ANNUAL REPORT

Drinking-Water System Number:	210000906
Drinking-Water System Name:	Lambton Area Water Supply System
Drinking-Water System Owner:	Lambton Area Water Supply System
Drinking-Water System Category:	Large Municipal Residential System
Period being reported:	January 1, 2010 to December 31, 2010

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [✓] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [✓] No [ ]
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

www.lawss.org
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
3236 River St. P.O. Box 28 Alvinston, ON N0N 1A0
519-898-2173

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ] N/A[✓]

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 [ ] N/A [✓]

The following is a list of all Drinking-Water Systems which receive all (or some) of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
City of Sarnia Distribution System (receives SOME of their drinking water from Enniskillen System)	260003136
Village of Point Edward Distribution System	210000924
Township of St. Clair Distribution System	260006464
Town of Plympton –Wyoming Distribution System	260006594
Township of Warwick Distribution System	260001799
Lambton Shores Distribution System (receives SOME of their drinking water from this system)	260006594
Township of Brooke-Alvinston Distribution System (receives SOME of their drinking water from Enniskillen System)	260040170

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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Describe your Drinking-Water System

***Water Treatment Plant*:**

The Lambton Area Water Supply System (LAWSS) is a direct filtration facility with a maximum rated capacity of 181,844 m^3/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 drinking water systems. Water is drawn into the plant (a zebra mussel chemical control system is available as 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 coagulant is added and flashed mixed. Powdered activated carbon (PAC) is also applied at this location when needed for taste and odour. The water is than flocculated with polymer being added at the flocculation trains as needed. Water from the flocculators is then sent to be filtered in dual media filters (10 in total). The filter effluents combine into two clearwells via gravity and sodium hypochlorite is added. To increase the contact time, the treated water is diverted to two baffled reservoirs (in series). 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 monitored by certified operators 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 over 200 kilometres of pipeline of various sizes 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 m^3 and the West Lambton Pumping Station has 90,000 m^3 of water storage capacity. The booster stations are controlled and monitored from the Lambton WTP via the SCADA system. Backwash from the dual media filters is treated using a high rate clarification process (ACTIFLO) The clarified water is discharged to the St. Clair River and the settled solid/liquid mixture 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 LAWSS and the following drinking water systems:

Chatham-Kent - A connection exists at Whitebread Line and Highway #40

Petrolia - A connection exists at Confederation Line and Ploughing Match Rd.

Grand Bend - A connection exists at Lakeshore Rd. and the northwest corner of Ipperwash Rd.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite - disinfection

Hydrofluosilicic Acid - fluoridation

Clar+Ion A7 (Aluminum Sulphate) - coagulation

Powder Activated Carbon - taste and odor (when required)

Polymer 8103+ - filter aid (when required)

Sodium Bisulfite - dechlorination for Residual Management System

Note: all water treatment chemicals are NSF/ANSI approved

Were any significant expenses incurred to?

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

Below is a brief description and a breakdown of monetary expenses incurred

Repair 36 inch CPP water main on LaSalle Road	$555,000
Filter rebuild and sweep maintenance	$100,000
ELPS Corrosion painting	$ 30,000
Filter 7 and 9 Sluice gate replacement	$ 69,000
ELPS Pump Control Valve work	$ 46,700
ELPS Facility Work	$ 22,500
Main Plant PLC upgrade	$165,000
Level, Turbidity, UPS equipment replacements	$173,000
Misc Distribution System repairs (OM)	$250,000

The following are 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
Jan. 8, 2010	Fluoride	1.5-1.77	mg/L	Hydrofluorosilicic acid metering pump was shut down until the 4-20 mA DC signal issues were resolved	Jan. 8 2010
July 27, 2010	Other Observations: Low Pressure	80	kPa	Pressure restored by opening valve (Valve failure in distribution system- controller module fault was corrected)	July 27, 2010
Aug. 27, 2010	Other observations: Partially untreated water (ruptured coagulant line)reached clearwell			Plant low lift shut down, (isolated partially untreated water from clearwell) Repaired coagulant line. Flushed/drained partially untreated water to waste. Disinfectant increased.	Aug 27, 2010

