



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, 2017 through December 31, 2017

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 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, sludge thickening and dechlorination is also housed in the main complex where thickened sludge is dewatered by centrifuges and sludge cake 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 distribution 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:

- Electrical upgrade and primary transformers replacement
- Residuals Management Facility (RMF) HVAC upgrade
- Instrumentation replacements
- Travelling screen #2 replacement
- Low lift motors #3 and #4 replacement
- Installed chlorine tonner automatic actuators
- Filters #1 and #4 rebuilds



- Distribution flow meter replacements
- Powder activated carbon (PAC) dust collector replacement
- SCADA hardware and software upgrade
- Concrete crack injection
- Drain piping replacement
- Distressed Pipe #32-48 replacement and Acoustic Fiber Optic (AFO) monitoring cable retrieval

Maintenance Projects:

- Low lift grit pump drain manifold and valves replacement
- Installed RMF sludge pump traps
- Gore Road pressure reducing valve (PRV) rebuild
- Reservoir hatch replacements (McGillivray and Arva Reservoir)
- Security camera replacement
- Replaced air relief valves at various chambers
- Air valve chamber restoration
- Installed new motors on powder activated carbon (PAC) pumps #1 and #3
- Replaced raw water sample pump
- Installed actuator on south centrifuge auger
- Installed new inlet pressure readouts at Monitoring Station #1 – Strathroy-Caradoc
- Backwash pump #1 rebuild
- Replaced chlorine injector quills at Exeter Hensall Pumping Station
- High pressure caustic soda pump rebuild and motor replacement
- PAC pump variable frequency drive (VFD) replacement
- Service water pump #2 rebuild
- Rebuilding of RMF sludge transfer pumps
- Modifications to generators to meet Technical Standards and Safety Authority (TSSA) requirements

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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
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	101	(0)-(<100)	(0)-(40,000)	(<10)-(>2,000)
Treated Water (WTP)	250	(0)-(0)	(0)-(0)	(<10)-(730)
Distribution (McGillivray PS)	52	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (North Exeter)	52	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (South Exeter)	52	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (Exeter-Hensall Reservoir)	52	(0)-(0)	(0)-(0)	(<10)-(110)
Distribution (Komoka-Mt. Brydges PS)	52	(0)-(0)	(0)-(0)	(<10)-(240)

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	(0.57) – (1.79)
	2116	(0.86) - (1.63)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.019) – (2.00)
	2117	(0.018) - (0.099)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.007) - (0.306)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.015) - (0.393)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) - (0.249)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) - (0.192)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) - (0.255)

Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) - (0.186)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) - (0.437)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) - (0.165)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.020) - (0.249)
Filter #10- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) - (0.144)
Filter #11- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012) - (0.608)
Filter #12- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.009) - (0.723)
Combined Filtered Water Turbidity (NTU)	2114	(0.018) - (0.100)

Summary of Inorganic parameters tested during this reporting period

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	January 12, 2017	0.00012	mg/L	NO
Arsenic	January 12, 2017	0.0002	mg/L	NO
Barium	January 12, 2017	0.0148	mg/L	NO
Boron	January 12, 2017	0.013	mg/L	NO
Cadmium	January 12, 2017	0.000005	mg/L	NO
Chromium	January 12, 2017	0.00065	mg/L	NO
Lead (Komoka Mt-Brydges Monitoring Station #2)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected 0.00005 Not Detected 0.00002	mg/L mg/L mg/L mg/L	NO
Mercury	January 12, 2017	Not Detected	mg/L	NO
Selenium	January 12, 2017	0.00011	mg/L	NO

Sodium	January 12, 2017	11.4	mg/L	NO
Uranium	January 12, 2017	0.000024	mg/L	NO
Fluoride	NA	Not Tested	mg/L	--
Nitrite	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
Nitrate	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	0.290 0.700 0.346 0.281	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)*

