



2023 Annual Report on Drinking Water Quality

Lemieux Island Water Purification Plant

The following report summarizes drinking water quality results, adverse water quality notifications, and other operating information related to the **Lemieux Island Water Purification Plant** (waterworks #220003207) for the period January 1 to December 31, 2023. It was prepared in accordance with Section 11 of O.Reg.170/03 under the Safe Drinking Water Act (SDWA, 2002).

The Annual Report for each municipal water system operated by the City of Ottawa is posted on the web site: www.ottawa.ca. Copies of each Annual Report and Summary Report prepared in accordance with Schedule 22 of O.Reg.170/03, are available to the public at 951 Clyde Avenue (telephone 3-1-1), the Britannia Water Purification Plant (2731 Cassels Street), and the Lemieux Island Water Purification Plant (1 Onigam Street).

A copy of this report is also provided to the Township of Russell (waterworks #260092014) which receives drinking water from the City of Ottawa water supply.

Description of Drinking Water System

The City of Ottawa operates two treatment plants to supply drinking water – Lemieux Island Water Purification Plant (capacity: 400 ML/d; constructed 1931) and Britannia Water Purification Plant (capacity: 360 ML/d; constructed 1961). The source water for both plants is the Ottawa River. Both plants use identical water treatment processes and have undergone significant expansion and modernization over the years.

Raw water enters the treatment plants through large intake pipes that extend into the main flow of the river. The treatment process makes use of the “multiple barrier” principle. A series of treatment steps successively remove undesirable substances such as colour, suspended particles, algae, bacteria, and viruses from the water. The purification process in Ottawa consists of the following steps:

- coagulation
- flocculation
- sedimentation
- filtration
- primary disinfection

- pH adjustment
- secondary disinfection
- fluoridation

During the final treatment step, fluoride is added for prevention of dental cavities, and chloramine (mixture of chlorine and ammonia) is added to preserve water quality as it travels through the vast water distribution system. Finally, the pH level is adjusted to 9.2 – 9.4 in order to minimize corrosion effects in the water distribution system.

After the treatment process, water is pumped through the distribution network of watermains (over 3000 km of watermain piping) to reach water customers over an area roughly 25 km by 50 km. Treated water from both the Britannia and Lemieux Island water plants is blended as it travels through a common distribution system. Pressure and storage requirements are met through the operation of 25 pumping stations and reservoirs located throughout the system. The total volume of water stored in reservoirs is 275 million litres, which is roughly equivalent to the daily amount of water consumed in Ottawa. All treatment, pumping, and storage systems are controlled by a dedicated computer control system and monitored by certified Water Treatment Operators 24 hours per day.

The water treatment chemicals used over this reporting period are listed below:

- Aluminum sulphate (liquid – 48.8%)
- Sulphuric acid (liquid – 93%)
- Sodium silicate (liquid – 29%)
- Sodium hypochlorite (liquid – 12%)
- Hydrofluorosilicic acid (liquid – 24%)
- Sodium bisulfite (liquid – 39%)
- Sodium hydroxide (liquid – 50%)
- Aqueous ammonia (liquid – 25%)

Monetary expenses incurred during the reporting period

In order to maintain the safe and efficient operation of the waterworks, maintenance and capital projects are undertaken from time to time. All major repairs or upgrade projects that took place during the reporting period are described below.

Chemical System Upgrades: (\$610,000): A project to modify several chemical feed systems, at the Britannia and Lemieux Island Water Treatment Plants was previously initiated, to improve their reliability and redundancy as well as to update aging control systems, instrumentation, pumps and piping. At Lemieux Island, the sodium silicate, aluminum sulphate and hydrofluorosilicic acid feed systems were all upgraded in 2023.

Lemieux Island WPP Intake Replacement Project (\$38.0 million): Following completion of functional design, this project furthers the detailed design and future construction of a permanent solution to guard against repeated winter frazil ice restrictions at Lemieux. Functional design, geotechnical investigations and necessary site surveys have been completed and formal approvals, with the MECP (Ontario's Ministry) and the MELCC (Quebec's Ministry) continued through 2023. Ontario ministry approvals are complete, and staff continue to pursue the necessary Quebec approvals, in despite of Quebec's late 2023 closure of Ottawa's submitted application. Additional water quality sampling and river bathymetry surveys were completed in 2023, to further options and a renewed application to the Quebec ministry. Construction is expected to follow, once the necessary approvals are in place.