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

Water Type	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number Of Background Samples	Range of Background Results (min#-max#)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	0-10fu/100mL	0-130cfu/100mL	52	0-7200cfu/100mL		
Treated	52	0-0cfu/100mL	0-0cfu/100mL	52	0-11cfu/100mL	52	<10-100cfu/1mL

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 #)
Turbidity	8760	0.02-1.37 NTU
Chlorine	8760	1.34-2.35 mg/L
Chlorine (distribution)	8760	0.79-2.00 mg/L
Fluoride (If the DWS provides fluoridation)	8760	0.22-1.77 mg/L

Notes: The fluoridation system was out of service due to maintenance on Jan. 8 &12, 2010 and March 4, 2010. Turbidity is measured on each filter effluent line (10 filters) at a frequency greater than is required under O. Reg 170/03 Schedule 6-5. It should be noted that no filter effluent turbidity exceeded the prescribed test result for adverse reporting under Schedule 16-3.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument. The following list of parameters are tested on the Residual Management System's water discharge to the St. Clair River (commissioned on November 13, 2006)

Date Sampled	Parameter	Sample Type	Result min-max	Unit of Measure
*Jan –Dec/10	Total Suspended Solids	Monthly composite	<2-10	mg/L
*Jan –Dec/10	Aluminum	Monthly composite	0.023-0.150	mg/L
*Jan –Dec/10	(Total)Chlorine Residual	Monthly grab	0-0	mg/L

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	*Jan –Aug/10	<0.02-0.31	ppb	No
Arsenic	*Jan –Aug/10	0.2-0.5	ppb	No
Barium	*Jan –Aug/10	13.6-14.1	ppb	No
Boron	*Jan –Aug/10	14.6-18.9	ppb	No
Cadmium	*Jan –Aug/10	<0.003	ppb	No
Chromium	*Jan –Aug/10	0.7-0.8	ppb	No
Mercury	*Jan –Aug/10	<0.02	ppb	No
Selenium	*Jan –Aug/10	<1	ppb	No
Sodium	*Jan –Aug/10	5.67-6.09	mg/L	No
Uranium	*Jan –Aug/10	.131-.175	ppb	No
Nitrite	*Jan –Dec/10	< 0.005	mg/L	No
Nitrate	*Jan –Aug/10	0.256-0.308	mg/L	No

***Note: Inorganic parameters were tested tri-annually, with the exception of nitrites/nitrates which were tested quarterly. If a parameter was detectable the range of detection has been provided and reported in the table above. For interpretation purposes the less than sign (<) indicates the parameter was not detectable at the method detection limit.**

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 #)	Number of Exceedances
Plumbing			
Distribution			

Note: Lead samples were collected in the municipal drinking water system that receives water from the Lambton Area Water Supply System. The local municipal office should be contacted for lead results.

