Elgin Area
Primary Water Supply System

2024 Compliance Report

Contact Info:

Owner:
Elgin Area Primary Water Supply System Board of Management
c/o City of London, Regional Water Supply Division
235 North Centre Road, Suite 200, London, ON N5X 4E7
519-930-3505

Operating Authority:
Ontario Clean Water Agency
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Profile

Who We Are

The Elgin Area Primary Water Supply System (EAPWSS) is owned by a Board of Management who governs the drinking water system. The Board of Management is made up of members appointed from each of the eight (8) member municipalities that are currently supplied with water from the EAPWSS. One of these member municipalities, the City of London, acts as the Administering Municipality. Accordingly, the City of London provides all associated administrative and management services on behalf of the Board. The Board of Management currently contracts the operation and maintenance of the EAPWSS to the Ontario Clean Water Agency (OCWA), an independent Operating Authority.

Operating Authority:

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

EAPWSS Board Member Municipalities:

- City of London (Administering Municipality)
- Town of Aylmer
- Municipality of Bayham
- Municipality of Central Elgin
- Municipality of Dutton Dunwich
- Township of Malahide
- City of St. Thomas
- Township of Southwold

What Is Important

Values of the Water System

The values of the EAPWSS are the inherent beliefs or moral standards that generally reflect what the EAPWSS Board of Management stands for and believes in:

- **Sustainable** - be financially, environmentally, socially, and physically sustainable;
- **Inclusive** - provide access to bulk drinking water for current and prospective members, in accordance with Board policy;
- **Fair and equitable** - balance the interests of individual members with the best interests of all members, as well as the needs of existing members with the needs of new members;
- **Vigilant** - ensure an adequate supply of safe and reasonably priced drinking water is available to members;
- **Innovative** - be receptive to and supportive of new ideas and opportunities for improvement;
- **Cooperative** – be supportive to the needs of the Elgin Area Primary Water Supply System;
- **Open and transparent –** conduct business in a manner that enables member municipalities and the public to review and provide input into major decisions as appropriate;
- **Public Ownership –** retain ownership of the water system in public hands.

What We Do

Water Treatment & Supply

The EAPWSS is responsible for the treatment and transmission of drinking water to eight (8) member municipalities in southwestern Ontario. The population served by this system is approximately 138,000 (as per the 2020 Master Water Plan). Water is provided bulk wholesale to the member municipalities who then distribute it to their customers.

The Elgin Area Water Treatment Plant (WTP) was constructed in the late 1960's and officially began operating in 1972. The WTP employs pre-chlorination, screening, powder activated carbon addition (seasonally on an as-required basis), coagulation, flocculation, sedimentation, dual-media filtration, ultra-violet (UV) disinfection, post-chlorination, fluoridation and pH adjustment using both carbon dioxide and sodium hydroxide to treat raw water obtained from Lake Erie. After the water is treated it is pumped from the WTP to the member municipalities or to the terminal storage reservoirs. The drinking water system is monitored at various locations via a Supervisory Control and Data Acquisition (SCADA) system**.**

The EAPWSS is operated under the Municipal Drinking Water Licence (MDWL) #048-101 and Drinking Water Works Permit (DWWP) #048-201.

EAPWSS Assets:

- 1 low lift pumping station
- 1 water treatment plant
- 1 residuals management facility
- 2 surge facilities
- 1 terminal storage reservoir site (consisting of 2 reservoir cells)
- 14.7 km primary transmission pipeline (2 pipelines, 1 temporarily decommissioned)

Figure 1: Low Lift Pumping Station located on Lake Erie

EAPWSS: At A Glance

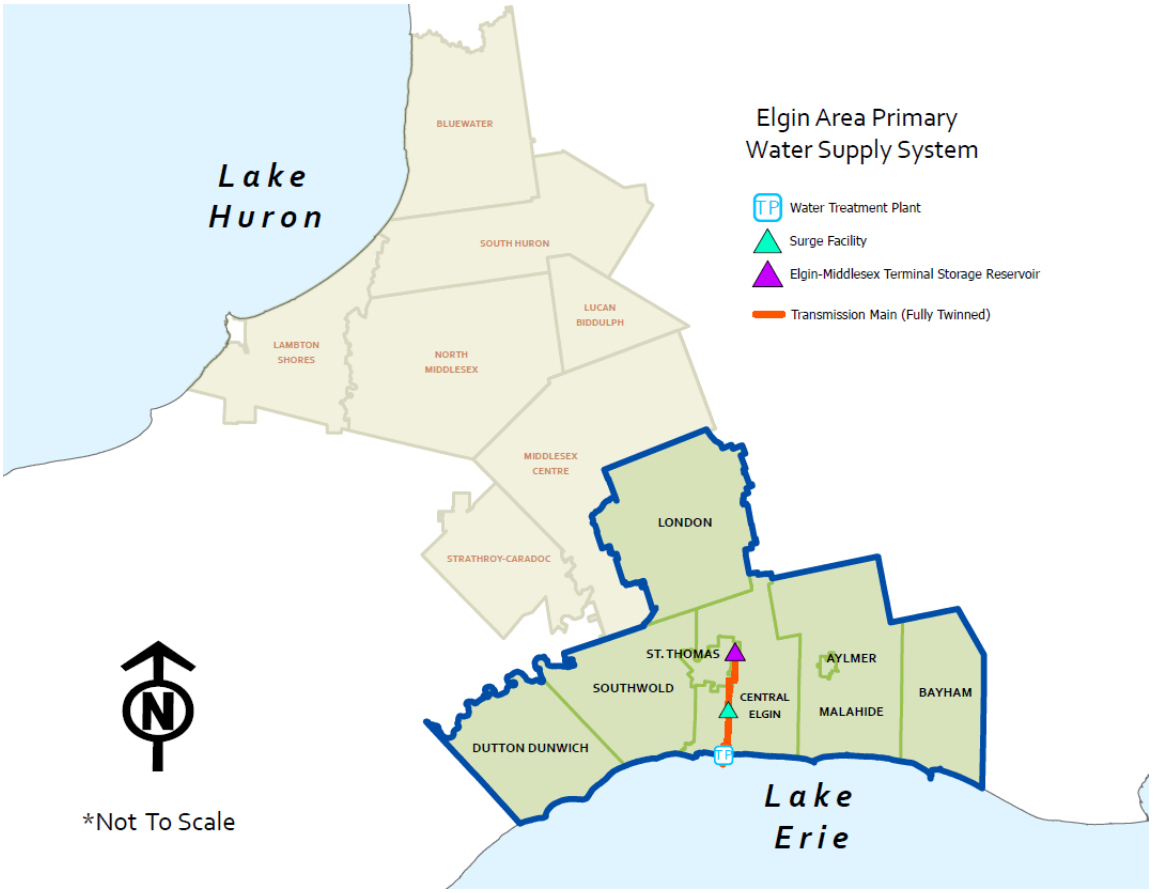

Figure 2: EAPWSS Major Infrastructure Locations

The Water Treatment Process

The following figure provides a general overview of the conventional water treatment process. The processes outlined below are very similar to the treatment at the Elgin Area WTP, although they are not an exact representation. Some details may vary.