Phosphoric Acid Addition for Corrosion Control (\$13.0 million): Functional design for the addition of phosphoric acid systems, at both Lemieux and Britannia were completed in 2021. Detailed design progressed in 2023 and will continue into 2024 and is to provide for new chemical and feed storage systems, at both Plants, to reduce dissolved lead concentrations, in drinking water from homes with lead water services. It is planned to utilize existing building space at Lemieux while a new building will be necessary at Britannia. New ammonium hydroxide storage and feed systems, previously planned to be part of ongoing Chemical System Upgrades, will now be included, as part of this project, to address identified building safety and storage tank redundancy requirements.

Britannia & Lemieux WPP G2 Generator Replacements (\$10.4 million): This project replaces the 600V generators at Britannia & Lemieux. Design was carried out through 2019 to 2021. Preselection of the new generator supplied was completed in 2021 with construction now planned for 2023. Tendering and construction was delayed due unanticipated issues with project tendering and equipment selection. Early construction activities began in late 2023, at the Britannia plant, with work at Lemieux following suit.

Lemieux Island and Britannia WPP Audible Process Alarm System Upgrades (\$650,000):
The replacement of plant wide critical process alarm annunciation systems was completed

in 2023, for the Lemieux Island Plant. Completion of works, at the Britannia plant, will carry on into 2024.

Britannia & Lemieux Surge Protection Devices Upgrade(\$1,000,000): Project to update surge protection devices at Lemieux and Britannia water purification plants. Project initiated in 2021 and will continue into 2024.

Lemieux Island WPP Turbidity Analyzer Replacements (\$159,000): As part of lifecycle replacement work, the replacement of 22 obsolete turbidity analyzers was completed in 2023.

Lemieux Island WPP Settled Water Conduit Repairs (\$3.3 million): As part of lifecycle maintenance work, a project to make repairs to the 1932 concrete settled water conduits was tendered in 2023, with anticipated construction in 2024.

Lemieux Island WPP High Lift Pumping Station Suction Header Condition Assessment and Function Design: A detailed inspection and condition assessment of the 1912 steel pipe pump suction header, in the high lift building, was completed in 2023. Detailed design of the preferred rehabilitation solution will continue through 2024. Total project cost estimates, including design and construction, will be established through the design process.

Lemieux Island WPP Basins 4 and 5 Gate Valve Replacements (\$2.3 million): As part of lifecycle replacement work, a project to replace 1977 vintage gate valves, in sedimentation basins 4 and 5, was initiated. Design began in late 2023, with detailed design and construction anticipated in 2024 and 2025.

Brittany Drive Pumping Station Replacement (\$7.7 million): Starting in 2021, the Brittany Drive Pumping Station was demolished to facilitate the construction of a new, replacement pumping station on the same site. Initiated due to growth in the pressure zone, this project will provide a completely new facility with three pumps complete with standby power. Construction was largely completed by late 2023 with final commissioning scheduled in early 2024.

Hurdman Bridge Pumping Station Upgrades (\$18.1 million): This project will provide the existing facility with new pumps and mechanical systems, new electrical systems, new instrumentation and controls as well as standby power. Tendering and construction was

delayed due unanticipated issues with project tendering and equipment selection. Tendering will be completed in early 2024 with construction to follow.

Ottawa South Pumping Station Upgrades (\$16.3 million): This project will provide the existing facility with new pumps and mechanical systems, new electrical systems, new instrumentation and controls as well as standby power. Tendering will be completed in early 2024 with construction to follow.

SCADA HMI Upgrade Project (\$3,500,000): This project is to upgrade the SCADA HMI across both Lemieux and Britannia plants and remote stations. This project was initiated in 2021 with a contract issued in 2023 and completion targeted in 2024.

Water Quality test results

The Ontario Drinking Water System Regulation O.Reg.170/03 defines water quality sampling and testing requirements in several categories: microbiological, operational, inorganic, and organic test parameters. The sections below describe the 2023 test results for samples required by O.Reg.170/03. In addition to the required tests, the City of Ottawa analyzes its drinking water for hundreds of other trace substances and test parameters in order to ensure the safety of the water supply. A complete table of water quality test results is posted on the City website www.ottawa.ca for each water system.