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	*Jan –Aug/10	< 0.11	ppb	No
Aldicarb	*Jan –Aug/10	< 0.30	ppb	No
Aldrin + Dieldrin	*Jan –Aug/10	< 0.067	ppb	No
Atrazine + N-dealkylated metobolites	*Jan –Aug/10	< 0.12	ppb	No
Azinphos-methyl	*Jan –Aug/10	< 0.21	ppb	No
Bendiocarb	*Jan –Aug/10	< 0.13	ppb	No
Benzene	*Jan –Aug/10	< 0.32	ppb	No
Benzo(a)pyrene	*Jan –Aug/10	< 0.004	ppb	No
Bromoxynil	*Jan –Aug/10	< 0.33	ppb	No
Carbaryl	*Jan –Aug/10	<0.16	ppb	No
Carbofuran	*Jan –Aug/10	< 0.37	ppb	No
Carbon Tetrachloride	*Jan –Aug/10	< 0.16	ppb	No
Chlordane (Total)	*Jan –Aug/10	< 0.11	ppb	No
Chlorpyrifos	*Jan –Aug/10	< 0.18	ppb	No
Cyanazine	*Jan –Aug/10	< 0.18	ppb	No
Diazinon	*Jan –Aug/10	< 0.081	ppb	No
Dicamba	*Jan –Aug/10	< 0.2	ppb	No
1,2-Dichlorobenzene	*Jan –Aug/10	< 0.41	ppb	No
1,4-Dichlorobenzene	*Jan –Aug/10	< 0.36	ppb	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	*Jan –Aug/10	< 0.14	ppb	No
1,2-Dichloroethane	*Jan –Aug/10	< 0.35	ppb	No
1,1-Dichloroethylene (vinylidene chloride)	*Jan –Aug/10	< 0.33	ppb	No
Dichloromethane	*Jan –Aug/10	< 0.35	ppb	No
2-4 Dichlorophenol	*Jan –Aug/10	< 0.15	ppb	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	*Jan –Aug/10	< 0.19	ppb	No
Diclofop-methyl	*Jan –Aug/10	< 0.4	ppb	No
Dimethoate	*Jan –Aug/10	< 0.12	ppb	No
Dinoseb	*Jan –Aug/10	< 0.36	ppb	No
Diquat	*Jan –Aug/10	< 1.0	ppb	No
Diuron	*Jan –Aug/10	< 0.087	ppb	No
Glyphosate	*Jan –Aug/10	< 6	ppb	No
Heptachlor + Heptachlor Epoxide	*Jan –Aug/10	< 0.11	ppb	No
Lindane (Total)	*Jan –Aug/10	< 0.056	ppb	No

Malathion	*Jan –Aug/10	< 0.91	ppb	No
Methoxychlor	*Jan –Aug/10	< 0.14	ppb	No
Metolachlor	*Jan –Aug/10	< 0.092	ppb	No
Metribuzin	*Jan –Aug/10	< 0.12	ppb	No
Monochlorobenzene	*Jan –Aug/10	< 0.3	ppb	No
Paraquat	*Jan –Aug/10	< 1	ppb	No
Parathion	*Jan –Aug/10	< 0.18	ppb	No
Pentachlorophenol	*Jan –Aug/10	< 0.15	ppb	No
Phorate	*Jan –Aug/10	< 0.11	ppb	No
Picloram	*Jan –Aug/10	< 0.25	ppb	No
Polychlorinated Biphenyls(PCB)	*Jan –Aug/10	< 0.04	ppb	No
Prometryne	*Jan –Aug/10	< 0.23	ppb	No
Simazine	*Jan –Aug/10	< 0.15	ppb	No
THM (NOTE: show latest annual average)	*Jan –Dec/10	38	ppb	No
Temephos	*Jan –Aug/10	< 0.31	ppb	No
Terbufos	*Jan –Aug/10	< 0.12	ppb	No
Tetrachloroethylene	*Jan –Aug/10	< 0.35	ppb	No
2,3,4,6-Tetrachlorophenol	*Jan –Aug/10	< 0.14	ppb	No
Triallate	*Jan –Aug/10	< 0.1	ppb	No
Trichloroethylene	*Jan –Aug/10	< 0.43	ppb	No
2,4,6-Trichlorophenol	*Jan –Aug/10	< 0.25	ppb	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	*Jan –Aug/10	< 0.22	ppb	No
Trifluralin	*Jan –Aug/10	< 0.12	ppb	No
Vinyl Chloride	*Jan –Aug/10	< 0.17	ppb	No

***Note: All Organic parameters were tested tri-annually except THM's which were tested quarterly. If a parameter was/is detectable the range of detection has been provided and reported in the table above. Also: for interpretation purposes the less than sign (<) indicates the parameter was not detectable at the method detection limit.**

Note: *No inorganic or organic parameters exceeded half the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards*