



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, 2015 through December 31, 2015

<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 [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</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>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</p> <p>Lake Huron Water Treatment Plant 71155 Bluewater Hwy., Grand Bend, ON</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</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 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.

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?

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

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

Capital Projects:

- Acoustic Fibre Optic (AFO) Pipeline Monitoring Project
- HVAC Project
- Server replacement upgrade
- Chlorine gas system injector and piping upgrades
- Uninterruptible Power Supply (UPS) replacements
- Replaced service water flow meter
- Replaced five chlorine/pH analyzers
- Replaced six particle counters (analyzers)
- Relocated Residuals Management Facility centrifuge stair case
- Plant crack injection
- Pipeline chamber crack injection
- Replacement of 36" main line gate valve with actuator
- Install transmission pipeline road markers
- Incorporate pipeline assets into maintenance management system
- Two instrument compressor replacements
- Low lift surge valve replacement- in progress
- Clarifier upgrades- in progress
- Grit pump replacement – in progress

Maintenance:

- Residuals Management Facility heating upgrade
- Generator fuel tank water drain culvert repair
- Sludge truck curtain install
- Filter #8 rebuild
- SCADA alarm system upgrades
- Maintenance on electrical breakers



- Replace chlorine gas regulator
- Repair seals on North and South clarifier lamella plates
- Arva reservoir draw down test
- Improved guarding on High lift floor
- Replacement of all filter level sensors (12)
- Replacement of North and South distribution well level sensors
- Replacement of traveling screen #3 level sensors
- Replacement of McGillivray surge well level sensor
- Replace bearings and wrist pin on Flocculator #4
- Substation control heads T1, T2 repaired
- Replace Residuals Management Facility sample pump and added back up with bypass piping
- Annual maintenance and inspection on the Low lift surge well, screen wells, distribution wells, pump well and Low lift pump intakes
- Annual maintenance and inspection of flocculation tanks and clarifiers
- Replace both flow control valves on chlorine analyzers at Komoka-Mt. Brydges Monitoring Station #1
- Semi-annual chamber inspections
- Rebuild control valve at Strathroy inlet
- High lift pump #4 motor - new seal installed, exciter reassembled
- Installed spare chlorine switching valve
- Residuals Management Facility cleaned out and inspected
- Replacement of 12” back flow preventer

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	104	(0)-(10)	(0)-(8,300)	(<10)-(>2,000)
Treated Water (WTP)	257	(0)-(0)	(0)-(0)	(<10)-(>2,000)
Distribution (McGillivray PS)	53	(0)-(0)	(0)-(0)	(<10)-(60)
Distribution (North Exeter)	52	(0)-(0)	(0)-(0)	(<10)-(>2,000)
Distribution (South Exeter)	52	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (Exeter-Hensall Reservoir)	52	(0)-(0)	(0)-(0)	(<10)-(>2,000)
Distribution (Komoka-Mt. Brydges PS)	52	(0)-(0)	(0)-(0)	(<10)-(20)

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	(0.65) – (2.00)
	2127	(0.91)-(1.58)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.02)–(2.00)
	2128	(0.031)-(0.270)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.020)-(0.381)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021)-(0.535)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021)-(0.987)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018)-(0.381)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022)-(0.520)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017)-(0.300)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019)-(0.308)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019)-(0.122)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.020)-(0.522)
Filter #10 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.016)-(0.823)
Filter #11 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.030)-(0.743)
Filter #12 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.011)-(0.897)
Combined Filtered Water Turbidity (NTU)	2125	(0.035)-(0.320)

NOTE: There were several instances in 2015 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 15, 2015	0.00017	mg/L	NO
Arsenic	January 15, 2015	0.0002	mg/L	NO
Barium	January 15, 2015	0.0124	mg/L	NO
Boron	January 15, 2015	0.035	mg/L	NO
Cadmium	January 15, 2015	0.000006	mg/L	NO

Chromium	January 15, 2015	0.00011	mg/L	NO
Lead (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
Mercury	January 15, 2015	0.00002	mg/L	NO
Selenium	January 15, 2015	Not Detected	mg/L	NO
Sodium	January 15, 2015	10.0	mg/L	NO
Uranium	January 15, 2015	0.000022	mg/L	NO
Fluoride	NA	Not Tested	mg/L	--
Nitrite	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
Nitrate	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	0.341 0.572 0.339 0.270	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 15, 2015	Not Detected	µg/L	NO
Aldicarb	January 15, 2015	Not Detected	µg/L	NO
Aldrin + Dieldrin	January 15, 2015	Not Detected	µg/L	NO
Atrazine + N-dealkylated metabolites	January 15, 2015	0.03	µg/L	NO
Azinphos-methyl	January 15, 2015	Not Detected	µg/L	NO
Bendiocarb	January 15, 2015	Not Detected	µg/L	NO
Benzene	January 15, 2015	Not Detected	µg/L	NO



