

## Report to Civic Works Committee

**To:** Chair and Members  
Civic Works Committee

**From:** Kelly Scherr, P. Eng., MBA, FEC Managing Director,  
Environmental & Engineering Services and City Engineer

**Subject:** 2020 Drinking Water Annual Report and Summary Report for  
the City of London Drinking Water System

**Date:** February 9, 2021

## Recommendation

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the 2020 Drinking Water Annual Report and Summary Report for the City of London Drinking Water System **BE RECEIVED** for information.

## Executive Summary

Ontario Regulation 170/03 (Drinking Water Systems) requires the owner of a municipal drinking water system to ensure that an Annual Report and a Summary Report be prepared, covering the period of January 1 through to December 31 of the previous year. This report, along with its appendices, fulfills these requirements.

## Linkage to the Corporate Strategic Plan

The 2019 – 2023 Strategic Plan identifies this objective under Leading in Public Service: Measure and publicly report on corporate performance.

## Analysis

### 1.0 Background Information

#### 1.1 Previous Reports Related to this Matter

[“2019 Drinking Water Annual Report and Summary Report for the City of London Distribution System”](#) presented to CWC on February 19, 2020

### 2.0 Discussion and Considerations

#### 2.1 Regulatory Requirements

Ontario Regulation 170/03 (Drinking Water Systems) requires the owner of a municipal drinking water system to ensure that an Annual Report and a Summary Report be prepared, covering the period of January 1 through to December 31 of the previous year.

The Annual Report is to contain:

- A brief description of the drinking water system, including a list of water treatment chemicals used by the system;
- A summary of the results of required tests;
- A summary of any adverse test results reported and corrective actions taken; and
- A description of any major expenses incurred to install, repair or replace required equipment.

O. Reg. 170/03 further stipulates that:

- a) The Owner shall ensure that a copy of the Annual Report is given without charge to every person who requests a copy;

- b) Effective steps are taken to advise users of water from the system that copies of the Annual Report are available, without charge, and of how a copy may be obtained;
- c) The Owner of a large municipal residential system serving more than 10,000 people is required to post a copy of the Annual Report to the municipality's website; and,
- d) A Summary Report is to be prepared and presented to the members of the Municipal Council by no later than March 31 of the following year.

The Summary Report is to contain:

- A list of any regulatory requirements applicable to the system that were not met at any time during the period covered by the report, the duration of the failure, and the measures that were taken to correct the failure; and,
- A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows and compared to the rated capacity of the system.

Due to the large number of pages, the 2020 Drinking Water Summary Report for the City of London Drinking Water System has been provided to members of Council in electronic format, with the 2020 Annual Report attached as an appendix. The Summary Report (without appendices) is attached as Appendix 'A' to this report.

The Elgin-Middlesex Pumping Station (EMPS) is jointly owned by the St. Thomas Area Secondary Water Supply System, the Aylmer Area Secondary Water Supply System, and the City of London, and is operated by the Ontario Clean Water Agency (OCWA). The Annual Report for the EMPS (London portion) was not yet available at the time of writing this report. Therefore, it will be provided to members of Council under separate memo prior to the reporting deadline of February 28, 2021.

## Conclusion

Receipt of Appendix 'A' of this report by members of Council fulfils the reporting requirements of O. Reg. 170/03, Schedule 22. The 2020 Drinking Water Summary Report is available to members of the public by request and will be posted on the City's website.

**Prepared by:** John Simon, P.Eng., Division Manager, Water Operations  
**Submitted by:** Scott Mathers, MPA, P.Eng., Director – Water & Wastewater  
**Recommended by:** Kelly Scherr, P. Eng., MBA, FEC Managing Director Environmental & Engineering Services and City Engineer

Appendix 'A' – City of London 2020 Drinking Water Summary Report

c.c.

