



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, 2016 through December 31, 2016

<u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u> 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 http://www.watersupply.london.ca Elgin Area Water Treatment Plant 43665 Dexter Line, Union, ON	<u>Complete for all other Categories.</u> 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 Secondary Water Supply System	260004735
Municipality of Central Elgin	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
Municipality of Bayham	260004748
Southwold Distribution System	210001362
Ontario Police College Distribution System	260002161
St. Thomas Psychiatric Hospital Distribution Supply	260005255

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 News Release

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 two 750 mm and 900mm diameter water mains to various communities en route to the Elgin-Middlesex terminal reservoir located northeast of St. Thomas in the Municipality of Central Elgin. The drinking water system is monitored at various locations throughout the system via a Supervisory Control and Data Acquisition (SCADA) system.

List all water treatment chemicals used over this reporting period

Carbon Dioxide
Aluminum Sulphate
Cationic Polymer
Powder Activated Carbon
Chlorine Gas
Hydrofluosilicic Acid
Sodium Hydroxide



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 Projects:

- PAC system upgrades – new pumps and piping
- Filter rebuild project
- Replaced low lift valves #2 and #3
- Instrumentation replacement
- Installed chlorine tonner actuators (emergency shutoff)
- SCADA network communications
- SCADA security upgrades
- Residuals management facility
- Storage building
- Concrete crack injection
- Drain pipe replacements
- Flash mixer replacements
- Low lift and high lift tie breaker decommissioning
- Cell 1 level meter
- Settled water level meter

Maintenance Projects:

- Remedial work high lift pump #4
- Removed valve house control panel
- Increased low lift UPS battery capacity
- Replaced packing and lantern rings on high lift pumps #2, #3 and #4
- Replaced security cameras
- Installed new chlorinator controller
- Installed flushing valve on P042B main isolation valve
- Replaced fluoride pumps #1 and #2
- Replaced sodium hydroxide hot water tank
- Replaced surge tank safety relief valves
- Installed 5kv marker posts from plant to low lift
- Replaced compressor pump #3 and #4 in surge facility
- Security exterior lighting improvements
- Alum tank life cycle condition inspection



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	Result	Unit of Measure	Corrective Action	Corrective Action Date
NA	NA	NA	NA	NA	NA

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 Results (counts/100 mL) (min #)-(max #)	Range of Total Coliform Results (counts/100 mL) (min #)-(max #)	Range of HPC Results (counts/1 mL) (min #)-(max #)
Raw Water	103	(<10)-(200)	(0)-(50,000)	(<10)-(>2,000)
Treated Water (WTP)	258	(0)-(0)	(0)-(0)	(0)-(490)
Distribution (EMPS Valve House & Fruitridge Surge Facility)	156	(0)-(0)	(0)-(0)	(0)-(20)

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 #)
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.50)-(2.15)
	2025	(0.81)-(1.80)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.02)-(2.00)
	2019	(0.016)-(0.477)
Treated Water Fluoride (mg/L)	Continuous Monitoring	(0.17)-(2.00)
	672	(0.28)-(0.80)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.008)-(2.000)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.010)-(0.880)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.003)-(0.704)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.006)-(1.213)
Combined Filtered Water Turbidity (NTU)	2024	(0.007)-(0.138)

NOTE:

Turbidity spikes above 1.00 NTU on filtered and treated water coincide with instrument calibrations, instrument flushing, pump start-ups, or maintenance. Filter effluent turbidity spikes did not exceed fifteen minutes on any of the filters.

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 5, 2016	0.11	µg/L	NO
	August 30, 2016	0.31	µg/L	
Arsenic	January 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	0.3	µg/L	
Barium	January 5, 2016	21.8	µg/L	NO
	August 30, 2016	24.7	µg/L	
Boron	January 5, 2016	23.9	µg/L	NO
	August 30, 2016	18.0	µg/L	
Cadmium	January 5, 2016	0.009	µg/L	NO
	August 30, 2016	0.012	µg/L	
Chromium	January 5, 2016	0.04	µg/L	NO
	August 30, 2016	0.44	µg/L	
Lead (EMPS Valve House)	January 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	0.03	µg/L	
Mercury	January 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	Not Detected	µg/L	
Selenium	January 5, 2016	0.14	µg/L	NO
	August 30, 2016	0.20	µg/L	
Sodium	January 5, 2016	15.5	mg/L	NO
Uranium	January 5, 2016	0.027	µg/L	NO
	August 30, 2016	0.051	µg/L	
Nitrite	January 18, 2016	Not Detected	mg/L	NO
	April 5, 2016	Not Detected	mg/L	
	July 5, 2016	Not Detected	mg/L	
	October 11, 2016	Not Detected	mg/L	
Nitrate	January 18, 2016	0.303	mg/L	NO
	April 5, 2016	0.218	mg/L	
	July 5, 2016	0.116	mg/L	
	October 11, 2016	0.096	mg/L	

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 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	Not Detected	µg/L	
Atrazine + N-dealkylated metabolites	January 5, 2016	0.11	µg/L	NO
	August 30, 2016	0.05	µg/L	
Azinphos-methyl	January 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	Not Detected	µg/L	
Benzene	January 5, 2016	Not Detected	µg/L	NO
	August 30, 2016	Not Detected	µg/L	



Benzo(a)pyrene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Bromoxynil	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Carbaryl	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Carbofuran	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Carbon Tetrachloride	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Chlorpyrifos	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Diazinon	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Dicamba	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
1,2-Dichlorobenzene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
1,4-Dichlorobenzene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
1,2-Dichloroethane	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Dichloromethane	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
2,4-Dichlorophenol	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Diclofop-methyl	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Dimethoate	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Diquat	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Diuron	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Glyphosate	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Haloacetic Acids (HAA's) (EMPS Valve House)	January 5, 2016 April 5, 2016 July 5, 2016 October 11, 2016	Not Detected Not Detected Not Detected Not Detected	µg/L µg/L µg/L µg/L	NO
Malathion	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO



2-Methyl-4-chlorophenoxyacetic acid	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Metolachlor	January 5, 2016 August 30, 2016	0.02 Not Detected	µg/L µg/L	NO
Metribuzin	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Monochlorobenzene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Paraquat	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Pentachlorophenol	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Phorate	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Picloram	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Polychlorinated Biphenyls (PCB)	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Prometryne	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Simazine	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Total Trihalomethanes (THMs) <i>(EMPS Valve House)</i>	January 5, 2016 April 5, 2016 July 5, 2016 October 11, 2016	9.2 11.0 15.0 17.0	µg/L µg/L µg/L µg/L	NO
Total Trihalomethanes (THMs) <i>(EMPS Valve House)</i> Running Annual Average	2016	13.1	µg/L	NO
Terbufos	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Tetrachloroethylene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
2,3,4,6-Tetrachlorophenol	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Triallate	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Trichloroethylene	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
2,4,6-Trichlorophenol	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Trifluralin	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO
Vinyl Chloride	January 5, 2016 August 30, 2016	Not Detected Not Detected	µg/L µg/L	NO



NOTE: During 2016, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.