

Drinking-Water Systems Regulation O. Reg. 170/03

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, 2024 through December 31, 2024

<p>Complete if your Category is Large Municipal Residential or Small Municipal Residential</p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <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 https://huroneginwater.ca/</p> <p>Lake Huron Water Treatment Plant 71155 Bluewater Hwy. Grand Bend, ON</p>	<p>Complete for all other Categories.</p> <p>Number of Designated Facilities served: N/A</p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Number of Interested Authorities you report to: N/A</p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes <input type="checkbox"/> No <input type="checkbox"/></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 Distribution System	260004917
Bluewater Lakeshore Distribution System	260006542
Hensall Zurich Distribution System	260091650
East Lambton Shores Water Distribution System	260006568
Lucan Biddulph Distribution System	260003071
Middlesex Centre Distribution System	260004202
North Middlesex Distribution System	260006529
Strathroy-Caradoc Distribution System	260080106
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 _____

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The Lake Huron Primary Water Supply System (LHPWSS) 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 intake crib and raw water intake pipe have an estimated gross capacity of 454.6 Megalitres/day (MLD). The LHPWSS 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. 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, Arva Terminal Reservoir, Komoka-Mt. Brydges Booster Pumping Station (PS#4) and 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

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

Capital and Maintenance Projects:

- Handrail replacements (Chlorine Building and High Lift Building Stairwells)
- Concrete crack injections (Flocculation Building, High Lift Building basement, tunnel and Arva Valve House)
- Interior door replacements
- Service water line piping replacements
- Clarifier #2 gear drive replacement and variable frequency drive (VFD) installation
- Roof drain replacements
- Pipeline chamber flood prevention upgrades
- Clarifier ramp replacements
- Coagulation system upgrade
- Lowlift pump #1 rebuild
- Lowlift pump check valve and isolation valve replacements
- Raw water actuator replacements and SCADA integration
- North and South filtered water chlorine analyzer relocation
- Strathroy Monitoring Station #2 panel upgrade
- McGillivray Booster Station exterior wall cladding upgrades
- Arva Reservoir clean-out and condition assessment inspection
- B-Line south back-up generator electrical upgrades
- Site security and lighting upgrades
- Equipment guarding and safety upgrades
- McGillivray Booster Station Heating, Ventilation & Air Conditioning (HVAC) and electrical upgrades
- SCADA software upgrades
- Exeter-Hensall Pumping Station (EHPS) pump control upgrades
- Arva drain valve replacement

Studies & Design:

- Water Quality Facility Plan Update
- Master Water Plan Update
- Powder Activated Carbon (PAC) system upgrade - design
- Oneida Transmission Pipeline - design
- Water Treatment Plant (WTP) Administration Building Extension and Site Redevelopment – design
- Dechlorination at remote stations (Arva site) - design
- Highlift discharge flow meters replacement – design and equipment purchase

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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 Report Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

Location	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	103	(0)-(100)	(0)-(11,500)	(<10)-(1,230)
Treated Water (WTP)	230	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (McGillivray PS)	56	(0)-(0)	(0)-(0)	(<10)-(420)
Distribution (North Exeter)	60	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (South Exeter)	56	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (Exeter-Hensall Reservoir)	54	(0)-(0)	(0)-(0)	(<10)-(>2,000)
Distribution (Komoka-Mt. Brydges PS)	59	(0)-(0)	(0)-(0)	(<10)-(30)

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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 Samples	Range of Results (min #)-(max #)
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.53)-(2.00)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.57)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.54)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.21)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(1.99*)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.32)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.69)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.56)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.18)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.81)
Filter #10- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.15)
Filter #11- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.55)
Filter #12- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(0.79)
Distribution Grab Samples Free Chlorine (mg/L)	Grab Samples	(0.69)-(1.33)

*maximum turbidity >1NTU on filter 4 was less than 1 minute in duration, no Adverse Water Quality Incident (AWQI) as a result of the spike.

All filter performance criteria of <0.3NTU 95% of the time for the month were met for all 12 filters.