Cathy Saunders - City Clerk

John Simon – Division Manager – Water Operations

Aaron Rozentals - Division Manager – Water Engineering

Andrew Henry – Director – Regional Water Supply

Scott Koshowski, P. Eng. – Water Operations Engineer

Dan Huggins - Water Quality Manager

Dr. Christopher Mackie, Medical Officer of Health and Chief Executive Officer  
Middlesex-London Health Unit

# CITY OF LONDON

## 2020 DRINKING WATER SUMMARY REPORT

***System Name:* City Of London Drinking Water System**

***System Rating:***

Water Distribution Subsystem Class IV  
Water Treatment Subsystem Class II  
Average Day Demand: 130.885 MLD  
Peak Day Demand: 194.876 MLD (July 6, 2020)  
Population Served: 397,000 (approx.)  
Source Water: Surface Water (Lake Huron, Lake Erie)  
Drinking Water System Number: 260004917  
Municipal Drinking Water Licence: 006-101



**London**  
CANADA

***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  
519-661-2489 ext. 4938

# Table of Contents

**Reporting Requirements ..... 2**

**Water Budget..... 2**

**Impacts of Covid-19 on Operational Performance..... 2**

**Sampling & Water Quality Monitoring..... 4**

**System Statistics and Major Events..... 8**

**Municipalities Receiving London Water ..... 9**

## **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 9, 2021 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, 2021, a copy of the 2020 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 Area Secondary Water Supply System, the Aylmer Area Secondary Water Supply System, and the City of London. EMPS is operated by the Ontario Clean Water Agency (OCWA).

## **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 2020 was \$84.7 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.

## **Impacts of Covid-19 on Operational Performance**

The novel coronavirus (COVID-19) has caused unprecedented interruption to the daily activities of individuals, businesses, and institutions around the world. The City of London has experienced significant challenges, and there remains considerable

uncertainty in the foreseeable future. The Water Service Area is an Essential Service that must maintain service continuity. Operationally, the Water Service Area continued with “business-as-usual” to the best ability possible, with only minor service level impacts seen on non-critical work processes.

### ***Staffing***

During the course of 2020, from the initial onset of the Covid-19 pandemic, and through the lockdowns, adjustments were made to ensure continuity of service. Water Operations staff remained fully dedicated to the delivery of safe, reliable drinking water. During this time, staff modified work environments, created new procedures, and worked diligently to ensure to maintain uninterrupted supply of this essential service.

In the first few weeks of March and April 2020, staff reductions/rotations were implemented to limit potential exposure to staff. Once appropriate personal protective equipment, additional vehicles and new health and safety related procedures were adopted, Water Operations staff remobilized to a full staff complement to provide a “business-as-usual” level of service.

### ***Business Continuity***

During the early stages of the pandemic new processes and procedures were established to provide business continuity. Water Operations staff implemented a “start of day” procedure that strictly offset the working times between Water Operations staff and other City operations staff by 30 minutes. In addition, Water Operations staff quickly implemented a rotational shift system, social distancing protocols, eliminated shared/grouped vehicle travel by providing staff with separate vehicles to travel to and from work sites, and ensured proper personal protective equipment was available. All these efforts were put forth to minimize inter-staff contact. These combined efforts enabled the continued safe and reliable operation of the water distribution system over the course of the pandemic.

### ***Budget***

During the initial weeks of the Covid-19 pandemic, there were numerous indications that the lockdown would have a significant impact on water revenue. Water consumption dropped, construction activity ceased, restaurants and industries were closed. At its lowest, commercial demand was down 41% of the three-year average, institutional was 46%, and industrial was 23%. Once the lockdown was lifted, water consumption stabilized and returned to projected levels. Despite the significant drop in consumption in the spring, the overall water revenue for 2020 was approximately 3% higher than previously budgeted. Despite the Covid-19 pandemic, 2020’s water consumption was the highest London has seen in nearly a decade. The majority of this increased usage is attributed to residential customers, at one point rising 27% above the sector’s three-year average.