Benzo(a)pyrene	January 15, 2015	Not Detected	µg/L	NO
Bromoxynil	January 15, 2015	Not Detected	µg/L	NO
Carbaryl	January 15, 2015	Not Detected	µg/L	NO
Carbofuran	January 15, 2015	Not Detected	µg/L	NO
Carbon Tetrachloride	January 15, 2015	Not Detected	µg/L	NO
Chlordane (Total)	January 15, 2015	Not Detected	µg/L	NO
Chlorpyrifos	January 15, 2015	Not Detected	µg/L	NO
Cyanazine	January 15, 2015	Not Detected	µg/L	NO
Diazinon	January 15, 2015	Not Detected	µg/L	NO
Dicamba	January 15, 2015	Not Detected	µg/L	NO
1,2-Dichlorobenzene	January 15, 2015	Not Detected	µg/L	NO
1,4-Dichlorobenzene	January 15, 2015	Not Detected	µg/L	NO
Dichlorodiphenyltrichloroethane (DDT) + metabolites	January 15, 2015	Not Detected	µg/L	NO
1,2-Dichloroethane	January 15, 2015	Not Detected	µg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 15, 2015	Not Detected	µg/L	NO
Dichloromethane	January 15, 2015	Not Detected	µg/L	NO
2,4 Dichlorophenol	January 15, 2015	Not Detected	µg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 15, 2015	Not Detected	µg/L	NO
Diclofop-methyl	January 15, 2015	Not Detected	µg/L	NO
Dimethoate	January 15, 2015	Not Detected	µg/L	NO
Dinoseb	January 15, 2015	Not Detected	µg/L	NO
Diquat	January 15, 2015	Not Detected	µg/L	NO
Diuron	January 15, 2015	Not Detected	µg/L	NO
Glyphosate	January 15, 2015	Not Detected	µg/L	NO
Heptachlor + Heptachlor Epoxide	January 15, 2015	Not Detected	µg/L	NO
Lindane (Total)	January 15, 2015	Not Detected	µg/L	NO
Malathion	January 15, 2015	Not Detected	µg/L	NO
Methoxychlor	January 15, 2015	Not Detected	µg/L	NO
Metolachlor	January 15, 2015	Not Detected	µg/L	NO
Metribuzin	January 15, 2015	Not Detected	µg/L	NO
Monochlorobenzene	January 15, 2015	Not Detected	µg/L	NO
Paraquat	January 15, 2015	Not Detected	µg/L	NO
Parathion	January 15, 2015	Not Detected	µg/L	NO
Pentachlorophenol	January 15, 2015	Not Detected	µg/L	NO
Phorate	January 15, 2015	Not Detected	µg/L	NO
Picloram	January 15, 2015	Not Detected	µg/L	NO
Polychlorinated Biphenyls (PCB)	January 15, 2015	Not Detected	µg/L	NO
Prometryne	January 15, 2015	Not Detected	µg/L	NO
Simazine	January 15, 2015	Not Detected	µg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	12.0 16.0 23.0 15.0	µg/L µg/L µg/L µg/L	NO

Total Trihalomethanes (Exeter-Hensall Monitoring Station #3)	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	26.0 24.0 37.0 36.0	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2)	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	18.0 21.0 27.0 22.0	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2)	January 16, 2015 April 16, 2015 July 7, 2015 October 8, 2015	14.0 20.0 25.0 15.0	µg/L µg/L µg/L µg/L	NO
Temephos	January 15, 2015	Not Detected	µg/L	NO
Terbufos	January 15, 2015	Not Detected	µg/L	NO
Tetrachloroethylene	January 15, 2015	Not Detected	µg/L	NO
2,3,4,6-Tetrachlorophenol	January 15, 2015	Not Detected	µg/L	NO
Triallate	January 15, 2015	Not Detected	µg/L	NO
Trichloroethylene	January 15, 2015	Not Detected	µg/L	NO
2,4,6-Trichlorophenol	January 15, 2015	Not Detected	µg/L	NO
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	January 15, 2015	Not Detected	µg/L	NO
Trifluralin	January 15, 2015	Not Detected	µg/L	NO
Vinyl Chloride	January 15, 2015	Not Detected	µg/L	NO

NOTE: During 2015, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.