

Appendix II

City of Ottawa Drinking Water Systems 2024

Regulatory requirements and compliance with Safe Drinking Water Act (2002)

Drinking water systems: Lemieux Island WPP; Britannia WPP and Central Distribution System; Carp Well System; Munster Well System; Kings Park Well System; Richmond West Well System; Shadow Ridge Well System; Vars Well System

Source Water: Ottawa River & various groundwater sources for municipal well systems

Date of report: March 31st, 2025

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Water Treatment										
Raw (river/well) water taking	PTTW	Raw water flow must be <PTTW	✓	✓	✓	✓	✓	✓	✓	✓
Raw (river/well) water taking	PTTW	Daily raw water taking flow rates for previous year must be submitted to MECP by March 31	✓	✓	✓	✓	✓	✓	✓	✓
Treated water production	MDWL Sch.(C) 1.0	Treated water flow must be <MDWL	✓	✓	✓	✓	✓	✓	✓	✓
Treatment barriers	O.Reg.170/03 Sch.1.4	Treatment must include chemically assisted filtration for surface water systems	✓	✓	n/a	n/a	n/a	n/a	n/a	n/a

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Well protection	O.Reg.170/03 Sch.1.2	Wells must be constructed and maintained to prevent surface water and contaminants from entering the well	n/a	n/a	✓	✓	✓	✓ ¹	✓	✓
Treatment barriers	O.Reg.170/03 Sch.1.2	Treatment barriers must be operated: (i) whenever water is being supplied, (ii) in accordance with the <i>Procedure for Disinfection</i> , & (iii) to achieve the design capability	✓	✓	✓	✓	✓	✓	✓	✓
Pathogen removal	MDWL Sch.(E) 1.0	Treatment plants must be designed and operated to achieve: 3-log (99.9%) reduction of Crypto-plants 4-log (99.99%) reduction of Giardia-plants 5-log (99.999%) reduction of Virus-plants 2 (99%) log-Virus inactivation for Carp, KP, Munster, Vars; 2/3/4-log reduction Crypto/Giardia/Virus for Shadow Ridge; 4-log virus inactivation for Richmond West;	✓	✓	✓	✓	✓	✓	✓	✓
Filter turbidity monitoring	O.Reg.170/03 Sch.7.3	Each filter must operate with a dedicated continuous analyzer to monitor filter effluent turbidity	✓	✓	n/a	n/a	n/a	n/a	✓	n/a
Filter turbidity performance	O.Reg.170/03 <i>Procedure for Disinfection</i>	Filter effluent turbidity measurements must be <0.3 NTU in 95% of monthly readings; Shadow Ridge <0.2 NTU in >99% of monthly readings	✓	✓	n/a	n/a	n/a	n/a	✓	n/a

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Secondary disinfection	O.Reg.170/03 Sch.1.5	Secondary disinfection equipment must be capable of providing 1.0 mg/L combined chlorine (chloramine-Central), 0.2 mg/L free chlorine(wells) throughout the distribution system	✓	✓	✓	✓	✓	✓	✓	✓
Continuous analyzers	O.Reg.170/03 Sch.6.5, Sch.7.2	Must provide minimum testing frequency, alarm settings, operator response, data review within 72 hours, chlorine at CT outlet, calibration	✓	✓	✓	✓	✓	✓	✓	✓
Chemicals and materials	MDWL Section 14.0	Chemicals and materials in contact with drinking water must meet standards NSF/60, NSF/61, & NSF 372	✓	✓	✓	✓	✓	✓	✓	✓
Waste & residual management	MDWL Sch.(C) 1.5	Total suspended solids <25 mg/L (annual average); Total chlorine <0.02 mg/L (maximum); pH between 6.0 and 9.5 units	✓	✓	n/a	n/a	n/a	n/a	n/a	n/a
Calibration of flow measuring devices	MDWL Sch.(C) 2.0	Annual calibration for raw water and treated water flow meters	✓	✓	✓	✓	✓	✓	✓	✓
Harmful Algal Bloom Response plan (HAB)	MDWL #008-102 Sch.(C) 6.0	Response plan for sampling and reporting of HAB. Sample monthly between May – Oct and monitor shoreline with trigger levels & response actions	✓	✓	n/a	n/a	n/a	n/a	n/a	n/a
Water Quality										
Microbiological sampling & testing	O.Reg.170/03 Sch.10.2, 10.3, & 10.4	Raw water – weekly TC/EC Treated water – weekly TC/EC Treated water – weekly HPC Distrib. – monthly TC/EC	✓	✓	✓	✓	✓	✓	✓	✓