### ***Maintenance and Construction***

With the effects of the pandemic controlling and altering daily activities, the Water Operations Division continued to deliver essential water services. Water Operations Division and Water Engineering Division staff maintained, whenever possible, a

“business-as-usual” level of service. Staff adapted to mandated requirements and found ways to continue their tasks and duties. The Corporation continued to provide support to staff by way of allocating necessary supplies, additional vehicles, sourcing and providing personal protective equipment.

## **Sampling & Water Quality Monitoring**

In 2020, 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 2,600 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. These efforts help ensure that the water within the distribution system is always of high quality, completely safe to consume, and consistent for manufacturing processes.

### ***2020 Water Quality Sampling Summary***

| Parameter                   | Ontario Maximum Acceptable Concentration (MAC) | Units | Lab's Method Detection Limit (MDL) | Measured Concentrations | MAC Exceedance (Y/N) |
|-----------------------------|--|-------|------------------------------------|-------------------------|----------------------|
|                             |  |       |                                    | 2020                    |                      |
| <b>REGULATED INORGANICS</b> |  |       |                                    |                         |                      |
| Antimony                    | 6  | ug/L  | 0.09                               | <b>0.12 - 0.14</b>      | No                   |
| Arsenic                     | 25   | ug/L  | 0.2                                | <b>0.2 - 0.4</b>        | No                   |
| Barium                      | 1000   | ug/L  | 0.02                               | <b>12.8 - 19.4</b>      | No                   |
| Boron                       | 5000   | ug/L  | 2                                  | <b>24 - 25</b>          | No                   |
| Cadmium                     | 5  | ug/L  | 0.003                              | <b>0.004 - 0.008</b>    | No                   |
| Chromium                    | 50   | ug/L  | 0.08                               | <b>0.08 - 0.10</b>      | No                   |
| Fluoride                    | 1.5  | mg/L  | 0.06                               | <b>0.07 - 0.82</b>      | No                   |
| Free Chlorine Residual      | --   | mg/L  |                                    | <b>0.23 - 1.90</b>      | No                   |
| Lead                        | 10   | ug/L  | 0.01                               | <b>0.01 0.06</b>        | No                   |
| Mercury                     | 1  | ug/L  | 0.01                               | <b>0.01 &lt;MDL</b>     | No                   |
| Selenium                    | 10   | ug/L  | 0.04                               | <b>0.11 - 0.15</b>      | No                   |
| Sodium                      | *20  | mg/L  | 0.01                               | <b>8.62 - 14.4</b>      | No                   |
| Uranium                     | 20   | ug/L  | 0.002                              | <b>0.03 - 0.064</b>     | No                   |

| Parameter | Ontario Maximum Acceptable Concentration (MAC) | Units | Lab's Method Detection Limit (MDL) | Measured Concentrations | MAC Exceedance (Y/N) |
|-----------|--|-------|------------------------------------|-------------------------|----------------------|
|           |  |       |                                    | 2020                    |                      |

**REGULATED ORGANICS**

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



| Parameter | Ontario Maximum Acceptable Concentration (MAC) | Units | Lab's Method Detection Limit (MDL) | Measured Concentrations | MAC Exceedance (Y/N) |
|-----------|--|-------|------------------------------------|-------------------------|----------------------|
|           |  |       |                                    | 2020                    |                      |

### NITRATES

|                                 |    |      |       |             |    |
|---------------------------------|----|------|-------|-------------|----|
| Nitrate (as nitrogen)           | -- | mg/L | 0.006 | 0.07 - 0.54 | No |
| Nitrate + Nitrite (as nitrogen) | -- | mg/L | 0.006 | 0.07 - 0.54 | 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) |
|-----------|--|-------|------------------------------------|-------------------------|----------------------|
|           |  |       |                                    | 2020                    |                      |

