

Lambton Area Water Supply System



Waterworks # 210000906
System Category – Large Municipal Residential

Annual Drinking Water Report

Prepared For: Lambton Area Water Supply System
Joint Board of Management

Reporting Period of January 1st – December 31st, 2025

Issued: February 18, 2026

Revision: 1

Operating Authority:



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Overview

This report fulfills requirements of Ontario Regulation 170/03 Section 11. The report must be made available to anyone that requests a copy of the report. By February 28th, 2026 the report must be provided to municipal members.

Report Availability

This system serves more than 10,000 people, the annual reports are available to anyone free of charge on the LAWSS website (www.lawss.org) or upon request. Listed below is the location where the Annual Report required under O. Reg. 170/03 Section 11 and Schedule 22 is available for inspection or to receive a copy:

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

A copy of this report has been provided to the drinking water systems listed in the table below that receive all their drinking water from LAWSS. A copy of this annual report can be provided free of charge by contacting the drinking water system owners listed below.

Drinking Water System Name	DWS#	Contact Information to obtain copy of Annual Report
Sarnia Distribution System	260003136	Sarnia City Hall 255 Christina St., Sarnia, ON 519-332-0330
Village of Point Edward Distribution System	210000924	Village of Point Edward Municipal Office 135 Kendall St., Pt. Edward, ON 519-337-3021
St. Clair Distribution System	260006464	St. Clair Civic Centre 1155 Emily St., Mooretown, ON 519-867-2021
Plympton-Wyoming Distribution System	260006594	Town of Plympton Wyoming Municipal Office 546 Niagara St., Wyoming, ON 519-845-3939
Township of Warwick Distribution System	260001799	Township of Warwick Municipal Office 5280 Nauvoo Rd, Warwick, ON 226-848-3926
West Lambton Shores Water Distribution System	260006581	Lambton Shores Municipal Office 9577 Port Franks Rd., Thedford, ON 519-243-1400
Alvinston Distribution System	260040170	Township of Brooke Alvinston Municipal Office 3234 River Road, Alvinston, ON 519-898-2173

System Process Description

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 when needed. Polymer can be added to any and all of the following as required: to the flocculation trains, filter inlet channels and each filter. 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 67,460 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 (ELBS) has a water storage capacity of 9,000 m³ and the West Lambton Pumping Station (WLPS) 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 (ACTIFLO). 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 supply and/or receive water during emergencies:

- Wallaceburg Water Treatment Plant And Distribution Subsystem (DWS# 220003341): A connection exists at Whitebread Line and Highway #40, St. Clair Twp. for LAWSS to either receive or supply water
- Petrolia Drinking Water System (DWS# 220002903): A connection exists at Confederation Line and Ploughing Match Rd., Plympton-Wyoming for LAWSS to supply water
- West Lambton Shores Distribution System (DWS# 260006581): A connection exists at Lakeshore Rd. and the Northwest corner of Ravenswood Rd, Lambton Shores for LAWSS to either receive or supply water

Treatment chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Pre and post disinfection	Lavo
Hydrofluosilicic Acid	Fluoridation	PVS Benson
Clar+Ion A7	Coagulation	Chemtrade
Powdered Activated Carbon	Taste and Odor (when required)	Brenntag
Polymer 8103+	Filter/Coagulant aid (when required)	Nalco

Polymer Norfloc 14120	Residual Management System Coagulant	Northland Chemicals
Sodium Bisulfite	Residual Management System dechlorination system	Anchem

Note: all water treatment chemicals listed in the table above are NSF/ANSI approved and certified.

Corrective Actions

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There were no adverse water quality incidents reported during the reporting period.						

Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results (cfu/100mL)		Range of Total Coliform Results (cfu/100mL)		No. of HPC Samples Collected	Range of HPC Results (cfu/mL)	
		Min	Max	Min	Max		Min	Max
Raw Water	52	0	4	0	386			
Treated Water	52	0	0	0	0	52	10	110
Distribution Water	250	0	0	0	0	147	10	2000

Operational Testing

Parameter	No. of Samples Collected	Range of Results		
		Minimum	Average	Maximum
Turbidity; On-Line (NTU) - RW	8760	0.13	1.05	46.00
Turbidity, On-Line (NTU) - TW	8760	0.03	0.07	0.26
Turbidity, On-Line (NTU) - Filt1	8760	0.012	0.024	1.510
Turbidity, On-Line (NTU) - Filt2	8760	0.008	0.023	1.561
Turbidity, On-Line (NTU) - Filt3	8760	0.004	0.030	2.970
Turbidity, On-Line (NTU) - Filt4	8760	0.008	0.023	0.302
Turbidity, On-Line (NTU) - Filt5	8760	0.004	0.025	0.901
Turbidity, On-Line (NTU) - Filt6	8760	0.018	0.042	0.428
Turbidity, On-Line (NTU) - Filt7	8760	0.010	0.025	0.576
Turbidity, On-Line (NTU) - Filt8	8760	0.007	0.022	0.258
Turbidity, On-Line (NTU) - Filt9	8760	0.002	0.024	0.689
Turbidity, On-Line (NTU) - Filt10	8760	0.008	0.020	0.262
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.90	1.58	1.95

Free Chlorine Residual, On-Line (mg/L) – East Lambton Booster Station Inlet	8760	0.95	1.51	2.10
Free Chlorine Residual, On-Line (mg/L) – West Lambton Pumping Station Inlet	8760	0.84	1.87	3.00
Fluoride, online (mg/L) ¹	8760	0.00	0.53	1.99

1 – Low min. and avg. readings caused by fluoridation system being offline for repairs for several weeks, therefore showing lower than 0.6-0.8 mg/L target fluoride residual range. All analyzer readings >1.5mg/L were due to calibrations or verified by lab bench testing to meet regulatory requirements.

Inorganic Parameters

Inorganic parameters are tested as a requirement under O. Reg. 170/03. Sodium is required to be tested every 5 years. Nitrate and Nitrite are tested quarterly as required under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O.Reg 169/03

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2025/05/05	< MDL 0.6	6	No	No
Arsenic: As (ug/L) - TW	2025/05/05	< MDL 0.2	10	No	No
Barium: Ba (ug/L) - TW	2025/05/05	13.6	1000	No	No
Boron: B (ug/L) - TW	2025/05/05	15	5000	No	No
Cadmium: Cd (ug/L) - TW	2025/05/05	< MDL 0.003	5	No	No
Chromium: Cr (ug/L) - TW	2025/05/05	0.12	50	No	No
Mercury: Hg (ug/L) - TW	2025/05/05	< MDL 0.01	1	No	No
Selenium: Se (ug/L) - TW	2025/05/05	0.08	50	No	No
Uranium: U (ug/L) - TW	2025/05/05	0.13	20	No	No
Additional Inorganics					
Nitrite (mg/L) - TW	2025/02/03	0.293	10	No	No
Nitrite (mg/L) - TW	2025/05/05	0.299	10	No	No
Nitrite (mg/L) - TW	2025/08/05	0.279	10	No	No
Nitrite (mg/L) - TW	2025/11/03	0.256	10	No	No
Nitrate (mg/L) - TW	2025/02/03	< MDL 0.003	1	No	No
Nitrate (mg/L) - TW	2025/05/05	< MDL 0.003	1	No	No
Nitrate (mg/L) - TW	2025/08/05	< MDL 0.003	1	No	No
Nitrate (mg/L) - TW	2025/11/03	< MDL 0.003	1	No	No
Sodium: Na (mg/L) - TW	2025/05/05	6.29	20*	No	No

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified mg/L when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Schedule 15.1 Sampling:

The Schedule 15.1 Sampling is required under O.Reg 170/03. This system is exempt from sampling, therefore no samples were required. Schedule 15.1 results are available from each municipality from their annual results.