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
		Distrib. – monthly HPC								
Chemical sampling & testing	O.Reg.170/03 Sch.13.2, Sch.13.3	Inorganics (9 trace metals) – Organics (56 chemicals) –	✓	✓	✓	✓	✓	✓	✓	✓
Turbidity in source wells	O.Reg.170/03 Sch.7.3	Monthly turbidity measurements in each source well (12 x 2 wells = 24 tests required per year)	n/a	n/a	✓	✓	✓	✓	✓	✓
Trihalomethanes, haloacetic acids, nitrate, nitrite, & sodium	O.Reg.170/03 Sch.13.6, 13.6.1, 13.7, & 13.8	trihalomethanes – 4/year (dist.) haloacetic acids – 4/year (dist.) nitrate/nitrite – 4/year sodium – 1 sample every 5 years	✓	✓	✓	✓	✓	✓	✓	✓
Chlorine residual testing in distribution system	O.Reg.170/03 Sch.7.2.3	At least 7 samples per week, either daily or 4/3 at least 48 hours apart with multiple locations	✓	✓	✓	✓	✓	✓	✓	✓
Chlorine readings for bacteriological samples	O.Reg.170/03 Sch.6.3	Chlorine residual must be measured and recorded for every bacteriological sample taken	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride testing	O.Reg.170/03 Sch.7.4	Fluoride concentration measured at least once per day (n=365 tests per year) if system adds fluoride	✓	✓	n/a	n/a	n/a	n/a	n/a	n/a

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Increased frequency of testing for chemicals	O.Reg.170/03 Sch.13.5	Increase test frequency to quarterly if test result exceeds half the Ontario Drinking Water Quality Standard	✓	✓	✓	✓	✓	✓	✓	✓
Lead testing in consumer tap water	O.Reg.170/03 Sch.15.1	Twice per year, conduct 30-minute stagnation sampling in customer homes with lead service pipes, buildings, and distribution locations; 90 th percentile lead concentrations for Litre-1 and Litre-2 must be <10 ppb	✓	✓	✓	✓	✓	✓	✓	✓
Duty to report adverse water quality test results	O.Reg.170/03 Sch.16.3, 16.4, 16.6, 16.7, 16.8, 16.9	Report immediately to MOH, MECP, written report within 24 hours, corrective actions taken, resolution notice within 7 days	✓	✓	✓	✓	✓	✓	✓	✓
Corrective actions for adverse water quality	O.Reg.170/03 Sch.17.2 – 17.13	Specific corrective actions are required for each type of Adverse Water Quality event: improper disinfection, filter turbidity, chlorine residual, E.coli, total coliforms, <i>Aeromonas</i> , chemical MAC, pesticide, sodium	✓	✓	✓	✓	✓	✓	✓	✓
Retention of records	O.Reg.170/03 Section 13	2 years – operational checks & microbiological testing 6 years – chemical testing, lead testing, corrective actions, annual & summary reports 15 years – sodium, fluoride, Engineer Reports	✓	✓	✓	✓	✓	✓	✓	✓
Notification of laboratory testing	O.Reg.170/03 Sch.6.9	Must provide written notification to the MECP for the identity of the Laboratory performing regulatory testing of water samples	✓	✓	✓	✓	✓	✓	✓	✓

