

CITY OF LONDON 2019 DRINKING WATER SUMMARY REPORT

System Name: City of London Distribution System

Mailing Address: Corporation of the City of London
P.O. Box 5035, 300 Dufferin Ave.
London, ON N6A 4L9



System Rating: Water Distribution Subsystem Class IV
Water Treatment Subsystem Class II
Average Day Demand: 128.864 MLD
Peak Day Demand: 158.922 MLD (July 4, 2019)
Population Served: 385,000 (approx.)
Source Water: Surface Water (Lake Huron, Lake Erie)
Drinking Water System Number: 260004917
Municipal Drinking Water Licence: 006-101

CONTACT INFO:
Owner:
Corporation of the City of London
300 Dufferin Avenue, London, Ontario N6A 4L9
Contact: Mr. John Simon, P.Eng. Division Manager Water
Operations
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Reporting Requirements

Ontario Regulation 170/03 requires that municipalities prepare a Summary Report for their drinking-water system for the preceding calendar year and submit it to the members of the Municipal Council by March 31 of each year. This report, presented to Municipal Council's Civic Works Committee on February 19, 2020 fulfills that requirement.

O. Reg 170/03 also requires the preparation of an Annual Report on the operation of the drinking-water system to be made available to members of the public.

Before February 28, 2020, a copy of the 2019 Annual Report and Summary Report for the City of London's water works will be provided to the local office of the Ministry of the Environment, Conservation and Parks (MECP) as a courtesy for information purposes.

The Elgin-Middlesex Pumping Station (EMPS) is jointly owned by the St. Thomas Secondary Water Supply System, the Aylmer Secondary Water Supply System, and the City of London. EMPS is operated by the Ontario Clean Water Agency (OCWA). As required, the Annual Report for the EMPS (London portion) is attached as an appendix to this report for members of Council.

Water Budget

The 2020-2023 operating and capital budgets represent financial sustainability for Londoners, whereby annual rate increases are approximately the average of the Consumer Price Index (CPI) and the Non-Residential Building Construction Price Index (NRBCPI). The 2020-2023 water operating and capital budgets support four core business objectives:

- Compliance
- Financial Management
- Customer Service
- Best Management Practices

The total Water budget for 2019 was \$79.9 million, which includes long term infrastructure improvements. The Water Budget helps maintain London's Advantage of a safe, clean and secure water supply. The Water Service Area remains proactive in initiatives to ensure that this service continues to meet the demands and expectations of customers. Existing infrastructure requires ongoing renewal (replacement and rehabilitation) activities to manage the infrastructure gap, ensuring that future generations are not faced with a water system that is failing, unreliable, and expensive to maintain.

Notable Initiatives

Bulk Water System Replacement

The City of London has 8 bulk water filling station locations that allow commercial, residential, and bulk water contractors to obtain bulk water. These 8 locations are the only authorized locations where bulk filling is allowed in the City, and are situated and designed to help minimize the risk and attempts of theft of water from fire hydrants.

In 2018, these stations were renewed with modern technology, were well received, and have been very successful. Users are able to add value to their account any time of day by logging in, and have numerous reporting abilities to enhance their business functionality, providing the “who, when and where” for water takings.

City staff now have the ability to easily monitor and report water consumption at each station from the office environment, by knowing who has purchased water, when it was purchased, and the volume purchased. The system also provides the ability to transmit messages to various stations for users to readily see (for example, in the event a station needs to be closed for maintenance); or alternatively, shut down a station remotely so that water taking can be temporarily halted at that location. However, the biggest benefit has been the ability to assist our customers in real time when they encounter difficulties. Full monitoring function is utilized at any given station 24/7 without needing to go onsite. This major customer service improvement has proven invaluable.

The bulk water station enhancements will continue, with additional upgrades for 3 stations slated for 2020 to help improve accessibility, water flow, and demand.

Downtown Leak Detection Fixed Network

The City consists of over 1,600 km of water main and associated hydrants, control valves, water service connections, and other appurtenances. London experiences, on average, 120 water main breaks a year, although the last several years have been below this norm. London’s water loss level is relatively low (between 10% to 12%; or an internationally recognized Infrastructure Leakage Index (ILI) factor of around 2.0), placing us amongst the best municipalities in North America.

Permanent leakage monitoring is a practice that has been gaining popularity in North America, and London has been using it for several years. In 2018, the Water Service Area deployed Acoustic Leak Loggers on our metallic watermains in the core downtown area. They log noise levels nightly (during a quiet period), and through automatic software analysis of this data, the system provides the probability of leakage based on the level and consistency of the noise. If a high leak probability is found, the data is correlated and the leak location is pin-pointed. The data is displayed on a map, and colour codes depict the probability and locations of leaks. All of this is done prior to anyone going out to the field to investigate.

To date, this system has pin-pointed with high accuracy 1 watermain break, 16 leaks (on services, hydrants or valves), and 3 leaks that were occurring within customers internal plumbing (toilets, faucets). The early detection of these failures allowed repair efforts to be coordinated as non-emergency events during normal working hours, minimizing both the financial and public impact.

The City continues to investigate leak detection technologies in an effort to enhance our proactive leak monitoring/detection program, striving to bring down our water loss level to an economical and environmentally reasonable amount.

Sampling & Water Quality Monitoring

In 2019, the MECP required large municipal drinking water systems to test for 70 different organic, inorganic and chemical parameters. The City of London's water sampling regime includes monthly testing for microbiological indicators and chlorine residuals from 57 standard locations across the City, as well over 2,400 random grab samples. Analysis is also performed for up to 117 parameters, including organics, inorganics, chemicals, pesticides and metals at 13 standard locations around the City. This level of testing far exceeds the MECP's minimum sampling requirements.

London also has 10 locations throughout the City where continuous in-line sampling of chlorine residual and pH is monitored. Staff also perform approximately 4,000 additional chlorine tests each year related to construction and maintenance activities. All of these efforts help ensure that the water within the distribution system is always of high quality and completely safe to consume.

2019 Water Quality Sampling Summary

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
REGULATED INORGANICS					
Antimony	6	ug/L	0.09	0.12 - 0.15	No
Arsenic	25	ug/L	0.2	0.3 - 0.3	No
Barium	1000	ug/L	0.02	13.7 - 20.3	No
Boron	5000	ug/L	2	15 - 21	No
Cadmium	5	ug/L	0.003	0.003 - 0.005	No
Chromium	50	ug/L	0.08	0.17 - 0.22	No
Fluoride	1.5	mg/L	0.06	0.13 - 0.87	No
Free Chlorine Residual	--	mg/L		0.1 - 3.00	No
Lead	10	ug/L	0.01	0.01 0.02	No
Mercury	1	ug/L	0.01	0.01 <MDL	No
Selenium	10	ug/L	0.04	0.12 - 0.13	No
Sodium	*20	mg/L	0.01	9.35 - 16.4	No
Uranium	20	ug/L	0.002	0.028 - 0.068	No

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
REGULATED ORGANICS					
Atrazine	--	ug/L	0.01	0.02 - 0.04	No
Atrazine + N-dealkylated metabolites	5	ug/L	0.01	0.03 - 0.06	No
De-ethylated Atrazine	--	ug/L	0.01	0.01 - 0.02	No
Azinphos-methyl	20	ug/L	0.05	<MDL	No
Benzene	5	ug/L	0.32	<MDL	No
Benzo(a)pyrene	0.01	ug/L	0.004	<MDL	No
Bromoxynil	5	ug/L	0.33	<MDL	No
Carbaryl	90	ug/L	0.05	<MDL	No
Carbofuran	90	ug/L	0.01	<MDL	No
Carbon tetrachloride	5	ug/L	0.17	<MDL	No
Chlorpyrifos	90	ug/L	0.02	<MDL	No
Diazinon	20	ug/L	0.02	<MDL	No
Dicamba	120	ug/L	0.2	<MDL	No
1,2-Dichlorobenzene	200	ug/L	0.41	<MDL	No
1,4-Dichlorobenzene	5	ug/L	0.36	<MDL	No
1,2-Dichloroethane	5	ug/L	0.35	<MDL	No
Dichloromethane	50	ug/L	0.35	<MDL	No
2,4-dichlorophenol	900	ug/L	0.15	<MDL	No
2,4-dichlorophenoxyacetic acid (2,4-D)	100	ug/L	0.19	<MDL	No
Diclofop-methyl	9	ug/L	0.4	<MDL	No
Dimethoate	20	ug/L	0.06	<MDL	No
Diquat	70	ug/L	1	<MDL	No
Diuron	150	ug/L	0.03	<MDL	No
Glyphosate	280	ug/L	1	<MDL	No
Malathion	190	ug/L	0.02	<MDL	No
MCPA	--	mg/L	0.00012	<MDL	No
Metolachlor	50	ug/L	0.01	0.01 - 0.03	No
Metribuzin	80	ug/L	0.02	<MDL	No
Monochlorobenzene	80	ug/L	0.3	<MDL	No
Paraquat	10	ug/L	1	<MDL	No
Pentachlorophenol	--	ug/L	0.15	<MDL	No
Phorate	2	ug/L	0.01	<MDL	No
Picloram	190	ug/L	1	<MDL	No
Polychlorinated Biphenyls (PCBs)	3	ug/L	0.04	<MDL	No
Prometryne	1	ug/L	0.03	<MDL	No
Simazine	10	ug/L	0.01	<MDL	No
Terbufos	1	ug/L	0.01	<MDL	No
2,3,4,6-tetrachlorophenol	100	ug/L	0.2	<MDL	No
Triallate	230	ug/L	0.01	<MDL	No
Trichloroethylene	50	ug/L	0.44	<MDL	No
2,4,6-trichlorophenol	5	ug/L	0.25	<MDL	No
Trifluralin	45	ug/L	0.02	<MDL	No
Vinyl Chloride	2	ug/L	0.17	<MDL	No

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
NITRATES					
Nitrate (as nitrogen)	--	mg/L	0.006	0.12 - 0.532	No
Nitrate + Nitrite (as nitrogen)	--	mg/L	0.006	0.12 - 0.532	No
Nitrite (as nitrogen)	--	mg/L	0.003	0.005 - 1.7	No

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
TRIHALOMETHANES & HALOACETIC ACIDS					
Total Haloacetic Acids	--	ug/L	5.3	5.3 - 20.6	No
Dibromoacetic Acid	--	ug/L	2	2.9 - 4.7	No
Dichloroacetic Acid	--	ug/L	2.6	2.9 - 4.7	No
Monobromoacetic acid	--	ug/L	2.9	3.5 - 11.6	No
Monochloroacetic Acid	--	ug/L	4.7	2 - 2	No
Trichloroacetic Acid	--	ug/L	5.3	5.3 - 9.1	No
Trihalomethanes (total)	--	ug/L	0.37	16 - 48	No
Bromodichloromethane	--	ug/L	0.26	4.2 - 12	No
Bromoform	--	ug/L	0.34	<MDL	No
Chloroform	--	ug/L	0.29	10 - 32	No
Dibromochloromethane	--	ug/L	0.37	1.4 - 4.7	No

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
MICROBIOLOGICAL					
E. coli	0	cfu/100 mL	0	0 - 1	Yes
Total Coliform	0	cfu/100 mL	0	0 - 195	Yes
Heterotrophic Plate Count	N/A	cfu/1 mL	10	10 - 2000	No

