Elgin Area Primary Water Supply System –2025 4th Quarter Water Quality Report

There was one (1) Adverse Water Quality Incident (AWQI) reported for the Elgin Area Primary Water Supply System during this quarter, related to a fluoride grab sample.

List of Acronyms:

MAC – Maximum Acceptable Concentration; as identified in O.Reg. 169 (Ontario Drinking-Water Quality Standards)
IMAC - Interim Maximum Acceptable Concentration; as identified in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines
AO/OG – Aesthetic Objective/Operational Guideline; as identified in the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines
NT – Not Tested
NR – Not Required
ND – Not Detected

Analytical Test Results: (All values are reported in mg/L unless otherwise noted; All results are for treated water leaving the Water Treatment Plant unless otherwise noted)

Table 1. Microbiological Parameters (Required Testing Under O.Reg. 170/03), Elgin Area Water Treatment Plant:

Microbiological Parameter	MAC or IMAC	No. of Samples	No. of Detectable Results	No. of Adverse Results	Method	Sampling Date	Min. Result	Max. Result	Comments
Total Coliform (counts/100ml) [i]	Not Detectable	52	0	0	Membrane Filtration	Oct-Dec	0	0	Parameter sampled is used to test for the possible presence of fecal matter. Zero detectable test results indicates that Total Coliforms were not detected.
E. Coli (counts/100ml)[i]	Not Detectable	52	0	0	Membrane Filtration	Oct-Dec	0	0	Parameter sampled is used to test for the possible presence of fecal matter. Zero detectable test results indicates that E.Coli was not detected.
Heterotrophic Plate Count (counts/1ml)	N/A	51	5	n/a	Spread Plate Count	Oct-Dec	<10	30	Test parameter is used as an indicator of possible deterioration of water quality. Increases in HPC concentrations above baseline levels are considered undesirable.

Table 2. Microbiological Parameters (Required Testing Under O.Reg. 170/03), Distribution System:

Microbiological Parameter	MAC or IMAC	No. of Samples	No. of Detectable Results	No. of Adverse Results	Method	Sampling Date	Min. Result	Max. Result	Comments
Total Coliform (counts/100ml)[i]	Not Detectable	41	0	0	Membrane Filtration	Oct-Dec	0	0	Parameter sampled is used to test for the possible presence of fecal matter. Zero detectable test results indicates that Total Coliforms were not detected.
E. Coli (counts/100ml)[i]	Not Detectable	41	0	0	Membrane Filtration	Oct-Dec	0	0	Parameter sampled is used to test for the possible presence of fecal matter. Zero detectable test results indicates that E.Coli was not detected.
Heterotrophic Plate Count (counts/1ml)	N/A	41	6	n/a	Spread Plate Count	Oct-Dec	<10	350	Test parameter is used as an indicator of possible deterioration of water quality. Increases in HPC concentrations above baseline levels are considered undesirable. The maximum result of 350 counts was sampled from the Valve House on October 30, 2025. Tests immediately before (October 28) and after (November 4) were non-detect and 10 counts, respectively.

Table 3. Operational Parameters:

Operational Parameter	MAC or IMAC	Objective AO/OG	No. of Samples	Sampling Date	Min. Result	Max. Result	Avg. Result	Comments
Chlorine Residual, Free (mg/L) [ii]			Continuous monitoring plus 6 grab samples per day	Oct-Dec	0.92	1.47	1.22	The maintenance of an adequate free chlorine residual is essential to the protection of public health. Values reported are an average of the 6 daily grab samples. The regulated minimum for free chlorine residual concentration in a water distribution system is 0.05mg/L; however, the contractual obligation of the water system is to achieve 0.5mg/L at the point of supply to the municipalities.
Chlorine Residual, Total (mg/L) [iii]			Continuous monitoring plus 2 grab samples per day	Oct-Dec	1.09	1.72	1.38	The maintenance of an adequate free chlorine residual is essential to the protection of public health. Values reported are an average of the 2 daily grab samples.
Colour (TCU)		5	2 grab samples per day	Oct-Dec	<3	<3	<3	Values reported are an average of the 2 daily grab samples.
Conductivity (µS/cm)			Continuous monitoring plus 2 grab samples per day	Oct-Dec	100	350	195	Raw Water Conductivity. Values reported based on daily minimum, maximum and average that have been recorded electronically.
pH		6.5 – 8.5	Continuous monitoring plus 6 grab samples per day	Oct-Dec	6.86	7.73	7.47	Values reported are an average of the 6 daily grab samples.
Turbidity (NTU) [iv] [v]			Continuous monitoring plus 6 grab samples per day	Oct-Dec	0.021	0.099	0.058	Turbidity (cloudiness) of water is an indication of the presence of particles in the water. If excessive, it may interfere with proper disinfection. Values reported are an average of the 6 daily grab samples.