### TRICHALOMETHANES & HALOACETIC ACIDS

|                         |    |      |      |             |    |
|-------------------------|----|------|------|-------------|----|
| Total Haloacetic Acids  | -- | ug/L | 5.3  | 5.3 - 26    | No |
| Dibromoacetic Acid      | -- | ug/L | 2    | <MDL        | No |
| Dichloroacetic Acid     | -- | ug/L | 2.6  | 3.3 - 17.9  | No |
| Monobromoacetic acid    | -- | ug/L | 2.9  | <MDL        | No |
| Monochloroacetic Acid   | -- | ug/L | 4.7  | <MDL        | No |
| Trichloroacetic Acid    | -- | ug/L | 5.3  | 5.3 - 8.1   | No |
| Trihalomethanes (total) | -- | ug/L | 0.37 | 16 - 43     | No |
| Bromodichloromethane    | -- | ug/L | 0.26 | 5.4 - 11    | No |
| Bromoform               | -- | ug/L | 0.34 | 0.34 - 0.37 | No |
| Chloroform              | -- | ug/L | 0.29 | 7.4 - 28    | No |
| Dibromochloromethane    | -- | ug/L | 0.37 | 2 - 4.5     | No |

| Parameter | Ontario Maximum Acceptable Concentration (MAC) | Units | Lab's Method Detection Limit (MDL) | Measured Concentrations | MAC Exceedance (Y/N) |
|-----------|--|-------|------------------------------------|-------------------------|----------------------|
|           |  |       |                                    | 2020                    |                      |