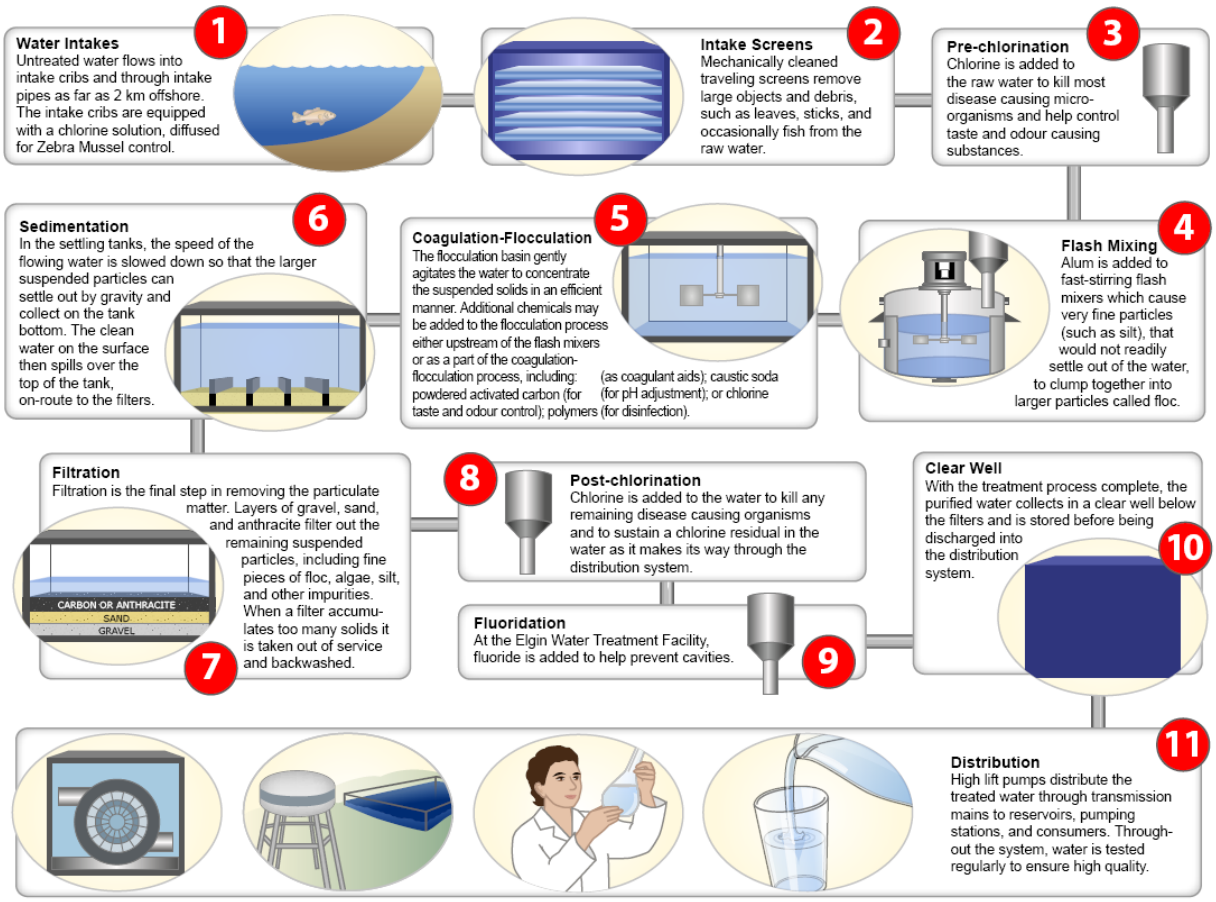

Figure 3: General Overview of the Water Treatment Process

At the Elgin Area WTP, several additional treatment steps take place:

- Carbon dioxide is injected prior to the flash mixing (Step 4) to lower the raw water pH to improve the treatment process effectiveness and efficiency.
- A UV reactor is located after each filter (Step 7) for additional disinfection when required.
- Sodium Hydroxide is added as the treated water leaves the WTP and enters the transmission system (Step 11) to raise the treated water pH, resulting in reduced corrosion potential.

2024 Highlights - General

Water Quality Facility Plan

In 2022 a project was awarded to Stantec Consulting Ltd. to update the Water Quality Facility Plan (WQFP). The WQFP is updated every five (5) years with the purpose of providing the EAPWSS with new information on WTP performance and treatment capacity as supply conditions change. The WQFP provides staff with a detailed report on the status of the WTP and residuals management processes and their overall performance. It also provides recommendations and the framework to prioritize the timing for further sampling programs, studies, capital upgrades, and operational modifications or changes to improve water treatment efficiency and efficacy. The recommendations will be implemented as future projects over a 10-year planning horizon. The WQFP update was completed in December 2024.

Master Plan

The EAPWSS is required to undertake a Master Plan every five (5) years. The EAPWSS, through its consultant AECOM Canada ULC (AECOM), initiated a Master Plan, in accordance with the Municipal Engineers Association Class Environmental Assessment, to assess regional water system needs for the utility over the next 20+ years. The Master Plan is intended to evaluate and identify recommended system improvements, including major system upgrades and expansion, to accommodate proposed growth. Public and agency consultation, and Indigenous engagement are important aspects of the Master Plan. An outcome of the Master Plan is a roadmap outlining major system improvements over the next twenty years.

The Master Plan update was awarded and initiated in 2024, with anticipated completion in fall of 2025.

2024 Capital Project Highlights

Ultraviolet (UV) System Replacement and Backwash Pump Upgrade

The existing UV disinfection system at the Elgin Area WTP is at the end of its life and requires replacement. The existing UV system is considered “first-generation” technology which poses various operational challenges, including equipment servicing and obtaining replacement parts. The existing system is energy inefficient in comparison to current UV systems now available.

A study was completed in 2020 to evaluate alternatives for renewal or replacement of the existing UV system. In 2022, AECOM Canada Ltd. was awarded the consulting engineering services for the detailed design of the UV upgrade. The detailed design has since been advanced and been coordinated with the backwash pump upgrade.

The existing filter backwash system is original to the Elgin Area WTP and is over fifty years old. Two backwash pumps are utilized for each filter backwash in order to satisfy the full flow and volume range necessary to adequately clean the filters. There are no backup or standby pumps for the backwash system should one of the existing pumps fail or be taken out of service for maintenance, making this pump replacement project a priority. In 2021, AECOM commenced the detailed design of the backwash pumps. Due to long lead times, the backwash pumps were pre-purchased in 2023. The new pumps and motors were delivered to site in October 2024.

In 2024, AECOM advanced the detailed design of the UV system. The final detailed design was completed in February 2025. The General Contractor pre-qualification process took place in 2024. The project is anticipated to be tendered in spring 2025, with construction starting in 2025 and continuing through 2026.

Due to the long lead times required to fabricate, and deliver the new UV system, the equipment was previously pre-selected and pre-purchased. In 2023 the new UV disinfection equipment was pre-purchased from Trojan Technologies, a local company that is an industry leader in UV disinfection. The new UV equipment arrived onsite at the Elgin Area WTP in June 2024.

This project will also include a reservoir drain repair and a partial replacement of the filter backwash header.

Figure 4a: The new UV equipment delivered to the Elgin Area WTP in June 2024.
Figure 4b: The new motors delivered to the Elgin Area WTP in October 2024.

Figure 5: The new pumps delivered to the Elgin Area WTP in October 2024.

Filter Emergency Repairs

The Elgin Area WTP utilizes four (4) dual-media filters as part of the conventional water treatment process. Water flows from the filters into a common filtered water conduit, which then further flows into the clearwell. During routine maintenance and inspection of the filtered water conduit, a large amount of filter media was observed to be accumulating at the discharge piping of filters #2 and #3. It was also noted that the filter's mortar coating was spalling (i.e. breaking up) and ending up in the filtered water conduit. The presence of filter media and mortar coating material in this location suggested that the filter underdrains, which structurally separate the filter media from the treated water in the filtered water conduit and clearwell, were in the process of failing and presented a risk to water quality.

Filter #3 was taken out of service in May 2024 and repaired. The repair included a comprehensive rehabilitation of all concrete substrates inside of the filter, and subsequent repair and reinstallation of the underdrain system. Filter #3 was returned to service in September 2024. A similar repair previously took place on filter #2 in 2023.

