.69
Free Chlorine Residual, DW Field (mg/L) - DW	107	0.41	1.64
UV Intensity (W/m^2)	8760	41.5	n/a
UV Transmittance (%)	24	67.3	99.2

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
Treated Water					
Antimony: Sb (ug/L) - TW	2020/01/06	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/06	<MDL 0.1	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/06	132.0	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/06	36.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/06	<MDL 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/06	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/06	<MDL 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	2020/01/06	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/06	1.42	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2017/01/11	0.4	1.5	No	No
Nitrite (mg/L) - TW	2020/01/06	0.2	1.0	No	No
Nitrite (mg/L) - TW	2020/04/06	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/07/13	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2020/10/05	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2020/01/06	1.0	10.0	No	No
Nitrate (mg/L) - TW	2020/04/06	1.1	10.0	No	No
Nitrate (mg/L) - TW	2020/07/13	1.0	10.0	No	No
Nitrate (mg/L) - TW	2020/10/05	1.5	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	267	288	n/a	-
pH	4	4	7.08	7.17	n/a	-
Lead (ug/l)	1	2	0.14	0.33	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
Treated Water					
Alachlor (ug/L) - TW	2020/01/06	<MDL 0.3	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/06	< 0.5	5.0	No	No
Azinphos-methyl (ug/L) - TW	2020/01/06	<MDL 1.0	20.0	No	No
Benzene (ug/L) - TW	2020/01/06	<MDL 0.5	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/06	<MDL 0.005	0.01	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Bromoxynil (ug/L) - TW	2020/01/06	<MDL 0.5	5.0	No	No
Carbaryl (ug/L) - TW	2020/01/06	<MDL 3.0	90.0	No	No
Carbofuran (ug/L) - TW	2020/01/06	<MDL 1.0	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/06	<MDL 0.2	2.0	No	No
Chlorpyrifos (ug/L) - TW	2020/01/06	<MDL 0.5	90.0	No	No
Diazinon (ug/L) - TW	2020/01/06	<MDL 1.0	20.0	No	No
Dicamba (ug/L) - TW	2020/01/06	<MDL 10.0	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.5	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/06	<MDL 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/06	<MDL 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.1	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/06	<MDL 10.0	100.0	No	No
Diclofop-methyl (ug/L) - TW	2020/01/06	<MDL 0.9	9.0	No	No
Dimethoate (ug/L) - TW	2020/01/06	<MDL 1.0	20.0	No	No
Diquat (ug/L) - TW	2020/01/06	<MDL 5.0	70.0	No	No
Diuron (ug/L) - TW	2020/01/06	<MDL 5.0	150.0	No	No
Glyphosate (ug/L) - TW	2020/01/06	<MDL 25.0	280.0	No	No
Malathion (ug/L) - TW	2020/01/06	<MDL 5.0	190.0	No	No
2-Methyl-4-Chlorophenoxyacetic Acid (MCPA) (ug/L) - TW	2020/01/06	<MDL 3.0	100.0	No	No
Metolachlor (ug/L) - TW	2020/01/06	<MDL 3.0	50.0	No	No
Metribuzin (ug/L) - TW	2020/01/06	<MDL 0.5	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/06	<MDL 1.0	80.0	No	No
Paraquat (ug/L) - TW	2020/01/06	<MDL 0.05	10.0	No	No
PCB (ug/L) - TW	2020/01/06	<MDL 0.1	3.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.3	60.0	No	No
Phorate (ug/L) - TW	2020/01/06	<MDL 15.0	2.0	No	No
Picloram (ug/L) - TW	2020/01/06	<MDL 0.1	190.0	No	No
Prometryne (ug/L) - TW	2020/01/06	<MDL 0.5	1.0	No	No
Simazine (ug/L) - TW	2020/01/06	<MDL 0.5	10.0	No	No
Terbufos (ug/L) - TW	2020/01/06	<MDL 0.5	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/06	<MDL 0.1	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/06	<MDL 10.0	100.0	No	No
Triallate (ug/L) - TW	2020/01/06	<MDL 0.5	230.0	No	No
Trichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.1	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.5	5.0	No	No
Trifluralin (ug/L) - TW	2020/01/06	<MDL 0.2	45.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Vinyl Chloride (ug/L) - TW	2020/01/06	<MDL 0.3	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	2020	12.75	100.00	No	No
Haloacetic Acid (HAA): Total (ug/L) Annual Average - DW	2020	5.3	80.00	No	No

