



Drinking-Water System Number:

210000791

Drinking-Water System Name:

Lake Huron Primary Water Supply System

Drinking-Water System Owner:

Lake Huron Primary Water Supply System Joint Board of Management

Drinking-Water System Operating Authority:

Ontario Clean Water Agency (OCWA)

Drinking-Water System Category:

Large Municipal Residential

Period being reported:

January 1, 2018 through December 31, 2018

**Complete if your Category is Large Municipal Residential or Small Municipal Residential**

Does your Drinking-Water System serve more than 10,000 people?

Yes  No

Is your annual report available to the public at no charge on a web site on the Internet?

Yes  No

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Lake Huron and Elgin Area Water Supply Systems  
c/o Regional Water Supply Division  
235 North Centre Road, Suite 200  
London, ON N5X 4E7  
<https://huronelginwater.ca/>

Lake Huron Water Treatment Plant  
71155 Bluewater Hwy.  
Grand Bend, ON

**Complete for all other Categories.**

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?

Yes  No

Number of Interested Authorities you report to:

N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?

Yes  No



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

Systems that receive their drinking water from the LHPWSS:

Drinking Water System Name	Drinking Water System Number
City of London	260004917
Municipality of Bluewater	260006542
Municipality of Lambton Shores (East Lambton Shores Water Distribution System)	260006568
Township of Lucan-Biddulph	260003071
Municipality of Middlesex Centre (Middlesex Centre Distribution System)	260004202
Municipality of North Middlesex	260006529
Municipality of Strathroy-Caradoc (Strathroy-Caradoc Distribution System)	260080106
Municipality of South Huron (South Huron Water Distribution System)	220001520

Systems that may receive their drinking water from the LHPWSS:

Drinking Water System Name	Drinking Water System Number
Municipality of Lambton Shores (West Lambton Shores Distribution System) *Normally supplied by the Lambton Area Water Supply System (LAWSS) but a connection to the LHPWSS exists	260006581

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 [X] 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 News Release



**Describe your Drinking-Water System**

The Lake Huron Water Treatment Plant (WTP) employs pre-chlorination, screening, powder activated carbon addition (seasonally on an as-required basis), coagulation, flocculation, sedimentation, dual-media filtration, post-chlorination, and pH adjustment using sodium hydroxide to treat raw water obtained from Lake Huron. The WTP intake crib and raw water intake pipe have an estimated gross capacity of 454.6 Megalitres/day (MLD). The WTP rated capacity is 340.0 MLD.

A Residuals Management Facility (RMF) providing equalization, clarification, sediment thickening and dechlorination is also housed in the main complex where thickened sediment is dewatered by centrifuges and the sediment is sent to the landfill for final disposal. Clarified and dechlorinated liquid streams are sent back to Lake Huron through the plant drain via the Diversion Chamber.

The transmission system is comprised of the McGillivray Booster Pumping Station and Reservoir, the Exeter-Hensall Booster Pumping Station and Reservoir, the Arva Terminal Reservoir, the Komoka-Mt. Brydges Booster Pumping Station (PS#4) and the associated interconnecting transmission water mains, which includes the primary, Strathroy, Exeter-Hensall, and Komoka-Mt. Brydges transmission water mains.

The drinking water system is monitored at various locations throughout the system via a Supervisory Control and Data Acquisition (SCADA) system.

**List all water treatment chemicals used over this reporting period**

Filter Aid Polymer (on an as-required basis)  
Aluminum Sulphate  
Powder Activated Carbon  
Chlorine Gas  
Sodium Hydroxide  
Sodium Hypochlorite (Exeter Hensall Pumping Station)  
Dewatering Polymer (Residuals Management Facility)  
Sodium Bisulphite (Residuals Management Facility)

**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**

**Capital Projects:**

- Distressed pipe segment replacement
- 600V Motor Control Center (MCC) replacements
- Instrumentation replacements
- Travelling screen #1 replacement
- Travelling screen piping replacements
- High lift pump #5 isolation valve replacement



- Filters #2, 6, 7 and 9 rebuilds
- Alum system flow meter installation
- Powder activated carbon (PAC) system generator replacement
- Low lift and high lift roof replacements
- Concrete crack injection
- Drain piping replacement
- Surge valve replacement
- Security upgrades
- Server room fire suppression system installation
- B-Line monitoring station relocation
- Removal of obsolete control and electrical panels
- HVAC piping isolators installation
- Low lift sluice gate repairs
- Installed new guard railing in the flocculation rooms
- McGillivray flow meter replacement
- HVAC modifications – administration area
- High lift HVAC fan repairs