Parameter	Ontario Maximum Acceptable Concentration (MAC)	Units	Lab's Method Detection Limit (MDL)	Measured Concentrations	MAC Exceedance (Y/N)
				2019	
NON-REGULATED INORGANICS/ORGANICS					
Alkalinity	--	mg/L as CaCO ₃	2	84 - 101	No
Aluminum	--	ug/L	1	12 - 38	No
Ammonia+Ammonium (N)	--	mg/L	0.04	0.06 - 0.08	No
Calcium	--	mg/L	0.01	26.7 - 32.6	No
Chloride	--	mg/L	0.04	10 - 19	No
Cobalt	--	ug/L	0.004	0.008 - 0.01	No
Colour	--	TCU	3	<MDL	No
Conductivity	--	uS/cm	2	243 - 316	No
Copper	--	ug/L	0.2	1 - 1.9	No
Cyanide	0.2	mg/L	0.002	<MDL	No
1,1-Dichloroethylene (vinylidene chloride)	14	ug/L	0.33	<MDL	No
Dissolved Organic Carbon	--	mg/L	1	<MDL	No
Ethylbenzene	--	ug/L	0.33	<MDL	No
Hardness	--	mg/L as CaCO ₃	0.05	97.3 - 116	No
Iron	--	ug/L	7	7 - 11	No
Magnesium	--	mg/L	0.001	7.44 - 8.32	No
Manganese	--	ug/L	0.01	0.1 - 0.77	No
Nickel	--	ug/L	0.1	0.4 - 0.6	No
Nitrogen-Kjeldahl (N)	--	mg/L	0.05	0.05 - 0.17	No
Organic Nitrogen	--	mg/L	0.01	0.05 - 0.11	No
pH	--	no unit	0.05	8.04 - 8.14	No
Phosphorus	--	mg/L	0.003	<MDL	No
Potassium	--	mg/L	0.009	0.991 - 1.39	No
Silicon; reactive silicate	--	mg/L	0.02	0.43 - 1.4	No
Silver	--	ug/L	0.05	<MDL	No
Solids (Total Dissolved)	--	mg/L	30	134 - 189	No
Sulphate	--	mg/L	0.04	24 - 31	No
Sulphide	--	mg/L	6	<MDL	No
Surr 1,2-Dichloroethane-d4	--	Surr Rec %	--	101 - 102	No
Surr 4-Bromofluorobenzene	--	Surr Rec %	--	90 - 90	No
Surr Decachlorobiphenyl	--	%	--	92 - 100	No
Tetrachloroethylene (perchloroethylene)	30	ug/L	0.35	<MDL	No
Toluene	--	ug/L	0.36	<MDL	No
Total Chlorine-Field	--	mg/L	--	1.05 - 1.17	No
2,4,5-TP (Silvex)	--	ug/L	0.18	<MDL	No
Turbidity	1	NTU	0.1	0.33 - 0.34	No
Xylene (Total)	--	ug/L	0.43	<MDL	No
m/p-xylene	--	ug/L	0.43	<MDL	No
o-xylene	--	ug/L	0.17	<MDL	No
Zinc	--	ug/L	2	<MDL	No

In 2019, there were six (6) adverse microbiological results out of 2,426 samples taken. All involved the detection of Total Coliform bacteria (ranging from 1 to 195 cfu/100 mL). One involve the detection of 1 cfu/100 mL of E. Coli. In each case, staff implemented the mandatory adverse response procedure, which included notifying the MECP and the Middlesex-London Health Unit, and immediately re-sampled at each location. The re-

sample results revealed no adverse indicators.

In all instances it is highly unlikely that there were 'actual' water quality issues at these sites, as all adverse samples were identified as having free chlorine residuals which were well above the minimum acceptable level at the time of the sampling (ranging between 0.30 to 0.98 mg/L). E. coli and Coliform bacteria cannot survive in chlorinated water; therefore, it is suspected that post-sampling contamination occurred. The re-sampling results support this conclusion. The microbiological testing procedure is extremely sensitive; accidental sample contamination can occur through operator or laboratory error, despite the specific procedures and precautions being adhered to while processing samples.

System Statistics and Major Events

During the period from January 1, 2019 through to December 31, 2019 a total of 47,103,998,000 litres of water were purchased, at a cost of more than \$26,159,000, from the Joint Water Boards and subsequently pumped into London via the Arva Pumping Station and the London components within the Elgin Middlesex Pumping Station. Average day demand was 128,864,000 litres. Peak day consumption of 158,922,000 litres occurred on July 4, 2019.

A summary of system pumpage can be found in the full version of the Summary Report. The data includes monthly average and maximum daily flows. These values are also compared to the rated flow rate capacities identified in London's Municipal Drinking Water Licence. There were no occurrences of flow rate exceedance during the specified time period.

Listed below are some 2019 statistics for the City of London Distribution System:

Approximate Replacement Value of Drinking Water System	\$5,869,000,000
Number of Pumping Stations	8
Number of Fire Hydrants	9,455
Number of Watermain Valves	13,629
Total Number of Water Services	116,211
Length of Watermain	1,601 km
Number of Watermain Breaks	98
Number of Water Service Leaks	240

Municipalities Receiving London Water

In the Municipality of Middlesex Centre, the villages of Arva, Ballymote, and Delaware continued to receive their drinking water under contract from the City of London during 2019. The Municipality of Middlesex Centre has been provided a copy of the Annual Report as per O. Reg 170/03.

Several residences within Central Elgin also continued to receive drinking water from the transmission watermain that supplies the City of London from the EMPS. For this reason, Central Elgin has also been provided a copy of the report.

**2019 Annual Report
(London)**



London
CANADA



Drinking-Water System Number:	260004917
Municipal Drinking-Water Licence:	006-101
Drinking-Water System Name:	London Water Supply
Drinking-Water System Owner:	The Corporation of the City of London
Drinking-Water System Category:	Large Municipal Residential System
Period being reported:	January 1, 2019 to December 31, 2019

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>City of London – City Hall Customer Service Division – 8th Floor (Public Service Information Area) 300 Dufferin Avenue, London, ON</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: N/A</p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? N/A</p> <p>Number of Interested Authorities you report to: N/A</p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] N/A [<input checked="" type="checkbox"/>]</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Middlesex Centre Distribution System	260004202
Includes: Arva Waterworks	260004202
Ballymote Waterworks	260004202
Delaware Distribution System	260063323

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water? Yes [] No []



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method EnviroWorks Pamphlet

Describe your Drinking-Water System

There are two primary water supplies in the City of London.

Primary Treated Water Sources (surface water)

- Lake Huron Primary Water Supply System (LHPWSS)
- Elgin Area Primary Water Supply System (EAPWSS)

During 2019 the London-Elgin-Middlesex Booster Station was operated by a designated Operating Authority that being, Ontario Clean Water Agency. The annual report for the London-Elgin-Middlesex Booster Station was not available at the time this report was created and therefore, it will be provided under separate cover.

List all water treatment chemicals used over this reporting period

- Liquid Chlorine
- Sodium Hypochlorite
- Fluorosilicic Acid (hydrofluorosilicic acid)

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and breakdown of monetary expenses incurred

Large numbers of Water Service Leaks continue to dominate repair/remediation efforts. In excess of 240 water service leaks occurred in 2019, attributing to more than a 3:1 ratio of water service leaks to water main breaks.



Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre.

Bacteriological Adverse							
Adverse Incident Date	Corrective Action	Corrective Action Date	Adverse Water Quality Indicator # (AWQI #)	Parameters			
				E. coli (cfu/100ml)	Total Coliform (cfu/100ml)	HPC / Background (cfu/1 ml)	Free Cl2 (mg/L)
8-Jan-2019 ¹			144482	0	4	0	0.97
	Resample	9-Jan-2019		0	0	0	0.95
	Resample	9-Jan-2019		0	0	0	0.98
	Resample	9-Jan-2019		0	0	0	0.96
13-Jun-2019 ²			145703	0	2	0	0.30
	Resample	14-Jun-2019		0	0	0	0.45
	Resample	14-Jun-2019		0	0	0	0.66
17-Jul-2019 ³			146550	0	93	0	0.98
	Resample	18-Jul-2019		0	0	0	0.57
	Resample	18-Jul-2019		0	0	0	0.81
	Resample	18-Jul-2019		0	0	0	0.90
6-Sep-2019 ⁴			147897	0	195	0	0.76
	Resample	8-Sep-2019		0	0	0	0.82
	Resample	8-Sep-2019		0	0	0	0.81
	Resample	8-Sep-2019		0	0	0	0.67
20-Sep-2019 ⁵			148178	0	1	0	0.51
	Resample	21-Sep-2019		0	0	<10	0.52
	Resample	21-Sep-2019		0	0	<10	0.51
	Resample	21-Sep-2019		0	0	<10	0.51
25-Oct-2019 ⁶			148757	1	1	0	0.90
	Resample	26-Oct-2019		0	0	<10	0.73
	Resample	26-Oct-2019		0	0	10	0.68
	Resample	26-Oct-2019		0	0	<10	0.61
	Resample	28-Oct-2019		0	0	<10	0.82
	Resample	28-Oct-2019		0	0	<10	0.85
	Resample	28-Oct-2019		0	0	<10	0.72

Notes:

¹**Details:** 4 Total Coliform was detected in a sample taken from a hydrant at 926 Maitland St. N (St. Michael's School).



Corrective Action: The original site was immediately re-sampled and samples were also taken at sites upstream and downstream from the original site. There were no indicators of adverse water quality in any of the re-sample results. Free chlorine concentration of 0.97 mg/L for the original sample is indicative of a false positive.

²Details: 2 Total Coliform was detected in a sample taken from a hydrant at 37 Wistow St.

Corrective Action: The original site was immediately re-sampled and a sample was also taken upstream from the original site. No downstream sample was taken as the original site was at a dead-end. There were no indicators of adverse water quality in the re-sample results. Free chlorine concentration of 0.30 mg/L for the original sample is indicative of a false positive.

³Details: 93 Total Coliform was detected in a sample collected from 331 Thames Street while undertaking a cut-in for a new water meter pit.

Corrective Action: The original site was immediately re-sampled and samples were also taken at sites upstream and downstream from the original site. There were no indicators of adverse water quality in any of the re-sample results. Free chlorine concentration of 0.98 mg/L for the original sample is indicative of a false positive.

⁴Details: 195 Total Coliform was detected in a sample taken from a hydrant at 23 Doon Dr.

Corrective Action: The original site was immediately re-sampled and samples were also taken at sites upstream and downstream from the original site. There were no indicators of adverse water quality in any of the re-sample results. Free chlorine concentration of 0.76 mg/L for the original sample is indicative of a false positive.

⁵Details: 1 Total Coliform was detected in a sample taken from 4318 Colonel Talbot Rd.

Corrective Action: The original site was immediately re-sampled and samples were also taken at sites upstream and downstream from the original site. There were no indicators of adverse water quality in any of the re-sample results. Free chlorine concentration of 0.51 mg/L for the original sample is indicative of a false positive.

⁶Details: 1 Total Coliform and 1 E. Coli was detected in a sample collected from 603 Wonderland Rd. S (Westmount PS).

Corrective Action: The original site was immediately re-sampled and samples were also taken at sites upstream and downstream from the original site. Approximately 40 hours later, this re-sampling was repeated. There were no indicators of adverse water quality in any of the 6 re-sample results. Free chlorine concentration of 0.90 mg/L for the original sample is indicative of false positives.



Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	# of E. coli Samples Taken	Range of E. coli (cfu/100mL)	# of Total Coliform Samples Taken	Range of Coliform (cfu/100mL)	# of HPC / Background Samples	Range of HPC (cfu/1mL)
Treated	N/A	N/A	N/A	N/A	N/A	N/A
Distribution	2426	0 - 1	2426	0 - 195	2426	<10 - 2000

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	# of Grab Samples	Continuous Monitoring	Range of Results
Turbidity		N/A	0.33 - 0.34 NTU
Alkalinity		N/A	84 - 101 mg/L as CaCO ₃
Lead		N/A	<0.01 - 0.02 µg/L
Chlorine*	2390	87600	0.21 - 1.49 mg/L
Fluoride**	102	17520	0.06 - 0.81 mg/L

*London has 10 locations with continuous online chlorine monitoring

**Continuous online fluoride monitoring occurs at Arva and SERPs

NOTE: For continuous monitors use 8760 as the number of samples.



