Drinking-Water System Number:	**210000906**
Drinking-Water System Name:	Lambton Area Water Supply System
Drinking-Water System Owner:	Lambton Area Water Supply System Joint Board of Management
Drinking-Water System Category:	Large Municipal Residential System
Period being reported:	January 1, 2015 to December 31, 2015

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 [ ]** **The report is available at:** **www.lawss.org**	**Number of Designated Facilities served:** N/A **Did you provide a copy of your annual report to all Designated Facilities you serve?** **Yes [ ] No [X]** **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 [X]**

Locations where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Lambton Area Water Supply System
1215 Fort St. Sarnia, ON
N7V 1M1
519-344-7429

Sarnia City Hall
255 N Christina St. Sarnia, ON
N7T 7N2
519-332-0330

Village of Point Edward Municipal Office
135 Kendall St. Pt. Edward, ON
N7M 4G6
519-337-3021

St. Clair Civic Centre
1155 Emily St. Mooretown, ON
N0N 1M0
519-867-2021

Town Of Plympton-Wyoming Municipal Office
546 Niagara St. Wyoming, ON
N0N 1T0
519-845-3939

Township of Warwick Municipal Office
6332 Nauvoo Rd. Watford, ON
N0M 2S0
519-849-3926

Lambton Shores Municipal Office
19 Ann St. Forest, ON
N0N 1J0
519-786-2335

Township of Brooke-Alvinston Municipal Office
3234 River St. P.O. Box 28 Alvinston, ON
N0N 1A0
519-898-2173

This list shows all the Drinking-Water Systems, which receive all of their drinking water from the Lambton Area Water Supply System:

Drinking Water System Name	Drinking Water System Number
Sarnia Distribution System	260003136
Village of Point Edward Distribution System	210000924
St. Clair Distribution System	260006464
Plympton-Wyoming Distribution System	260006594
Township of Warwick Distribution System	260001799
Alvinston Distribution System	260040170
Corporation of the Municipality of Lambton Shores Distribution System (receives only some of their water from LAWSS)	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

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Description of the Lambton Area Water Supply System

The Lambton Area Water Supply System (LAWSS) is a direct filtration facility with a maximum rated capacity of 181,844 m³/day. The Water Treatment Plant (WTP) uses chemically assisted filtration with disinfection. The facility consists of an intake system, a low lift pumping system, a treatment system and distribution pumping system that supplies water to seven different drinking water systems. Water is drawn into the plant (a zebra mussel chemical control system is available when needed) via a 1675 mm intake pipe, located approximately 100 m into the St. Clair River at a depth of 15 m. The water passes through travelling screens prior to entering the surge wells and pre-disinfection is utilized. Water flows to the low lift pump wet wells where a total of 4 vertical turbine pumps are located and used as needed. The water is then pumped to a common discharge header where a coagulant is added and then flash mixed. Powdered activated carbon (PAC) is also applied at this location when needed to control taste and odor problems. The water is then flocculated with polymer being added to the flocculation trains when needed. Water from the flocculators is then sent to be filtered by dual media filters (10 filters in total). The filter effluents combine into two clearwells via gravity where sodium hypochlorite is added. To increase the chlorine contact time, the treated water is diverted to two baffled reservoirs (in series with total capacity of 67460 m³). The water is fluoridated upon exiting the reservoirs. Six vertical turbine pumps are available for supplying water to the distribution system. The water treatment process and distribution components are controlled by a dedicated supervisory control and data acquisition (SCADA) computer system and are monitored by a certified operator 24 hours a day. Emergency generators powered by diesel are available at the WTP to keep the plant in operation should a power failure occur. The utility serves a large part of Lambton County and has about 250 km of water main of various size and materials. The LAWSS distribution system has three standpipes and one elevated tower. The East Lambton Booster Station has a water storage capacity of 9,000 m³ and the West Lambton Pumping Station has 90,000 m³ of water storage capacity. The booster stations are controlled and monitored from the WTP via the SCADA system. Backwash from the dual media filters is treated using a high rate clarification process (ACTIFLOW). The clarified water is dechlorinated and then discharged to the St. Clair River and the settled material is sent to the Sarnia Water Pollution Control Plant for final treatment and disposal. This system is referred to as the Residual Management System.

Emergency Water Line connections exist between the LAWSS system and the following drinking water systems to provide water to either system in case of emergencies:

Chatham-Kent: A connection exists at Whitebread Line and Highway #40
Petrolia: A connection exists at Confederation Line and Ploughing Match Rd.
Lambton Shores: A connection exists at Lakeshore Rd. and the Northwest corner of Ravenswood Rd.

