



<b>Drinking-Water System Number:</b>	210000791
<b>Drinking-Water System Name:</b>	<b>Lake Huron Primary Water Supply System</b>
<b>Drinking-Water System Owner:</b>	Lake Huron Primary Water Supply System Joint Board of Management
<b>Drinking-Water System Operating Authority:</b>	Ontario Clean Water Agency (OCWA)
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2014 through December 31, 2014

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

**Does your Drinking-Water System serve more than 10,000 people? Yes [X] No [ ]**

**Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] 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  
<http://www.watersupply.london.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:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
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:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
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.

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)  
Acidified alum  
Powder activated carbon  
Chlorine gas  
Sodium Hydroxide  
Sodium Hypochlorite  
Dewatering polymer (Residuals Management Facility)  
Sodium bisulphite (Residuals Management Facility)

**Were any significant expenses incurred to?**

- ☒ [X] Install required equipment  
☒ [X] Repair required equipment  
☒ [X] Replace required equipment

**Please provide a brief description and a breakdown of monetary expenses incurred****Capital Projects:**

- Acoustic Fibre Optic (AFO) Pipeline Monitoring Project – installation in process
- HVAC Project – in process
- Pipeline Twinning Project
- Distressed Pipe Replacements (2 pipe sections)
- Server Replacement Upgrade – in process
- Energy Audit and Pump Optimization Study
- Phone System Upgrade
- Field Control Devices Study
- Residuals Management Facility - commissioning
- Gas Chlorine System Injector Upgrades
- Exeter-Hensall Pump Station Upgrades (Painting, Insulation, Electrical, Drive Replacement)
- Generator Replacement (200 kW)
- Condition Assessment of B-Pipeline utilizing Pure Technologies' Pipe Diver
- Uninterruptible Power Supply (UPS) Replacements

**Maintenance:**

- Filter #10 and #8 Rebuilds – in process
- SCADA Alarm System Upgrades
- Rebuild McGillivray Booster Pump #3 Starter
- Repair Flocc Arms & Bearings
- Replace Filtered Water Turbidity Analyzers
- Install Davit Arm Brackets in Flocc Rooms
- Back Up Generator Inspections & Maintenance
- Repair Gear Box on Flocc #3
- Maintenance on Electrical Breakers



- Replace Pump Starter at Pumping Station #4
- Clean Out, Inspect & Repair North Settled Water Conduit
- Low Lift VFD Maintenance (Board Replacement)
- Low Lift Pump #1 Check Valve Replacement
- Repair Arva HVAC System
- Repair Dehumidification System at Exeter-Hensall Pumping Station
- Replace LHPWSS Chlorine Gas Regulator
- Rebuild Service Water Pump #3
- Remove Water from Underground Fuel Tanks
- Replace Flow Sensor on Chlorine Scrubber
- Replace Dashpot on McGillivray Booster Pump #3 Check Valve
- Replace Crib Chlorine Supply Line
- Replace Communications Panel at Exeter-Hensall Monitoring Station #3
- Replace Filter Level Sensors
- Replace PLC at Strathroy Monitoring Station #1
- Replace PLC at Exeter-Hensall Monitoring Station #3
- Replace PLC at Komoka-Mt. Brydges Monitoring Station #2
- Repair High Lift Pump #2 Discharge Valve Actuator
- Replace Gear Box on Carbon Pump #1
- Replace Level Switches on McGillivray Booster Station Surge Tanks
- Replace Packing on Pumping Station #4 Booster Pumps
- Repair Seals on North Clarifier Lamella Plates
- Repair High Lift Pump #3 Discharge Valve Actuator

**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)-(20)	(0)-(14400)	(<10)-(>2000)
Treated Water (WTP)	246	(0)-(0)	(0)-(0)	(<10)-(920)
Distribution (McGillivray PS)	50	(0)-(0)	(0)-(0)	(<10)-(260)
Distribution (North Exeter)	51	(0)-(0)	(0)-(0)	(<10)-(60)
Distribution (South Exeter)	51	(0)-(0)	(0)-(0)	(<10)-(70)
Distribution (Exeter-Hensall Reservoir)	50	(0)-(0)	(0)-(0)	(<10)-(20)



Distribution (Komoka-Mt. Brydges PS)	52	(0)-(0)	(0)-(0)	(<10)-(20)
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**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	(0.11) – (2.00)
	2150	(0.96) – (2.19)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.021) – (2.000)
	2151	(0.031) – (0.126)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) – (0.865)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022) – (0.751)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) – (0.738)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012) – (0.778)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.023) – (0.204)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) – (0.672)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) – (0.517)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018) – (0.577)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021) – (0.756)
Filter #10 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) – (0.904)
Filter #11 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.016) – (0.866)
Filter #12 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012) – (0.560)
Combined Filtered Water Turbidity (NTU)	2149	(0.016) – (0.230)

**NOTE:** There were several instances in 2014 when the filtered water turbidity exceeded 1.00 NTU. These turbidity spikes were of short duration and were typically caused by an analyzer signal fault. Any filtered water or treated water turbidity spikes that were directly attributed to analyzer signal faults, analyzer calibration, maintenance, a power outage, or water treatment plant start-up were not included in the range of results.