Summary of Inorganic parameters tested during this reporting period or the most recent sample results.

As outlined below, sampling was carried out for inorganic and organic parameters at the following sites: Arva Pumping Station and Southeast Reservoir and Pumping Station.

SITE: Arva Pumping Station - Treated Distribution

a) INORGANIC PARAMETERS (including lead, sodium, nitrate, nitrite, and fluoride)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Antimony	24/Jun/19	0.12	ug/L	N
September 21, 2017	Arsenic	24/Jun/19	0.3	ug/L	N
September 21, 2017	Barium	24/Jun/19	13.7	ug/L	N
September 21, 2017	Boron	24/Jun/19	15	ug/L	N
September 21, 2017	Cadmium	24/Jun/19	0.003 <MDL	ug/L	N
September 21, 2017	Chromium	24/Jun/19	0.22	ug/L	N
September 21, 2017	Fluoride	2/Jan/19	0.68	mg/L	N
September 21, 2017	Fluoride	9/Jan/19	0.66	mg/L	N
September 21, 2017	Fluoride	16/Jan/19	0.68	mg/L	N
September 21, 2017	Fluoride	23/Jan/19	0.73	mg/L	N
September 21, 2017	Fluoride	30/Jan/19	0.64	mg/L	N
September 21, 2017	Fluoride	6/Feb/19	0.64	mg/L	N
September 21, 2017	Fluoride	13/Feb/19	0.58	mg/L	N
September 21, 2017	Fluoride	20/Feb/19	0.61	mg/L	N
September 21, 2017	Fluoride	27/Feb/19	0.67	mg/L	N
September 21, 2017	Fluoride	6/Mar/19	0.56	mg/L	N
September 21, 2017	Fluoride	13/Mar/19	0.50	mg/L	N
September 21, 2017	Fluoride	20/Mar/19	0.58	mg/L	N
September 21, 2017	Fluoride	27/Mar/19	0.54	mg/L	N
September 21, 2017	Fluoride	3/Apr/19	0.70	mg/L	N
September 21, 2017	Fluoride	10/Apr/19	0.18	mg/L	N
September 21, 2017	Fluoride	17/Apr/19	0.62	mg/L	N
September 21, 2017	Fluoride	24/Apr/19	0.59	mg/L	N
September 21, 2017	Fluoride	2/May/19	0.57	mg/L	N
September 21, 2017	Fluoride	8/May/19	0.63	mg/L	N
September 21, 2017	Fluoride	15/May/19	0.55	mg/L	N
September 21, 2017	Fluoride	22/May/19	0.60	mg/L	N
September 21, 2017	Fluoride	5/Jun/19	0.59	mg/L	N
September 21, 2017	Fluoride	12/Jun/19	0.60	mg/L	N
September 21, 2017	Fluoride	19/Jun/19	0.70	mg/L	N
September 21, 2017	Fluoride	26/Jun/19	0.62	mg/L	N
September 21, 2017	Fluoride	3/Jul/19	0.62	mg/L	N
September 21, 2017	Fluoride	10/Jul/19	0.61	mg/L	N
September 21, 2017	Fluoride	17/Jul/19	0.58	mg/L	N
September 21, 2017	Fluoride	24/Jul/19	0.59	mg/L	N
September 21, 2017	Fluoride	31/Jul/19	0.65	mg/L	N
September 21, 2017	Fluoride	7/Aug/19	0.81	mg/L	N
September 21, 2017	Fluoride	14/Aug/19	0.57	mg/L	N



September 21, 2017	Fluoride	21/Aug/19	0.68	mg/L	N
September 21, 2017	Fluoride	28/Aug/19	0.70	mg/L	N
September 21, 2017	Fluoride	4/Sep/19	0.72	mg/L	N
September 21, 2017	Fluoride	11/Sep/19	0.58	mg/L	N
September 21, 2017	Fluoride	25/Sep/19	0.09	mg/L	N
September 21, 2017	Fluoride	2/Oct/19	0.69	mg/L	N
September 21, 2017	Fluoride	9/Oct/19	0.71	mg/L	N
September 21, 2017	Fluoride	16/Oct/19	0.71	mg/L	N
September 21, 2017	Fluoride	23/Oct/19	0.63	mg/L	N
September 21, 2017	Fluoride	30/Oct/19	0.72	mg/L	N
September 21, 2017	Fluoride	6/Nov/19	0.74	mg/L	N
September 21, 2017	Fluoride	13/Nov/19	0.66	mg/L	N
September 21, 2017	Fluoride	20/Nov/19	0.75	mg/L	N
September 21, 2017	Fluoride	27/Nov/19	0.79	mg/L	N
September 21, 2017	Fluoride	4/Dec/19	0.79	mg/L	N
September 21, 2017	Fluoride	11/Dec/19	0.66	mg/L	N
September 21, 2017	Fluoride	18/Dec/19	0.65	mg/L	N
September 21, 2017	Lead	24/Jun/19	0.02	ug/L	N
September 21, 2017	Lead	18/Sep/19	0.02	ug/L	N
September 21, 2017	Lead	4/Dec/19	0.01 <MDL	ug/L	N
September 21, 2017	Mercury	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Nitrate (as nitrogen)	12/Mar/19	0.42	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	24/Jun/19	0.424	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	18/Sep/19	0.279	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	4/Dec/19	0.532	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	12/Mar/19	0.42	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	24/Jun/19	0.424	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	18/Sep/19	0.279	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	4/Dec/19	0.532	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	12/Mar/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	24/Jun/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	18/Sep/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	4/Dec/19	0.003 <MDL	mg/L	N
September 21, 2017	Selenium	24/Jun/19	0.12	ug/L	N
September 21, 2017	Sodium	24/Jun/19	9.35	mg/L	N
September 21, 2017	Uranium	24/Jun/19	0.068	ug/L	N



b) ORGANIC PARAMETERS (including THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Alachlor	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Atrazine	24/Jun/19	0.02	ug/L	N
September 21, 2017	Atrazine + N-dealkylated metabolites	24/Jun/19	0.03	ug/L	N
September 21, 2017	De-ethylated Atrazine	24/Jun/19	0.01	ug/L	N
September 21, 2017	Azinphos-methyl	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Benzene	24/Jun/19	0.32 <MDL	ug/L	N
September 21, 2017	Benzo(a)pyrene	24/Jun/19	0.004 <MDL	ug/L	N
September 21, 2017	Bromoxynil	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Carbaryl	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Carbofuran	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Carbon tetrachloride	24/Jun/19	0.17 <MDL	ug/L	N
September 21, 2017	Chlorpyrifos	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Diazinon	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Dicamba	24/Jun/19	0.2 <MDL	ug/L	N
September 21, 2017	1,2-Dichlorobenzene	24/Jun/19	0.41 <MDL	ug/L	N
September 21, 2017	1,4-Dichlorobenzene	24/Jun/19	0.36 <MDL	ug/L	N
September 21, 2017	1,2-Dichloroethane	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	Dichloromethane	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	2,4-dichlorophenol	24/Jun/19	0.15 <MDL	ug/L	N
September 21, 2017	2,4-dichlorophenoxyacetic acid (2,4-D)	24/Jun/19	0.19 <MDL	ug/L	N
September 21, 2017	Diclofop-methyl	24/Jun/19	0.4 <MDL	ug/L	N
September 21, 2017	Dimethoate	24/Jun/19	0.06 <MDL	ug/L	N
September 21, 2017	Diquat	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Diuron	24/Jun/19	0.03 <MDL	ug/L	N
September 21, 2017	Glyphosate	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Malathion	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	MCPA	24/Jun/19	0.0002 <MDL	mg/L	N
September 21, 2017	Metolachlor	24/Jun/19	0.03	ug/L	N
September 21, 2017	Metribuzin	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Paraquat	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Pentachlorophenol	24/Jun/19	0.15 <MDL	ug/L	N
September 21, 2017	Phorate	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Picloram	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Polychlorinated Biphenyls (PCBs)	24/Jun/19	0.04 <MDL	ug/L	N
September 21, 2017	Prometryne	24/Jun/19	0.03 <MDL	ug/L	N
September 21, 2017	Simazine	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Terbufos	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	2,3,4,6-tetrachlorophenol	24/Jun/19	0.2 <MDL	ug/L	N
September 21, 2017	Triallate	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Trichloroethylene	24/Jun/19	0.44 <MDL	ug/L	N
September 21, 2017	2,4,6-trichlorophenol	24/Jun/19	0.25 <MDL	ug/L	N
September 21, 2017	Trifluralin	24/Jun/19	0.02 <MDL	ug/L	N



September 21, 2017	Total Haloacetic Acids	12/Mar/19	5.3 <MDL	ug/L	N
September 21, 2017	Dibromoacetic Acid	12/Mar/19	2 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	12/Mar/19	5.2	ug/L	N
September 21, 2017	Monobromoacetic acid	12/Mar/19	2.9 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	12/Mar/19	4.7 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	12/Mar/19	5.3 <MDL	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	12.7	ug/L	N
September 21, 2017	Dibromoacetic Acid	24/Jun/19	2 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	24/Jun/19	7.4	ug/L	N
September 21, 2017	Monobromoacetic acid	24/Jun/19	2.9 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	24/Jun/19	4.7 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	24/Jun/19	5.3	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	5.9	ug/L	N
September 21, 2017	Dibromoacetic Acid	18/Sep/19	2 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	18/Sep/19	5.9	ug/L	N
September 21, 2017	Monobromoacetic acid	18/Sep/19	2.9 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	18/Sep/19	4.7 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	18/Sep/19	5.3 <MDL	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	5.3 <MDL	ug/L	N
September 21, 2017	Dibromoacetic Acid	4/Dec/19	2 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	4/Dec/19	4.2	ug/L	N
September 21, 2017	Monobromoacetic acid	4/Dec/19	2.9 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	4/Dec/19	4.7 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	4/Dec/19	5.3 <MDL	ug/L	N
September 21, 2017	Trihalomethanes (total)	12/Mar/19	18	ug/L	N
September 21, 2017	Bromodichloromethane	12/Mar/19	5.8	ug/L	N
September 21, 2017	Bromoform	12/Mar/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	12/Mar/19	9.5	ug/L	N
September 21, 2017	Dibromochloromethane	12/Mar/19	2.3	ug/L	N
September 21, 2017	Trihalomethanes (total)	24/Jun/19	22	ug/L	N
September 21, 2017	Bromodichloromethane	24/Jun/19	6.6	ug/L	N
September 21, 2017	Bromoform	24/Jun/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	24/Jun/19	14	ug/L	N
September 21, 2017	Dibromochloromethane	24/Jun/19	2.4	ug/L	N
September 21, 2017	Trihalomethanes (total)	18/Sep/19	28	ug/L	N
September 21, 2017	Bromodichloromethane	18/Sep/19	8.4	ug/L	N
September 21, 2017	Bromoform	18/Sep/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	18/Sep/19	16	ug/L	N
September 21, 2017	Dibromochloromethane	18/Sep/19	3.9	ug/L	N
September 21, 2017	Trihalomethanes (total)	4/Dec/19	13	ug/L	N
September 21, 2017	Bromodichloromethane	4/Dec/19	3.8	ug/L	N
September 21, 2017	Bromoform	4/Dec/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	4/Dec/19	8.1	ug/L	N
September 21, 2017	Dibromochloromethane	4/Dec/19	1.2	ug/L	N
September 21, 2017	Vinyl Chloride	24/Jun/19	0.17 <MDL	ug/L	N