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Laboratory testing of drinking water samples	O.Reg.248/03 Section 1	Analysis of parameters with a health-based drinking water quality standard must be performed by a licensed and accredited laboratory	✓	✓	✓	✓	✓	✓	✓	✓
Research - laboratory testing of water samples	O.Reg.248/03 Section 5	Provide written MECP forms for research samples being analyzed in non-licensed laboratories, updated to 2023 – 2025 (microplastics, tritium, PFAS)	✓	✓	✓	✓	✓	✓	✓	✓
Water Distribution										
Repair and disinfection of watermains	DWWP Sch.B 2.3	All watermains or related fixtures that come in contact with drinking water must be disinfected as per the MECP Watermain Disinfection Procedure and/or AWWA Standard C651 before being put into service	✓	✓	✓	✓	✓	✓	✓	✓
Operator Certification										
Overall Responsible Operator (ORO)	O.Reg.128/04	Overall Responsible Operator must be certified to level of the system: Level-4 (Treatment) & Level-3 (Distribution); can be one level lower for up to 150 days per year	✓	✓	✓	✓	✓	✓	✓	✓
Treatment & distribution operators	O.Reg.170/03 Sch.1.2; O.Reg.128/04 Sch.22	All adjustments to water treatment and distribution system must be carried out by certified operators	✓	✓	✓	✓	✓	✓	✓	✓
Water quality testing	O.Reg.170/03 Sch.7.5	All drinking water tests must be performed by a Certified Operator or Water Quality Analyst	✓	✓	✓	✓	✓	✓	✓	✓
Reports & Record-keeping										

Description	Legislation	Regulatory Requirement	Britannia WPP	Lemieux Island WPP	Carp Well	Munster Well	Kings Park Well	Richmond West Well	Shadow Ridge Well	Vars Well
Logbooks and record keeping	O.Reg.128/04	Operators shall ensure that all logbooks are properly maintained and completed for each shift by the operator-in-charge or overall responsible operator	✓	✓	✓	✓	✓	✓	✓	✓
Summary reports	O.Reg.170/03 Sch.22.2	Prepare and transmit Summary Report for each water system to municipal council by March 31 st of the next calendar year	✓	✓	✓	✓	✓	✓	✓	✓
Annual reports	O.Reg.170/03 Section 11	Prepare Annual Report for each water system and make available to public by February 28 th of the next calendar year	✓	✓	✓	✓	✓	✓	✓	✓
Alterations to the system	DWWP Sch.B 4.0	Any alteration of the treatment system must be documented in Forms 2/3 – Record of Minor Modification, retained on-site for 10 years	✓	✓	✓	✓	✓	✓	✓	✓
Alterations to the system	DWWP Sch.B 4.0	Any alteration of the water mains must be documented in Form 1 – Record of Water Mains Authorized as a Future Alteration, retained on-site for 10 years	✓	✓	✓	✓	✓	✓	✓	✓

Notes for items of non-compliance:

1. A Schedule C document was issued by the Director in 2024 for a Richmond West Well reservoir expansion project. A DWWP amendment application form was completed and submitted to the MECP following construction commencement. The MECP requires that Schedule C applications are submitted prior to/before going ahead with the work.

Regulations, Licenses, & Permits:

MDWL – Municipal Drinking Water License
DWWP – Drinking Water Works Permit
PTTW – Permit To Take Water
O.Reg.170/03 – Drinking Water Systems Regulation
O.Reg.169/03 – Ontario Drinking Water Quality Standards
O.Reg.248/03 – Drinking Water Testing Services
O.Reg.128/04 – Certification of Drinking Water Systems Operators
O.Reg.188/07 – Licensing of Municipal Drinking Water systems
O.Reg.170/03 (Appendix) – Procedure for Disinfection of Drinking Water in Ontario
O.Reg.170/03 (Sch.15.1) – Community Lead Testing Program
AWWA – American Water Works Association

Glossary:

NOTE: water quality testing refers to treated water samples unless otherwise stated

ML/d = mega-Litres per day = million Litres per day

WPP = Water Purification Plant

TC = Total Coliform bacteria, units of (cfu/100mL)

EC = E.coli bacteria, units of (cfu/100mL)

HPC = Heterotrophic Plate Count bacteria, units of (cfu/mL)

PS = Pump Station

MAC = maximum acceptable concentration for Ontario Drinking Water Standards

MOH = Medical Officer of Health

MECP = Ministry of Environment and Climate Change

n/a=not applicable for that system

*regulatory relief provided by Ministry during COVID19 for in-home testing of lead in tap water