Ontario Clean Water Agency
Agence Ontarienne Des Eaux

LAWSS
Lambton Area Water Supply System

Annual Summary Report

Lambton Area Water Supply System

2013

Prepared for the Lambton Area Water Supply System Board

By the Ontario Clean Water Agency

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SECTION 1

Statement of Compliance

This report is a summary of water quality information for the Lambton Area Water Supply System and published in accordance with Schedule 22 of Ontario's Safe Drinking Water Act, Ontario Regulation 170/03 for the reporting period of January 1, 2013 to December 31, 2013. The Lambton Area Water Supply System is categorized as a Large Municipal Residential Drinking Water System.

This report was prepared by the Ontario Clean Water Agency on behalf of the Lambton Area Water Supply System Board.

The Lambton Area Water Supply System was operated and maintained in such a manner that the water supplied to the consumers serviced by the system satisfied all the requirements in the Safe Drinking Water Act, the Certificate of Approval and the Municipal Drinking Water Licence. There were no adverse water quality events or non-compliance issues.

SECTION 2

Details of the non-compliance issues as well as how and when any non-compliance issues were corrected

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Notice of Resolution

SECTION 3

Summary and discussion of quantity of water supplied

In accordance with Schedule 22-2 (3) *"the report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system."*

1. *A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows and daily instantaneous peak flow rate.*

2. *A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval must be discussed.*

The rated capacity specified in the Municipal Drinking Water Licence (Licence Number: 020-101) for the Lambton Area Water Supply System is 181,844 m^3/day. The maximum treated daily flow for the reporting period was 83665 m^3/day on July 19, 2013. The rated capacity from the Municipal Drinking Water Licence was not exceeded.

The Permit to Take Water (Number 3657-7DJL86) states the maximum amount of water taken is 182,000,000 L/Day. The maximum amount of raw water taken in 2013 was 85,230,000 L on August 22, 2013. The Permit to Take Water limit was not exceeded.

Attached in Appendix A, are the average daily volume (m^3), the maximum daily volume (m^3) and the peak daily flow rate (L/sec). Also noted is the % of Design Volume for each.

The quantity of water supplied during the reporting period did not exceed the rated capacity of this facility.

Appendix A

Lambton Area Water Supply System Annual Volume Record for 2013

Design Treated Flows: 182,000 m³/day

Month	Average Daily Volume (m³)	% of Design Volume	Maximum Daily Volume (m³)	% of Design Volume	Peak Daily Rate (L/sec)	% of Design Rate of 2104 L/sec
January	46213	25.3	53972	29.7	1046.3	49.7
February	46809	25.7	61787	33.9	749.1	35.6
March	47228	25.9	51887	28.5	802.5	48.1
April	55643	30.6	72904	40.0	1133.6	53.9
May	58610	32.2	72756	40.0	1094.9	52.0
June	61760	33.9	81250	44.6	1130.9	53.8
July	66477	36.5	83665	46.0	1176.7	55.9
August	66328	36.4	82794	45.5	1190.6	56.6
September	58911	32.3	74684	41.0	1149.2	54.6
October	53073	29.2	61784	33.9	1230.5	58.5
November	45172	24.8	53942	29.6	817.8	38.9
December	46311	25.4	49147	27.0	957.2	45.5

Permit to Take Water Max Flow (Raw Water): 182,000 m³/day

Month	Average Daily Volume (m³)	% of Permit Volume	Maximum Daily Volume (m³)	% of Permit Volume	Peak Daily Rate (L/sec)	% of Permit Rate of 2106 L/sec
January	47060	25.9	52697	29.0	609.9	29.0
February	47123	25.9	60669	33.3	702.2	33.3
March	47704	26.2	56824	31.2	657.7	31.2
April	57624	31.7	81721	44.9	945.8	44.9
May	59924	32.9	73760	40.5	853.7	40.5
June	62525	34.3	84537	46.4	978.4	46.5
July	67305	37.0	83591	45.9	967.5	45.9
August	66058	36.3	85230	46.8	986.5	46.8
September	58465	32.1	76237	41.9	882.4	41.9
October	53681	29.4	65273	35.9	755.4	35.9
November	46637	25.6	55998	30.7	648.1	30.1
December	47868	26.3	54506	29.9	630.9	30.0

Parathion	Feb 27, 2013	**<0.02**	**ppb**	No
Pentachlorophenol	Feb 27, 2013	**<0.15**	**ppb**	No
Phorate	Feb 27, 2013	**<0.01**	**ppb**	No
Picloram	Feb 27, 2013	**<1.0**	**ppb**	No
Polychlorinated Biphenyls(PCB)	Feb 27, 2013	**<0.04**	**ppb**	No
Prometryne	Feb 27, 2013	**<0.03**	**ppb**	No
Simazine	Feb 27, 2013	**<0.01**	**ppb**	No
THM (NOTE: show latest annual average)		**34.0**	**ppb**	No
Temephos	Feb 27, 2013	**<0.01**	**ppb**	No
Terbufos	Feb 27, 2013	**<0.01**	**ppb**	No
Tetrachloroethylene	Feb 27, 2013	**<0.35**	**ppb**	No
2,3,4,6-Tetrachlorophenol	Feb 27, 2013	**<0.14**	**ppb**	No
Triallate	Feb 27, 2013	**<0.01**	**ppb**	No
Trichloroethylene	Feb 27, 2013	**<0.44**	**ppb**	No
2,4,6-Trichlorophenol	Feb 27, 2013	**<0.25**	**ppb**	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Feb 27, 2013	**<0.22**	**ppb**	No
Trifluralin	Feb 27, 2013	**<0.02**	**ppb**	No
Vinyl Chloride	Feb 27, 2013	**<0.17**	**ppb**	No