c) NON-REGULATED INORGANIC/ORGANIC PARAMETERS

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Alkalinity	24/Jun/19	84	mg/L as CaCO3	N
September 21, 2017	Aluminum	24/Jun/19	38	ug/L	N
September 21, 2017	Ammonia+Ammonium (N)	24/Jun/19	0.08	mg/L	N
September 21, 2017	Calcium	24/Jun/19	26.7	mg/L	N
September 21, 2017	Chloride	24/Jun/19	10	mg/L	N
September 21, 2017	Cobalt	24/Jun/19	0.008	ug/L	N
September 21, 2017	Colour	24/Jun/19	3 <MDL	TCU	N
September 21, 2017	Conductivity	24/Jun/19	243	uS/cm	N
September 21, 2017	Copper	24/Jun/19	1.9	ug/L	N
September 21, 2017	Cyanide; total	24/Jun/19	0.002 <MDL	mg/L	N
September 21, 2017	1,1-Dichloroethylene (vinylidene chloride)	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Dissolved Organic Carbon	24/Jun/19	1 <MDL	mg/L	N
September 21, 2017	Ethylbenzene	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Hardness	24/Jun/19	97.3	mg/L as CaCO3	N
September 21, 2017	Iron	24/Jun/19	11	ug/L	N
September 21, 2017	Magnesium	24/Jun/19	7.44	mg/L	N
September 21, 2017	Manganese	24/Jun/19	0.77	ug/L	N
September 21, 2017	Monochlorobenzene	24/Jun/19	0.3 <MDL	ug/L	N
September 21, 2017	Nickel	24/Jun/19	0.4	ug/L	N
September 21, 2017	Nitrogen-Kjeldahl (N)	24/Jun/19	0.05 <MDL	mg/L	N
September 21, 2017	Organic Nitrogen	24/Jun/19	0.05 <MDL	mg/L	N
September 21, 2017	pH	24/Jun/19	8.14	no unit	N
September 21, 2017	Phosphorus	24/Jun/19	0.003 <MDL	mg/L	N
September 21, 2017	Potassium	24/Jun/19	0.991	mg/L	N
September 21, 2017	Silicon; reactive silicate	24/Jun/19	1.4	mg/L	N
September 21, 2017	Silver	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Solids (Total Dissolved)	24/Jun/19	134	mg/L	N
September 21, 2017	Sulphate	24/Jun/19	24	mg/L	N
September 21, 2017	Sulphide	24/Jun/19	6 <MDL	ug/L	N
September 21, 2017	Surr 1,2-Dichloroethane-d4	24/Jun/19	102	Surr Rec %	N
September 21, 2017	Surr 4-Bromofluorobenzene	24/Jun/19	90	Surr Rec %	N
September 21, 2017	Surr Decachlorobiphenyl	24/Jun/19	100	%	N
September 21, 2017	Tetrachloroethylene (perchloroethylene)	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	Toluene	24/Jun/19	0.36 <MDL	ug/L	N
September 21, 2017	Toxaphene	24/Jun/19	5 <MDL	ug/L	N
September 21, 2017	Total Chlorine-Field	24/Jun/19	1.05	mg/L	N
September 21, 2017	Total Chlorine-Field	24/Jun/19	1.05	mg/L	N
September 21, 2017	2-(2,4,5-Trichlorophenoxy)propanoic acid (2,4,5-TP)	24/Jun/19	0.18 <MDL	ug/L	N
September 21, 2017	Turbidity	24/Jun/19	0.34	NTU	N
September 21, 2017	Xylene (Total)	24/Jun/19	0.43 <MDL	ug/L	N
September 21, 2017	m/p-Xylene	24/Jun/19	0.43 <MDL	ug/L	N
September 21, 2017	o-xylene	24/Jun/19	0.17 <MDL	ug/L	N
September 21, 2017	Zinc	24/Jun/19	2 <MDL	ug/L	N



SITE: Southeast Reservoir and Pumping Station - Treated Distribution

a) INORGANIC PARAMETERS (including lead, sodium, nitrate, nitrite, and fluoride)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Antimony	24/Jun/19	0.15	ug/L	N
September 21, 2017	Arsenic	24/Jun/19	0.3	ug/L	N
September 21, 2017	Barium	24/Jun/19	20.3	ug/L	N
September 21, 2017	Boron	24/Jun/19	21	ug/L	N
September 21, 2017	Cadmium	24/Jun/19	0.005	ug/L	N
September 21, 2017	Chromium	24/Jun/19	0.17	ug/L	N
September 21, 2017	Fluoride	2/Jan/19	0.59	mg/L	N
September 21, 2017	Fluoride	9/Jan/19	0.58	mg/L	N
September 21, 2017	Fluoride	16/Jan/19	0.49	mg/L	N
September 21, 2017	Fluoride	23/Jan/19	0.57	mg/L	N
September 21, 2017	Fluoride	30/Jan/19	0.52	mg/L	N
September 21, 2017	Fluoride	6/Feb/19	0.56	mg/L	N
September 21, 2017	Fluoride	13/Feb/19	0.55	mg/L	N
September 21, 2017	Fluoride	20/Feb/19	0.53	mg/L	N
September 21, 2017	Fluoride	27/Feb/19	0.49	mg/L	N
September 21, 2017	Fluoride	6/Mar/19	0.51	mg/L	N
September 21, 2017	Fluoride	13/Mar/19	0.60	mg/L	N
September 21, 2017	Fluoride	20/Mar/19	0.46	mg/L	N
September 21, 2017	Fluoride	27/Mar/19	0.52	mg/L	N
September 21, 2017	Fluoride	3/Apr/19	0.57	mg/L	N
September 21, 2017	Fluoride	10/Apr/19	0.47	mg/L	N
September 21, 2017	Fluoride	17/Apr/19	0.49	mg/L	N
September 21, 2017	Fluoride	24/Apr/19	0.51	mg/L	N
September 21, 2017	Fluoride	2/May/19	0.62	mg/L	N
September 21, 2017	Fluoride	8/May/19	0.60	mg/L	N
September 21, 2017	Fluoride	15/May/19	0.56	mg/L	N
September 21, 2017	Fluoride	22/May/19	0.63	mg/L	N
September 21, 2017	Fluoride	29/May/19	0.62	mg/L	N
September 21, 2017	Fluoride	29/May/19	0.59	mg/L	N
September 21, 2017	Fluoride	5/Jun/19	0.53	mg/L	N
September 21, 2017	Fluoride	12/Jun/19	0.59	mg/L	N
September 21, 2017	Fluoride	19/Jun/19	0.61	mg/L	N
September 21, 2017	Fluoride	26/Jun/19	0.57	mg/L	N
September 21, 2017	Fluoride	3/Jul/19	0.55	mg/L	N
September 21, 2017	Fluoride	10/Jul/19	0.54	mg/L	N
September 21, 2017	Fluoride	17/Jul/19	0.49	mg/L	N
September 21, 2017	Fluoride	24/Jul/19	0.41	mg/L	N
September 21, 2017	Fluoride	31/Jul/19	0.52	mg/L	N
September 21, 2017	Fluoride	7/Aug/19	0.54	mg/L	N
September 21, 2017	Fluoride	14/Aug/19	0.44	mg/L	N



September 21, 2017	Fluoride	21/Aug/19	0.54	mg/L	N
September 21, 2017	Fluoride	28/Aug/19	0.62	mg/L	N
September 21, 2017	Fluoride	4/Sep/19	0.58	mg/L	N
September 21, 2017	Fluoride	11/Sep/19	0.65	mg/L	N
September 21, 2017	Fluoride	18/Sep/19	0.62	mg/L	N
September 21, 2017	Fluoride	25/Sep/19	0.65	mg/L	N
September 21, 2017	Fluoride	2/Oct/19	0.66	mg/L	N
September 21, 2017	Fluoride	9/Oct/19	0.72	mg/L	N
September 21, 2017	Fluoride	16/Oct/19	0.64	mg/L	N
September 21, 2017	Fluoride	23/Oct/19	0.62	mg/L	N
September 21, 2017	Fluoride	30/Oct/19	0.61	mg/L	N
September 21, 2017	Fluoride	6/Nov/19	0.63	mg/L	N
September 21, 2017	Fluoride	13/Nov/19	0.65	mg/L	N
September 21, 2017	Fluoride	20/Nov/19	0.57	mg/L	N
September 21, 2017	Fluoride	27/Nov/19	0.59	mg/L	N
September 21, 2017	Fluoride	4/Dec/19	0.56	mg/L	N
September 21, 2017	Fluoride	11/Dec/19	0.53	mg/L	N
September 21, 2017	Fluoride	18/Dec/19	0.54	mg/L	N
September 21, 2017	Fluoride	23/Dec/19	0.51	mg/L	N
September 21, 2017	Lead	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Lead	18/Sep/19	0.01 <MDL	ug/L	N
September 21, 2017	Lead	4/Dec/19	0.02	ug/L	N
September 21, 2017	Mercury	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Nitrate (as nitrogen)	12/Mar/19	0.24	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	24/Jun/19	0.12	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	18/Sep/19	0.21	mg/L	N
September 21, 2017	Nitrate (as nitrogen)	4/Dec/19	0.16	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	12/Mar/19	0.24	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	24/Jun/19	0.12	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	18/Sep/19	0.21	mg/L	N
September 21, 2017	Nitrate + Nitrite (as nitrogen)	4/Dec/19	0.16	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	12/Mar/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	24/Jun/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	18/Sep/19	0.003 <MDL	mg/L	N
September 21, 2017	Nitrite (as nitrogen)	4/Dec/19	0.003 <MDL	mg/L	N
September 21, 2017	Selenium	24/Jun/19	0.13	ug/L	N
September 21, 2017	Sodium	24/Jun/19	16.4	mg/L	N
September 21, 2017	Uranium	24/Jun/19	0.028	ug/L	N



b) ORGANIC PARAMETERS (including THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Alachlor	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Atrazine	24/Jun/19	0.04	ug/L	N
September 21, 2017	Atrazine + N-dealkylated metabolites	24/Jun/19	0.06	ug/L	N
September 21, 2017	De-ethylated Atrazine	24/Jun/19	0.02	ug/L	N
September 21, 2017	Azinphos-methyl	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Benzene	24/Jun/19	0.32 <MDL	ug/L	N
September 21, 2017	Benzo(a)pyrene	24/Jun/19	0.004 <MDL	ug/L	N
September 21, 2017	Bromoxynil	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Carbaryl	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Carbofuran	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Carbon tetrachloride	24/Jun/19	0.17 <MDL	ug/L	N
September 21, 2017	Chlorpyrifos	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Diazinon	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Dicamba	24/Jun/19	0.2 <MDL	ug/L	N
September 21, 2017	1,2-Dichlorobenzene	24/Jun/19	0.41 <MDL	ug/L	N
September 21, 2017	1,4-Dichlorobenzene	24/Jun/19	0.36 <MDL	ug/L	N
September 21, 2017	1,2-Dichloroethane	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	Dichloromethane	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	2,4-dichlorophenol	24/Jun/19	0.15 <MDL	ug/L	N
September 21, 2017	2,4-dichlorophenoxyacetic acid (2,4-D)	24/Jun/19	0.19 <MDL	ug/L	N
September 21, 2017	Diclofop-methyl	24/Jun/19	0.4 <MDL	ug/L	N
September 21, 2017	Dimethoate	24/Jun/19	0.06 <MDL	ug/L	N
September 21, 2017	Diquat	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Diuron	24/Jun/19	0.03 <MDL	ug/L	N
September 21, 2017	Glyphosate	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Malathion	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	MCPA	24/Jun/19	0.00012 <MDL	mg/L	N
September 21, 2017	Metolachlor	24/Jun/19	0.01	ug/L	N
September 21, 2017	Metribuzin	24/Jun/19	0.02 <MDL	ug/L	N
September 21, 2017	Paraquat	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Pentachlorophenol	24/Jun/19	0.15 <MDL	ug/L	N
September 21, 2017	Phorate	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Picloram	24/Jun/19	1 <MDL	ug/L	N
September 21, 2017	Polychlorinated Biphenyls (PCBs)	24/Jun/19	0.04 <MDL	ug/L	N
September 21, 2017	Prometryne	24/Jun/19	0.03 <MDL	ug/L	N
September 21, 2017	Simazine	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Terbufos	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	2,3,4,6-tetrachlorophenol	24/Jun/19	0.2 <MDL	ug/L	N
September 21, 2017	Triallate	24/Jun/19	0.01 <MDL	ug/L	N
September 21, 2017	Trichloroethylene	24/Jun/19	0.44 <MDL	ug/L	N
September 21, 2017	2,4,6-trichlorophenol	24/Jun/19	0.25 <MDL	ug/L	N
September 21, 2017	Trifluralin	24/Jun/19	0.02 <MDL	ug/L	N