Operational Parameter	MAC or IMAC	Objective AO/OG	No. of Samples	Sampling Date	Min. Result	Max. Result	Avg. Result	Comments
Fluoride (mg/L) [vi]	1.5	0.6 – 0.8	Continuous monitoring plus 2 grab samples per day	Oct-Dec	0.49	0.79	0.65	Naturally occurring fluoride levels are supplemented during treatment to achieve the optimum level of 0.7mg/L recommended by Health Canada. The Ministry of Health and Long-Term Care's document "Safe Drinking Water and Fluoride Monitoring Protocol, 2023" recommends a therapeutic range of 0.6 - 0.8 mg/L for fluoride. Values reported are an average of the 2 daily grab samples. Note: An AWQI (Ref#170559) occurred on October 27, 2025 for a grab sample result of 1.88mg/L. The system was shut down and flushed, to prevent the high result from entering the distribution system.
Aluminum (mg/L)		<0.1	2 grab samples per day	Oct-Dec	0.001	0.023	0.011	Filtered Water Aluminum. Aluminum levels are slightly elevated during treatment as a result of the use of alum to help in the removal of particulates.
Temperature (Celsius)		15	Continuous monitoring plus 6 grab samples per day	Oct-Dec	4.7	22.0	12.9	Values reported are an average of the 6 daily grab samples.

Table 4. Inorganic Parameters (Required Testing Under O. Reg. 170/03 – Schedule 23):

Schedule 23 - Inorganic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	O. Reg. 170/03 Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Antimony	0.006		12	ND	NT	ND	NT	0.0006	
Arsenic	0.010		12	0.0003	NT	0.0004	NT	0.0002	
Barium	1.0		12	0.0216	NT	0.0193	NT	0.00002	
Boron	5.0		12	0.017	NT	0.020	NT	0.002	
Cadmium	0.005		12	0.000006	NT	0.000003	NT	0.000003	
Chromium	0.05		12	ND	NT	ND	NT	0.00008	
Mercury	0.001		12	ND	NT	ND	NT	0.00001	
Selenium	0.05		12	0.00015	NT	0.00020	NT	0.00004	
Uranium	0.02		12	0.000074	NT	0.000056	NT	0.000002	

Table 5. Organic Parameters (Required Testing Under O. Reg. 170/03 – Schedule 24):

Schedule 24 – Organic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	O. Reg. 170/03 Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Alachlor	0.005		12	ND	NT	ND	NT	0.00002	Herbicide
Atrazine + N-dealkylated metabolites	0.005		12	0.00005	NT	0.00002	NT	0.00001	Herbicide
Azinphos-methyl	0.02		12	ND	NT	ND	NT	0.00005	Insecticide
Benzene	0.005		12	ND	NT	ND	NT	0.00032	An aromatic hydrocarbon present in gasoline
Benzo(a)pyrene	0.00001		12	ND	NT	ND	NT	0.000004	A polycyclic aromatic hydrocarbon (PAH) that forms during the combustion of organic matter (e.g. emissions from burning fossil fuels)
Bromoxynil	0.005		12	ND	NT	ND	NT	0.00033	Herbicide
Carbaryl	0.09		12	ND	NT	ND	NT	0.00005	Insecticide
Carbofuran	0.09		12	ND	NT	ND	NT	0.00001	Insecticide
Carbon Tetrachloride	0.005		12	ND	NT	ND	NT	0.00017	An organic liquid that is primarily released from man-made sources; used in industrial and agricultural process
Chlorpyrifos	0.09		12	ND	NT	ND	NT	0.00002	Pesticide
Diazinon	0.02		12	ND	NT	ND	NT	0.00002	Insecticide
Dicamba	0.12		12	ND	NT	ND	NT	0.00020	Herbicide