Figure 6a: Filter #3 pre-repair. The filter media (anthracite and sand) and underdrains have been removed to perform repairs. The filter media (sand) that that is present on the concrete filter base confirms leakage between the underdrains and the concrete base.
Figure 6b: Filter #3 post-repair. The concrete has been rehabilitated, and the repaired underdrains reinstalled. The filter media will be placed on top of the underdrains.

Sodium Hydroxide Assessment Study

The existing sodium hydroxide system at the Elgin Area WTP was implemented to adjust the treated water pH to a more natural level which is less corrosive within the distribution systems. The existing system was found to have significant buildup of calcium and minerals at the point of dosing into the treated water. This project involves undertaking a removal of the build-up, and modifying the existing injection system to improve system performance, reduce any future deposition and buildup of material within the transmission pipeline, and facilitate long-term maintenance. The detailed design was completed by R.V. Anderson Associate Ltd. in 2024. Tendering was completed in 2024 and awarded to Dielco Industrial Contractors Ltd. Construction is taking place in March 2025.

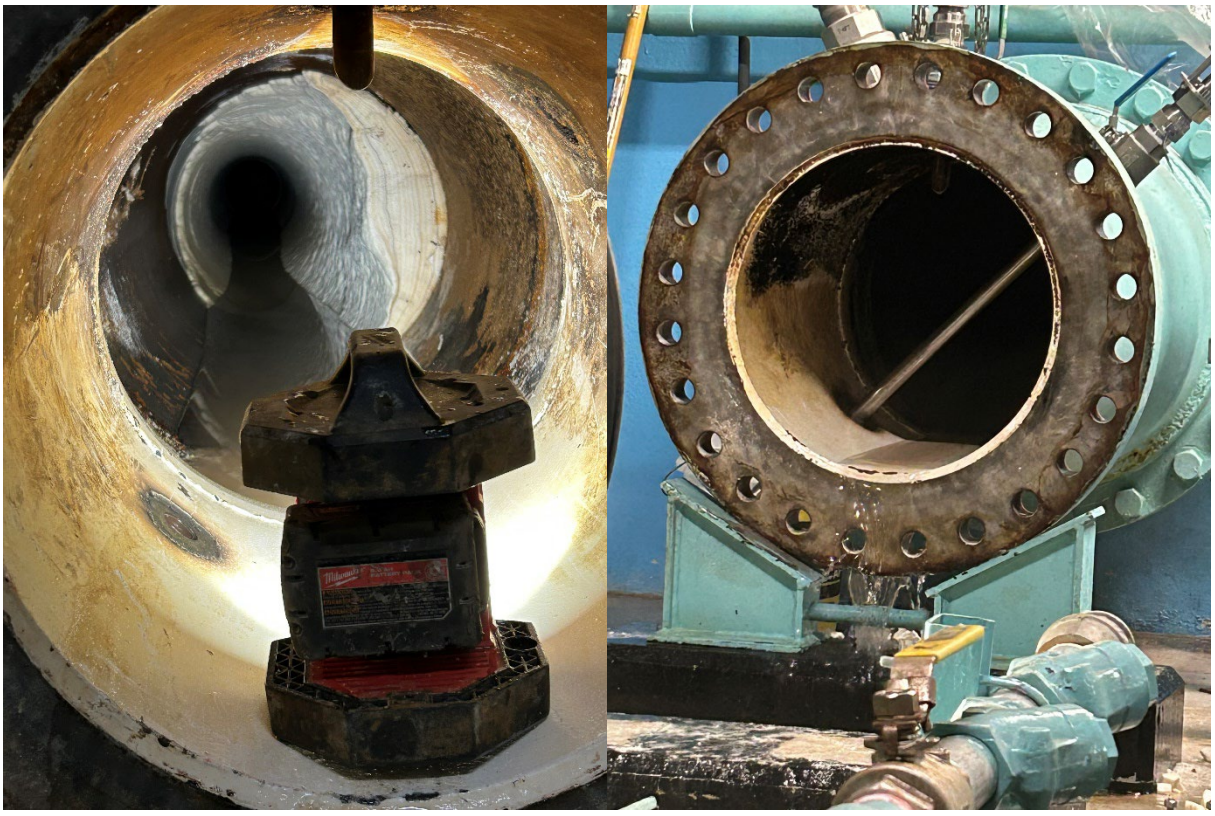

Figure 7a: Interior of the west treated water discharge header pipe, showing a significant accumulation of calcium and minerals caused by the sodium hydroxide dosing.
Figure 7b: A new sodium hydroxide injection quill is being installed in the west treated water discharge header, designed to improve system performance.

Figure 8: Completed modifications to the sodium hydroxide injection system on the west treated water discharge header.

SCADA/PLC Software Review and Upgrade

Ongoing maintenance and replacement of the Supervisory Control and Data Acquisition System (SCADA) and the associated programmable logic controllers (PLC) have typically focused on hardware replacement and server upgrades necessary to ensure the system continues to operate effectively and without undue risks. Notwithstanding, much of the software and firmware versions used throughout the system were outdated and required extensive review and upgrades to ensure the critical control systems that operate the treatment and pumping systems continue to operate. The project also involved a review and incorporation of programming and data storage improvements throughout the system. The software upgrade project was substantially completed in 2024.

2024 Flow Summary

As per the water system's current Permit to Take Water (PTTW), the amount of raw water taken into the EAPWSS cannot exceed 91.0 million litres/day. This converts to 1053 litres/second.

The water taking in 2024 was approved under PTTW #P-300-4168104920.

As per the water system's Municipal Drinking Water Licence (MDWL), the rated capacity of the WTP is 91.0 million litres/day. The maximum daily flow of treated water from the treatment plant into the distribution system shall not exceed this value.

The following table contains a flow summary, with a comparison to the system's rated capacity and permit limits in order to assess the capability of the system to meet existing and planned uses.

	Total Daily Flow (ML/day)	Total Daily Flow (% of Capacity)	Daily Instantaneous Peak Flow (L/s)
PTTW – permitted amount of raw water taking	91.0	100.0	1053
Raw Water Flow – Average Day	45.7	50.2	856
Raw Water Flow – Max. Day	65.1	71.5	1044
WTP Rated Capacity	91.0	100.0	1053
Treated Water Flow – Average Day	45.1	49.6	754
Treated Water Flow – Max. Day	65.3	71.8	888

A complete flow summary for the EAPWSS can be found in Appendix A.

Treated Water Flows

The average daily flow from the EAPWSS was 45.1 ML/day, which is a 1.1% increase from the previous year. The maximum daily flow for 2024 was 65.3 ML/day, which is a 4.7% increase from the previous year.