September 21, 2017	Total Haloacetic Acids	12/Mar/19	12.00	ug/L	N
September 21, 2017	Dibromoacetic Acid	12/Mar/19	2.00 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	12/Mar/19	6.60	ug/L	N
September 21, 2017	Monobromoacetic acid	12/Mar/19	2.90 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	12/Mar/19	4.70 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	12/Mar/19	5.40	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	14.00	ug/L	N
September 21, 2017	Dibromoacetic Acid	24/Jun/19	2.00 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	24/Jun/19	8.40	ug/L	N
September 21, 2017	Monobromoacetic acid	24/Jun/19	2.90 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	24/Jun/19	4.70 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	24/Jun/19	5.60	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	23.30	ug/L	N
September 21, 2017	Dibromoacetic Acid	18/Sep/19	2.00 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	18/Sep/19	15.30	ug/L	N
September 21, 2017	Monobromoacetic acid	18/Sep/19	2.90 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	18/Sep/19	4.70 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	18/Sep/19	8.10	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	13.50	ug/L	N
September 21, 2017	Dibromoacetic Acid	4/Dec/19	2.00 <MDL	ug/L	N
September 21, 2017	Dichloroacetic Acid	4/Dec/19	8.20	ug/L	N
September 21, 2017	Monobromoacetic acid	4/Dec/19	2.90 <MDL	ug/L	N
September 21, 2017	Monochloroacetic Acid	4/Dec/19	4.70 <MDL	ug/L	N
September 21, 2017	Trichloroacetic Acid	4/Dec/19	5.30	ug/L	N
September 21, 2017	Trihalomethanes (total)	12/Mar/19	20.00	ug/L	N
September 21, 2017	Bromodichloromethane	12/Mar/19	6.40	ug/L	N
September 21, 2017	Bromoform	12/Mar/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	12/Mar/19	10.00	ug/L	N
September 21, 2017	Dibromochloromethane	12/Mar/19	3.00	ug/L	N
September 21, 2017	Trihalomethanes (total)	24/Jun/19	23.00	ug/L	N
September 21, 2017	Bromodichloromethane	24/Jun/19	7.40	ug/L	N
September 21, 2017	Bromoform	24/Jun/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	24/Jun/19	13.00	ug/L	N
September 21, 2017	Dibromochloromethane	24/Jun/19	2.90	ug/L	N
September 21, 2017	Trihalomethanes (total)	18/Sep/19	48.00	ug/L	N
September 21, 2017	Bromodichloromethane	18/Sep/19	12.00	ug/L	N
September 21, 2017	Bromoform	18/Sep/19	0.40	ug/L	N
September 21, 2017	Chloroform	18/Sep/19	30.00	ug/L	N
September 21, 2017	Dibromochloromethane	18/Sep/19	4.80	ug/L	N
September 21, 2017	Trihalomethanes (total)	4/Dec/19	20.00	ug/L	N
September 21, 2017	Bromodichloromethane	4/Dec/19	5.10	ug/L	N
September 21, 2017	Bromoform	4/Dec/19	0.34 <MDL	ug/L	N
September 21, 2017	Chloroform	4/Dec/19	13.00	ug/L	N
September 21, 2017	Dibromochloromethane	4/Dec/19	1.50	ug/L	N
September 21, 2017	Vinyl Chloride	24/Jun/19	0.17 <MDL	ug/L	N



c) NON-REGULATED INORGANIC/ORGANIC PARAMETERS

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Alkalinity	24/Jun/19	101	mg/L as CaCO ₃	N
September 21, 2017	Aluminum	24/Jun/19	12	ug/L	N
September 21, 2017	Ammonia+Ammonium (N)	24/Jun/19	0.06	mg/L	N
September 21, 2017	Calcium	24/Jun/19	32.6	mg/L	N
September 21, 2017	Chloride	24/Jun/19	19	mg/L	N
September 21, 2017	Cobalt	24/Jun/19	0.01	ug/L	N
September 21, 2017	Colour	24/Jun/19	3 <MDL	TCU	N
September 21, 2017	Conductivity	24/Jun/19	316	uS/cm	N
September 21, 2017	Copper	24/Jun/19	1	ug/L	N
September 21, 2017	Cyanide; total	24/Jun/19	0.002 <MDL	mg/L	N
September 21, 2017	1,1-Dichloroethylene (vinylidene chloride)	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Dissolved Organic Carbon	24/Jun/19	1 <MDL	mg/L	N
September 21, 2017	Ethylbenzene	24/Jun/19	0.33 <MDL	ug/L	N
September 21, 2017	Hardness	24/Jun/19	116	mg/L as CaCO ₃	N
September 21, 2017	Iron	24/Jun/19	7 <MDL	ug/L	N
September 21, 2017	Magnesium	24/Jun/19	8.32	mg/L	N
September 21, 2017	Manganese	24/Jun/19	0.1	ug/L	N
September 21, 2017	Monochlorobenzene	24/Jun/19	0.3 <MDL	ug/L	N
September 21, 2017	Nickel	24/Jun/19	0.6	ug/L	N
September 21, 2017	Nitrogen-Kjeldahl (N)	24/Jun/19	0.17	mg/L	N
September 21, 2017	Organic Nitrogen	24/Jun/19	0.11	mg/L	N
September 21, 2017	pH	24/Jun/19	8.04	no unit	N
September 21, 2017	Phosphorus	24/Jun/19	0.003 <MDL	mg/L	N
September 21, 2017	Potassium	24/Jun/19	1.39	mg/L	N
September 21, 2017	Silicon; reactive silicate	24/Jun/19	0.43	mg/L	N
September 21, 2017	Silver	24/Jun/19	0.05 <MDL	ug/L	N
September 21, 2017	Solids (Total Dissolved)	24/Jun/19	189	mg/L	N
September 21, 2017	Sulphate	24/Jun/19	31	mg/L	N
September 21, 2017	Sulphide	24/Jun/19	6 <MDL	ug/L	N
September 21, 2017	Surr 1,2-Dichloroethane-d4	24/Jun/19	101	Surr Rec %	N
September 21, 2017	Surr 4-Bromofluorobenzene	24/Jun/19	90	Surr Rec %	N
September 21, 2017	Surr Decachlorobiphenyl	24/Jun/19	92	%	N
September 21, 2017	Tetrachloroethylene (perchloroethylene)	24/Jun/19	0.35 <MDL	ug/L	N
September 21, 2017	Toluene	24/Jun/19	0.36 <MDL	ug/L	N
September 21, 2017	Toxaphene	24/Jun/19	5 <MDL	ug/L	N
September 21, 2017	Total Chlorine-Field	24/Jun/19	1.17	mg/L	N
September 21, 2017	Total Chlorine-Field	24/Jun/19	1.17	mg/L	N
September 21, 2017	2-(2,4,5-Trichlorophenoxy)propanoic acid (2,4,5-TP)	24/Jun/19	0.18 <MDL	ug/L	N
September 21, 2017	Turbidity	24/Jun/19	0.33	NTU	N
September 21, 2017	Xylene (Total)	24/Jun/19	0.43 <MDL	ug/L	N
September 21, 2017	m/p-Xylene	24/Jun/19	0.43 <MDL	ug/L	N
September 21, 2017	o-xylene	24/Jun/19	0.17 <MDL	ug/L	N
September 21, 2017	Zinc	24/Jun/19	2 <MDL	ug/L	N



Summary of Inorganic/Organic parameters tested during this reporting period.

As outlined below, sampling was carried out for THM's & HAA's at 603 Wonderland Rd. S., 525 Crestwood Dr., 214 Rathowan St., 4318 Colonel Talbot Rd., and 950 East Springbank Gate.

SITE: 603 Wonderland Rd. S. - Treated Distribution

b) ORGANIC PARAMETERS (THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Total Haloacetic Acids	12/Mar/19	13.3	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	12/Mar/19	2.9 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	12/Mar/19	4.7 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	12/Mar/19	7.2	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	12/Mar/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	12/Mar/19	6.1	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	18.5	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	24/Jun/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	24/Jun/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	24/Jun/19	10.6	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	24/Jun/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	24/Jun/19	8	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	10.7	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	18/Sep/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	18/Sep/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	18/Sep/19	4.3	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	18/Sep/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	18/Sep/19	6.4	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	6	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	4/Dec/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	4/Dec/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	4/Dec/19	6	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	4/Dec/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	4/Dec/19	5.3 <MDL	ug/L	N



SITE: 525 Crestwood Dr. - Treated Distribution

b) ORGANIC PARAMETERS (THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Total Haloacetic Acids	13/Mar/19	13.6	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	13/Mar/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	13/Mar/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	13/Mar/19	7.1	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	13/Mar/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	13/Mar/19	6.5	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	20.6	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	24/Jun/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	24/Jun/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	24/Jun/19	11.6	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	24/Jun/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	24/Jun/19	9.1	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	10.4	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	18/Sep/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	18/Sep/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	18/Sep/19	3.9	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	18/Sep/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	18/Sep/19	6.4	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	12.7	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	4/Dec/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	4/Dec/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	4/Dec/19	6.7	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	4/Dec/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	4/Dec/19	6	ug/L	N



SITE: Fire Hydrant at 214 Rathowan St. - Treated Distribution

b) ORGANIC PARAMETERS (THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Total Haloacetic Acids	13/Mar/19	6	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	13/Mar/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	13/Mar/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	13/Mar/19	6	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	13/Mar/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	13/Mar/19	5.3 <MDL	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	15.8	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	24/Jun/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	24/Jun/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	24/Jun/19	9.3	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	24/Jun/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	24/Jun/19	6.5	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	9	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	18/Sep/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	18/Sep/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	18/Sep/19	3.5	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	18/Sep/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	18/Sep/19	5.5	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	5.3 <MDL	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	4/Dec/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	4/Dec/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	4/Dec/19	4.8	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	4/Dec/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	4/Dec/19	5.3 <MDL	ug/L	N
September 21, 2017	Trihalomethanes (total)	13/Mar/19	20	ug/L	N
September 21, 2017	(bromodichloromethane)	13/Mar/19	6.2	ug/L	N
September 21, 2017	(bromoform)	13/Mar/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	13/Mar/19	11	ug/L	N
September 21, 2017	(dibromochloromethane)	13/Mar/19	2.3	ug/L	N
September 21, 2017	Trihalomethanes (total)	24/Jun/19	31	ug/L	N
September 21, 2017	(bromodichloromethane)	24/Jun/19	7.8	ug/L	N
September 21, 2017	(bromoform)	24/Jun/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	24/Jun/19	20	ug/L	N
September 21, 2017	(dibromochloromethane)	24/Jun/19	2.6	ug/L	N
September 21, 2017	Trihalomethanes (total)	18/Sep/19	37	ug/L	N
September 21, 2017	(bromodichloromethane)	18/Sep/19	9.9	ug/L	N
September 21, 2017	(bromoform)	18/Sep/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	18/Sep/19	23	ug/L	N
September 21, 2017	(dibromochloromethane)	18/Sep/19	4.2	ug/L	N
September 21, 2017	Trihalomethanes (total)	4/Dec/19	16	ug/L	N
September 21, 2017	(bromodichloromethane)	4/Dec/19	4.2	ug/L	N
September 21, 2017	(bromoform)	4/Dec/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	4/Dec/19	10	ug/L	N
September 21, 2017	(dibromochloromethane)	4/Dec/19	1.4	ug/L	N



