

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

<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, 2021 through December 31, 2021

<p><b>Complete if your Category is Large Municipal Residential or Small Municipal Residential</b></p> <p><b>Does your Drinking-Water System serve more than 10,000 people?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></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 <a href="https://huroneginwater.ca/">https://huroneginwater.ca/</a></p> <p>Lake Huron Water Treatment Plant 71155 Bluewater Hwy. Grand Bend, ON</p>	<p><b>Complete for all other Categories.</b></p> <p><b>Number of Designated Facilities served:</b> N/A</p> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Number of Interested Authorities you report to:</b> N/A</p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</b> 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:**

<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 \_\_\_\_\_

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

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

## Capital Projects:

- High lift pump upgrades
- Coagulation system upgrades
- Low lift pump #1 motor replacement
- Easement clearing and boundary surveys

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- Installed LED lighting in pipe gallery
- Filter surface sweep piping replacements
- Komoka-Mt. Brydges Pumping Station exterior sealants
- Safety railing replacements
- Backwash pump #2 and #3 check valve replacements
- Pipeline chamber rehabilitation – venting above grade
- Site drainage modifications and improvements
- Alum fill line replacement
- Overhead door replacement
- Raw water dissolved oxygen (DO) analyzer installation
- Ilderton flow meter replacement
- Clarifier #3 gear drive replacement
- Settled water and clearwell level meter installations
- RMF total suspended solids (TSS) analyzer installations
- Backwash turbidity analyzer installations
- Safety shower replacements
- Building Automation System (BAS) server replacement
- Obsolete equipment removals
- Grounding and bonding at Exeter-Hensall Monitoring Station #2 (EH2)
- North flocculation gear drive rebuild
- Low lift sluice gate rehabilitation
- Filter conduit interconnect sluice gate rehabilitation
- Clearwell sluice gate rehabilitation

#### **Maintenance Projects:**

- South clearwell and filter conduit concrete repairs
- Service water pump rehabilitation
- Pump bases (backwash and service water) rehabilitation
- Caustic soda metering pump replacement

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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 Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
July 13, 2021 Adverse Water Quality Incident (AWQI) #154634	Filter effluent turbidity	Two samples on filter #6 taken 15 minutes apart were each >1.0 NTU	NTU	Collected microbiological samples from filter #6 effluent, south clearwell and treated water on July 13 <sup>th</sup> and 14 <sup>th</sup> . All sample results were good.	July 13 <sup>th</sup> and July 14 <sup>th</sup>

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	104	(0)-(200)	(0)-(3800)	(<10)-(>2000)
Treated Water (WTP)	294	(0)-(0)	(0)-(0)	(<10)-(110)
Distribution (McGillivray PS)	58	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (North Exeter)	60	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (South Exeter)	54	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (Exeter-Hensall Reservoir)	56	(0)-(0)	(0)-(0)	(<10)-(10)
Distribution (Komoka-Mt. Brydges PS)	60	(0)-(0)	(0)-(0)	(<10)-(70)

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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.**

<b>Parameter</b>	<b>Number of Grab Samples</b>	<b>Range of Results (min #)-(max #)</b>
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.78)-(2.00)
Treated Water Free Chlorine (mg/L)	2139	(0.98)-(1.71)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.026)-(2.00)
Treated Water Turbidity (NTU)	2139	(0.023)-(0.184)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.030)-(0.767)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.023)-(0.201)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.025)-(0.715)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018)-(0.409)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.021)-(0.218)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022)-(2.00)*
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.025)-(0.625)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022)-(0.149)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.014)-(0.620)
Filter #10- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.029)-(1.88)*
Filter #11- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.011)-(0.924)
Filter #12- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.015)-(0.202)
Combined Filtered Water Turbidity (NTU)	2138	(0.010)-(0.176)

Please note:

\*Filter #6 >1.0 NTU AWQI on July 13th.

\*Filter #10 >1.0 NTU on February 12<sup>th</sup> at 06:05. There was no AWQI as the filter interlocked and was disabled.

**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>
Antimony	January 13, 2021	Not Detected	mg/L	NO
Arsenic	January 13, 2021	Not Detected	mg/L	NO
Barium	January 13, 2021	0.0146	mg/L	NO
Boron	January 13, 2021	0.014	mg/L	NO
Cadmium	January 13, 2021	0.000005	mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Chromium	January 13, 2021	0.00022		NO
Lead (Komoka Mt- Brydges Monitoring Station #2)	January 12, 2021	0.00001	mg/L	NO
	April 15, 2021	0.00005	mg/L	
	July 13, 2021	0.00010	mg/L	
	October 19, 2021	0.00001	mg/L	
Mercury	January 13, 2021	Not Detected	mg/L	NO
Selenium	January 13, 2021	0.00012	mg/L	NO
Sodium	January 13, 2021	9.9	mg/L	NO
Uranium	January 13, 2021	0.000068	mg/L	NO
Fluoride	January 13, 2021	0.06	mg/L	NO
Nitrite	January 12, 2021	Not Detected	mg/L	NO
	April 15, 2021	Not Detected	mg/L	
	July 13, 2021	Not Detected	mg/L	
	October 19, 2021	Not Detected	mg/L	
Nitrate	January 12, 2021	0.378	mg/L	NO
	April 15, 2021	0.754	mg/L	
	July 13, 2021	0.320	mg/L	
	October 19, 2021	0.354	mg/L	