Microbiological

Total Coliform and E.coli bacteria tests are performed on the raw, treated and distributed drinking water. These types of bacteria are considered to be “indicator” organisms since they themselves don’t cause disease, but their presence indicates the potential for other pathogenic organisms to be present.

Raw: “Raw” water refers to the untreated water that is drawn into the plant directly from the Ottawa River. Raw water is tested to give an indication of bacteria concentrations entering the treatment process and to see how it changes seasonally. During 2023, the concentration of Total Coliform bacteria in the raw water ranged from 7 – 2420 (cfu/100mL) and the E. coli bacteria levels ranged from 0 – 1414 (cfu/100mL). These levels were comparable to previous years and were easily handled by the treatment plant.

Treated: Treated water is tested 4 times per day as it leaves the plant and enters the distribution system. During 2023, there were no (0) samples out of the 1432

bacteriological samples taken that indicated the presence of Total Coliform or E. coli bacteria.

Distribution: Routine bacteriological samples are taken at approximately 55 locations to verify water quality throughout the water supply network. Bacteriological samples are also taken to monitor water quality during watermain construction and repair activities. During 2023, 4 out of 2995 distribution samples indicated the presence of Total Coliform bacteria. This rate of occurrence (0.1%) is typical for a large water system and does not indicate unsafe water quality. Total Coliform bacteria can colonize on pipe surfaces and sample tap fixtures resulting in a positive test result, even if the “bulk” water is free from bacteria.

Table 1a Summary of the Total Coliform and E.coli test results for Lemieux Island WPP treated and distributed water samples taken during 2023

Parameter	Number of treated water samples taken	Number of positive test results	Number of distribution samples taken	Number of positive test results
Total coliform bacteria (cfu/100mL)	1432	0	2995	4
E.coli bacteria (cfu/100mL)	1432	0	2995	0

cfu=colony forming units

HPC (heterotrophic plate count) bacteria represent a broad spectrum of environmental aerobic bacteria that indicate biological growth. They are not harmful to humans and are therefore not considered to represent adverse drinking water quality. However, they are useful as operational indicators for the presence of biological (ie. biofilm) growth on the inside surface of a pipe or watermain. An operational limit of 500 cfu/mL has been established as a target for drinking water systems in Ontario. During 2023, 207 samples of treated water and 2723 samples of distributed water were tested for HPC bacteria. Of these, there were 19 samples from the distribution system and 1 sample of treated water

that exceeded the operational target of 500 cfu/mL. This level of HPC bacteria occurrence (0.7 %) is considered to be quite low for a large water distribution system and the test results were similar to previous years. The treated and distribution water microbiological results for HPC bacteria are summarized in the table below.

Table 1b Summary of the heterotrophic plate count (HPC) bacteria test results for Lemieux Island WPP treated and distributed water samples taken during 2023

Parameter	Number of treated water samples taken	Range of test results	Number of distribution samples taken	Range of test results
HPC bacteria (cfu/mL)	207	0 – 570	2723	0 – 3000

cfu=colony forming units

Operational: Operational tests are conducted by treatment plant operators to evaluate process conditions and to make adjustments to the process. Continuous on-line analyzers measure and record many of the operational tests through a computer control (SCADA) system 24 hours per day. The Lemieux Island WPP has approximately 40 such analyzers in operation. In addition, Process Operators conduct routine laboratory tests during each 12-hour shift to verify water quality at each stage of the treatment process. The routine test results for turbidity, chlorine, and fluoride are summarized in the table below. During 2023, all operational tests of treated water complied with Ontario Drinking Water Standards.

Table 2 Summary of operational testing performed for Lemieux Island treated water during 2023

Parameter	Average value	Range of values (min - max)	Number of samples
Turbidity	0.05 NTU	0.02 – 0.09 NTU	711

Parameter	Average value	Range of values (min - max)	Number of samples
Total Chlorine	1.81 mg/L	1.65 – 1.94 mg/L	1432
Fluoride	0.65 mg/L	0.54 – 0.72 mg/L	719

Inorganics: Inorganic substances include heavy metals and dissolved minerals that may be present in treated drinking water and are tested monthly in treated water. The table below summarizes the 2023 test results, expressed as annual average concentrations in mg/L. All inorganic test results during 2023 were safely within the Maximum Acceptable Concentration (MAC) as per Ontario Drinking Water Standards. The MAC concentrations for drinking water are listed in the right column for reference.