Organic Parameters

Organic parameters are tested annually as a requirement under O.Reg 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
1,1-Dichloroethylene (ug/L)-TW	2025/05/05	< MDL 0.33	14	No	No
1,2-Dichlorobenzene (ug/L)-TW	2025/05/05	< MDL 0.41	200	No	No
1,2-Dichloroethane (ug/L)-TW	2025/05/05	< MDL 0.35	5	No	No
1,4-Dichlorobenzene (ug/L)-TW	2025/05/05	< MDL 0.36	5	No	No
2,3,4,6-Tetrachlorophenol (ug/L)-TW	2025/05/05	< MDL 0.2	100	No	No
2,4,6-Trichlorophenol (ug/L)-TW	2025/05/05	< MDL 0.25	5	No	No
2,4-Dichlorophenol (ug/L)-TW	2025/05/05	< MDL 0.15	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)-TW	2025/05/05	< MDL 0.19	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)-TW	2025/05/05	< MDL 0.12	100	No	No
Alachlor (ug/L) -TW	2025/05/05	< MDL 0.02	5	No	No
Atrazine + N-dealkylated metabolites (ug/L)- TW	2025/05/05	0.03	5	No	No
Azinphos-methyl (ug/L)-TW	2025/05/05	< MDL 0.05	20	No	No
Benzene (ug/L)-TW	2025/05/05	< MDL 0.32	1	No	No
Benzo(a)pyrene (ug/L)-TW	2025/05/05	< MDL 0.004	0.01	No	No
Bromoxynil (ug/L)-TW	2025/05/05	< MDL 0.33	5	No	No
Carbaryl (ug/L)-TW	2025/05/05	< MDL 0.05	90	No	No
Carbofuran (ug/L) -TW	2025/05/05	< MDL 0.01	90	No	No
Carbon Tetrachloride (ug/L) -TW	2025/05/05	< MDL 0.17	2	No	No
Chlorpyrifos (ug/L) -TW	2025/05/05	< MDL 0.02	90	No	No
Diazinon (ug/L)-TW	2025/05/05	< MDL 0.02	20	No	No
Dicamba (ug/L)-TW	2025/05/05	< MDL 0.2	120	No	No
Dichloromethane (Methylene Chloride) (ug/L)-TW	2025/05/05	< MDL 0.35	50	No	No
Diclofop-methyl (ug/L)-TW	2025/05/05	< MDL 0.4	9	No	No
Dimethoate (ug/L)-TW	2025/05/05	< MDL 0.06	20	No	No
Diquat (ug/L)-TW	2025/05/05	< MDL 1	70	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Diuron (ug/L)-TW	2025/05/05	< MDL 0.03	150	No	No
Glyphosate (ug/L)-TW	2025/05/05	< MDL 1	280	No	No
Malathion (ug/L)-TW	2025/05/05	< MDL 0.02	190	No	No
Metolachlor (ug/L)-TW	2025/05/05	< MDL 0.01	50	No	No
Metribuzin (ug/L)-TW	2025/05/05	< MDL 0.02	80	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)-TW	2025/05/05	< MDL 0.3	80	No	No
Paraquat (ug/L)-TW	2025/05/05	< MDL 1	10	No	No
PCB (ug/L)-TW	2025/05/05	< MDL 0.04	3	No	No
Pentachlorophenol (ug/L)-TW	2025/05/05	< MDL 0.15	60	No	No
Phorate (ug/L)-TW	2025/05/05	< MDL 0.01	2	No	No
Picloram (ug/L)-TW	2025/05/05	< MDL 1	190	No	No
Prometryne (ug/L)-TW	2025/05/05	< MDL 0.03	1	No	No
Simazine (ug/L)-TW	2025/05/05	< MDL 0.01	10	No	No
Terbufos (ug/L)-TW	2025/05/05	< MDL 0.01	1	No	No
Tetrachloroethylene (ug/L)-TW	2025/05/05	< MDL 0.35	10	No	No
Triallate (ug/L) -TW	2025/05/05	< MDL 0.01	230	No	No
Trichloroethylene (ug/L)-TW	2025/05/05	< MDL 0.44	5	No	No
Trifluralin (ug/L)-TW	2025/05/05	< MDL 0.02	45	No	No
Vinyl Chloride (ug/L)-TW	2025/05/05	< MDL 0.17	1	No	No
Distribution Water					
HAA Total (ug/L) Annual Average-DW	2025	17.4	80	No	No
Trihalomethane: Total (ug/L) Annual Average-DW	2025	36.1	100	No	No