Additional Legislated Samples

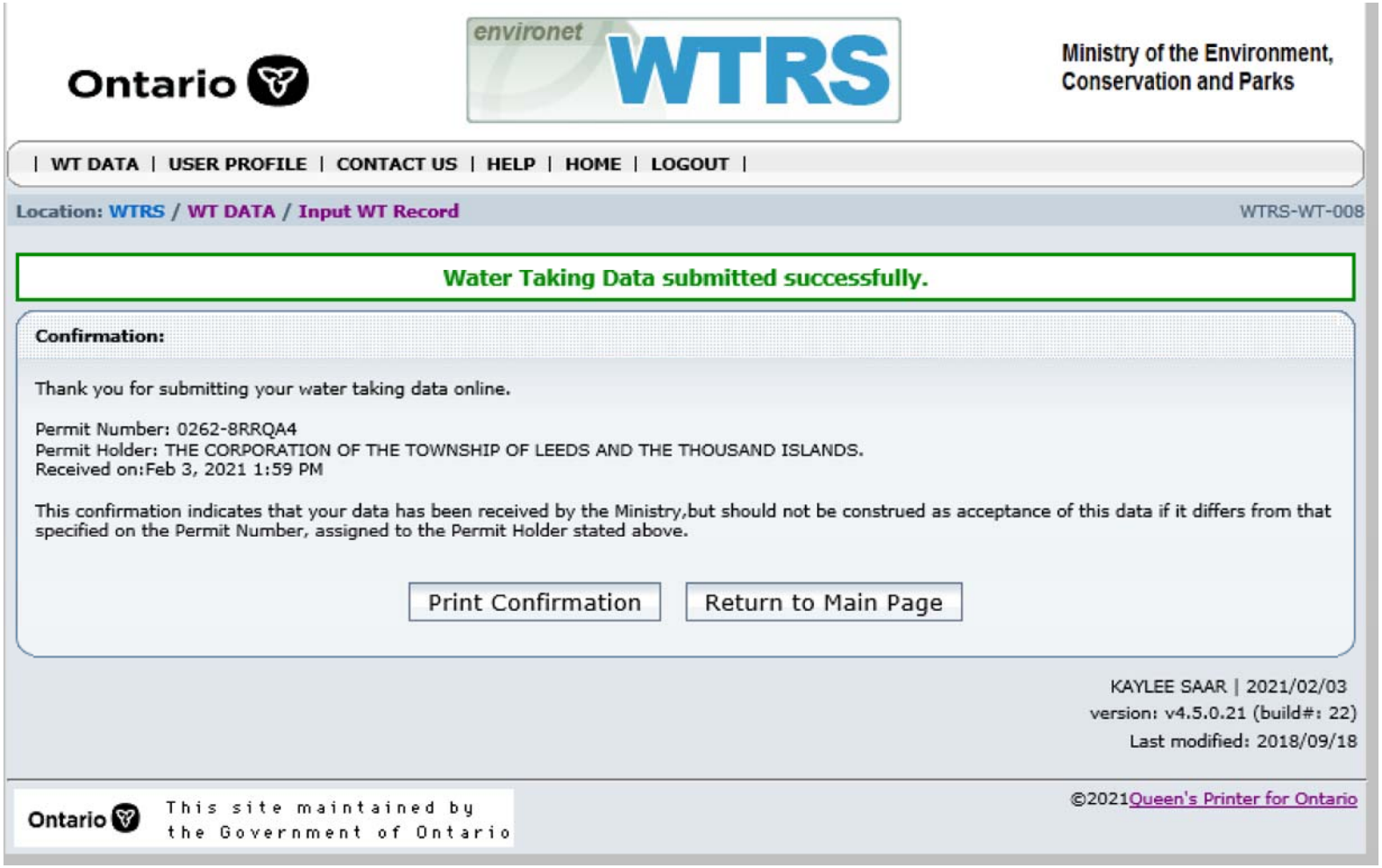
No additional sampling required.

Major Maintenance Summary

Description
- Repaired 3 hydrants, curb stops and valve boxes - Replaced chlorine pump #1 - Replaced flow meter for Well #1 - Replaced turbidimeter on Filter Train #2 - Performed annual generator maintenance - Replaced check valve on Well #1 - Replaced filter cartridges in Filter Bank #3 and replaced fittings as needed - Replaced UV Bulbs/Quartz Sleeves/ Ballasts/Sensors in UV Unit # 1 - Performed annual analyzer maintenance; purchased rebuild kit - Performed annual chlorine pump maintenance; purchased rebuild kit - Performed camera inspection of Well #1

Appendix A

WTRS Submission Confirmation


Ontario
environet
WTRS
Ministry of the Environment, Conservation and Parks
| WT DATA | USER PROFILE | CONTACT US | HELP | HOME | LOGOUT |
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: 0262-8RRQA4
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF LEEDS AND THE THOUSAND ISLANDS.
Received on:Feb 3, 2021 1:59 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.
Print Confirmation
Return to Main Page
KAYLEE SAAR | 2021/02/03
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