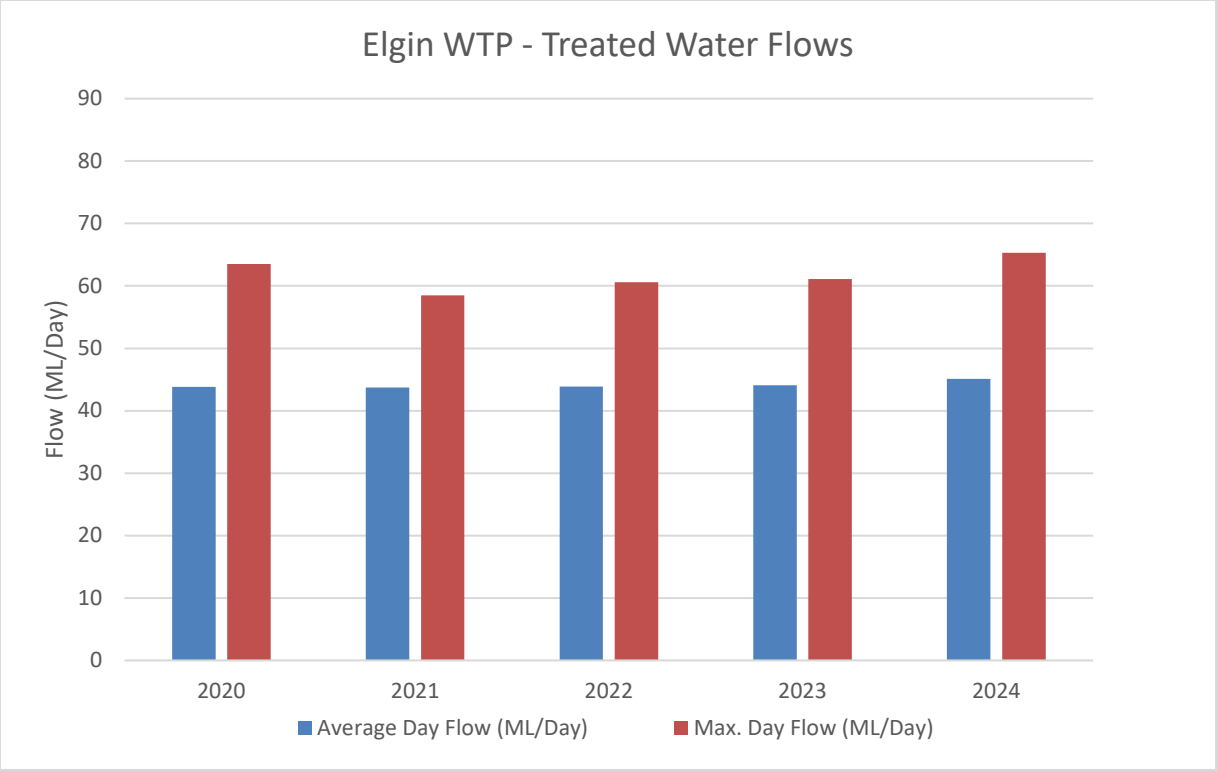

Figure 9: Five (5) Year Treated Water Flow Comparison

The City of London utilizes the largest volume of treated drinking water from the EAPWSS. As shown in Figure 10, the City of London utilizes 50.61% of the volume; the City of St. Thomas utilizes 28.62%, and the other six municipalities utilize the remaining 20.77% of the volume.

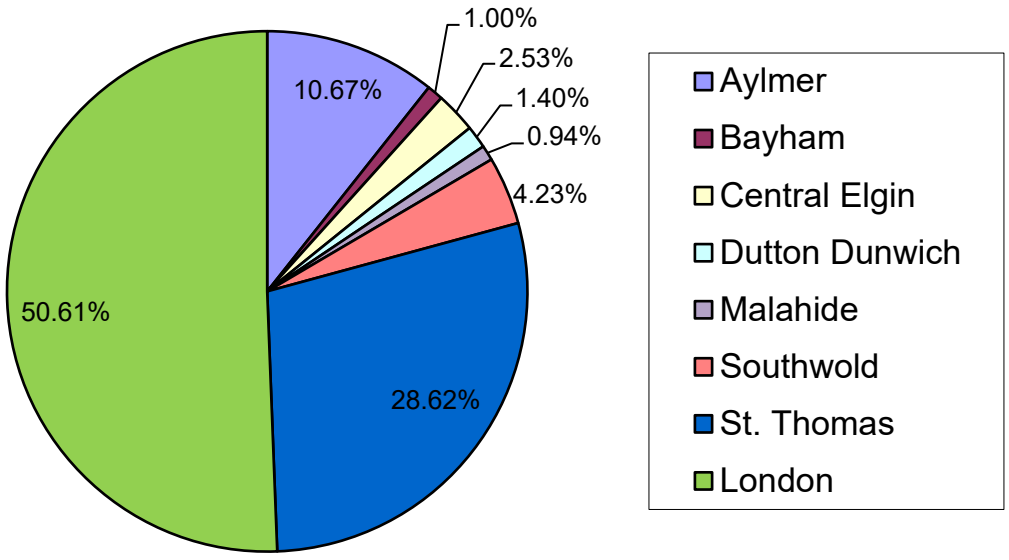

Figure 10: 2024 Treated Water Volumes per Municipality

2024 Chemical Consumption

A variety of water treatment chemicals are used at the EAPWSS to ensure safe, clean drinking water. The following table outlines the chemicals most frequently used for the EAPWSS. As part of the system's registered ISO14001 Environmental Management System, objectives and targets are currently in place to optimize chemical usage.

Chemical	Purpose	Total amount used in 2024
Aluminum Sulphate	Coagulant	611,850 kg
Polymer	Coagulant aid	78 kg
Powdered Activated Carbon	Taste and odour control (seasonally)	16,382 kg
Chlorine Gas	Primary disinfection	20,070 kg
Chlorine Gas	Pre-Chlorination	12,366 kg
Chlorine Gas	Mussel control at the intake crib	6,865 kg
Fluoride	Prevention of dental cavities	9,972 kg
Carbon Dioxide	pH adjustment - injected at the start of the treatment process to lower the raw water pH for improved treatment effectiveness and efficiency	242,190 kg
Sodium Hydroxide	pH adjustment – injected at the end of the treatment process to raise the treated water pH for reduced corrosion potential	327,432 L
Sodium Bisulphite	Residuals Management Facility Dechlorination	12,986 kg
Polymer	Residuals Management Facility Centrifuge	1,738 kg
Polymer	Residuals Management Facility Thickener	547 kg

2024 Water Quality Sampling and Monitoring

The EAPWSS consistently provides treated drinking water with water quality above the standards required by provincial regulations. Where applicable, this is a result of the EAPWSS standards being more stringent than what is required by provincial regulation. For example, the target at the EAPWSS for filtered water turbidity (a measure of the cloudiness of water) is ten times more stringent than the provincial standard. The EAPWSS is utilizing best management practices and continual improvement to ensure that high drinking water standards are maintained and enhanced where possible.

All water quality sampling at the EAPWSS is performed in accordance with the Safe Drinking Water Act and its associated regulations. All samples are collected by licensed operating authority personnel and are submitted to Canadian Association for Laboratory Accreditation (CALA) / Standards Council of Canada (SCC) accredited laboratories for both bacterial and chemical analysis.

In 2024, a total of 473 microbiological samples were collected from raw, treated and distribution system water, and were submitted to the laboratory for E. Coli, total coliforms and heterotrophic plate count (HPC) analysis. There were no reportable incidents of adverse microbiological test results in 2024. For more information, please see the Annual Report which is included as Appendix B.

Annual samples are collected and submitted to the laboratory for inorganics (metals) and organics analysis, which include herbicides, pesticides and volatile organic compounds. Quarterly sampling and laboratory analysis is also completed for trihalomethanes and haloacetic acids (disinfection by-products), nitrates and nitrites.

Seasonal samples are collected and submitted to the laboratory for total microcystin analysis from June through to the end of October as part of the Harmful Algal Bloom (HAB) Monitoring and Sampling Program. The purpose of the HAB program is to keep drinking water safe from potential impacts of aquatic algal bacteria overgrowth (i.e. cyanobacteria) which can produce toxins (i.e. cyanotoxins) in the surrounding water when the algal cells are damaged or die. These toxins, which include microcystins, can be harmful to people. A total of 24 raw water samples were collected and submitted to the laboratory for total microcystin analysis. There were no detectable results in the raw water samples.

In addition, the WTP operator samples the raw, in-process and treated water six times per day and carries out an array of physical and chemical analysis for operational control.

As required by regulation, the EAPWSS also prepares an Annual Report which includes a summary of water quality test results and a maintenance report. The 2024 Annual Report can be found in Appendix B.