**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 13, 2021	Not Detected	mg/L	NO
Atrazine + N-dealkylated metabolites	January 13, 2021	0.00003	mg/L	NO
Azinphos-methyl	January 13, 2021	Not Detected	mg/L	NO
Benzene	January 13, 2021	Not Detected	mg/L	NO
Benzo(a)pyrene	January 13, 2021	Not Detected	mg/L	NO
Bromoxynil	January 13, 2021	Not Detected	mg/L	NO
Carbaryl	January 13, 2021	Not Detected	mg/L	NO
Carbofuran	January 13, 2021	Not Detected	mg/L	NO
Carbon Tetrachloride	January 13, 2021	Not Detected	mg/L	NO
Chlorpyrifos	January 13, 2021	Not Detected	mg/L	NO
Diazinon	January 13, 2021	Not Detected	mg/L	NO
Dicamba	January 13, 2021	Not Detected	mg/L	NO
1,2-Dichlorobenzene	January 13, 2021	Not Detected	mg/L	NO
1,4-Dichlorobenzene	January 13, 2021	Not Detected	mg/L	NO

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<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
1,2-Dichloroethane	January 13, 2021	Not Detected	mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 13, 2021	Not Detected	mg/L	NO
Dichloromethane	January 13, 2021	Not Detected	mg/L	NO
2-4 Dichlorophenol	January 13, 2021	Not Detected	mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 13, 2021	Not Detected	mg/L	NO
Diclofop-methyl	January 13, 2021	Not Detected	mg/L	NO
Dimethoate	January 13, 2021	Not Detected	mg/L	NO
Diquat	January 13, 2021	Not Detected	mg/L	NO
Diuron	January 13, 2021	Not Detected	mg/L	NO
Glyphosate	January 13, 2021	Not Detected	mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir)	January 12, 2021 April 15, 2021 July 13, 2021 October 19, 2021	Not Detected 0.0057 0.0072 0.0158	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir) Running Annual Average	2021	0.0071	mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3)	January 12, 2021 April 15, 2021 July 13, 2021 October 19, 2021	Not Detected 0.0186 0.0163 0.0100	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3) Running Annual Average	2021	0.0112	mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2)	January 12, 2021 April 15, 2021 July 13, 2021 October 19, 2021	0.0118 0.0122 0.0148 0.0076	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2021	0.0116	mg/L	NO
Haloacetic Acids (HAA's)	January 12, 2021 April 15, 2021	0.0139 0.0060	mg/L mg/L	NO



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<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
(Strathroy-Caradoc Monitoring Station #2)	July 13, 2021 October 19, 2021	0.0077 0.0163	mg/L mg/L	
Haloacetic Acids (HAA's) (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2021	0.0110	mg/L	NO
Malathion	January 13, 2021	Not Detected	mg/L	NO
2-Methyl-4-chlorophenoxyacetic acid	January 13, 2021	Not Detected	mg/L	NO
Metolachlor	January 13, 2021	Not Detected	mg/L	NO
Metribuzin	January 13, 2021	Not Detected	mg/L	NO
Monochlorobenzene	January 13, 2021	Not Detected	mg/L	NO
Paraquat	January 13, 2021	Not Detected	mg/L	NO
Pentachlorophenol	January 13, 2021	Not Detected	mg/L	NO
Phorate	January 13, 2021	Not Detected	mg/L	NO
Picloram	January 13, 2021	Not Detected	mg/L	NO
Polychlorinated Biphenyls (PCB)	January 13, 2021	Not Detected	mg/L	NO
Prometryne	January 13, 2021	Not Detected	mg/L	NO
Simazine	January 13, 2021	Not Detected	mg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 12, 2021 April 15, 2021 July 13, 2021 October 19, 2021	0.016 0.023 0.025 0.031	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (THMs) (Arva Reservoir) Running Annual Average	2021	0.024	mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3)	January 12, 2021 April 15, 2021 July 13, 2021 October 19, 2021	0.034 0.034 0.037 0.047	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3) Running Annual Average	2021	0.038	mg/L	NO

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<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2)	January 12, 2021	0.024	mg/L	NO
	April 15, 2021	0.028	mg/L	
	July 13, 2021	0.030	mg/L	
	October 19, 2021	0.033	mg/L	
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2021	0.029	mg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2)	January 12, 2021	0.019	mg/L	NO
	April 15, 2021	0.025	mg/L	
	July 13, 2021	0.027	mg/L	
	October 19, 2021	0.036	mg/L	
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2021	0.027	mg/L	NO
Terbufos	January 13, 2021	Not Detected	mg/L	NO
Tetrachloroethylene	January 13, 2021	Not Detected	mg/L	NO
2,3,4,6- Tetrachlorophenol	January 13, 2021	Not Detected	mg/L	NO
Triallate	January 13, 2021	Not Detected	mg/L	NO
Trichloroethylene	January 13, 2021	Not Detected	mg/L	NO
2,4,6-Trichlorophenol	January 13, 2021	Not Detected	mg/L	NO
Trifluralin	January 13, 2021	Not Detected	mg/L	NO
Vinyl Chloride	January 13, 2021	Not Detected	mg/L	NO

**NOTE:** During 2021, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.