Schedule 24 – Organic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	O. Reg. 170/03 Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
1,2-Dichlorobenzene	0.2	0.003	12	ND	NT	ND	NT	0.00041	An organic compound used in both industrial and commercial products (coolant, degreaser, solvent)
1,4-Dichlorobenzene	0.005	0.001	12	ND	NT	ND	NT	0.00036	An organic compound used in both industrial and commercial products (deodorizer, fungicide, lubricant)
1,2-Dichloroethane	0.005		12	ND	NT	ND	NT	0.00035	An organic chemical with many industrial and commercial applications (solvent, fumigant, ingredient in plastics etc.)
1,1-Dichloroethylene (vinylidene chloride)	0.014		12	ND	NT	ND	NT	0.00033	Volatile organic compound; imported for use in the food packaging and textile industries
Dichloromethane	0.05		12	ND	NT	ND	NT	0.00035	Volatile organic compound used in a variety of industries (electronics, textiles, pharmaceuticals, plastics etc.)
2,4-Dichlorophenol	0.9	0.0003	12	ND	NT	ND	NT	0.00015	An organic compound used in industry and chemical manufacturing
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.1		12	ND	NT	ND	NT	0.00019	Herbicide
Diclofop-methyl	0.009		12	ND	NT	ND	NT	0.00040	Herbicide
Dimethoate	0.02		12	ND	NT	ND	NT	0.00006	Insecticide
Diquat	0.07		12	ND	NT	ND	NT	0.001	Herbicide
Diuron	0.15		12	ND	NT	ND	NT	0.00003	Herbicide

Schedule 24 – Organic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	O. Reg. 170/03 Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Glyphosate	0.28		12	ND	NT	ND	NT	0.001	Herbicide
Malathion	0.19		12	ND	NT	ND	NT	0.00002	Insecticide
2 methyl-4-chlorophenoxyacetic acid (MCPA)	0.1		12	ND	NT	ND	NT	0.00012	Herbicide
Metolachlor	0.05		12	0.00001	NT	ND	NT	0.00001	Herbicide
Metribuzin	0.08		12	ND	NT	ND	NT	0.00002	Herbicide
Monochlorobenzene	0.08	0.03	12	ND	NT	ND	NT	0.0003	A man-made organic compound; primarily used as a solvent
Paraquat	0.01		12	ND	NT	ND	NT	0.001	Herbicide
Pentachlorophenol	0.06		12	ND	NT	ND	NT	0.00015	An organic compound; used as a pesticide and wood preservative (manufacture and use banned since the 1980's)
Phorate	0.002		12	ND	NT	ND	NT	0.00001	Insecticide
Picloram	0.19		12	ND	NT	ND	NT	0.001	Herbicide
Polychlorinated Biphenyls (PCB)	0.003		12	ND	NT	ND	NT	0.00004	An organic compound; used in electrical equipment and as a fire retardant (use has been banned since the 1980's)
Prometryn	0.001		12	ND	NT	ND	NT	0.00003	Herbicide
Simazine	0.01		12	ND	NT	ND	NT	0.00001	Herbicide