**Maintenance Projects:**

- Installed LED lighting
- Installed McGillivray system isolation valve
- Removal of redundant SCADA communications components
- Monitoring stations KM1 and KM2 chlorine analyzer drain system improvements
- North Middlesex flow meter replacement
- Installed isolation valve on backwash pump #3
- HVAC compressor replacement
- Clarifier gear drive rebuild
- Residuals Management Facility (RMF) screw conveyor rebuilds
- RMF north equalization tank modifications

**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**

<b>Incident Date</b>	<b>Parameter</b>	<b>Result</b>	<b>Unit of Measure</b>	<b>Corrective Action</b>	<b>Corrective Action Date</b>
NA	NA	NA	NA	NA	NA

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/100mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100mL) (min #)-(max #)	Range of HPC Results (CFU/1mL) (min #)-(max #)
Raw Water	104	(0)-( 100)	(0)-(10,900)	(<10)-(>2,000)
Treated Water (WTP)	252	(0)-(0)	(0)-(0)	(0)-(20)
Distribution (McGillivray PS)	53	(0)-(0)	(0)-(0)	(<10)-(40)
Distribution (North Exeter)	57	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (South Exeter)	57	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (Exeter-Hensall Reservoir)	53	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (Komoka-Mt. Brydges PS)	53	(0)-(0)	(0)-(0)	(<10)-(40)

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	Range of Results (min #)-(max #)
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.55) – (1.64)
	2120	(0.89) - (1.68)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.010) – (2.00)
	2121	(0.004) - (1.41)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.008) - (0.721)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) - (0.470)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) - (0.854)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) - (0.290)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018) - (0.392)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.015) - (0.210)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.011) - (0.483)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.016) - (0.308)

<b>Filter #9 - Filtered Water Turbidity (NTU)</b>	Continuous Monitoring	(0.018) - (0.710)
<b>Filter #10- Filtered Water Turbidity (NTU)</b>	Continuous Monitoring	(0.019) - (0.260)
<b>Filter #11- Filtered Water Turbidity (NTU)</b>	Continuous Monitoring	(0.008) - (0.737)
<b>Filter #12- Filtered Water Turbidity (NTU)</b>	Continuous Monitoring	(0.017) - (0.309)
<b>Combined Filtered Water Turbidity (NTU)</b>	2119	(0.009) - (0.112)

**Summary of Inorganic parameters tested during this reporting period**

(\*All tests were conducted on treated water leaving the WTP unless otherwise noted)

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
<b>Antimony</b>	January 18, 2018	0.00011	mg/L	NO
<b>Arsenic</b>	January 18, 2018	0.0002	mg/L	NO
<b>Barium</b>	January 18, 2018	0.0128	mg/L	NO
<b>Boron</b>	January 18, 2018	0.015	mg/L	NO
<b>Cadmium</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Chromium</b>	January 18, 2018	0.00018	mg/L	NO
<b>Lead</b> (Komoka Mt-Brydges Monitoring Station #2)	January 18, 2018 April 25, 2018 July 13, 2018 October 24, 2018	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
<b>Mercury</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Selenium</b>	January 18, 2018	0.00011	mg/L	NO
<b>Sodium</b>	January 18, 2018	11.4	mg/L	NO

<b>Uranium</b>	January 18, 2018	0.000038	mg/L	NO
<b>Fluoride</b>	January 18, 2018	0.08	mg/L	NO
<b>Nitrite</b>	January 18, 2018 April 25, 2018 July 13, 2018 October 24, 2018	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
<b>Nitrate</b>	January 18, 2018 April 25, 2018 July 13, 2018 October 24, 2018	0.309 0.363 0.305 0.299	mg/L mg/L mg/L mg/L	NO

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

*(\*All tests were conducted on treated water leaving the WTP unless otherwise noted)*

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
<b>Alachlor</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Atrazine + N-dealkylated metabolites</b>	January 18, 2018	0.00003	mg/L	NO
<b>Azinphos-methyl</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Benzene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Benzo(a)pyrene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Bromoxynil</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Carbaryl</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Carbofuran</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Carbon Tetrachloride</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Chlorpyrifos</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Diazinon</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Dicamba</b>	January 18, 2018	Not Detected	mg/L	NO
<b>1,2-Dichlorobenzene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>1,4-Dichlorobenzene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>1,2-Dichloroethane</b>	January 18, 2018	Not Detected	mg/L	NO
<b>1,1-Dichloroethylene (vinylidene chloride)</b>	January 18, 2018	Not Detected	mg/L	NO