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	January 12, 2017	Not Detected	mg/L	NO
Atrazine + N-dealkylated metabolites	January 12, 2017	0.00003	mg/L	NO
Azinphos-methyl	January 12, 2017	Not Detected	mg/L	NO
Benzene	January 12, 2017	Not Detected	mg/L	NO
Benzo(a)pyrene	January 12, 2017	Not Detected	mg/L	NO
Bromoxynil	January 12, 2017	Not Detected	mg/L	NO
Carbaryl	January 12, 2017	Not Detected	mg/L	NO
Carbofuran	January 12, 2017	Not Detected	mg/L	NO
Carbon Tetrachloride	January 12, 2017	Not Detected	mg/L	NO
Chlorpyrifos	January 12, 2017	Not Detected	mg/L	NO
Diazinon	January 12, 2017	Not Detected	mg/L	NO
Dicamba	January 12, 2017	Not Detected	mg/L	NO
1,2-Dichlorobenzene	January 12, 2017	Not Detected	mg/L	NO
1,4-Dichlorobenzene	January 12, 2017	Not Detected	mg/L	NO
1,2-Dichloroethane	January 12, 2017	Not Detected	mg/L	NO



1,1-Dichloroethylene (vinylidene chloride)	January 12, 2017	Not Detected	mg/L	NO
Dichloromethane	January 12, 2017	Not Detected	mg/L	NO
2-4 Dichlorophenol	January 12, 2017	Not Detected	mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 12, 2017	Not Detected	mg/L	NO
Diclofop-methyl	January 12, 2017	Not Detected	mg/L	NO
Dimethoate	January 12, 2017	Not Detected	mg/L	NO
Diquat	January 12, 2017	Not Detected	mg/L	NO
Diuron	January 12, 2017	Not Detected	mg/L	NO
Glyphosate	January 12, 2017	Not Detected	mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected Not Detected 0.0074 0.0070	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir) Annual Running Average	2017	0.0036	mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected 0.0131 0.0173 0.0237	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3) Annual Running Average	2017	0.0135	mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected Not Detected 0.0084 0.0158	mg/L mg/L mg/L mg/L	NO



Haloacetic Acids (HAA's) <i>(Komoka Mt-Brydges Monitoring Station #2)</i> Annual Running Average	2017	0.0061	mg/L	
Haloacetic Acids (HAA's) <i>(Strathroy-Caradoc Monitoring Station #2)</i>	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	Not Detected Not Detected 0.0089 0.0096	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) <i>(Strathroy-Caradoc Monitoring Station #2)</i> Annual Running Average	2017	0.0046	mg/L	NO
Malathion	January 12, 2017	Not Detected	mg/L	NO
2-Methyl-4-chlorophenoxyacetic acid	January 12, 2017	Not Detected	mg/L	NO
Metolachlor	January 12, 2017	Not Detected	mg/L	NO
Metribuzin	January 12, 2017	Not Detected	mg/L	NO
Monochlorobenzene	January 12, 2017	Not Detected	mg/L	NO
Paraquat	January 12, 2017	Not Detected	mg/L	NO
Pentachlorophenol	January 12, 2017	Not Detected	mg/L	NO
Phorate	January 12, 2017	Not Detected	mg/L	NO
Picloram	January 12, 2017	Not Detected	mg/L	NO
Polychlorinated Biphenyls (PCB)	January 12, 2017	Not Detected	mg/L	NO
Prometryne	January 12, 2017	Not Detected	mg/L	NO
Simazine	January 12, 2017	Not Detected	mg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	0.014 0.016 0.030 0.027	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (THMs) <i>(Arva Reservoir)</i> Running Annual Average	2017	0.0218	mg/L	NO



Total Trihalomethanes (Exeter-Hensall Monitoring Station #3)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	0.026 0.024 0.046 0.054	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3) Running Annual Average	2017	0.0375	mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	0.017 0.017 0.036 0.037	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2017	0.0268	mg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2)	January 12, 2017 April 13, 2017 July 17, 2017 October 5, 2017	0.017 0.017 0.033 0.031	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2017	0.0245	mg/L	NO
Terbufos	January 12, 2017	Not Detected	mg/L	NO
Tetrachloroethylene	January 12, 2017	Not Detected	mg/L	NO
2,3,4,6- Tetrachlorophenol	January 12, 2017	Not Detected	mg/L	NO
Triallate	January 12, 2017	Not Detected	mg/L	NO
Trichloroethylene	January 12, 2017	Not Detected	mg/L	NO
2,4,6-Trichlorophenol	January 12, 2017	Not Detected	mg/L	NO
Trifluralin	January 12, 2017	Not Detected	mg/L	NO
Vinyl Chloride	January 12, 2017	Not Detected	mg/L	NO

NOTE: During 2017, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.