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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, 2020 through December 31, 2020

Complete if your Category is Large Municipal Residential or Small Municipal Residential	**Complete for all other Categories.**
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 https://huronelginwater.ca/ Lake Huron Water Treatment Plant 71155 Bluewater Hwy. Grand Bend, ON	**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 [ ]**

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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 [X] No [ ]

Indicate how you notified system users that your annual report is available, and is free of charge.

- **[X] Public access/notice via the web**
- **[X] 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 _____**

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?

[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:

- Pipeline section replacement
- Instrumentation replacements
- Replacement of Uninterruptible Power Supply (UPS) and related breaker panels
- Backwash flow meter replacement
- Service water piping and valve replacement
- Garage door replacement

- Security upgrades
- Low lift pumps #2, #5, #6 motor replacements
- Caustic soda pipe replacements
- Caustic soda tank drain replacement
- Installed LED lighting and motion sensors
- Backwash check valve #1 and #4 replacements
- Surge tank relief valve vent piping replacement
- Pipeline chambers erosion control, rehabilitation and improvements
- Erosion control at the beach chamber
- Perimeter lighting upgrades
- Wastewater ejection pump system replacement
- Eyewash and shower stations replacements
- Interior door replacements
- Obsolete equipment removals
- Filter surface sweep replacements
- Envelope exterior sealants
- Low lift, suction and filter conduit sluice gate repairs
- Pipeline easement clearing
- Lab faucet replacements
- Railing replacements
- Flocculation gear drive rehabilitation

Maintenance Projects:

- Chlorine line repair for mussel control system
- Komoka-Mt.Brydges Pumping Station electrical breaker and cable replacements
- Low Lift pump #6 rebuild
- North filter conduit chlorine line repair

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
August 27, 2020 AWQI # 151596	Total Coliforms	1 Total Coliforms	CFU/ 100 mL	Resampled and tested. All resample results were clear.	August 27, 2020 and August 28, 2020

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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)-(11,900)	(<10)-(>1,180)
Treated Water (WTP)	294	(0)-(0)	(0)-(1)	(<10)-(1,620)
Distribution (McGillivray PS)	60	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (North Exeter)	57	(0)-(0)	(0)-(0)	(<10)-(30)
Distribution (South Exeter)	55	(0)-(0)	(0)-(0)	(<10)-(40)
Distribution (Exeter-Hensall Reservoir)	58	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (Komoka-Mt. Brydges PS)	56	(0)-(0)	(0)-(0)	(<10)-(50)

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	(0.66) – (1.93)
Treated Water Free Chlorine (mg/L)	2134	(0.83) - (1.58)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.024) – (2.00)
Treated Water Turbidity (NTU)	2136	(0.006) - (0.192)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.023) - (0.556)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.020) -(0.360)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.026) - (0.133)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022) - (0.719)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.023) - (0.451)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	**Out of Service
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.025) - (0.645)

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Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.020) - *(1.24)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) - (0.639)
Filter #10- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022) - (0.247)
Filter #11- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) - (0.982)
Filter #12- Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.017) - (0.622)
Combined Filtered Water Turbidity (NTU)	2135	(0.008) - (0.130)

* On January 21, 2020, Filter #8 turbidity went above 1.0 NTU. The filtered water turbidity was above 1.0 NTU for less than 30 seconds, therefore not reportable (not an adverse result).

