



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 Category:	Large Municipal Residential
Period being reported:	January 1, 2012 through December 31, 2012

<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>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

Operating Authority

The operating authority from January 1, 2012 – June 30, 2012 was American Water Canada Corp.
The operating authority from July 1, 2012 – December 31, 2012 was Ontario Clean Water Agency.

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 sodium hydroxide addition 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
Dewatering polymer
Chlorine gas
Sodium Hydroxide
Sodium Hypochlorite

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:

- repair primary transmission main rupture (May 2012)
- primary transmission main (Pipeline A) leak detection and electromagnetic condition assessment
- begin construction of Lake Huron Residue Management Facility
- replaced air compressor at McGillivray Pumping Station
- new compressor controls
- generators and switchgear installation and commissioning
- caustic system upgrade
- High Lift Pumps #1&5 rebuild
- Low Lift Pump #4 rebuild

January 1, 2012 – June 30, 2012 (American Water Canada Corp.):

- Arva Reservoir cells #1, #2, and #4 drained, cleaned and inspected
- repairs to caustic pump #1
- installed new treated water sample line to the lab
- new flow meter installed at Komoka-Mt. Brydges Monitoring Station #1 (KM1)
- installation of caustic injector
- repair of backwash valve
- filters topped up with anthracite
- repair of chlorine line in filtered water conduit
- repaired alum fill connection line

July 1, 2012 – December 31, 2012 (Ontario Clean Water Agency):

- Condition assessments on all pumps, motors, valves, HVAC, electrical & structural aspects of the LHPWSS and all pump stations and reservoirs
- SCADA maintenance and upgrades
- Annual backup diesel generator maintenance
- Annual crane, slings & hoist maintenance
- Annual elevator maintenance
- Repairs to security camera system
- Drained, inspected and sampled filter media in filter #10
- Repairs, mechanical and electrical maintenance to high lift, low lift and backwash pumps

- Repairs to Flocc Drives
- Inspect and refurbish the centrifuges and sludge system
- Replace probes on Rosemount chlorine & pH analyzers
- Draining, inspections and maintenance on settling basins, flocc tanks, and flash mixers
- Electrical upgrades on sludge thickeners
- Maintenance and parts replacement on caustic system
- Replace flow meter and transmitter at Exeter-Hensall Monitoring Station #4 (EH-4)
- Replace PLC power supply, digital & analog input and output modules at Komoka-Mt. Brydges Monitoring Station #2 (KM-2)

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
American Water Reporting Period (January 1, 2012 – June 30, 2012)					
Feb. 3, 2012	Cadmium	0.0056	mg/L	Resampled and tested. Resample result was non-detect for cadmium. Frequency of sampling was increased to quarterly.	Feb. 3, 2012
OCWA Reporting Period (July 1, 2012 – December 31, 2012)					
Aug. 14, 2012	Total Coliforms	1	Count/100 mL	Resampled and tested. Resample result was non-detect for total coliform.	Aug. 15, 2012
Sep. 18, 2012	Free chlorine (distribution analyzer reading)	0.22	mg/L	Determined to be a faulty analyzer reading. Analyzer was flushed.	Sep. 18, 2012

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)-(50)	(0)-(6200)	(<10)-(1380)
Treated Water (WTP)	250	(0)-(0)	(0)-(0)	(<10)-(>2000)
Distribution (Arva Reservoir)	2	(0)-(0)	(0)-(0)	(<10)-(<10)
Distribution (McGillivray PS)	54	(0)-(0)	(0)-(0)	(<10)-(70)
Distribution (North Exeter)	52	(0)-(0)	(0)-(1)	(<10)-(320)
Distribution (South Exeter)	51	(0)-(0)	(0)-(0)	(<10)-(500)
Distribution (Exeter-Hensall Reservoir)	53	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (Komoka-Mt. Brydges)	54	(0)-(0)	(0)-(0)	(<10)-(410)

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	(0.29) – (2.00)
	2146	(0.80) – (1.73)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.004) – (0.954)
	2147	(<0.001) – (0.10)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.005) – (1.068)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.004) – (2.000)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022) – (0.440)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018) – (2.000)
Filter #5 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022) – (0.497)
Filter #6 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.006) – (2.000)
Filter #7 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.018) – (0.759)
Filter #8 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.010) – (2.000)
Filter #9 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.019) – (0.568)
Filter #10 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.004) – (2.000)
Filter #11 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.013) – (1.540)
Filter #12 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012) – (0.258)

***NOTE:** There were several instances in 2012 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 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 26, 2012	0.0012	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Arsenic	January 26, 2012	Not Detected	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Barium	January 26, 2012	0.014	mg/L	NO
	February 3, 2012	0.013	mg/L	
Boron	January 26, 2012	0.01	mg/L	NO
	February 3, 2012	0.01	mg/L	
Cadmium	January 26, 2012	Not Detected	mg/L	NO
	January 31, 2012	0.0056	mg/L	YES
	February 3, 2012	Not Detected	mg/L	NO
	April 16, 2012	Not Detected	mg/L	NO
	July 17, 2012	Not Detected	mg/L	NO
	November 28, 2012	Not Detected	mg/L	NO
Chromium	January 26, 2012	Not Detected	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Lead	January 26, 2012	Not Detected	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Mercury	January 26, 2012	Not Detected	mg/L	NO
Selenium	January 26, 2012	Not Detected	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Sodium	January 26, 2012	13	mg/L	NO
	February 3, 2012	13	mg/L	