Residuals Management Facility (RMF) Compliance

The Municipal Drinking Water Licence (MDWL) for the EAPWSS requires that non-compliant discharges of total chlorine residual to the natural environment must be reported. This annual compliance report includes a report on the date and time of any non-compliant discharges, the duration, maximum total chlorine residual value, volume of non-compliant discharge, reason, and corrective action taken.

In 2024, there were no incidents of non-compliant discharges.

Research and Partnerships

The EAPWSS acknowledges the importance of scientific research on water quality and the effects on human health. The EAPWSS has partnered with the Natural Sciences and Engineering Research Council (NSERC) Chair in Drinking Water Research at the University of Waterloo and the University of Toronto to pursue research opportunities, as well as Western University. The EAPWSS is a member of the Water Research Foundation (WRF). In addition, the EAPWSS continues to evaluate and conduct specific research on the efficacy of the existing treatment processes, optimizing and improving treatment systems, and evaluating the potential and need of more advanced treatment alternatives.

Ministry Inspection

The Ontario Ministry of the Environment, Conservation and Parks (MECP) conducts an inspection of the EAPWSS annually. A MECP inspection took place on September 26, 2024. The final inspection report was issued on January 7, 2025. There was one (1) non-compliance or best management practice identified in the inspection report. The details of the non-compliance can be found in Appendix C. The final inspection rating received for the 2024-2025 reporting year was 95.52%.

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https://huronelginwater.ca/

Appendix A: 2024 Flow Summary

1. Raw Water Intake – Daily Flow (m^3/Day)

Day	January (m^3/day)	February (m^3/day)	March (m^3/day)	April (m^3/day)	May (m^3/day)	June (m^3/day)	July (m^3/day)	August (m^3/day)	September (m^3/day)	October (m^3/day)	November (m^3/day)	December (m^3/day)
1	41,300	46,692	39,612	38,112	44,412	40,280	39,124	56,928	35,876	40,616	51,952	35,996
2	47,608	40,480	50,672	36,224	49,904	53,316	36,028	42,288	33,888	47,740	51,272	52,380
3	43,576	48,376	42,284	30,920	41,680	42,488	41,280	45,576	47,148	49,580	38,916	44,424
4	50,512	41,812	46,964	41,380	47,824	54,932	50,492	40,376	39,244	38,824	47,528	52,012
5	45,292	45,712	45,100	33,912	49,372	41,216	34,648	46,448	43,108	48,000	61,316	44,724
6	48,356	47,020	47,220	35,996	48,280	32,544	44,092	34,208	39,556	45,532	48,732	38,680
7	46,352	46,140	44,608	35,172	45,120	35,648	43,732	42,924	32,404	47,516	51,108	41,752
8	43,696	43,136	43,872	39,440	47,160	51,872	41,980	41,436	39,112	55,868	43,128	51,248
9	42,080	48,176	40,068	42,888	47,264	42,208	44,588	37,920	58,696	50,988	55,764	48,256
10	46,060	48,464	38,728	32,572	49,092	48,740	49,432	41,280	42,232	52,564	35,440	57,160
11	49,460	45,904	47,084	41,608	37,776	46,688	44,896	37,412	31,340	54,240	51,440	58,064
12	51,572	40,176	45,736	33,116	51,864	50,732	57,408	43,064	61,624	46,812	41,084	58,828
13	44,536	50,884	46,772	40,728	41,944	48,668	47,680	39,296	56,044	35,604	55,700	63,364
14	48,884	45,812	46,244	39,292	48,924	49,428	37,368	44,460	39,640	33,284	43,924	51,960
15	39,236	50,432	43,992	35,112	48,040	52,512	50,124	39,656	39,716	55,608	55,732	44,692
16	50,884	40,748	41,076	33,916	45,580	51,044	36,264	48,608	50,208	44,204	50,748	57,728
17	38,020	53,212	48,088	30,044	49,692	46,696	41,080	36,776	39,600	20,008	43,104	55,352
18	53,728	44,880	48,964	35,944	45,724	53,220	38,916	37,748	59,920	62,172	48,844	57,276
19	46,788	42,772	40,428	45,052	51,112	51,196	40,920	39,264	53,136	43,244	31,400	64,548
20	39,960	48,912	44,976	42,612	47,964	57,592	39,916	33,108	61,320	41,184	49,920	53,672
21	42,876	42,720	45,924	50,152	53,036	54,148	48,340	40,404	50,284	51,308	47,392	63,164
22	52,704	46,080	43,920	44,996	43,848	41,400	39,336	39,720	39,296	48,748	50,728	42,368
23	40,512	51,580	45,672	43,384	50,656	53,724	39,296	27,392	55,240	56,524	50,944	58,212
24	44,400	40,652	43,172	43,464	50,524	49,108	42,976	39,764	54,484	50,468	32,012	65,056
25	45,552	43,716	50,624	51,732	53,256	43,532	41,808	38,912	52,496	54,312	53,732	48,820
26	44,256	43,320	35,632	46,484	43,064	50,300	45,336	54,920	64,436	56,088	47,664	54,124
27	43,748	49,016	35,428	45,320	49,500	34,948	43,448	40,856	44,368	40,548	45,588	50,576
28	48,168	49,388	35,480	50,760	46,020	39,120	41,616	46,708	52,216	60,028	54,880	52,364
29	49,352	46,100	34,448	41,868	42,856	38,504	37,352	49,136	41,300	54,124	52,832	39,500
30	40,596		34,972	45,300	47,324	36,340	37,124	43,228	39,516	63,720	54,568	54,596
31	46,032		37,804		54,188		38,364	41,108		51,508		62,984
Monthly Total	1,416,096	1,332,312	1,335,564	1,207,500	1,473,000	1,392,144	1,314,964	1,290,924	1,397,448	1,500,964	1,447,392	1,623,880

Day	January (m^3/day)	February (m^3/day)	March (m^3/day)	April (m^3/day)	May (m^3/day)	June (m^3/day)	July (m^3/day)	August (m^3/day)	September (m^3/day)	October (m^3/day)	November (m^3/day)	December (m^3/day)
Monthly Minimum	38,020	40,176	34,448	30,044	37,776	32,544	34,648	27,392	31,340	20,008	31,400	35,996
Monthly Maximum	53,728	53,212	50,672	51,732	54,188	57,592	57,408	56,928	64,436	63,720	61,316	65,056
Monthly Average	45,681	45,942	43,083	40,250	47,516	46,405	42,418	41,643	46,582	48,418	48,246	52,383

Annual Total (m^3)	16,732,188
Annual Minimum (m^3/day)	20,008
Annual Maximum (m^3/day)	65,056
Annual Average (m^3/day)	45,716

Note: (i) As per the water system's current Permit To Take Water, the amount of raw water taken into the Elgin Area Water Treatment Plant cannot exceed 91,000 m^3/day.