MAC = Maximum Allowable Concentration as per O.Reg 169/03

BDL = Below the laboratory detection level

Additional Legislated Samples

Residual Management

The municipal Drinking Water Licence requires monthly sampling of the Actiflo Treatment System Effluent on a monthly basis. There were no exceedances of the required parameters, refer to the table below for the summary of results.

Legal Document	Date of Issuance	Parameter	Annual Average Result (mg/L)	Annual Average Limit (mg/L)
MDWL 020-101	2020-10-20, updated 2025-06-16	Total Suspended Solids	<5.17	25
MDWL 020-101	2020-10-20, updated 2025-06-16	Aluminum	>0.18	n/a
MDWL 020-101	2020-10-20, updated 2025-06-16	Total Chlorine Residual	0.01	0.02

Hazardous Algae Bloom (HAB) Sampling

There were no blooms identified in the source water in 2025. No microcystin samples were required to be collected.

Major Maintenance and Capital Summary

Item	Description	Cost
1.	WTP Filter Core Sampling	\$15,080
2.	WTP VFD floc mixers (1)	\$10,639
3.	WTP LL3 motor inspection/repair	\$21,199
4.	WTP Odd number filter drain gates repair	\$22,858
5.	WTP PLC intergration, video security and HVAC computers	\$6,136
6.	WTP Sluice gate drain acutators (1)	\$12,023
7.	WTP Main plant HVAC system annual mtc	\$10,430
8.	WTP HFS analyzer	\$19,415
9.	WTP Handheld vibration monitor	\$12,252
10.	WTP Filter actuator power module (8)	\$9,434
11.	WTP Victaulic coupler repair	\$5,997
12.	WTP LL 5 relay replacement	\$22,225
13.	WTP LL 3 and HL 3 relay replacement	\$27,243

14.	WTP HVAC duct work in the MCC	\$12,455
15.	WTP HL6 VFD replacement parts	\$10,436
16.	WTP Rotork filter to waste replacment (2)	\$16,349
17.	WTP Low lift wetwell cleanout	\$46,323
18.	WLPS Pump 5 discharge valve	\$40,419
19.	ELPS Watford flow meter replacement	\$13,556
20.	ELPS Refurbish spare discharge valve	\$5,595
21.	Dist EL and WL 2 year electrical inspection and WLPS 2 VFD inspection	\$22,576
22.	Dist ELPS generator overhaul	\$16,265
23.	Port Lambton Standpipe Rehabilitation	\$9,445
24.	WLPS - Reservoir Rehab. & Pump Upg. -Eng	\$316,067
25.	Engineering - Main Plant Various Panel Phase 2	\$74,690
26.	SCADA Improvements - Generator & Switchgear	\$110,633
27.	WLPS Reservoirs Rehabilitation	\$2,087,590
28.	WTP Traveling Screens Replacement	\$813,802
29.	Engineering - SCADA Phase 3	\$79,160
30.	LAWSS Master Plan	\$94,114
31.	Engineering - Fill Constraints for ELPS	\$125,895
32.	SCADA Various Panels Construction Phase 2	\$360,424
33.	WTP RMS Optimization	\$21,009
34.	Miscellaneous Engineering Services	\$47,550
35.	AC Pipeline - Wyoming	\$108,324

Revision History

Date	Revision #	Revision Notes
Feb. 18, 2026	0	Created report.
Feb. 19, 2026	1	Corrected inorganic parameters description that previously stated that fluoride is required to be tested every 5 years.