** Filter #6 was out of service for all of 2020 due to required repairs.

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 16, 2020	0.00011	mg/L	NO
Arsenic	January 16, 2020	Not Detected	mg/L	NO
Barium	January 16, 2020	0.0129	mg/L	NO
Boron	January 16, 2020	0.014	mg/L	NO
Cadmium	January 16, 2020	0.000005	mg/L	NO
Chromium	January 16, 2020	0.00012	mg/L	NO
Lead (Komoka Mt-Brydges Monitoring Station #2)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	Not Detected 0.00001 0.00002 0.00001	mg/L mg/L mg/L mg/L	NO
Mercury	January 16, 2020	Not Detected	mg/L	NO
Selenium	January 16, 2020	0.00013	mg/L	NO
Sodium	January 16, 2020	13.8	mg/L	NO
Uranium	January 16, 2020	0.000028	mg/L	NO
Fluoride	January 16, 2020	0.07	mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Nitrite	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
Nitrate	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.297 0.655 0.293 0.287	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 16, 2020	Not Detected	mg/L	NO
Atrazine + N-dealkylated metabolites	January 16, 2020	0.00002	mg/L	NO
Azinphos-methyl	January 16, 2020	Not Detected	mg/L	NO
Benzene	January 16, 2020	Not Detected	mg/L	NO
Benzo(a)pyrene	January 16, 2020	Not Detected	mg/L	NO
Bromoxynil	January 16, 2020	Not Detected	mg/L	NO
Carbaryl	January 16, 2020	Not Detected	mg/L	NO
Carbofuran	January 16, 2020	Not Detected	mg/L	NO
Carbon Tetrachloride	January 16, 2020	Not Detected	mg/L	NO
Chlorpyrifos	January 16, 2020	Not Detected	mg/L	NO
Diazinon	January 16, 2020	Not Detected	mg/L	NO
Dicamba	January 16, 2020	Not Detected	mg/L	NO
1,2-Dichlorobenzene	January 16, 2020	Not Detected	mg/L	NO
1,4-Dichlorobenzene	January 16, 2020	Not Detected	mg/L	NO
1,2-Dichloroethane	January 16, 2020	Not Detected	mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 16, 2020	Not Detected	mg/L	NO
Dichloromethane	January 16, 2020	Not Detected	mg/L	NO
2-4 Dichlorophenol	January 16, 2020	Not Detected	mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 16, 2020	Not Detected	mg/L	NO
Diclofop-methyl	January 16, 2020	Not Detected	mg/L	NO
Dimethoate	January 16, 2020	Not Detected	mg/L	NO
Diquat	January 16, 2020	Not Detected	mg/L	NO
Diuron	January 16, 2020	Not Detected	mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Glyphosate	January 16, 2020	Not Detected	mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	Not Detected Not Detected 0.0063 0.0098	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Arva Reservoir) Running Annual Average	2020	0.0040	mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.0076 0.0183 0.0154 0.0178	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Exeter-Hensall Monitoring Station #3) Running Annual Average	2020	0.0148	mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	Not Detected 0.0131 0.0074 0.0166	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2020	0.0093	mg/L	NO
Haloacetic Acids (HAA's) (Strathroy-Caradoc Monitoring Station #2)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	Not Detected 0.0056 0.0077 0.0065	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (Strathroy-Caradoc Monitoring Station #2) Running Annual Average	2020	0.0050	mg/L	NO
Malathion	January 16, 2020	Not Detected	mg/L	NO
2-Methyl-4-chlorophenoxyacetic	January 16, 2020	Not Detected	mg/L	NO

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acid				
Metolachlor	January 16, 2020	0.00002	mg/L	NO
Metribuzin	January 16, 2020	Not Detected	mg/L	NO
Monochlorobenzene	January 16, 2020	Not Detected	mg/L	NO
Paraquat	January 16, 2020	Not Detected	mg/L	NO
Pentachlorophenol	January 16, 2020	Not Detected	mg/L	NO
Phorate	January 16, 2020	Not Detected	mg/L	NO
Picloram	January 16, 2020	Not Detected	mg/L	NO
Polychlorinated Biphenyls (PCB)	January 16, 2020	Not Detected	mg/L	NO
Prometryne	January 16, 2020	Not Detected	mg/L	NO
Simazine	January 16, 2020	Not Detected	mg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.015 0.022 0.024 0.026	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (THMs) (Arva Reservoir) Running Annual Average	2020	0.022	mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.028 0.034 0.038 0.053	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Exeter-Hensall Monitoring Station #3) Running Annual Average	2020	0.038	mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.019 0.027 0.031 0.035	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges Monitoring Station #2) Running Annual Average	2020	0.028	mg/L	NO
Total Trihalomethanes (Strathroy-Caradoc Monitoring Station #2)	January 14, 2020 April 2, 2020 July 17, 2020 October 19, 2020	0.017 0.024 0.029 0.030	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	2020	0.025	mg/L	NO
Terbufos	January 16, 2020	Not Detected	mg/L	NO
Tetrachloroethylene	January 16, 2020	Not Detected	mg/L	NO
2,3,4,6-Tetrachlorophenol	January 16, 2020	Not Detected	mg/L	NO
Triallate	January 16, 2020	Not Detected	mg/L	NO
Trichloroethylene	January 16, 2020	Not Detected	mg/L	NO
2,4,6-Trichlorophenol	January 16, 2020	Not Detected	mg/L	NO
Trifluralin	January 16, 2020	Not Detected	mg/L	NO
Vinyl Chloride	January 16, 2020	Not Detected	mg/L	NO

NOTE: During 2020, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.