2. Raw Water Instantaneous Peak Flow (L/s)

Day	January (L/s)	February (L/s)	March (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	August (L/s)	September (L/s)	October (L/s)	November (L/s)	December (L/s)
1	887	919	466	824	858	901	821	853	809	975	802	872
2	927	900	862	853	841	786	751	793	758	852	965	843
3	906	866	851	711	844	780	905	903	864	958	964	916
4	921	912	856	784	904	800	921	962	975	784	875	902
5	864	919	781	739	955	791	898	848	986	874	859	917
6	970	885	875	744	849	380	827	859	754	884	902	798
7	980	979	633	781	900	752	880	965	377	871	979	800
8	969	869	634	800	827	802	826	959	812	789	957	800
9	972	997	632	940	912	805	867	863	827	894	881	800
10	917	879	634	841	920	821	978	801	929	902	883	982
11	914	936	646	832	987	822	928	925	775	895	863	913
12	913	787	637	385	907	836	808	952	1,018	821	953	863
13	995	948	638	908	1,038	827	793	794	852	827	959	953
14	994	898	639	866	908	827	818	898	954	767	1,038	844
15	978	859	634	813	946	904	855	891	890	793	979	976
16	858	868	635	872	840	815	785	890	950	845	885	883
17	977	985	699	540	807	867	884	846	981	726	895	832
18	971	978	859	800	816	915	880	882	767	782	877	800
19	976	991	828	800	808	801	907	818	808	911	902	1,026
20	835	1035	646	800	869	829	802	966	949	845	865	936
21	842	916	645	800	808	789	816	965	851	887	880	889
22	893	925	649	781	821	926	833	806	978	753	898	922
23	927	946	641	777	820	910	813	378	998	1,044	861	891
24	990	975	640	800	790	926	785	769	799	890	829	965
25	946	984	862	863	810	887	824	892	959	854	883	927
26	885	987	887	887	838	816	828	821	823	950	881	942
27	877	793	869	893	1,006	851	829	838	943	970	923	958
28	886	974	822	823	814	789	922	807	939	773	896	886
29	935	980	481	880	780	781	859	866	892	953	875	881
30	865		479	918	826	845	884	841	905	764	936	978
31	930		478		796		848	823		902		786

Day	January (L/s)	February (L/s)	March (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	August (L/s)	September (L/s)	October (L/s)	November (L/s)	December (L/s)
Monthly Minimum	835	787	466	385	780	380	751	378	377	726	802	786
Monthly Maximum	995	1,035	887	940	1,038	926	978	966	1,018	1,044	1,038	1,026
Monthly Average	926	927	695	802	866	819	851	854	871	862	905	893

Annual Minimum (L/s)	377
Annual Maximum (L/s)	1,044
Annual Average (L/s)	856

Note: (i) As per the water system's current Permit To Take Water, the amount of raw water taken into the Elgin Area Water Treatment Plant cannot exceed 91,000 m^3/day. This converts to 1053 litres/second.

3. Treated Water Daily Flow (m^3/Day)

Day	January (m^3/day)	February (m^3/day)	March (m^3/day)	April (m^3/day)	May (m^3/day)	June (m^3/day)	July (m^3/day)	August (m^3/day)	September (m^3/day)	October (m^3/day)	November (m^3/day)	December (m^3/day)
1	40,720	45,648	39,616	36,288	42,064	41,176	38,040	52,880	34,608	39,864	49,616	36,680
2	47,224	38,216	47,808	35,424	50,896	51,800	36,192	40,720	33,424	47,704	50,208	52,920
3	40,648	47,400	43,552	32,224	39,744	42,272	39,944	43,872	45,112	48,824	40,544	41,720
4	50,576	43,536	46,640	38,544	47,584	54,832	51,440	40,928	38,920	37,384	48,688	53,200
5	43,296	42,504	42,512	31,648	48,752	40,768	35,712	45,600	42,632	48,592	57,680	42,848
6	49,216	44,912	47,880	37,024	49,280	34,176	42,344	34,392	39,032	45,920	49,632	39,568
7	45,488	44,056	42,928	37,312	43,488	34,664	44,216	40,944	33,840	46,736	51,040	39,632
8	43,488	42,896	43,240	37,360	46,984	51,432	39,904	40,216	36,848	54,872	44,320	52,096
9	41,664	45,456	40,512	39,384	47,256	43,040	46,072	36,976	56,960	48,896	53,712	44,808
10	44,896	47,824	37,616	32,648	47,368	47,424	47,544	42,816	42,760	53,264	35,056	55,992
11	46,544	46,088	45,704	39,888	39,288	46,624	46,848	37,248	31,064	53,464	51,552	57,544
12	51,920	38,440	44,456	32,408	51,040	48,936	55,048	41,288	61,472	48,104	40,304	58,520
13	42,104	49,944	44,664	39,848	43,032	49,464	50,104	40,808	54,128	34,496	55,760	61,888
14	49,304	43,280	46,336	39,792	46,472	49,360	35,504	43,088	41,824	32,840	43,376	52,272
15	38,344	49,928	42,184	34,864	46,896	51,616	49,632	40,144	39,024	53,728	54,240	41,944
16	49,128	38,976	40,896	33,424	46,144	52,064	37,216	46,720	49,968	45,040	50,624	58,936
17	35,464	52,440	46,304	29,664	48,560	46,032	40,064	36,848	39,072	20,736	44,488	55,304
18	51,752	45,064	48,784	35,584	44,400	52,144	38,792	37,776	59,920	56,240	46,592	55,408
19	45,728	41,312	40,552	42,784	51,296	49,632	39,336	38,320	51,840	44,512	31,080	59,936
20	40,248	48,272	41,176	44,512	47,824	58,128	39,040	34,296	59,776	40,496	49,120	52,560
21	42,856	41,648	45,488	48,224	52,416	54,832	48,032	40,408	50,960	50,880	48,624	63,240
22	50,272	45,312	44,192	46,368	43,472	40,840	38,712	37,208	39,552	48,384	47,936	40,512
23	38,288	50,992	43,856	41,744	51,424	52,848	38,864	26,856	53,360	49,104	50,352	57,584
24	40,568	40,112	41,904	43,536	49,880	49,328	44,552	39,576	56,896	49,664	33,792	64,584
25	46,072	42,656	51,448	45,152	53,560	41,832	39,280	39,328	51,568	53,584	51,808	47,216
26	44,656	42,016	34,376	46,296	41,880	50,952	45,728	54,080	63,480	56,536	47,248	53,000
27	43,344	47,880	35,408	45,200	50,104	35,656	44,080	41,816	45,328	39,752	45,016	47,784
28	45,200	47,528	32,624	50,552	46,864	38,192	38,984	44,192	51,848	60,880	53,256	55,016
29	48,688	46,320	34,904	41,056	43,552	37,392	40,056	46,232	41,216	52,216	54,544	39,056
30	38,776		36,408	47,096	46,736	37,264	35,744	42,192	39,048	65,296	51,184	51,104
31	45,448		36,240		53,672		37,440	43,608		51,160		61,808
Monthly Total	1,381,920	1,300,656	1,310,208	1,185,848	1,461,928	1,384,720	1,304,464	1,271,376	1,385,480	1,479,168	1,431,392	1,594,680

Day	January (m^3/day)	February (m^3/day)	March (m^3/day)	April (m^3/day)	May (m^3/day)	June (m^3/day)	July (m^3/day)	August (m^3/day)	September (m^3/day)	October (m^3/day)	November (m^3/day)	December (m^3/day)
Monthly Minimum	35,464	38,216	32,624	29,664	39,288	34,176	35,504	26,856	31,064	20,736	31,080	36,680
Monthly Maximum	51,920	52,440	51,448	50,552	53,672	58,128	55,048	54,080	63,480	65,296	57,680	64,584
Monthly Average	44,578	44,850	42,265	39,528	47,159	46,157	42,079	41,012	46,183	47,715	47,713	51,441

Annual Total (m^3)	16,491,840
Annual Minimum (m^3/day)	20,736
Annual Maximum (m^3/day)	65,296
Annual Average (m^3/day)	45,057

Note: (i) As per the water system's current Municipal Drinking Water Licence, the rated capacity of the Water Treatment Plant is 91,000 m^3/day. The maximum daily volume of treated water that flows from the treatment plant into the distribution system shall not exceed this value.