List 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

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 27, 2013	<0.02	ppb	No
Aldicarb	Feb 27, 2013	<0.01	ppb	No
Aldrin + Dieldrin	Feb 27, 2013	<0.01	ppb	No
Atrazine + N-dealkylated metobolites	Feb 27, 2013	0.03	ppb	No
Azinphos-methyl	Feb 27, 2013	<0.02	ppb	No
Bendiocarb	Feb 27, 2013	<0.01	ppb	No
Benzene	Feb 27, 2013	<0.32	ppb	No
Benzo(a)pyrene	Feb 27, 2013	<0.004	ppb	No
Bromoxynil	Feb 27, 2013	<0.33	ppb	No
Carbaryl	Feb 27, 2013	<0.01	ppb	No
Carbofuran	Feb 27, 2013	<0.01	ppb	No
Carbon Tetrachloride	Feb 27, 2013	<0.16	ppb	No
Chlordane (Total)	Feb 27, 2013	<0.01	ppb	No
Chlorpyrifos	Feb 27, 2013	<0.02	ppb	No
Cyanazine	Feb 27, 2013	<0.03	ppb	No
Diazinon	Feb 27, 2013	<0.02	ppb	No
Dicamba	Feb 27, 2013	<0.2	ppb	No
1,2-Dichlorobenzene	Feb 27, 2013	<0.41	ppb	No
1,4-Dichlorobenzene	Feb 27, 2013	<0.36	ppb	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Feb 27, 2013	<0.01	ppb	No
1,2-Dichloroethane	Feb 27, 2013	<0.35	ppb	No
1,1-Dichloroethylene (vinylidene chloride)	Feb 27, 2013	<0.33	ppb	No
Dichloromethane	Feb 27, 2013	<0.35	ppb	No
2-4 Dichlorophenol	Feb 27, 2013	<0.15	ppb	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 27, 2013	<0.19	ppb	No
Diclofop-methyl	Feb 27, 2013	<0.4	ppb	No
Dimethoate	Feb 27, 2013	<0.03	ppb	No
Dinoseb	Feb 27, 2013	<0.36	ppb	No
Diquat	Feb 27, 2013	<0.10	ppb	No
Diuron	Feb 27, 2013	<0.03	ppb	No
Glyphosate	Feb 27, 2013	<6	ppb	No
Heptachlor + Heptachlor Epoxide	Feb 27, 2013	<0.01	ppb	No
Lindane (Total)	Feb 27, 2013	<0.01	ppb	No
Malathion	Feb 27, 2013	<0.02	ppb	No
Methoxychlor	Feb 27, 2013	<0.01	ppb	No
Metolachlor	Feb 27, 2013	<0.01	ppb	No
Metribuzin	Feb 27, 2013	<0.02	ppb	No
Monochlorobenzene	Feb 27, 2013	<0.3	ppb	No
Paraquat	Feb 27, 2013	<1.0	ppb	No

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	<2.0-4.0	mg/L
November 13, 2006	Aluminum	0.061-0.238	mg/L
November 13, 2006	Total Chlorine Residual	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	Feb 27, 2013	0.08	ppb	No
Arsenic	Feb 27, 2013	0.4	ppb	No
Barium	Feb 27, 2013	15.5	ppb	No
Boron	Feb 27, 2013	22.0	ppb	No
Cadmium	Feb 27, 2013	<0.003	ppb	No
Chromium	Feb 27, 2013	<0.5	ppb	No
Mercury	Feb 27, 2013	<0.01	ppb	No
Selenium	Feb 27, 2013	<1.0	ppb	No
Sodium	Nov. 21, 2011	5.73	mg/L	No
Uranium	Feb 27, 2013	0.146	ppb	No
Nitrite	Nov. 14, 2013	<.003	mg/L	No
Nitrate	Nov. 14, 2013	0.283	mg/L	No

*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

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	<0.03-1.32	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.

Were any significant expenses incurred to?

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

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

New Alum System	$89,000
WTP Caulking of building	$50,000
ELBS Transfer Switch and Pump Starter Upgrades	$91,000
Control System Replacement on Low Lift Pump #3	$16,500
Rebuild of Distribution Surge Valve	$15,000
Sodium Hypochlorite Pumping System Replacement	$47,000
Energy Efficient Lighting @WTP & ELBS	$36,500
Concrete Repair at WTP, WLBS, ELBS	$46,000
Diesel Generator Heater Exchange Replacement	$22,000
Replacement of Rate Valve Actuators on 10 Filters	$32,000
Replacement of Inlet Valve Actuators on 5 Filters	$50,000

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

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	53	0-30	0-6000	0-5400	N/A
Treated	53	0-0	0-0	0-1	<10-340

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**	**0.01-4.23**	**NTU**
Chlorine	**8760**	**0.9-1.81**	**mg/L**
Fluoride	**8760**	**0.07-0.93**	**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.

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). 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 over 200 km of pipeline 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 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 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 LAWWS 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.
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: 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.

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

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

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 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

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

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.

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
3234 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 [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]

OPTIONAL ANNUAL REPORT TEMPLATE

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, 2013 to December 31, 2013