Table 3 Summary of the inorganic parameters tested in Lemieux Island WPP treated water during 2023

Parameter	Unit of Measure	Result	Ontario Drinking Water Standard (MAC)
Antimony	mg/L	0	0.006
Arsenic	mg/L	0.0002	0.010
Barium	mg/L	0.0141	1
Boron	mg/L	0.0046	5
Cadmium	mg/L	0	0.005
Chromium	mg/L	0	0.05

Parameter	Unit of Measure	Result	Ontario Drinking Water Standard (MAC)
Lead	mg/L	0	0.01
Mercury	mg/L	0	0.001
Selenium	mg/L	0	0.05
Uranium	mg/L	0	0.02
Sodium	mg/L	17.4	20*
Fluoride	mg/L	0.65	1.5
Nitrate	mg/L	0.18	10
Nitrite	mg/L	0	1

0 denotes the chemical was below the analytical detection limit

*NOTE: Sodium health advisory level of 20 mg/L for people on sodium-restricted diets only.

Organics: Trace organic substances include: volatile organic compounds, pesticides, herbicides, industrial solvents, and disinfection by-products. Trace organic substances are tested quarterly, and the table below shows the 2023 test results, expressed as average concentrations in treated water. None of the trace organic substances were detected with the exception of Trihalomethanes (THM) and Haloacetic Acids (HAA). THMs and HAAs are organic compounds that form during the treatment process when chlorine reacts with natural organic matter dissolved in the water. All trace organic test results during 2023 were safely within the Maximum Acceptable Concentration (MAC) as per Ontario Drinking

Water Standards. The MAC concentrations for drinking water are listed in the right column for reference.

Table 4 Summary of 2023 trace organic test results for Lemieux Island WPP treated water

Parameter	Units	Result	Ontario Drinking Water Standard (MAC)
Alachlor	mg/L	0	0.005
Atrazine + N-dealkylated metabolites	mg/L	0	0.005
Azinphos-methyl	mg/L	0	0.02
Benzene	mg/L	0	0.001
Benzo(a)pyrene	mg/L	0	0.00001
Bromoxynil	mg/L	0	0.005
Carbaryl	mg/L	0	0.09
Carbofuran	mg/L	0	0.09
Carbon Tetrachloride	mg/L	0	0.002
Chlorpyrifos	mg/L	0	0.09
Diazinon	mg/L	0	0.02

Parameter	Units	Result	Ontario Drinking Water Standard (MAC)
Dicamba	mg/L	0	0.12
1,2-Dichlorobenzene	mg/L	0	0.2
1,4-Dichlorobenzene	mg/L	0	0.005
1,2-Dichloroethane	mg/L	0	0.005
1,1-Dichloroethylene	mg/L	0	0.014
Dichloromethane	mg/L	0	0.05
2,4-Dichlorophenol	mg/L	0	0.9
2,4-Dichlorophenoxy acetic acid (2,4D)	mg/L	0	0.1
Diclofop-methyl	mg/L	0	0.009
Dimethoate	mg/L	0	0.02
Diquat	mg/L	0	0.07
Diuron	mg/L	0	0.15
Glyphosate	mg/L	0	0.28

Parameter	Units	Result	Ontario Drinking Water Standard (MAC)
Haloacetic Acids*	mg/L	0.032	0.080
Malathion	mg/L	0	0.19
2-Methyl-4-chlorophenoxyacetic Acid (MCPA)	mg/L	0	0.10
Metolachlor	mg/L	0	0.05
Metribuzin	mg/L	0	0.08
Monochlorobenzene	mg/L	0	0.08
Paraquat	mg/L	0	0.007
Pentachlorophenol	mg/L	0	0.06
Phorate	mg/L	0	0.002
Picloram	mg/L	0	0.19
Polychlorinated Biphenyls (PCB)	mg/L	0	0.003
Prometryne	mg/L	0	0.001
Simazine	mg/L	0	0.01

