



City of Ottawa

Lemieux Island Water Purification Plant - 2015 Drinking Water Quality physical, microbiological, chemical, & radiological test results

Physical			
Test Parameter	units	Treated water results	Drinking water standard*
Colour	TCU	1.8	5.0 (A)
Turbidity	NTU	0.05	5.0 (A)
Temperature	°C	0.1 - 26.9	15.0 (A)
Conductivity	m-mhos/cm	136	
UV254 absorbance	abs/cm	0.050	
Total Dissolved Solids	mg/L	88.6	500 (A)

Microbiological			
Test Parameter	units	Treated water results	Drinking water standard*
Total Coliforms	cfu/100mL	0 of 1446 tests > 0	0
E.coli	cfu/100mL	0 of 1446 tests > 0	0
Heterotrophic Plate Count (HPC)	cfu/mL	range: <10 - 430	500 (O)
Cryptosporidium	#/100 L	not detected (12 tests)	
Giardia	#/100 L	not detected (12 tests)	

Chemical - general			
Test Parameter	units	Treated water results	Drinking water standard*
pH	log ₁₀	9.27	7.0-10.5 (O)
Alkalinity	mg/L CaCO ₃	30.1	30 - 500 (A)
Bromate	mg/L	<0.003	0.01
Bromide	mg/L	0.008	
Calcium	mg/L	8.2	
Chlorate	mg/L	0.10	1.0
Chloride	mg/L	5.3	250 (A)
Chlorine (total)	mg/L	2.05	0.25 - 3.00
Chlorite	mg/L	<0.01	1.0
Cyanide	mg/L	<0.003	0.2
Fluoride	mg/L	0.68	1.5
Magnesium	mg/L	2.1	
Potassium	mg/L	0.62	
Sodium	mg/L	15.7	20, 200 (A)
Sulphate	mg/L	26.3	500 (A)
Total Hardness**	mg/L CaCO ₃	29.0	80 - 100 (A)
Calcium Hardness**	mg/L CaCO ₃	20.4	
Magnesium Hardness**	mg/L CaCO ₃	8.6	
Ammonia	mg/L N	<0.01	
Total Kjeldahl Nitrogen	mg/L N	0.36	
Organic Nitrogen**	mg/L N	0.36	0.15 (A)
Nitrate	mg/L N	0.15	10.0
Nitrite	mg/L N	<0.02	1.0
Phosphates	mg/L P	<0.02	
Dissolved Organic Carbon	mg/L	3.1	5.0 (A)
Langelier's Index**	log ₁₀	-1.7	
C-T Disinfection**	mg/L-min	175.2	
Log Giardia Disinfection**	log ₁₀	8.9-log	min 0.5-log
Log Virus Disinfection**	log ₁₀	>10-log	min 3.0-log

Chemical - inorganic metals

Test Parameter	units	Treated water results	Drinking water standard*
Aluminum	mg/L	0.0831	0.100 (O)
Antimony	mg/L	<	0.006
Arsenic	mg/L	0.0002	0.010 ² / 0.025 ³
Barium	mg/L	0.0139	1.0
Beryllium	mg/L	<	
Bismuth	mg/L	<	
Boron	mg/L	0.0055	5.0
Cadmium	mg/L	<	0.005
Chromium	mg/L	0.0002	0.05
Chromium VI	mg/L	0.00005	
Cobalt	mg/L	<	
Copper	mg/L	0.0017	1.0 (A)
Iron	mg/L	0.0021	0.3 (A)
Lead	mg/L	<	0.01
Manganese	mg/L	0.0016	0.05 (A)
Mercury	mg/L	<	0.001
Molybdenum	mg/L	<	
Nickel	mg/L	0.0004	
Selenium	mg/L	<	0.05 ² / 0.01 ³
Silver	mg/L	<	
Strontium	mg/L	0.0388	
Thallium	mg/L	<	
Tin	mg/L	<	
Titanium	mg/L	<	
Tungsten	mg/L	<	
Uranium	mg/L	<	0.02
Vanadium	mg/L	0.0001	
Zinc	mg/L	<	5.0 (A)
Zirconium	mg/L	0.0001	