4. Treated Water Instantaneous Peak Flow (L/s)

Day	January (L/s)	February (L/s)	March (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	August (L/s)	September (L/s)	October (L/s)	November (L/s)	December (L/s)
1	640	868	466	631	634	837	650	873	492	725	869	653
2	644	633	862	479	857	869	466	842	706	860	859	870
3	642	757	851	651	719	835	865	871	640	862	466	873
4	866	645	856	862	869	880	876	860	493	864	863	865
5	855	630	781	470	871	840	841	866	638	859	862	870
6	857	640	875	659	867	585	879	491	858	638	867	462
7	874	633	633	478	627	469	653	856	613	856	860	463
8	837	627	634	482	642	871	860	785	831	871	861	868
9	870	632	632	479	648	835	848	860	862	633	873	857
10	865	627	634	478	863	866	853	851	835	633	474	863
11	861	626	646	867	459	638	646	633	844	635	873	858
12	867	807	637	471	864	633	860	855	863	629	620	863
13	836	874	638	465	847	867	861	846	870	491	872	861
14	857	867	639	464	654	848	492	861	838	492	632	870
15	543	857	634	469	647	865	871	883	489	878	663	878
16	869	464	635	481	649	864	549	835	866	861	865	872
17	837	867	699	473	653	866	645	487	634	865	875	876
18	865	862	859	480	870	873	465	636	866	870	703	872
19	879	863	828	640	877	888	862	853	872	855	870	867
20	870	649	646	639	864	879	491	680	870	620	831	861
21	858	624	645	868	878	868	869	619	863	867	861	863
22	869	625	649	864	874	834	453	648	618	864	663	829
23	850	872	641	879	863	866	454	471	855	881	862	873
24	870	852	640	645	850	836	648	463	850	865	467	869
25	863	628	862	642	864	661	652	462	857	870	868	837
26	865	625	887	880	880	872	860	654	860	860	759	859
27	867	845	869	864	871	665	870	835	643	865	634	651
28	633	862	822	878	872	637	491	868	641	861	859	866
29	856	852	481	844	836	649	650	866	861	648	652	648
30	873		479	650	867	660	863	851	490	865	864	869
31	866		478		876		860	684		875		864

Day	January (L/s)	February (L/s)	March (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	August (L/s)	September (L/s)	October (L/s)	November (L/s)	December (L/s)
Monthly Minimum	543	464	466	464	459	469	453	462	489	491	466	462
Monthly Maximum	879	874	887	880	880	888	879	883	872	881	875	878
Monthly Average	823	731	695	638	791	789	716	747	751	784	772	818

Annual Minimum (L/s)	453
Annual Maximum (L/s)	888
Annual Average (L/s)	754

Note: (i) As per the water system's current Municipal Drinking Water Licence, the rated capacity of the Water Treatment Plant is 91,000 m^3/day. This converts to 1053 litres/second. The maximum daily volume of treated water that flows from the treatment plant into the distribution system shall not exceed this value.

Appendix B: 2024 Annual Report

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Drinking-Water Systems Regulation O. Reg. 170/03

Drinking-Water System Number:	210000871
Drinking-Water System Name:	**Elgin Area Primary Water Supply System**
Drinking-Water System Owner:	Elgin Area Primary Water Supply System Joint Board of Management
Drinking-Water System Operating Authority:	Ontario Clean Water Agency (OCWA)
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2024 through December 31, 2024

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 [ ]** **Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.** Lake Huron and Elgin Area Water Supply Systems c/o Regional Water Supply Division 235 North Centre Road, Suite 200 London, ON N5X 4E7 https://huronelginwater.ca/ Elgin Area Primary Water Supply System 43665 Dexter Line, Union, ON N0L 2L0	**Number of Designated Facilities served:** N/A **Did you provide a copy of your annual report to all Designated Facilities you serve?** **Yes [ ] No [ ]** **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 [ ]**

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

Systems that receive their drinking water directly from the EAPWSS:

Drinking Water System Name	Drinking Water System Number
City of London Distribution System	260004917
St. Thomas Area Secondary Water Supply System	260078897
Aylmer Area Secondary Water Supply System	260004722
Port Burwell Area Secondary Water Supply System	260004735
Central Elgin Distribution System	260004761
St. Thomas Distribution System	260002187

Systems that receive their drinking water indirectly from the EAPWSS:

Drinking Water System Name	Drinking Water System Number
Aylmer Distribution System	260002136
Malahide Distribution System	260004774
Dutton Dunwich Distribution System	220002967
Bayham Distribution System	260004748
Southwold Distribution System	210001362
Ontario Police College Distribution System	260002161

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 Elgin Area Primary Water Supply System employs pre-chlorination, screening, process pH adjustment (utilizing carbon dioxide), powder activated carbon addition (seasonally on an as-required basis), coagulation, flocculation, sedimentation, dual-media filtration, UV disinfection, post-chlorination, final pH adjustment (utilizing sodium hydroxide) and fluoridation to treat raw water obtained from Lake Erie. The WTP has a rated capacity of 91 ML/day (MLD). Water is pumped from the plant through the primary transmission main (900mm diameter) to various communities enroute to the Elgin Terminal Reservoir located in northeast St. Thomas. The drinking water system is monitored at various locations throughout the system via a Supervisory Control and Data Acquisition (SCADA) system.
A Residuals Management Facility (RMF) provides equalization, clarification, sediment thickening and dechlorination. Thickened sediment is dewatered by centrifuges and the thickened sediment is sent to the landfill for final disposal. Clarified and dechlorinated liquid streams are discharged back to Lake Erie through the plant drain.

List all water treatment chemicals used over this reporting period

Carbon Dioxide
Aluminum Sulphate
Cationic Polymer
Powder Activated Carbon
Chlorine Gas
Hydrofluorosilicic Acid
Sodium Hydroxide
Dewatering Polymer (Residuals Management Facility)
Thickening Polymer (Residuals Management Facility)
Sodium Bisulphite (Residuals Management Facility)

Were any significant expenses incurred to?

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

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

Capital and Maintenance Projects:

- Safety railing replacements (Surge Building and Polymer Room)
- Fluoride flow meter installation
- Fire hydrant replacement (Generator Building)
- Building exterior sealants repair and installation
- Roof drain replacements (Flocculation Room)
- Designated Substances removal
- Security Upgrades: Lighting upgrades, fencing and gate installations (Low Lift Building and Fruitridge Surge Facility)
- SCADA software upgrade project
- Technical Standards & Safety Authority (TSSA) generator fuel system upgrades
- Filter #3 rebuild
- Lowlift Pump #2 rebuild

Studies and Design:

- Water Quality Facility Plan Update
- Master Water Plan Update
- Sodium bisulphite room atmospheric condition assessment
- Ultraviolet (UV) Disinfection System & Backwash Pump upgrade project – design
- Sodium hydroxide system injection upgrade – design
- Low lift distribution well chlorine injection upgrade project - design

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 Report Date	Parameter	Corrective Action	Corrective Action Date
January 29, 2024	CT *	Adverse Water Quality Incident (AWQI) reported (ref# 164418) for CT failure alarm on January 27, 2024. Further investigation of the incident determined that CT was met. The alarm was generated due to conservative programming within the CT calculator, where an alarm is generated on filter effluent turbidity issues. Training was provided to staff on alarm response and CT data review.	February 2, 2024

*CT is a disinfection concept where CT is calculated by multiplying the chlorine residual concentration (in mg/L) by the chlorine contact time (in minutes).

Drinking-Water Systems Regulation O. Reg. 170/03

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

Location	Number of Samples	Range of E. coli Results (CFU/100 mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)	Range of HPC Results (CFU/100 mL) (min #)-(max #)
Raw Water	104	(0)-(100)	(0)-(50,000)	(<10)-(>2,000)
Treated Water (WTP)	210	(0)-(0)	(0)-(0)	(0)-(>2,000)
Distribution (Elgin Terminal Reservoir Valve House)	107	(0)-(0)	(0)-(0)	(<10)-(20)
Distribution (Fruitridge Surge Facility)	52	(0)-(0)	(0)-(0)	(<10)-(40)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

Parameter	Number of Samples	Range of Results (min #)-(max #)
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.77)-(1.84)
Treated Water Fluoride (mg/L)	Continuous Monitoring	(0.07)-(0.94)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.024)-(0.256)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.022)-(0.213)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.015)-(1.108)*
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.013)-(0.788)
Raw Water Turbidity (NTU)	Continuous Monitoring	(0.032)-(1000)
Elgin Terminal Reservoir Inlet Free Chlorine (mg/L)	Continuous Monitoring	(0.56)-(2.92)

Monthly filter performance met for all four filters (<0.3NTU 95% of the readings).
*Turbidity spike above 1NTU for 6sec on Filter #3, no Adverse Water Quality Incident (AWQI) as a result.