Parameter	Units	Result	Ontario Drinking Water Standard (MAC)
Terbufos	mg/L	0	0.001
Tetrachloroethylene	mg/L	0	0.01
2,3,4,6-Tetrachlorophenol	mg/L	0	0.1
Triallate	mg/L	0	0.23
Trichloroethylene	mg/L	0	0.005
2,4,6-Trichlorophenol	mg/L	0	0.005
Trifluralin	mg/L	0	0.045
Trihalomethanes*	mg/L	0.036	0.1
Vinyl Chloride	mg/L	0	0.001

0 denotes the chemical was below the analytical detection limit

NOTE*: The reported Trihalomethane (THM) and Haloacetic acid (HAA) results represent the average concentration measured in the distribution system

Adverse Water Quality Incidents (AWQI) Requiring Notification

The drinking water regulations identify several “Indicators of Adverse Water Quality” for which the waterworks must immediately notify health officials and the Ministry of Environment, Conservation and Parks (MECP). These refer to any sample of treated or distributed drinking water that does not meet a provincial water quality standard or a

situation where disinfection of the water may be compromised. For each Adverse Water Quality Incident (AWQI), City of Ottawa staff immediately notify the Ottawa Public Health Department and the Ministry of Environment, Conservation and Parks (MECP) as required by regulations. Corrective actions, re-sampling, and reporting are required in each case.

During 2023, there were no AWQI events for Lemieux Island treated water and 17 AWQI events reported for the water distribution system. The events are summarized in the table below including the adverse result, corrective actions taken, and date of resolution.

Table 5 Adverse Water Quality Incidents for the distribution system

Incident Date	Test Parameter and Location	Result	Unit of Measure	Corrective Action	Date of Resolution
20-Mar-23 AWQI# 161537	Chloramine <0.25 mg/L Closed watermain valve on Bronson Ave resulted in low chloramine concentration	0.07	mg/L	Flushed until chloramine concentration restored	20-Mar-23
19-Apr-23 AWQI# 161780	Total Coliform bacteria >0 Sample taken from routine distribution sample at Orleans Fire Hall	Positive	cfu/100 mL	Flushed and resample	20-Apr-23
25-May-23 AWQI# 162007	Chloramine <0.25 mg/L Sample taken at a dead end on Walden Dr resulted in low chloramine concentration	0.16	mg/L	Flushed until chloramine concentration restored	25-May-23
16-Jun-23 AWQI# 162222	Improperly disinfected water directed to users Contractor opened a valve	N/A	N/A	Flushed and took bacteria sample	19-Jun-23

Incident Date	Test Parameter and Location	Result	Unit of Measure	Corrective Action	Date of Resolution
	on temporary service on Bronson Ave				
12-Jul-23 AWQI# 162521	Chloramine <0.25 mg/L Sample taken at a dead end on Boyd Ave resulted in low chloramine concentration	0.17	mg/L	Flushed until chloramine concentration restored and took bacteria sample	14-Jul-23
20-Jul-23 AWQI# 162685	Total Coliform bacteria >0 Sample taken from routine distribution sample at Blackburn Arena	Positive	cfu/100 mL	Flushed and resample	21-Jul-23
22-Aug-23 AWQI# 163156	Total Coliform bacteria >0 Sample taken following watermain break on Preston Ave	Positive	cfu/100 mL	Flush and resample	25-Aug-23
24-Aug-23 AWQI# 163160	Chloramine <0.25 mg/L Sample taken at a dead end on March Rd resulted in low chloramine concentration	0.00	mg/L	Flushed until chloramine concentration restored and took bacteria sample	26-Aug-23
25-Aug-23 AWQI# 163176	Total Coliform bacteria >0 Sample taken from a temporary service line on Bronson Ave	Positive	cfu/100 mL	Flush and resample	26-Aug-23

Incident Date	Test Parameter and Location	Result	Unit of Measure	Corrective Action	Date of Resolution
5-Sep-23 AWQI# 163301	Chloramine <0.25 mg/L Auto flusher valve not working at a dead end resulted in low chloramine concentration at Bowesville Rd	0.08	mg/L	Repaired valve, flushed until chloramine concentration restored and took bacteria sample	7-Sep-23
6-Sep-23 AWQI# 163313	Chloramine <0.25 mg/L Sample taken in an area with low flow on Young St resulted in low chloramine concentration	0.17	mg/L	Flushed until chloramine concentration restored and took bacteria sample	7-Sep-23
12-Oct-23 AWQI# 163773	Chloramine <0.25 mg/L Anti Anti-Stagnation valve was not working which caused a dead end resulting in a low chloramine concentration at the Manotick boundary valve	0.03	mg/L	Repaired Valve, flushed until chloramine concentration restored and took bacteria sample	16-Oct-23
12-Oct-23 AWQI# 163775	Chloramine <0.25 mg/L New development at Cope Dr with low occupancy resulted in low chloramine concentrations within watermains	0.06	mg/L	Flushed until chloramine concentration restored and took bacteria sample	16-Oct-23