### MICROBIOLOGICAL

|                           |     |            |    |           |     |
|---------------------------|-----|------------|----|-----------|-----|
| E. coli                   | 0   | cfu/100 mL | 0  | 0 - 0     | No  |
| Total Coliform            | 0   | cfu/100 mL | 0  | 0 - 15    | 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) |
|--|--|---------------|------------------------------------|-------------------------|----------------------|
|  |  |               |                                    | 2020                    |                      |
| <b>NON-REGULATED INORGANICS/ORGANICS</b>   |  |               |                                    |                         |                      |
| Alkalinity                                 | --   | mg/L as CaCO3 | 2                                  | 73 - 92                 | No                   |
| Aluminum                                   | --   | ug/L          | 1                                  | 10 - 36                 | No                   |
| Ammonia+Ammonium (N)                       | --   | mg/L          | 0.04                               | 0.04 <MDL               | No                   |
| Calcium                                    | --   | mg/L          | 0.01                               | 24.4 - 32               | No                   |
| Chloride                                   | --   | mg/L          | 0.04                               | 9.5 - 18                | No                   |
| Cobalt                                     | --   | ug/L          | 0.004                              | 0.005 - 0.012           | No                   |
| Colour                                     | --   | TCU           | 3                                  | 3 <MDL                  | No                   |
| Conductivity                               | --   | uS/cm         | 2                                  | 231 - 307               | No                   |
| Copper                                     | --   | ug/L          | 0.2                                | 1.1 - 1.9               | No                   |
| Cyanide                                    | 200.0  | ug/L          | 2                                  | 7.4 - 19.1              | No                   |
| 1,1-Dichloroethylene (vinylidene chloride) | 14   | ug/L          | 0.33                               | 0.33 <MDL               | No                   |
| Dissolved Organic Carbon                   | --   | mg/L          | 1                                  | 2 - 2                   | No                   |
| Ethylbenzene                               | --   | ug/L          | 0.33                               | 0.33 <MDL               | No                   |
| Hardness                                   | --   | mg/L as CaCO3 | 0.05                               | 89.5 - 113              | No                   |
| Iron                                       | --   | ug/L          | 7                                  | 7 <MDL                  | No                   |
| Magnesium                                  | --   | mg/L          | 0.001                              | 6.95 - 8.05             | No                   |
| Manganese                                  | --   | ug/L          | 0.01                               | 0.05 - 0.79             | No                   |
| Nickel                                     | --   | ug/L          | 0.1                                | 0.3 - 0.5               | No                   |
| Nitrogen-Kjeldahl (N)                      | --   | mg/L          | 0.05                               | 0.05 - 0.08             | No                   |
| Organic Nitrogen                           | --   | mg/L          | 0.01                               | 0.05 - 0.06             | No                   |
| pH   | --   | no unit       | 0.05                               | 7.93 - 8.08             | No                   |
| Phosphorus                                 | --   | mg/L          | 0.003                              | 0.003 <MDL              | No                   |
| Potassium                                  | --   | mg/L          | 0.009                              | 0.924 - 1.3             | No                   |
| Silicon; reactive silicate                 | --   | mg/L          | 0.02                               | 0.64 - 1.67             | No                   |
| Silver                                     | --   | ug/L          | 0.05                               | 0.05 <MDL               | No                   |
| Solids (Total Dissolved)                   | --   | mg/L          | 30                                 | 117 - 149               | No                   |
| Sulphate                                   | --   | mg/L          | 0.04                               | 24 - 32                 | No                   |
| Sulphide                                   | --   | mg/L          | 6                                  | 6 <MDL                  | No                   |
| Surr 1,2-Dichloroethane-d4                 | --   | Surr Rec %    | --                                 | 99 - 101                | No                   |
| Surr 4-Bromofluorobenzene                  | --   | Surr Rec %    | --                                 | 94 - 99                 | No                   |
| Surr Decachlorobiphenyl                    | --   | %             | --                                 | 106 - 133               | No                   |
| Tetrachloroethylene (perchloroethylene)    | 30   | ug/L          | 0.35                               | 0.35 <MDL               | No                   |
| Toluene                                    | --   | ug/L          | 0.36                               | 0.36 <MDL               | No                   |
| Total Chlorine-Field                       | --   | mg/L          | --                                 | 1.11 - 1.29             | No                   |
| 2,4,5-TP (Silvex)                          | --   | ug/L          | 0.18                               | 0.18 <MDL               | No                   |
| Turbidity                                  | 1  | NTU           | 0.1                                | 0.1 - 0.16              | No                   |
| Xylene (Total)                             | --   | ug/L          | 0.43                               | 0.43 <MDL               | No                   |
| m/p-xylene                                 | --   | ug/L          | 0.43                               | 0.43 <MDL               | No                   |
| o-xylene                                   | --   | ug/L          | 0.17                               | 0.17 <MDL               | No                   |
| Zinc                                       | --   | ug/L          | 2                                  | 2 <MDL                  | No                   |

In 2020, there were three (3) adverse microbiological results out of 2,624 samples taken. All involved the detection of Total Coliform bacteria (ranging from 1 to 15 cfu/100 mL). 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 0.48 to 0.94 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, 2020 through to December 31, 2020 a total of 47,923,719,000 litres of water were purchased, at a cost of more than \$27,031,998, 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 130,884,910 litres, the highest in nearly 10 years. Peak day consumption of 194,876,000 litres occurred on July 6, 2020, the highest in a decade.

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 2020 statistics for the City of London Distribution System:

|   |                        |
|---|------------------------|
| <b>Approximate Replacement Value of Drinking Water System</b> | <b>\$5,869,000,000</b> |
| <b>Number of Pumping Stations</b>                             | <b>9</b>               |
| <b>Number of Fire Hydrants</b>                                | <b>9,726</b>           |
| <b>Number of Watermain Valves</b>                             | <b>13,940</b>          |
| <b>Total Number of Water Services</b>                         | <b>120,011</b>         |
| <b>Length of Watermain</b>                                    | <b>1,624 km</b>        |

|                                      |            |
|--------------------------------------|------------|
| <b>Number of Watermain Breaks</b>    | <b>55</b>  |
| <b>Number of Water Service Leaks</b> | <b>292</b> |

### **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 2020. 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.