SITE: 4318 Colonel Talbot Rd. - Treated Distribution

b) ORGANIC PARAMETERS (THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Total Haloacetic Acids	12/Mar/19	15	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	12/Mar/19	2.9 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	12/Mar/19	4.7 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	12/Mar/19	8.5	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	12/Mar/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	12/Mar/19	6.5	ug/L	N
September 21, 2017	Total Haloacetic Acids	24/Jun/19	18.4	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	24/Jun/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	24/Jun/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	24/Jun/19	11.6	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	24/Jun/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	24/Jun/19	6.8	ug/L	N
September 21, 2017	Total Haloacetic Acids	18/Sep/19	10.3	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	18/Sep/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	18/Sep/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	18/Sep/19	4.1	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	18/Sep/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	18/Sep/19	6.2	ug/L	N
September 21, 2017	Total Haloacetic Acids	4/Dec/19	15.4	ug/L	N
September 21, 2017	(Dibromoacetic Acid)	4/Dec/19	4.7 <MDL	ug/L	N
September 21, 2017	(Dichloroacetic Acid)	4/Dec/19	2.9 <MDL	ug/L	N
September 21, 2017	(Monobromoacetic acid)	4/Dec/19	9.9	ug/L	N
September 21, 2017	(Monochloroacetic Acid)	4/Dec/19	2 <MDL	ug/L	N
September 21, 2017	(Trichloroacetic Acid)	4/Dec/19	5.5	ug/L	N
September 21, 2017	Trihalomethanes (total)	12/Mar/19	24	ug/L	N
September 21, 2017	(bromodichloromethane)	12/Mar/19	7.6	ug/L	N
September 21, 2017	(bromoform)	12/Mar/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	12/Mar/19	13	ug/L	N
September 21, 2017	(dibromochloromethane)	12/Mar/19	3.3	ug/L	N
September 21, 2017	Trihalomethanes (total)	24/Jun/19	28	ug/L	N
September 21, 2017	(bromodichloromethane)	24/Jun/19	8.3	ug/L	N
September 21, 2017	(bromoform)	24/Jun/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	24/Jun/19	17	ug/L	N
September 21, 2017	(dibromochloromethane)	24/Jun/19	3.2	ug/L	N
September 21, 2017	Trihalomethanes (total)	18/Sep/19	48	ug/L	N
September 21, 2017	(bromodichloromethane)	18/Sep/19	12	ug/L	N
September 21, 2017	(bromoform)	18/Sep/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	18/Sep/19	32	ug/L	N
September 21, 2017	(dibromochloromethane)	18/Sep/19	4.7	ug/L	N
September 21, 2017	Trihalomethanes (total)	4/Dec/19	24	ug/L	N
September 21, 2017	(bromodichloromethane)	4/Dec/19	5.8	ug/L	N
September 21, 2017	(bromoform)	4/Dec/19	0.34 <MDL	ug/L	N
September 21, 2017	(chloroform)	4/Dec/19	17	ug/L	N
September 21, 2017	(dibromochloromethane)	4/Dec/19	1.7	ug/L	N

SITE: 950 East Springbank Gate - Treated Distribution
b) ORGANIC PARAMETERS (THM & HAA)

Date of Municipal Drinking Water Licence	Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
September 21, 2017	Total Haloacetic Acids	13/Mar/19	12.9	ug/L	ug/L
September 21, 2017	(Dibromoacetic Acid)	13/Mar/19	4.7 <MDL	ug/L	ug/L
September 21, 2017	(Dichloroacetic Acid)	13/Mar/19	2.9 <MDL	ug/L	ug/L
September 21, 2017	(Monobromoacetic acid)	13/Mar/19	6.7	ug/L	ug/L
September 21, 2017	(Monochloroacetic Acid)	13/Mar/19	2 <MDL	ug/L	ug/L
September 21, 2017	(Trichloroacetic Acid)	13/Mar/19	6.1	ug/L	ug/L
September 21, 2017	Total Haloacetic Acids	24/Jun/19	19.6	ug/L	ug/L
September 21, 2017	(Dibromoacetic Acid)	24/Jun/19	4.7 <MDL	ug/L	ug/L
September 21, 2017	(Dichloroacetic Acid)	24/Jun/19	2.9 <MDL	ug/L	ug/L
September 21, 2017	(Monobromoacetic acid)	24/Jun/19	11	ug/L	ug/L
September 21, 2017	(Monochloroacetic Acid)	24/Jun/19	2 <MDL	ug/L	ug/L
September 21, 2017	(Trichloroacetic Acid)	24/Jun/19	8.6	ug/L	ug/L
September 21, 2017	Total Haloacetic Acids	18/Sep/19	10.8	ug/L	ug/L
September 21, 2017	(Dibromoacetic Acid)	18/Sep/19	4.7 <MDL	ug/L	ug/L
September 21, 2017	(Dichloroacetic Acid)	18/Sep/19	2.9 <MDL	ug/L	ug/L
September 21, 2017	(Monobromoacetic acid)	18/Sep/19	4.6	ug/L	ug/L
September 21, 2017	(Monochloroacetic Acid)	18/Sep/19	2 <MDL	ug/L	ug/L
September 21, 2017	(Trichloroacetic Acid)	18/Sep/19	6.1	ug/L	ug/L
September 21, 2017	Total Haloacetic Acids	4/Dec/19	18.2	ug/L	ug/L
September 21, 2017	(Dibromoacetic Acid)	4/Dec/19	4.7 <MDL	ug/L	ug/L
September 21, 2017	(Dichloroacetic Acid)	4/Dec/19	2.9 <MDL	ug/L	ug/L
September 21, 2017	(Monobromoacetic acid)	4/Dec/19	11.6	ug/L	ug/L
September 21, 2017	(Monochloroacetic Acid)	4/Dec/19	2 <MDL	ug/L	ug/L
September 21, 2017	(Trichloroacetic Acid)	4/Dec/19	6.7	ug/L	ug/L

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

None.



2019 Summary of Water Pumpage



London
CANADA



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Tuesday	1/Jan/19	17,293	87,987	106,858
Wednesday	2/Jan/19	23,976	96,200	118,936
Thursday	3/Jan/19	26,407	87,392	116,618
Friday	4/Jan/19	26,530	87,352	117,715
Saturday	5/Jan/19	26,427	92,048	118,700
Sunday	6/Jan/19	26,457	96,688	123,709
Monday	7/Jan/19	23,867	101,586	123,762
Tuesday	8/Jan/19	23,116	98,381	118,228
Wednesday	9/Jan/19	23,160	92,745	122,557
Thursday	10/Jan/19	23,198	97,098	126,835
Friday	11/Jan/19	22,979	107,435	127,708
Saturday	12/Jan/19	23,013	106,738	123,438
Sunday	13/Jan/19	23,887	106,469	126,185
Monday	14/Jan/19	23,901	105,192	123,681
Tuesday	15/Jan/19	24,104	96,368	121,374
Wednesday	16/Jan/19	23,986	96,248	123,278
Thursday	17/Jan/19	23,974	101,112	124,410
Friday	18/Jan/19	23,997	96,120	119,102
Saturday	19/Jan/19	23,925	91,448	120,221
Sunday	20/Jan/19	25,286	96,720	126,854
Monday	21/Jan/19	24,057	101,523	127,046
Tuesday	22/Jan/19	23,047	111,138	124,151
Wednesday	23/Jan/19	24,308	102,900	124,164
Thursday	24/Jan/19	23,189	102,633	124,469
Friday	25/Jan/19	22,509	92,262	123,565
Saturday	26/Jan/19	22,359	98,035	123,213
Sunday	27/Jan/19	22,500	102,714	123,523
Monday	28/Jan/19	23,542	104,256	124,078
Tuesday	29/Jan/19	21,818	100,856	124,027
Wednesday	30/Jan/19	21,788	99,696	124,979
Thursday	31/Jan/19	21,064	105,944	124,189
January 2019 Monthly Max		26,530	111,138	127,708
January 2019 Monthly Average		23,746	99,177	123,024
January 2019 Total		712,371	2,975,297	3,690,712



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Friday	1/Feb/19	21,109	105,184	126,744
Saturday	2/Feb/19	20,258	105,256	131,264
Sunday	3/Feb/19	20,397	114,288	131,641
Monday	4/Feb/19	20,248	116,969	127,972
Tuesday	5/Feb/19	20,183	111,088	125,070
Wednesday	6/Feb/19	21,455	97,327	124,645
Thursday	7/Feb/19	21,556	102,563	122,766
Friday	8/Feb/19	21,536	93,375	123,705
Saturday	9/Feb/19	21,751	106,523	126,357
Sunday	10/Feb/19	20,486	107,149	127,522
Monday	11/Feb/19	15,818	105,368	123,045
Tuesday	12/Feb/19	20,533	100,768	121,301
Wednesday	13/Feb/19	19,778	101,280	121,734
Thursday	14/Feb/19	27,726	91,120	121,777
Friday	15/Feb/19	31,205	91,704	121,105
Saturday	16/Feb/19	23,083	92,096	118,448
Sunday	17/Feb/19	23,153	96,168	113,458
Monday	18/Feb/19	22,175	87,886	117,051
Tuesday	19/Feb/19	22,323	102,883	119,343
Wednesday	20/Feb/19	22,283	102,492	118,687
Thursday	21/Feb/19	25,534	83,593	118,823
Friday	22/Feb/19	22,016	101,089	117,919
Saturday	23/Feb/19	21,898	98,001	119,448
Sunday	24/Feb/19	21,474	93,239	120,801
Monday	25/Feb/19	21,428	100,480	122,021
Tuesday	26/Feb/19	24,030	100,408	121,507
Wednesday	27/Feb/19	22,278	100,960	123,463
Thursday	28/Feb/19	22,346	99,864	121,195
February 2019 Monthly Max		31,205	116,969	131,641
February 2019 Monthly Max		22,074	100,326	122,458
February 2019 Total		618,060	2,809,121	3,428,815