Schedule 24 – Organic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	O. Reg. 170/03 Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Terbufos	0.001		12	ND	NT	ND	NT	0.00001	Insecticide
Tetrachloroethylene (perchloroethylene)	0.01		12	ND	NT	ND	NT	0.00035	An organic compound; used as a solvent in dry cleaning and metal cleaning industries
2,3,4,6-Tetrachlorophenol	0.10	0.001	12	ND	NT	ND	NT	0.00020	An organic compound; currently used mainly as a wood preservative
Triallate	0.23		12	ND	NT	ND	NT	0.00001	Herbicide
Trichloroethylene	0.05		12	ND	NT	ND	NT	0.00044	Volatile organic compound; used in metal degreasing operations and chemical manufacturing
2,4,6-Trichlorophenol	0.005	0.002	12	ND	NT	ND	NT	0.00025	Volatile organic compound; used in the manufacture of pesticides
Trifluralin	0.045		12	ND	NT	ND	NT	0.00002	Herbicide
Vinyl Chloride	0.002		12	ND	NT	ND	NT	0.00017	Volatile organic compound; Used in making PVC (polyvinyl chloride) plastic items

Table 6. Additional Organic Parameters (Removed from Schedule 24 as of January 1, 2016):

Organic Parameter	MAC or IMAC (mg/L)	Objective AO/OG	Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Aldicarb			NR	ND	NT	ND	NT	0.00001	Insecticide
Aldrin + Dieldrin			NR	ND	NT	ND	NT	0.00001	Insecticide
Bendiocarb			NR	ND	NT	ND	NT	0.00001	Insecticide
Chlordane (total)			NR	ND	NT	ND	NT	0.00001	Pesticide
Cyanazine			NR	ND	NT	ND	NT	0.00003	Herbicide
Dichlorodiphenyltrichloroethane (DDT) + metabolites			NR	ND	NT	ND	NT	0.00001	Insecticide
Dinoseb			NR	ND	NT	ND	NT	0.00036	Insecticide, Herbicide
Heptachlor + Heptachlor Epoxide			NR	ND	NT	ND	NT	0.00001	Insecticide
Lindane (Total)			NR	ND	NT	ND	NT	0.00001	Pesticide
Methoxychlor			NR	ND	NT	ND	NT	0.00001	Insecticide
Parathion			NR	ND	NT	ND	NT	0.00002	Insecticide
Temephos			NR	ND	NT	ND	NT	0.00001	Insecticide
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)			NR	ND	NT	ND	NT	0.00022	Herbicide

Table 7. General Chemistry and Physical Parameters (Additional Regulatory and Contractual Testing):

General Chemistry and Physical Parameter	MAC or IMAC (mg/L)	Objective AO/OG (mg/L)	O. Reg. 170/03 Required Frequency of Testing (months)	Contractual Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Alkalinity (Total as $CaCO_3$)		30 – 500	NR	6	85	128	120	113	2	Q4 value is the average of 3 sample results
Calcium			NR	12	32.9	NT	NT	NT	0.01	
Chloride		250	NR	12	18	NT	NT	NT	0.04	
Copper		1	NR	12	0.0043	NT	NT	NT	0.0002	
Dissolved Organic Carbon (mg/L as C)		5	NR	12	1.9	1.5	1.7	1.4	1	Q4 value is the average of 3 sample results
Dissolved Inorganic Carbon (mg/L as C)			NR	6	0.026	NT	0.028	NT	1	
Ethylbenzene	0.14	0.0016	NR	12	ND	NT	NT	NT	0.00033	
Geosmin (ng/L)		4.0	NR	Weekly as Required	ND	ND	<3	<3	3.0 ng/L	Geosmin is tested weekly from July 1-Oct 31 with sampling extended until November 25 in 2025 due to elevated concentrations. Q4 value is the average of 15 sample results. There were 7 detectable results ranging from 3 to 8 ng/L. The maximum result of 8 ng/L occurred on November 4.
Haloacetic Acids (Elgin-Middlesex Terminal Reservoir Valve House)	0.080	0.060	3	3	ND	ND	ND	0.0059	0.0053	The standard is expressed as a running annual average (RAA) of quarterly samples measured at a point reflecting the highest concentrations in the distribution system. RAA: < 0.0053 mg/L
Hardness (mg/L as $CaCO_3$)		80 – 100	NR	12	116	NT	NT	NT	0.05	