The following is a list of all water treatment chemicals used over this reporting period

Sodium Hypochlorite: Pre and post disinfection
Hydrofluosilicic Acid: Fluoridation
Clar+Ion A7: Coagulation
Powdered Activated Carbon: Taste and Odor (when required)
Polymer 8103+: Filter/Coagulant aid (when required)
Polymer Zetag 4120: Residual Management System coagulant
Sodium Bisulfite: Residual Management System dechlorination system

Note: All water treatment chemicals are NSF/ANSI approved and certified.

There were significant expenses incurred to the following.

- **[X]** Install required equipment
- **[X]** Repair required equipment
- **[X]** Replace required equipment

The following is a brief description and a breakdown of monetary expenses incurred.

SCADA Replacement	$63,814
HVAC Replacement in Administration Area	$250,539
Polymer System Replacement	$119,284
Magnetic flow meter installation	$260,712
Hydrant Painting	$8,800
30” valve replacement at Indian and Confederation	$13,979
Valve replacement in Wyoming Meter Pit	$9,479
Wastewater Pump	$6,917
Rebuild filter actuators	$22,846
Circuit Breaker replacement	$26,722
Flow transmitters for filters	$15,979
Pressure transmitters for filters	$15,979
Streaming current meter and Sludge Analyzer	$24,388
Filter wash valve and actuator replacement	$41,124
Cathodic protection for South WLPS reservoir	$43,475
Civil work on chambers and air valve replacement	$21,414
36” emergency repair on LaSalle Line	$442,950
London Line Chamber Bypass	$36,369

The following are 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
Apr 23, 2015	Coagulant pump failure	0 flow	L/sec	Started backup pump, flushed non-coagulated water, filter to waste all 10 filters for 5 minutes	Apr 23

The below table shows 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 Or Fecal Results (min #) - (max #) Units: cfu /100 mL	Range of Total Coliform Results (min #)- (max #) Units: cfu /100 mL	Range of Background Results (min #)- (max #) Units: cfu /100 mL	Range of HPC Results (min #)- (max #) Units: cfu /100 mL
Raw	52	0-10	0-23	0-2800	N/A
Treated	52	0-0	0-0	0-5	<10-50

The table below shows operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	**8760**	**0.01-4.08**	**NTU**
Chlorine	**8760**	**0.99-1.72**	**mg/L**
Fluoride	**8760**	**0.01-0.89**	**mg/L**

Notes: Turbidity is measured on each filter effluent line at a frequency greater than is required under O. Reg 170/03 Schedule 6-5.

The table below is a summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument. The three parameters on this list are a requirement for the Residual Management System.

Date of legal instrument issued	Parameter	Result Range	Unit of Measure
November 13, 2006	Total Suspended Solids	<2-31	mg/L
November 13, 2006	Aluminum	0.145-0.24	mg/L
November 13, 2006	Total Chlorine Residual	0-0	mg/L

The table below is a summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Feb 25, 2015	0.14	ppb	No
Arsenic	Feb 25, 2015	0.4	ppb	No
Barium	Feb 25, 2015	15.3	ppb	No
Boron	Feb 25, 2015	18.6	ppb	No
Cadmium	Feb 25, 2015	0.005	ppb	No
Chromium	Feb 25, 2015	0.14	ppb	No
Mercury	Feb 25, 2015	<0.01	ppb	No
Selenium	Feb 25, 2015	<1.0	ppb	No
Sodium	Apr 27, 2015	5.90	mg/L	No
Uranium	Feb 25, 2015	0.155	ppb	No
Nitrite	Nov. 9, 2015	<.003	mg/L	No
Nitrate	Nov. 9, 2015	0.259	mg/L	No

The chart above is only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

The table below is a summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems**,** small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	**-**	**-**	**-**	**-**
Distribution	44	0.01-1.29	ppb	0

Note: The above results are for the total system that OCWA/LAWSS provide water to with the exception of Lambton Shores (samples done by OMI). Local results can be obtained by contacting the local municipal office.