**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 23, 2014	Not Detected	mg/L	NO
Arsenic	January 23, 2014	0.0003	mg/L	NO
Barium	January 23, 2014	0.0139	mg/L	NO
Boron	January 23, 2014	0.014	mg/L	NO
Cadmium	January 23, 2014	Not Detected	mg/L	NO



<b>Chromium</b>	January 23, 2014	0.0007	mg/L	NO
<b>Lead</b> (Komoka Mt-Brydges Monitoring Station #2)	January 23, 2014 April 15, 2014 July 18, 2014 October 27, 2014	0.00003 0.00002 0.00002 Not Detected	mg/L mg/L mg/L mg/L	NO
<b>Mercury</b>	January 23, 2014	Not Detected	mg/L	NO
<b>Selenium</b>	January 23, 2014	Not Detected	mg/L	NO
<b>Sodium</b>	January 23, 2014	11.7	mg/L	NO
<b>Uranium</b>	January 23, 2014	0.000058	mg/L	NO
<b>Fluoride</b>	August 7, 2014	Not Detected	mg/L	NO
<b>Nitrite</b>	January, 2014 April, 2014 July, 2014 October, 2014	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
<b>Nitrate</b>	January, 2014 April, 2014 July, 2014 October, 2014	0.565 0.357 0.418 0.326	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
<b>Alachlor</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Aldicarb</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Aldrin + Dieldrin</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Atrazine + N-dealkylated metabolites</b>	January 23, 2014	0.03	µg/L	NO
<b>Azinphos-methyl</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Bendiocarb</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Benzene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Benzo(a)pyrene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Bromoxynil</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Carbaryl</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Carbofuran</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Carbon Tetrachloride</b>	January 23, 2014	Not Detected	µg/L	NO



<b>Chlordane (Total)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Chlorpyrifos</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Cyanazine</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Diazinon</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Dicamba</b>	January 23, 2014	Not Detected	µg/L	NO
<b>1,2-Dichlorobenzene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>1,4-Dichlorobenzene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Dichlorodiphenyltrichloroethane (DDT) + metabolites</b>	January 23, 2014	Not Detected	µg/L	NO
<b>1,2-Dichloroethane</b>	January 23, 2014	Not Detected	µg/L	NO
<b>1,1-Dichloroethylene (vinylidene chloride)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Dichloromethane</b>	January 23, 2014	Not Detected	µg/L	NO
<b>2-4 Dichlorophenol</b>	January 23, 2014	Not Detected	µg/L	NO
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Diclofop-methyl</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Dimethoate</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Dinoseb</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Diquat</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Diuron</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Glyphosate</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Heptachlor + Heptachlor Epoxide</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Lindane (Total)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Malathion</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Methoxychlor</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Metolachlor</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Metribuzin</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Monochlorobenzene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Paraquat</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Parathion</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Pentachlorophenol</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Phorate</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Picloram</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Polychlorinated Biphenyls (PCB)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Prometryne</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Simazine</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Total Trihalomethanes</b> (Arva Reservoir)	January 31, 2014 April 15, 2014 July 18, 2014 October 27, 2014	17.0 23.0 36.0 16.0	µg/L µg/L µg/L µg/L	NO
<b>Total Trihalomethanes</b> (Exeter-Hensall Monitoring Station #3)	January 31, 2014 April 15, 2014 July 18, 2014 October 27, 2014	28.0 27.0 44.0 35.0	µg/L µg/L µg/L µg/L	NO
<b>Total Trihalomethanes</b> (Komoka Mt-Brydges Monitoring Station #2)	January 31, 2014 April 15, 2014 July 18, 2014 October 27, 2014	22.0 23.0 36.0 21.0	µg/L µg/L µg/L µg/L	NO





<b>Total Trihalomethanes</b> (Strathroy-Caradoc Monitoring Station #2)	January 31, 2014 April 15, 2014 July 18, 2014 October 27, 2014	20.0 27.0 40.0 17.0	µg/L µg/L µg/L µg/L	NO
<b>Temephos</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Terbufos</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Tetrachloroethylene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>2,3,4,6-Tetrachlorophenol</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Triallate</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Trichloroethylene</b>	January 23, 2014	Not Detected	µg/L	NO
<b>2,4,6-Trichlorophenol</b>	January 23, 2014	Not Detected	µg/L	NO
<b>2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Trifluralin</b>	January 23, 2014	Not Detected	µg/L	NO
<b>Vinyl Chloride</b>	January 23, 2014	Not Detected	µg/L	NO

***NOTE:** During 2014, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.*