Uranium	January 26, 2012	0.0001	mg/L	NO
	February 3, 2012	Not Detected	mg/L	
Fluoride	January 26, 2012	Not Tested	mg/L	---
Nitrite	January 26, 2012	Not Detected	mg/L	NO
	April 16, 2012	Not Detected	mg/L	
	July 17, 2012	Not Detected	mg/L	
	October 31, 2012	Not Detected	mg/L	
Nitrate	January 26, 2012	0.7	mg/L	NO
	April 16, 2012	0.78	mg/L	
	July 17, 2012	0.295	mg/L	
	October 31, 2012	0.250	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 26, 2012	Not Detected	µg/L	NO
Aldicarb	January 26, 2012	Not Detected	µg/L	NO
Aldrin + Dieldrin	January 26, 2012	Not Detected	µg/L	NO
Atrazine + N-dealkylated metabolites	January 26, 2012	Not Detected	µg/L	NO
Azinphos-methyl	January 26, 2012	Not Detected	µg/L	NO
Bendiocarb	January 26, 2012	Not Detected	µg/L	NO
Benzene	January 26, 2012	Not Detected	µg/L	NO
Benzo(a)pyrene	January 26, 2012	Not Detected	µg/L	NO
Bromoxynil	January 26, 2012	Not Detected	µg/L	NO
Carbaryl	January 26, 2012	Not Detected	µg/L	NO
Carbofuran	January 26, 2012	Not Detected	µg/L	NO
Carbon Tetrachloride	January 26, 2012	Not Detected	µg/L	NO
Chlordane (Total)	January 26, 2012	Not Detected	µg/L	NO
Chlorpyrifos	January 26, 2012	Not Detected	µg/L	NO
Cyanazine	January 26, 2012	Not Detected	µg/L	NO
Diazinon	January 26, 2012	Not Detected	µg/L	NO
Dicamba	January 26, 2012	Not Detected	µg/L	NO
1,2-Dichlorobenzene	January 26, 2012	Not Detected	µg/L	NO
1,4-Dichlorobenzene	January 26, 2012	Not Detected	µg/L	NO
Dichlorodiphenyltrichloroethane (DDT) + metabolites	January 26, 2012	Not Detected	µg/L	NO
1,2-Dichloroethane	January 26, 2012	Not Detected	µg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 26, 2012	Not Detected	µg/L	NO
Dichloromethane	January 26, 2012	Not Detected	µg/L	NO
2-4 Dichlorophenol	January 26, 2012	Not Detected	µg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 26, 2012	Not Detected	µg/L	NO
Diclofop-methyl	January 26, 2012	Not Detected	µg/L	NO
Dimethoate	January 26, 2012	Not Detected	µg/L	NO
Dinoseb	January 26, 2012	Not Detected	µg/L	NO
Diquat	January 26, 2012	Not Detected	µg/L	NO
Diuron	January 26, 2012	Not Detected	µg/L	NO
Glyphosate	January 26, 2012	Not Detected	µg/L	NO

Heptachlor + Heptachlor Epoxide	January 26, 2012	Not Detected	µg/L	NO
Lindane (Total)	January 26, 2012	Not Detected	µg/L	NO
Malathion	January 26, 2012	Not Detected	µg/L	NO
Methoxychlor	January 26, 2012	Not Detected	µg/L	NO
Metolachlor	January 26, 2012	Not Detected	µg/L	NO
Metribuzin	January 26, 2012	Not Detected	µg/L	NO
Monochlorobenzene	January 26, 2012	Not Detected	µg/L	NO
Paraquat	January 26, 2012	Not Detected	µg/L	NO
Parathion	January 26, 2012	Not Detected	µg/L	NO
Pentachlorophenol	January 26, 2012	Not Detected	µg/L	NO
Phorate	January 26, 2012	Not Detected	µg/L	NO
Picloram	January 26, 2012	Not Detected	µg/L	NO
Polychlorinated Biphenyls (PCB)	January 26, 2012	Not Detected	µg/L	NO
Prometryne	January 26, 2012	Not Detected	µg/L	NO
Simazine	January 26, 2012	Not Detected	µg/L	NO
Total Trihalomethanes (Arva Reservoir)	January 27, 2012 April 16, 2012 July 17, 2012 October 31, 2012	14.2 19.7 29 16	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (Exeter-Hensall MS3)	January 27, 2012 April 16, 2012 July 17, 2012 October 31, 2012	23.8 32.5 38 29	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (Komoka Mt-Brydges KM2)	January 27, 2012 April 16, 2012 July 17, 2012 October 31, 2012	18.3 25.3 32 21	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (Strathroy-Caradoc MS2)	January 27, 2012 April 16, 2012 July 17, 2012 October 31, 2012	15.4 20.9 33 19	µg/L µg/L µg/L µg/L	NO
Temephos	January 26, 2012	Not Detected	µg/L	NO
Terbufos	January 26, 2012	Not Detected	µg/L	NO
Tetrachloroethylene	January 26, 2012	Not Detected	µg/L	NO
2,3,4,6-Tetrachlorophenol	January 26, 2012	Not Detected	µg/L	NO
Triallate	January 26, 2012	Not Detected	µg/L	NO
Trichloroethylene	January 26, 2012	Not Detected	µg/L	NO
2,4,6-Trichlorophenol	January 26, 2012	Not Detected	µg/L	NO
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	January 26, 2012	Not Detected	µg/L	NO
Trifluralin	January 26, 2012	Not Detected	µg/L	NO
Vinyl Chloride	January 26, 2012	Not Detected	µg/L	NO

NOTE: During 2012, one (1) test result for cadmium exceeded the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169). As a result, the frequency of sampling and testing for this parameter was increased as required by O.Reg. 170.