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Friday	1/Mar/19	22,384	100,192	122,689
Saturday	2/Mar/19	22,288	100,360	121,859
Sunday	3/Mar/19	24,028	85,127	124,939
Monday	4/Mar/19	28,879	102,456	124,571
Tuesday	5/Mar/19	22,362	105,771	124,074
Wednesday	6/Mar/19	22,342	105,804	125,102
Thursday	7/Mar/19	21,604	101,206	123,261
Friday	8/Mar/19	21,618	101,989	123,096
Saturday	9/Mar/19	21,446	106,710	123,368
Sunday	10/Mar/19	21,012	95,265	116,615
Monday	11/Mar/19	21,498	100,536	124,063
Tuesday	12/Mar/19	21,451	100,456	123,824
Wednesday	13/Mar/19	21,457	104,864	122,607
Thursday	14/Mar/19	21,565	100,496	122,061
Friday	15/Mar/19	21,379	99,848	121,107
Saturday	16/Mar/19	21,442	96,400	123,366
Sunday	17/Mar/19	21,386	96,936	126,778
Monday	18/Mar/19	22,304	109,352	124,779
Tuesday	19/Mar/19	20,423	109,456	125,144
Wednesday	20/Mar/19	22,610	108,960	123,565
Thursday	21/Mar/19	22,542	95,952	123,116
Friday	22/Mar/19	23,566	97,205	121,673
Saturday	23/Mar/19	23,488	97,304	122,821
Sunday	24/Mar/19	23,524	97,209	125,694
Monday	25/Mar/19	22,790	100,914	122,013
Tuesday	26/Mar/19	22,714	100,341	123,844
Wednesday	27/Mar/19	22,693	105,726	123,684
Thursday	28/Mar/19	22,753	97,584	123,043
Friday	29/Mar/19	22,674	96,054	122,448
Saturday	30/Mar/19	23,114	97,124	119,674
Sunday	31/Mar/19	19,776	94,703	124,626
March 2019 Monthly Max		28,879	109,456	126,778
March 2019 Monthly Average		22,358	100,397	123,210
March 2019 Total		693,112	3,112,300	3,819,505



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Monday	1/Apr/19	23,898	118,688	123,984
Tuesday	2/Apr/19	13,733	104,728	126,462
Wednesday	3/Apr/19	22,790	99,944	125,214
Thursday	4/Apr/19	22,410	100,776	124,990
Friday	5/Apr/19	23,083	104,208	124,698
Saturday	6/Apr/19	22,991	105,312	126,499
Sunday	7/Apr/19	19,275	100,392	128,574
Monday	8/Apr/19	19,438	117,520	125,909
Tuesday	9/Apr/19	19,679	108,728	125,025
Wednesday	10/Apr/19	15,485	100,944	124,434
Thursday	11/Apr/19	22,568	104,080	123,829
Friday	12/Apr/19	23,628	100,568	123,858
Saturday	13/Apr/19	23,940	100,888	125,730
Sunday	14/Apr/19	20,375	105,136	123,594
Monday	15/Apr/19	22,292	104,032	123,393
Tuesday	16/Apr/19	24,771	95,584	122,835
Wednesday	17/Apr/19	24,657	95,592	125,097
Thursday	18/Apr/19	26,613	104,128	121,156
Friday	19/Apr/19	26,937	100,912	119,821
Saturday	20/Apr/19	26,877	99,600	114,299
Sunday	21/Apr/19	26,960	88,704	117,830
Monday	22/Apr/19	24,978	92,543	125,670
Tuesday	23/Apr/19	23,469	97,294	120,942
Wednesday	24/Apr/19	23,448	96,279	124,347
Thursday	25/Apr/19	21,825	101,131	123,874
Friday	26/Apr/19	21,908	107,074	120,705
Saturday	27/Apr/19	21,748	102,268	123,433
Sunday	28/Apr/19	21,812	97,250	125,414
Monday	29/Apr/19	22,323	102,053	121,346
Tuesday	30/Apr/19	23,156	100,416	121,530
April 2019 Monthly Max		26,960	118,688	128,574
April 2019 Monthly Average		22,569	101,892	123,483
April 2019 Total		677,067	3,056,772	3,704,491



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Wednesday	1/May/19	22,420	95,520	122,495
Thursday	2/May/19	23,374	99,664	124,497
Friday	3/May/19	16,500	104,920	122,003
Saturday	4/May/19	21,881	99,744	118,058
Sunday	5/May/19	23,865	104,232	127,984
Monday	6/May/19	22,845	102,166	123,844
Tuesday	7/May/19	22,861	96,304	120,040
Wednesday	8/May/19	23,621	102,373	121,910
Thursday	9/May/19	23,709	97,640	123,212
Friday	10/May/19	23,838	96,164	120,115
Saturday	11/May/19	22,855	97,596	121,101
Sunday	12/May/19	22,893	97,389	118,465
Monday	13/May/19	22,844	100,392	121,731
Tuesday	14/May/19	22,829	99,656	126,748
Wednesday	15/May/19	23,005	103,576	126,694
Thursday	16/May/19	22,942	104,104	128,213
Friday	17/May/19	22,709	109,624	127,194
Saturday	18/May/19	23,757	100,520	122,631
Sunday	19/May/19	23,766	95,760	123,440
Monday	20/May/19	23,769	102,138	123,235
Tuesday	21/May/19	23,689	101,825	128,073
Wednesday	22/May/19	23,731	101,995	126,555
Thursday	23/May/19	23,677	100,605	129,711
Friday	24/May/19	23,901	101,450	127,495
Saturday	25/May/19	23,210	101,245	126,486
Sunday	26/May/19	23,106	107,061	131,198
Monday	27/May/19	22,827	109,936	132,022
Tuesday	28/May/19	18,102	109,800	124,356
Wednesday	29/May/19	22,904	104,512	125,916
Thursday	30/May/19	22,876	110,328	130,220
Friday	31/May/19	22,893	108,784	131,677
May 2019 Monthly Max		23,901	110,328	132,022
May 2019 Monthly Average		22,813	102,162	125,075
May 2019 Total		707,199	3,167,023	3,877,318



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Saturday	1/Jun/19	22,901	105,328	127,354
Sunday	2/Jun/19	23,724	109,960	129,891
Monday	3/Jun/19	22,094	102,338	128,762
Tuesday	4/Jun/19	18,670	105,588	132,401
Wednesday	5/Jun/19	22,826	110,095	129,552
Thursday	6/Jun/19	24,709	106,968	132,725
Friday	7/Jun/19	25,537	110,386	137,889
Saturday	8/Jun/19	25,519	121,337	138,239
Sunday	9/Jun/19	23,797	116,630	138,856
Monday	10/Jun/19	23,692	114,184	127,735
Tuesday	11/Jun/19	23,766	104,080	133,894
Wednesday	12/Jun/19	23,672	104,912	137,524
Thursday	13/Jun/19	23,662	109,656	127,483
Friday	14/Jun/19	23,679	109,688	130,262
Saturday	15/Jun/19	22,971	105,352	125,141
Sunday	16/Jun/19	23,072	100,736	127,871
Monday	17/Jun/19	23,017	97,367	135,413
Tuesday	18/Jun/19	22,270	106,668	140,580
Wednesday	19/Jun/19	27,388	116,220	140,786
Thursday	20/Jun/19	28,235	115,981	129,402
Friday	21/Jun/19	23,103	106,171	128,823
Saturday	22/Jun/19	22,963	111,396	133,126
Sunday	23/Jun/19	22,888	111,627	137,611
Monday	24/Jun/19	22,912	114,000	138,258
Tuesday	25/Jun/19	22,218	118,056	139,982
Wednesday	26/Jun/19	22,308	118,016	144,744
Thursday	27/Jun/19	22,197	118,256	147,867
Friday	28/Jun/19	23,094	123,552	146,984
Saturday	29/Jun/19	20,280	132,184	138,363
Sunday	30/Jun/19	18,884	123,648	135,931
June 2019 Monthly Max		28,235	132,184	147,867
June 2019 Monthly Average		23,202	111,679	134,782
June 2019 Total		696,048	3,350,380	4,043,449



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Monday	1/Jul/19	16,632	121,083	145,841
Tuesday	2/Jul/19	16,324	120,400	140,436
Wednesday	3/Jul/19	23,203	125,475	148,162
Thursday	4/Jul/19	22,772	135,472	158,922
Friday	5/Jul/19	26,550	139,718	155,212
Saturday	6/Jul/19	26,483	125,578	140,406
Sunday	7/Jul/19	26,727	98,047	139,250
Monday	8/Jul/19	26,481	131,010	147,327
Tuesday	9/Jul/19	26,507	126,122	152,699
Wednesday	10/Jul/19	26,280	125,053	151,966
Thursday	11/Jul/19	26,480	120,691	149,591
Friday	12/Jul/19	26,429	121,238	148,254
Saturday	13/Jul/19	26,560	116,272	143,532
Sunday	14/Jul/19	26,424	107,085	143,415
Monday	15/Jul/19	23,898	139,971	153,445
Tuesday	16/Jul/19	23,844	121,280	144,176
Wednesday	17/Jul/19	23,850	106,875	139,697
Thursday	18/Jul/19	22,194	135,318	149,488
Friday	19/Jul/19	23,997	131,809	146,017
Saturday	20/Jul/19	24,078	99,632	139,525
Sunday	21/Jul/19	24,060	104,576	137,120
Monday	22/Jul/19	23,891	118,704	142,774
Tuesday	23/Jul/19	21,379	118,984	150,684
Wednesday	24/Jul/19	23,838	126,397	151,790
Thursday	25/Jul/19	24,960	135,429	154,782
Friday	26/Jul/19	25,339	135,813	153,536
Saturday	27/Jul/19	24,929	135,174	147,461
Sunday	28/Jul/19	24,920	125,801	140,527
Monday	29/Jul/19	23,263	115,132	139,688
Tuesday	30/Jul/19	23,076	106,997	141,615
Wednesday	31/Jul/19	22,768	116,471	139,420
July 2019 Monthly Max		26,727	139,971	158,922
July 2019 Monthly Average		24,133	122,181	146,347
July 2019 Total		748,136	3,787,607	4,536,755



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Thursday	1/Aug/19	22,583	119,927	146,609
Friday	2/Aug/19	23,050	126,635	149,393
Saturday	3/Aug/19	26,500	125,672	144,595
Sunday	4/Aug/19	24,846	115,094	137,184
Monday	5/Aug/19	22,975	128,202	142,069
Tuesday	6/Aug/19	22,725	114,288	139,449
Wednesday	7/Aug/19	23,167	113,544	148,848
Thursday	8/Aug/19	23,002	113,768	142,401
Friday	9/Aug/19	23,077	122,640	145,425
Saturday	10/Aug/19	25,659	123,840	141,632
Sunday	11/Aug/19	23,041	123,576	149,145
Monday	12/Aug/19	23,182	121,098	147,801
Tuesday	13/Aug/19	23,027	120,509	143,130
Wednesday	14/Aug/19	20,789	120,585	149,268
Thursday	15/Aug/19	22,266	125,118	149,247
Friday	16/Aug/19	23,152	126,488	151,795
Saturday	17/Aug/19	23,033	120,889	134,608
Sunday	18/Aug/19	21,113	119,741	130,779
Monday	19/Aug/19	23,220	111,912	137,856
Tuesday	20/Aug/19	22,956	117,952	141,090
Wednesday	21/Aug/19	20,196	113,592	138,237
Thursday	22/Aug/19	25,861	105,472	136,040
Friday	23/Aug/19	25,406	109,408	139,508
Saturday	24/Aug/19	25,303	109,232	133,542
Sunday	25/Aug/19	26,164	108,960	136,884
Monday	26/Aug/19	26,152	113,832	141,852
Tuesday	27/Aug/19	23,444	113,696	135,159
Wednesday	28/Aug/19	23,197	118,216	136,832
Thursday	29/Aug/19	23,205	117,558	139,702
Friday	30/Aug/19	23,065	116,153	138,044
Saturday	31/Aug/19	23,116	107,392	129,376
August 2019 Monthly Max		26,500	128,202	151,795
August 2019 Monthly Average		23,499	117,580	141,210
August 2019 Total		728,472	3,644,989	4,377,502