<b>Dichloromethane</b>	January 18, 2018	Not Detected	mg/L	NO
<b>2-4 Dichlorophenol</b>	January 18, 2018	Not Detected	mg/L	NO
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Diclofop-methyl</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Dimethoate</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Diquat</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Diuron</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Glyphosate</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Arva Reservoir)</i>	January 18, 2018 April 25, 2018 July 13, 2018 October 24, 2018	Not Detected 0.0144 0.0087 Not Detected	mg/L mg/L mg/L mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Arva Reservoir)</i> <b>Annual Running Average</b>	2018	0.0050	mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Exeter-Hensall Monitoring Station #3)</i>	January 18, 2018 April 24, 2018 July 13, 2018 October 24, 2018	0.0059 0.0160 0.0096 0.0144	mg/L mg/L mg/L mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Exeter-Hensall Monitoring Station #3)</i> <b>Annual Running Average</b>	2018	0.0115	mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Komoka Mt-Brydges Monitoring Station #2)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected 0.0143 0.0098 0.0061	mg/L mg/L mg/L mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Komoka Mt-Brydges Monitoring Station #2)</i> <b>Annual Running Average</b>	2018	0.0076	mg/L	NO





<b>Haloacetic Acids (HAA's)</b> <i>(Strathroy-Caradoc Monitoring Station #2)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected 0.0126 0.0095 0.0065	mg/L mg/L mg/L mg/L	NO
<b>Haloacetic Acids (HAA's)</b> <i>(Strathroy-Caradoc Monitoring Station #2)</i> <b>Annual Running Average</b>	2018	0.0072	mg/L	NO
<b>Malathion</b>	January 18, 2018	Not Detected	mg/L	NO
<b>2-Methyl-4-chlorophenoxyacetic acid</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Metolachlor</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Metribuzin</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Monochlorobenzene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Paraquat</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Pentachlorophenol</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Phorate</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Picloram</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Polychlorinated Biphenyls (PCB)</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Prometryne</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Simazine</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Total Trihalomethanes</b> <i>(Arva Reservoir)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	0.015 0.021 0.022 0.020	mg/L mg/L mg/L mg/L	NO
<b>Total Trihalomethanes (THMs)</b> <i>(Arva Reservoir)</i> <b>Running Annual Average</b>	2018	0.020	mg/L	NO
<b>Total Trihalomethanes</b> <i>(Exeter-Hensall Monitoring Station #3)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	0.026 0.027 0.035 0.038	mg/L mg/L mg/L mg/L	NO



<b>Total Trihalomethanes</b> <i>(Exeter-Hensall Monitoring Station #3)</i> <b>Running Annual Average</b>	2018	0.032	mg/L	NO
<b>Total Trihalomethanes</b> <i>(Komoka Mt-Brydges Monitoring Station #2)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	0.020 0.024 0.027 0.027	mg/L mg/L mg/L mg/L	NO
<b>Total Trihalomethanes</b> <i>(Komoka Mt-Brydges Monitoring Station #2)</i> <b>Running Annual Average</b>	2018	0.025	mg/L	NO
<b>Total Trihalomethanes</b> <i>(Strathroy-Caradoc Monitoring Station #2)</i>	January 18, 2018 April 13, 2017 July 17, 2017 October 5, 2017	0.016 0.018 0.025 0.022	mg/L mg/L mg/L mg/L	NO
<b>Total Trihalomethanes</b> <i>(Strathroy-Caradoc Monitoring Station #2)</i> <b>Running Annual Average</b>	2018	0.020	mg/L	NO
<b>Terbufos</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Tetrachloroethylene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>2,3,4,6-Tetrachlorophenol</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Triallate</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Trichloroethylene</b>	January 18, 2018	Not Detected	mg/L	NO
<b>2,4,6-Trichlorophenol</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Trifluralin</b>	January 18, 2018	Not Detected	mg/L	NO
<b>Vinyl Chloride</b>	January 18, 2018	Not Detected	mg/L	NO

**NOTE:** During 2018, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.