Incident Date	Test Parameter and Location	Result	Unit of Measure	Corrective Action	Date of Resolution
16-Oct-23 AWQI# 163814	Chloramine <0.25 mg/L New Development at Elsie MacGill Walk with low occupancy resulted in low chloramine concentrations within watermains	0.11	mg/L	Flushed until chloramine concentration restored and took bacteria sample	18-Oct-23
24-Oct-23 AWQI# 163868	Chloramine <0.25 mg/L Closed watermain valve on Northside Rd resulted in low chloramine concentration	0.08	mg/L	Flushed until chloramine concentration restored and took bacteria sample	30-Oct-23
24-Oct-23 AWQI# 163872	Chloramine <0.25 mg/L New Development at Peony Lane with low occupancy resulted in low chloramine concentrations within watermains	0.04	mg/L	Flushed until chloramine concentration restored and took bacteria sample	30-Oct-23
28-Nov-23 AWQI# 164131	Chloramine <0.25 mg/L Closed watermain valve on Kanata Ave resulted in low chloramine concentration	0.15	mg/L	Flushed until chloramine concentration restored	28-Nov-23

cfu=colony forming units

Community Lead Testing Program

The treated water produced by the Lemieux Water Purification Plant is lead-free. However, trace amounts of lead can potentially be dissolved into water when it travels

through lead service pipes or household plumbing components such as lead solder and brass fittings. The current Ontario standard for lead in drinking water is 10 ppb (parts per billion), expressed as a Maximum Acceptable Concentration (MAC) measured at the customer’s tap. During 2020, Health Canada lowered the acceptable concentration to 5 ppb for lead in drinking water, due to increasing concerns for adverse health effects in children. To date, the Ontario standard for lead has not yet been revised to align with the new Health Canada guideline.

In 2007, a new provincial regulation (amendment to O.Reg.170/03) was initiated in response to concerns about potential lead levels in Ontario water supplies. The Community Lead Testing Program requires each water system to test tap water specifically in homes with lead service pipes to represent worst case lead concentrations. The testing is conducted during winter and summer periods to represent any seasonal changes in water quality. Approximately 50 Ottawa homes are tested during each winter and summer sampling period. In order to meet compliance standards, 90% of the tap water samples must have a lead concentration below 10 ppb (parts per billion) following a 30-minute period of stagnation in the plumbing system. Ottawa’s test results have consistently passed the Provincial lead testing criteria of 10 ppb for drinking water.

Combining results for all twenty-seven rounds of testing between 2007 – 2020, 2023 (COVID relief in 2020-2022) the average lead concentrations measured in Ottawa homes with lead supply pipes were 2.5 (ppb) in Litre-1 and 2.6 (ppb) in Litre-2. The 90th percentile concentrations are 4.3 (ppb) in Litre-1 and 5.2 (ppb) in Litre-2. These results comply with the current 10 ppb Ontario standard for lead in drinking water. In general, excellent results have been observed in Ottawa due to the optimized corrosion control strategy of pH adjustment being applied at both water purification plants.

Table 6 Summary of the lead testing results for winter and summer sampling sessions during 2023

Location Type	Average lead concentration (ppb) in tap water	Range of lead concentrations measured (ppb)	Number of samples with lead concentration above 10 ppb	Total number of samples taken
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Customer taps (plumbing)	2.6	<0.1 – 14.4	2	224
Watermains (distribution)	0.45	<0.1 – 1.6	0	20

Summary

The results demonstrate that the quality of drinking water treated and distributed from the Lemieux Island Water Purification Plant remained high during 2023 and met all Ontario Drinking Water Standards.

If you have any questions or concerns regarding the quality of your drinking water please contact the City of Ottawa at 3-1-1 or email at info-water@ottawa.ca.

For more information on the City of Ottawa drinking water please visit us at www.ottawa.ca.