The below table is a summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Feb 25, 2015	**<0.02**	**ppb**	No
Aldicarb	Feb 25, 2015	**<0.01**	**ppb**	No
Aldrin + Dieldrin	Feb 25, 2015	**<0.01**	**ppb**	No
Atrazine + N-dealkylated metobolites	Feb 25, 2015	**0.02**	**ppb**	No
Azinphos-methyl	Feb 25, 2015	**<0.02**	**ppb**	No
Bendiocarb	Feb 25, 2015	**<0.01**	**ppb**	No
Benzene	Feb 25, 2015	**<0.32**	**ppb**	No
Benzo(a)pyrene	Feb 25, 2015	**<0.004**	**ppb**	No
Bromoxynil	Feb 25, 2015	**<0.33**	**ppb**	No
Carbaryl	Feb 25, 2015	**<0.01**	**ppb**	No
Carbofuran	Feb 25, 2015	**<0.01**	**ppb**	No
Carbon Tetrachloride	Feb 25, 2015	**<0.16**	**ppb**	No
Chlordane (Total)	Feb 25, 2015	**<0.01**	**ppb**	No
Chlorpyrifos	Feb 25, 2015	**<0.02**	**ppb**	No
Cyanazine	Feb 25, 2015	**<0.03**	**ppb**	No
Diazinon	Feb 25, 2015	**<0.02**	**ppb**	No
Dicamba	Feb 25, 2015	**<0.2**	**ppb**	No
1,2-Dichlorobenzene	Feb 25, 2015	**<0.41**	**ppb**	No
1,4-Dichlorobenzene	Feb 25, 2015	**<0.36**	**ppb**	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Feb 25, 2015	**<0.01**	**ppb**	No
1,2-Dichloroethane	Feb 25, 2015	**<0.35**	**ppb**	No
1,1-Dichloroethylene (vinylidene chloride)	Feb 25, 2015	**<0.33**	**ppb**	No

Dichloromethane	Feb 25, 2015	**<0.35**	**ppb**	No
2-4 Dichlorophenol	Feb 25, 2015	**<0.15**	**ppb**	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 25, 2015	**<0.19**	**ppb**	No
Diclofop-methyl	Feb 25, 2015	**<0.4**	**ppb**	No
Dimethoate	Feb 25, 2015	**<0.03**	**ppb**	No
Dinoseb	Feb 25, 2015	**<0.36**	**ppb**	No
Diquat	Feb 25, 2015	**<1.0**	**ppb**	No
Diuron	Feb 25, 2015	**<0.03**	**ppb**	No
Glyphosate	Feb 25, 2015	**<1.0**	**ppb**	No
Heptachlor + Heptachlor Epoxide	Feb 25, 2015	**<0.01**	**ppb**	No
Lindane (Total)	Feb 25, 2015	**<0.01**	**ppb**	No
Malathion	Feb 25, 2015	**<0.02**	**ppb**	No
Methoxychlor	Feb 25, 2015	**<0.01**	**ppb**	No
Metolachlor	Feb 25, 2015	**<0.01**	**ppb**	No
Metribuzin	Feb 25, 2015	**<0.02**	**ppb**	No
Monochlorobenzene	Feb 25, 2015	**<0.3**	**ppb**	No
Paraquat	Feb 25, 2015	**<1.0**	**ppb**	No
Parathion	Feb 25, 2015	**<0.02**	**ppb**	No
Pentachlorophenol	Feb 25, 2015	**<0.15**	**ppb**	No
Phorate	Feb 25, 2015	**<0.01**	**ppb**	No
Picloram	Feb 25, 2015	**<1.0**	**ppb**	No
Polychlorinated Biphenyls(PCB)	Feb 25, 2015	**<0.04**	**ppb**	No
Prometryne	Feb 25, 2015	**<0.03**	**ppb**	No
Simazine	Feb 25, 2015	**<0.01**	**ppb**	No
THM (NOTE: show latest annual average)		**30.06**	**ppb**	No
Temephos	Feb 25, 2015	**<0.01**	**ppb**	No
Terbufos	Feb 25, 2015	**<0.01**	**ppb**	No
Tetrachloroethylene	Feb 25, 2015	**<0.35**	**ppb**	No
2,3,4,6-Tetrachlorophenol	Feb 25, 2015	**<0.2**	**ppb**	No
Triallate	Feb 25, 2015	**<0.01**	**ppb**	No
Trichloroethylene	Feb 25, 2015	**<0.44**	**ppb**	No
2,4,6-Trichlorophenol	Feb 25, 2015	**<0.25**	**ppb**	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Feb 25, 2015	**<0.22**	**ppb**	No
Trifluralin	Feb 25, 2015	**<0.02**	**ppb**	No
Vinyl Chloride	Feb 25, 2015	**<0.17**	**ppb**	No

Below is a list of any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
N/A			