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Sunday	1/Sep/19	23,120	96,732	122,090
Monday	2/Sep/19	21,132	107,056	137,921
Tuesday	3/Sep/19	22,850	117,592	139,633
Wednesday	4/Sep/19	23,033	118,448	139,326
Thursday	5/Sep/19	20,691	118,536	144,008
Friday	6/Sep/19	24,733	122,464	142,642
Saturday	7/Sep/19	25,845	113,184	142,530
Sunday	8/Sep/19	25,793	117,712	139,126
Monday	9/Sep/19	25,798	115,874	139,099
Tuesday	10/Sep/19	25,781	106,960	140,522
Wednesday	11/Sep/19	24,710	116,027	140,962
Thursday	12/Sep/19	23,714	117,868	131,229
Friday	13/Sep/19	23,090	99,113	132,377
Saturday	14/Sep/19	16,058	115,653	130,610
Sunday	15/Sep/19	13,148	125,269	136,017
Monday	16/Sep/19	12,957	130,701	138,970
Tuesday	17/Sep/19	23,936	116,024	141,495
Wednesday	18/Sep/19	24,521	122,356	141,348
Thursday	19/Sep/19	23,936	122,696	142,214
Friday	20/Sep/19	23,835	122,184	143,546
Saturday	21/Sep/19	24,699	107,824	142,934
Sunday	22/Sep/19	24,599	114,032	146,306
Monday	23/Sep/19	24,647	111,246	138,810
Tuesday	24/Sep/19	24,791	79,447	135,913
Wednesday	25/Sep/19	23,988	138,384	141,105
Thursday	26/Sep/19	25,216	97,364	135,218
Friday	27/Sep/19	26,306	127,358	139,978
Saturday	28/Sep/19	24,819	112,912	129,651
Sunday	29/Sep/19	23,277	102,903	132,165
Monday	30/Sep/19	20,588	106,883	130,324
September 2019 Monthly Max		26,306	138,384	146,306
September 2019 Monthly Average		23,054	114,027	137,936
September 2019 Total		691,611	3,420,802	4,138,068



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Tuesday	1/Oct/19	24,636	114,256	136,394
Wednesday	2/Oct/19	23,844	113,808	130,795
Thursday	3/Oct/19	23,817	109,392	129,237
Friday	4/Oct/19	21,446	104,456	129,582
Saturday	5/Oct/19	21,324	105,064	126,434
Sunday	6/Oct/19	20,570	95,720	128,601
Monday	7/Oct/19	19,207	102,389	129,263
Tuesday	8/Oct/19	25,301	123,510	129,811
Wednesday	9/Oct/19	20,660	106,842	130,080
Thursday	10/Oct/19	19,054	120,266	130,983
Friday	11/Oct/19	18,301	111,899	127,505
Saturday	12/Oct/19	18,229	101,495	120,017
Sunday	13/Oct/19	18,108	92,361	114,376
Monday	14/Oct/19	18,042	95,296	123,763
Tuesday	15/Oct/19	23,281	90,729	124,940
Wednesday	16/Oct/19	20,889	112,050	124,169
Thursday	17/Oct/19	20,851	111,760	124,130
Friday	18/Oct/19	19,857	111,566	124,355
Saturday	19/Oct/19	17,401	102,020	119,646
Sunday	20/Oct/19	21,560	102,437	125,860
Monday	21/Oct/19	22,171	104,864	125,238
Tuesday	22/Oct/19	23,498	83,152	125,999
Wednesday	23/Oct/19	22,229	113,960	125,763
Thursday	24/Oct/19	17,311	109,744	125,614
Friday	25/Oct/19	22,345	108,832	124,977
Saturday	26/Oct/19	22,253	100,256	122,983
Sunday	27/Oct/19	22,103	83,320	124,709
Monday	28/Oct/19	21,249	90,259	121,336
Tuesday	29/Oct/19	21,570	106,122	120,722
Wednesday	30/Oct/19	21,540	101,485	118,295
Thursday	31/Oct/19	20,769	104,555	116,984
October 2019 Monthly Max		25,301	123,510	136,394
October 2019 Monthly Average		21,078	104,318	125,244
October 2019 Total		653,416	3,233,865	3,882,564



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Friday	1/Nov/19	21,270	103,664	119,835
Saturday	2/Nov/19	21,100	97,217	119,239
Sunday	3/Nov/19	21,351	97,069	120,303
Monday	4/Nov/19	22,111	115,557	122,604
Tuesday	5/Nov/19	21,444	90,576	121,879
Wednesday	6/Nov/19	19,926	100,560	121,816
Thursday	7/Nov/19	22,235	95,184	122,161
Friday	8/Nov/19	23,216	95,464	123,414
Saturday	9/Nov/19	23,416	96,336	122,590
Sunday	10/Nov/19	23,435	99,872	122,840
Monday	11/Nov/19	22,314	99,584	122,027
Tuesday	12/Nov/19	18,325	113,568	131,023
Wednesday	13/Nov/19	13,926	86,981	128,758
Thursday	14/Nov/19	16,471	116,278	125,241
Friday	15/Nov/19	21,656	107,105	122,673
Saturday	16/Nov/19	21,687	107,043	126,701
Sunday	17/Nov/19	21,698	106,430	127,903
Monday	18/Nov/19	21,658	110,653	122,841
Tuesday	19/Nov/19	21,443	95,288	125,299
Wednesday	20/Nov/19	21,397	94,912	122,961
Thursday	21/Nov/19	23,085	105,288	123,638
Friday	22/Nov/19	21,368	100,552	123,611
Saturday	23/Nov/19	21,485	100,528	123,479
Sunday	24/Nov/19	21,385	95,184	125,025
Monday	25/Nov/19	21,440	96,830	120,299
Tuesday	26/Nov/19	21,567	106,963	121,878
Wednesday	27/Nov/19	21,537	110,379	120,078
Thursday	28/Nov/19	21,164	97,164	121,597
Friday	29/Nov/19	21,546	96,118	121,948
Saturday	30/Nov/19	20,693	102,019	120,795
November 2019 Monthly Max		23,435	116,278	131,023
November 2019 Monthly Average		21,178	101,346	123,149
November 2019 Total		635,349	3,040,366	3,694,456



DAY	DATE	SERPS PUMPAGE (m ³)	ARVA PUMPAGE (m ³)	TOTAL LONDON CONSUMPTION (m ³)
Sunday	1/Dec/19	20,865	102,016	122,543
Monday	2/Dec/19	20,738	104,608	123,317
Tuesday	3/Dec/19	20,759	104,760	124,843
Wednesday	4/Dec/19	20,811	105,368	123,248
Thursday	5/Dec/19	20,625	100,152	123,145
Friday	6/Dec/19	21,898	100,208	122,782
Saturday	7/Dec/19	22,315	100,688	126,723
Sunday	8/Dec/19	22,217	95,456	124,550
Monday	9/Dec/19	23,859	101,725	119,496
Tuesday	10/Dec/19	23,751	101,275	124,237
Wednesday	11/Dec/19	24,988	106,334	130,871
Thursday	12/Dec/19	22,458	106,026	128,371
Friday	13/Dec/19	22,195	106,793	122,111
Saturday	14/Dec/19	24,626	106,480	120,959
Sunday	15/Dec/19	24,896	87,946	125,469
Monday	16/Dec/19	24,686	103,800	127,584
Tuesday	17/Dec/19	24,991	104,704	126,538
Wednesday	18/Dec/19	26,845	100,648	129,071
Thursday	19/Dec/19	27,070	95,296	129,469
Friday	20/Dec/19	23,996	95,624	129,090
Saturday	21/Dec/19	23,925	104,400	122,913
Sunday	22/Dec/19	23,751	105,168	120,351
Monday	23/Dec/19	21,346	88,163	119,881
Tuesday	24/Dec/19	19,706	92,339	113,849
Wednesday	25/Dec/19	21,316	87,979	100,614
Thursday	26/Dec/19	21,260	83,757	102,649
Friday	27/Dec/19	21,708	79,211	110,502
Saturday	28/Dec/19	21,708	83,884	111,116
Sunday	29/Dec/19	21,708	97,952	110,077
Monday	30/Dec/19	21,708	82,434	112,485
Tuesday	31/Dec/19	20,112	86,323	105,984
December 2019 Monthly Max		27,070	106,793	130,871
December 2019 Monthly Average		22,672	97,468	120,479
December 2019 Total		702,837	3,021,517	3,734,839

2019 Annual Report (EMPS – London)



London
CANADA



Drinking-Water System Number:	260004917
Drinking-Water System Name:	Elgin Middlesex Pumping Station – City of London Distribution System
Drinking-Water System Owner:	City of London
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2019 through December 31, 2019

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>City of London 300 Dufferin Ave London, ON N6B 1Z2 www.london.ca</p> <p>Elgin Area Primary Water Supply System Treatment Plant 43665 Dexter Line, Union, ON</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Number of Interested Authorities you report to: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes <input type="checkbox"/> No <input type="checkbox"/></p>
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List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Systems that receive their drinking water directly from the London EMPS:

Drinking Water System Name	Drinking Water System Number
City of London Distribution System	260004917

Systems that receive their drinking water indirectly from the London EMPS:

Drinking Water System Name	Drinking Water System Number
Municipality of Central Elgin	260004761



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes No

Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
 Public access/notice via Government Office
 Public access/notice via a newspaper
 Public access/notice via Public Request
 Public access/notice via a Public Library
 Public access/notice via other method _____

Describe your Drinking-Water System

The Elgin Middlesex Pumping Station (EMPS) receives water from the Elgin Area Primary Water Supply System, which is located to the east of Port Stanley. Through various secondary water supply systems, the EMPS serves the Cities of London, St. Thomas, Town of Aylmer, Municipalities of Central Elgin, Malahide and Southwold.

The EMPS is a shared facility encompassing a twin celled reservoir with a total capacity of 54,600m³. Booster pumps are dedicated to directing water to the City of London, St. Thomas Secondary and/or Aylmer Area Secondary Water Supply Systems. The EMPS houses a surge facility to service the London transmission main.

Three pipelines exit the EMPS: one pipeline runs North along Highbury Avenue into the Southeast Reservoir Pumping Station (SERPS) to service the London distribution system, the second exits to the south of the EMPS property and extends West to service the St. Thomas Area Secondary Water Supply System; the third exits to the South, to Highway 3 and then runs in an Easterly direction to service the municipalities on the Aylmer Area Secondary Water Supply System.

List all water treatment chemicals used over this reporting period

No re-treatment of water directed into the London system took place at the EMPS in 2019.

Were any significant expenses incurred to?

- Install required equipment
 Repair required equipment
 Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

- SCADA server replacement and software version upgrades
- Primary Transformer – fan replacement
- Installation of IR windows in switchgear
- Installed emergency power supply to the surge building
- Compressor #2 cooling pump replacement
- Air Compressor system repairs, valves and controls
- Exterior envelope repairs and drainage
- Electrical duct bank sealant

Notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Results (CFU/100 mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)	Number of Heterotrophic Plate Count (HPC) Samples	Range of HPC Results (CFU/1 mL) (min #)-(max #)
Distribution	53	(0) – (0)	(0) – (0)	53	(<10)-(30)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

Parameter	Number of Grab Samples (Continuous Monitoring)	Min	Max	Avg
Free Chlorine Residual (mg/L)	8760	0.59	1.25	0.95

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM (NOTE: result value is based on one sample)	January 22, 2019	9.6	µg/L	NO
	April 11, 2019	13	µg/L	
	July 23, 2019	22	µg/L	
	October 22, 2019	22	µg/L	
THM Running Annual Average (RAA)	2019	16.7	µg/L	NO
HAA (NOTE: result value is based on one sample)	January 22, 2019	ND	µg/L	NO
	April 11, 2019	ND	µg/L	
	July 23, 2019	7.8	µg/L	
	October 22, 2019	6.9	µg/L	
HAA Running Annual Average (RAA)	2019	3.7	µg/L	NO

ND = Non-detect