General Chemistry and Physical Parameter	MAC or IMAC (mg/L)	Objective AO/OG (mg/L)	O. Reg. 170/03 Required Frequency of Testing (months)	Contractual Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Iron		0.3	NR	12	ND	ND	ND	ND	0.007	
Lead	0.01		NR	6	0.00003	NT	ND	NT	0.00001	
Magnesium			NR	12	8.13	NT	NT	NT	0.001	
Manganese		0.05	NR	12	0.00017	0.00079	0.00008	0.00050	0.00001	Q4 value is the average of 3 sample results
Methane (L/m^3)		$3L/m^3$	NR	12	ND	NT	NT	NT	0.02 L/m^3	
2-Methylisoborneol (MIB) (ng/L)		8.5	NR	Weekly as Required	ND	ND	2	5	3.0 ng/L	MIB is tested weekly from July 1-Oct 31 with sampling extended until November 25 in 2025 due to elevated concentrations. Q4 value is the average of 15 sample results. There were 10 detectable results ranging from 3 to 17.9 ng/L. The maximum result of 17.9 ng/L occurred on October 28.
Nitrate	10.0		3	3	0.180	0.162	0.029	0.031	0.006	Q4 value is based on one sample result
Nitrite	1.0		3	3	ND	ND	ND	ND	0.003	
Organic Nitrogen		0.15	NR	12	0.00007	NT	NT	NT	0.00005	Organic nitrogen is calculated by subtracting Total Ammonia from Total Kjeldahl Nitrogen
Sodium		200	60	12	8.53	NT	NT	NT	0.01	The local Medical Officer of Health must be notified when 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.
Sulphate		500	NR	12	33	NT	NT	NT	0.04	
Sulphide		0.05	NR	12	ND	NT	NT	NT	0.006	
Toluene	0.06		NR	12	ND	NT	NT	NT	0.00036	
Total Dissolved Solids		500	NR	12	151	NT	NT	NT	30	

General Chemistry and Physical Parameter	MAC or IMAC (mg/L)	Objective AO/OG (mg/L)	O. Reg. 170/03 Required Frequency of Testing (months)	Contractual Required Frequency of Testing (months)	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Reportable Detection Limit (mg/L)	Comments
Trihalomethanes (Elgin-Middlesex Terminal Reservoir Valve House)	0.100		3	3	0.012	0.010	0.016	0.020	0.00037	The standard is expressed as a running annual average (RAA) of quarterly samples measured at a point reflecting the maximum residence time in the distribution system. RAA: 0.015 mg/L
Xylenes	0.09	0.02	NR	12	ND	NT	NT	NT	0.00043	
Zinc		5.0	NR	12	ND	NT	NT	NT	0.002	

[i] Indicator of adverse water quality
[ii] In addition to the analytical samples noted, free chlorine residual is also measured on a continuous basis at the treatment facility using on-line instrumentation.
[iii] In addition to the analytical samples noted, total chlorine residual is also measured on a continuous basis at the treatment facility using on-line instrumentation.
[iv] In addition to the analytical samples noted, turbidity is also measured on a continuous basis at the treatment facility using on-line instrumentation.
[v] Turbidity is both regulated by the Province of Ontario, and specified in accordance with the operating agreement with the Contracted Operating Authority. The turbidity reported (6 daily grab samples) is taken from the plant treated water discharge, which is not explicitly regulated in Provincial Regulations. Provincial Standards recommend an aesthetic objective of 5 NTU within a distribution system, and Provincial Regulation specifies a maximum of 1 NTU on individual filter effluent. The contract with the Operating Authority specifies a maximum turbidity of 0.2 NTU on treated water discharge from the water treatment plant and 0.1 NTU on individual filter effluent. There is currently no standard for combined filter effluent.
[vi] In addition to the analytical samples noted, fluoride is also measured on a continuous basis at the treatment facility using on-line instrumentation.