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Drinking-Water Systems Regulation O. Reg. 170/03

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 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Arsenic	January 2, 2024 August 6, 2024	0.0003 0.0003	mg/L mg/L	NO
Barium	January 2, 2024 August 6, 2024	0.0204 0.0207	mg/L mg/L	NO
Boron	January 2, 2024 August 6, 2024	0.018 0.020	mg/L mg/L	NO
Cadmium	January 2, 2024 August 6, 2024	0.000007 0.000005	mg/L mg/L	NO
Chromium	January 2, 2024 August 6, 2024	0.00010 Not Detected	mg/L mg/L	NO
Lead (EMPS Valve House)	October 1, 2024	Not Detected	mg/L	NO
Mercury	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Selenium	January 2, 2024 August 6, 2024	0.00015 0.00012	mg/L mg/L	NO
Uranium	January 2, 2024 August 6, 2024	0.000048 0.000032	mg/L mg/L	NO
Sodium	January 2, 2024	16.8	mg/L	NO
Nitrite	January 2, 2024 April 2, 2024 July 2, 2024 October 1, 2024	Not Detected Not Detected Not Detected Not Detected	mg/L mg/L mg/L mg/L	NO
Nitrate	January 2, 2024 April 2, 2024 July 2, 2024 October 1, 2024	0.120 0.331 0.149 0.045	mg/L mg/L mg/L mg/L	NO

Summary of Organic parameters sampled 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
Alachlor	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Atrazine + N-dealkylated metabolites	January 2, 2024 August 6, 2024	0.00005 0.00003	mg/L mg/L	NO
Azinphos-methyl	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Benzene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Benzo(a)pyrene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Bromoxynil	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Carbaryl	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Carbofuran	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Carbon Tetrachloride	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Chlorpyrifos	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Diazinon	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Dicamba	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
1,2-Dichlorobenzene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
1,4-Dichlorobenzene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
1,2-Dichloroethane	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Dichloromethane	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
2,4-Dichlorophenol	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Diclofop-methyl	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Dimethoate	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Diquat	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Diuron	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Glyphosate	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Haloacetic Acids (HAA's) EMPS Valve House	April 2, 2024 July 2, 2024 August 23, 2024 October 1, 2024	Not Detected Not Detected 0.0077 0.0063	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) EMPS Valve House = Running Annual Average	2024	<0.0053	mg/L	NO
Malathion	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
2-Methyl-4-chlorophenoxyacetic acid	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Metolachlor	January 2, 2024 August 6, 2024	0.00001 Not Detected	mg/L mg/L	NO
Metribuzin	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Monochlorobenzene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Paraquat	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Pentachlorophenol	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Phorate	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Picloram	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Polychlorinated Biphenyls (PCB)	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Prometryne	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Simazine	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Total Trihalomethanes (THMs) EMPS Valve House	April 2, 2024 July 2, 2024 August 23, 2024 October 1, 2024	0.014 0.016 0.032 0.023	mg/L mg/L mg/L mg/L	NO
(THMs) EMPS Valve House = Running Annual Average	2024	0.021	mg/L	NO
Terbufos	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Tetrachloroethylene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
2,3,4,6-Tetrachlorophenol	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Triallate	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Trichloroethylene	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
2,4,6-Trichlorophenol	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Trifluralin	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO
Vinyl Chloride	January 2, 2024 August 6, 2024	Not Detected Not Detected	mg/L mg/L	NO

NOTE: During 2024, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Appendix C - 2024 Ministry of the Environment Conservation and Parks Inspection Summary

DWS Name:	ELGIN AREA PRIMARY WATER SUPPLY SYSTEM
DWS Number:	210000871
DWS Owner:	ELGIN AREA PRIMARY WATER SUPPLY SYSTEM JOINT BOARD OF MANAGEMENT
Municipal Location:	LONDON
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Sep-23-2024
Ministry Office:	London District Office

Maximum Risk Rating: 469

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/30
Certification and Training	0/42
Logbooks	0/14
Operations Manuals	0/14
Reporting & Corrective Actions	21/29
Source	0/0
Treatment Processes	0/228
Water Quality Monitoring	0/112
Overall - Calculated	**21/469**

Inspection Risk Rating:	**4.48%**

Final Inspection Rating:	**95.52%**

DWS Name:	ELGIN AREA PRIMARY WATER SUPPLY SYSTEM
DWS Number:	210000871
DWS Owner Name:	ELGIN AREA PRIMARY WATER SUPPLY SYSTEM JOINT BOARD OF MANAGEMENT
Municipal Location:	LONDON
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Sep-23-2024
Ministry Office:	London District Office

Non-Compliance Question(s)	Non Compliance Risk
Reporting & Corrective Actions	
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, Municipal Drinking Water Licence, Drinking Water Works Permit, or order triggered an alarm or an automatic shut-off, did a qualified person respond as required and take appropriate actions?	21
Overall - Total	**21**

Maximum Question Rating: 469

Inspection Risk Rating:	**4.48%**
FINAL INSPECTION RATING:	**95.52%**

Non-compliance #1

Question Group: Legislative

Question: Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, Municipal Drinking Water Licence, Drinking Water Works Permit, or order triggered an alarm or an automatic shut-off, did a qualified person respond as required and take appropriate actions?

Issue as Identified in the Inspection Report:

Ontario Regulation 170/03 Schedule 6-5. (1) Stipulates that if a drinking water system uses continuous monitoring equipment for sampling and testing that is required under this Regulation, the system shall ensure that the following standards are met:

5. The continuous monitoring equipment must be designed and operated in accordance with the standards described in subsection (1.1) which states that the continuous monitoring equipment must cause an alarm to signal immediately at the following locations if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard as stated:

2. A person qualified to examine test results under paragraph 3 of subsection (1) must take appropriate action if the person is at the location where tests are conducted,

i. an alarm signals under paragraph 1,

ii. a record of a test result indicates that an alarm should have signaled under paragraph 1, or

iii. there is good reason to believe that the continuous monitoring equipment has malfunctioned or lost power.

According to documentation submitted for review, at approximately 03:18 on January 27, 2024, the operator received an alarm for improper disinfection from the Online CT Calculator.

The alarm was acknowledged by the operator; however, they did not notify the ORO or investigate the legitimacy of the alarm nor was it properly documented in the logbooks. On January 29, 2024, the Daily CT Reports were reviewed by the Team Lead and the incident was eventually reported to the Ministry. It should be noted that an internal investigation of the CT calculator was conducted, and the alarm was generated due to conservative programming and calculator limitations and therefore no improperly disinfected water directed to users.

The Operating Authority has implemented temporary procedures until such time that the CT calculator can be updated during scheduled plant upgrades.

Corrective Actions:

From herein, the Owner/Operating Authority shall ensure that all alarms that are required as per Schedule 6-5 of O.Reg 170/03 are promptly responded too, appropriately addressed and diligently documented. Compliance shall be assessed during next inspection period.

Status Update:

The Operating Authority reviewed the incident when it occurred and ESOP-01-05 Loss of CT During Treatment was updated March 31, 2024 to provide clarification and training was provided to staff.

Logbook training was provided to staff on February 29, 2024 to ensure proper documentation of alarms.