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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 9, 2024	Not Detected	mg/L	NO
Arsenic	January 9, 2024	Not Detected	mg/L	NO
Barium	January 9, 2024	0.0141	mg/L	NO
Boron	January 9, 2024	0.014	mg/L	NO
Cadmium	January 9, 2024	0.000004	mg/L	NO
Chromium	January 9, 2024	0.00018	mg/L	NO
Lead (Komoka Mt- Brydges Monitoring Station #2)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.00001 Not Detected 0.00001 0.00001	mg/L mg/L mg/L mg/L	NO
Mercury	January 9, 2024	Not Detected	mg/L	NO
Selenium	January 9, 2024	0.00010	mg/L	NO
Sodium	January 10, 2024	11.5	mg/L	NO
Uranium	January 9, 2024	0.000051	mg/L	NO
Fluoride	January 10, 2024	Not Detected	mg/L	NO
Nitrite	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
Nitrate	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.544 0.378 0.449 0.258	mg/L mg/L mg/L mg/L	NO

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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 9, 2024	Not Detected	mg/L	NO
Atrazine + N-dealkylated metabolites	January 9, 2024	0.00002	mg/L	NO
Azinphos-methyl	January 9, 2024	Not Detected	mg/L	NO
Benzene	January 9, 2024	Not Detected	mg/L	NO
Benzo(a)pyrene	January 9, 2024	Not Detected	mg/L	NO
Bromoxynil	January 9, 2024	Not Detected	mg/L	NO
Carbaryl	January 9, 2024	Not Detected	mg/L	NO
Carbofuran	January 9, 2024	Not Detected	mg/L	NO
Carbon Tetrachloride	January 9, 2024	Not Detected	mg/L	NO
Chlorpyrifos	January 9, 2024	Not Detected	mg/L	NO
Diazinon	January 9, 2024	Not Detected	mg/L	NO
Dicamba	January 9, 2024	Not Detected	mg/L	NO
1,2-Dichlorobenzene	January 9, 2024	Not Detected	mg/L mg/L	NO
1,4-Dichlorobenzene	January 9, 2024	Not Detected	mg/L mg/L	NO
1,2-Dichloroethane	January 9, 2024	Not Detected	mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 9, 2024	Not Detected	mg/L	NO
Dichloromethane	January 9, 2024	Not Detected	mg/L	NO
2-4 Dichlorophenol	January 9, 2024	Not Detected	mg/L mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 9, 2024	Not Detected	mg/L	NO
Diclofop-methyl	January 9, 2024	Not Detected	mg/L	NO
Dimethoate	January 9, 2024	Not Detected	mg/L	NO
Diquat	January 9, 2024	Not Detected	mg/L	NO
Diuron	January 9, 2024	Not Detected	mg/L	NO
Glyphosate	January 9, 2024	Not Detected	mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.0159 0.0061 0.0066 Not Detected	mg/L mg/L mg/L mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Haloacetic Acids (HAA's) (Arva Reservoir) Running Annual Average	2024	0.0072	mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.0150 0.0081 0.0088 0.0056	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3) Running Annual Average	2024	0.0094	mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.0165 Not Detected 0.0062 Not Detected	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2024	0.0057	mg/L	NO
Haloacetic Acids (HAA's) (Strathroy-Caradoc Monitoring Station #2)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.0186 0.0069 0.0073 Not Detected	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2024	0.0076	mg/L	NO
Malathion	January 9, 2024	Not Detected	mg/L	NO
Metribuzin	January 9, 2024	Not Detected	mg/L	NO
Monochlorobenzene	January 9, 2024	Not Detected	mg/L	NO
Paraquat	January 9, 2024	Not Detected	mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Pentachlorophenol	January 9, 2024	Not Detected	mg/L	NO
Phorate	January 9, 2024	Not Detected	mg/L	NO
Picloram	January 9, 2024	Not Detected	mg/L	NO
Polychlorinated Biphenyls (PCB)	January 9, 2024	Not Detected	mg/L	NO
Prometryne	January 9, 2024	Not Detected	mg/L	NO
Simazine	January 9, 2024	Not Detected	mg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.023 0.022 0.030 0.023	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (THMs) (Arva Reservoir) Running Annual Average	2024	0.025	mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.027 0.030 0.039 0.036	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3) Running Annual Average	2024	0.033	mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.023 0.026 0.035 0.029	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2024	0.028	mg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2)	January 9, 2024 April 11, 2024 July 16, 2024 October 10, 2024	0.026 0.024 0.032 0.026	mg/L mg/L mg/L mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2024	0.027	mg/L	NO
Terbufos	January 9, 2024	Not Detected	mg/L	NO
Tetrachloroethylene	January 9, 2024	Not Detected	mg/L	NO
2,3,4,6- Tetrachlorophenol	January 9, 2024	Not Detected	mg/L	NO
Triallate	January 9, 2024	Not Detected	mg/L	NO
Trichloroethylene	January 9, 2024	Not Detected	mg/L	NO
2,4,6-Trichlorophenol	January 9, 2024	Not Detected	mg/L	NO
Trifluralin	January 9, 2024	Not Detected	mg/L	NO
Vinyl Chloride	January 9, 2024	Not Detected	mg/L	NO

NOTE: During 2024, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.