Chemical - organics

Test Parameter	units	Treated water results	Drinking water standard*
1,1,1-Trichloroethane	µg/L	<	
1,1,2,2-Tetrachloroethane	µg/L	<	
1,1,2-Trichloroethane	µg/L	<	
1,1,2,2-Tetrachloroethane	µg/L	<	
1,1-Dichloroethane	µg/L	<	
1,1-Dichloroethylene	µg/L	<	14.0
1,2-Dichlorobenzene	µg/L	<	200, 3.0(A)
1,2-Dichloroethane	µg/L	<	5.0
1,2-Dichloroethylene - cis	µg/L	<	
1,2-Dichloroethylene - trans	µg/L	<	
1,2-Dichloropropane	µg/L	<	
1,2,4-Trichlorobenzene	µg/L	<	
1,3-Dichloropropene - cis	µg/L	<	
1,3-Dichloropropene - trans	µg/L	<	
1,3-Dichlorobenzene	µg/L	<	
1,4-Dichlorobenzene	µg/L	<	5.0, 1.0(A)
2-Methylisoborneol	µg/L	<	
2,3,4,6-Tetrachlorophenol	µg/L	<	100.0, 1.0(A)
2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)	µg/L	<	280.0
2,4,6-Trichlorophenol	µg/L	<	5.0, 2.0(A)
2,4-DDT	µg/L	<	
2,4-Dichlorophenol	µg/L	<	900, 0.3(A)
2,4-Dichlorophenoxyacetic Acid (2,4-D)	µg/L	<	100.0
Alachlor	µg/L	<	5.0

Test Parameter	units	Treated water results	Drinking water standard*
Aldicarb	µg/L	<	9.0
Aldrin	µg/L	<	
Aldrin + Dieldrin	µg/L	<	0.7
Atrazine	µg/L	<	
Atrazine + N-dealkylated metabolites	µg/L	<	5.0
Azinphos-methyl	µg/L	<	20.0
Bendiocarb	µg/L	<	40.0
Benzene	µg/L	<	5.0
Benzo(a)pyrene	µg/L	<	0.01
Bromobenzene	µg/L	<	
Bromoxynil	µg/L	<	5.0
Carbaryl	µg/L	<	90.0
Carbofuran	µg/L	<	90.0
Carbon Tetrachloride	µg/L	<	2.0 ² / 5.0 ³
Chlordane - alpha	µg/L	<	
Chlordane - gamma	µg/L	<	
Chlordane - total	µg/L	<	7.0
Chlorobenzene	µg/L	<	80.0, 30.0(A)
Chlorpyrifos	µg/L	<	90.0
Cyanazine	µg/L	<	10.0
DDD - para, para	µg/L	<	
DDE- para, para	µg/L	<	
DDT - ortho, para	µg/L	<	
DDT + metabolites	µg/L	<	30.0
De-ethylated Atrazine	µg/L	<	
Diazinon	µg/L	<	20.0
Dicamba	µg/L	<	120.0
Dichloromethane	µg/L	<	50.0
Diclofop - methyl	µg/L	<	9.0
Dieldrin	µg/L	<	
Dimethoate	µg/L	<	20.0
Dinoseb	µg/L	<	10.0
Diquat	µg/L	<	70.0
Diuron	µg/L	<	150.0
Ethylbenzene	µg/L	<	140.0, 1.6(A)
Geosmin	µg/L	<	
Glyphosate	µg/L	<	280.0
Heptachlor	µg/L	<	
Heptachlor + Heptachlor Epoxide	µg/L	<	3.0
Heptachlor Epoxide	µg/L	<	
Hexachlorocyclohexane (Lindane)	µg/L	<	4.0
Malathion	µg/L	<	190.0
MCPA	µg/L	<	100.0
Methoxychlor	µg/L	<	900.0
Methyl-tert -Butyl ether	µg/L	<	15.0 (A)
Metolachlor	µg/L	<	50.0
Metribuzin	µg/L	<	80.0
Microcystin ⁴	µg/L	<	1.5
N - Nitrosodimethylamine (NDMA)	µg/L	0.0018	0.009 ³ / 0.040 ²
Nitrilotriacetic Acid	µg/L	<	400.0
Oxychlordane	µg/L	<	
Paraquat	µg/L	<	10.0
Parathion	µg/L	<	50.0
Pentachlorophenol	µg/L	<	60.0, 30.0(A)
Phorate	µg/L	<	2.0
Picloram	µg/L	<	190.0
Polychlorinated Biphenyls (PCBs)	µg/L	<	3.0
Prometryne	µg/L	<	1.0

Test Parameter	units	Treated water results	Drinking water standard*
Simazine	µg/L	<	10.0
Styrene	µg/L	<	
Temephos	µg/L	<	280.0
Terbufos	µg/L	<	1.0
Tetrachloroethylene	µg/L	<	10.0 ² / 30.0 ³
Toluene	µg/L	<	60.0, 24.0 (A)
Triallate	µg/L	<	230.0
Trichloroethylene / TCE	µg/L	<	5.0
Trifluralin	µg/L	<	45.0
Vinyl Chloride	µg/L	<	2.0
Xylene - meta & para	µg/L	<	
Xylene - ortho	µg/L	<	
Xylenes - total	µg/L	<	90.0, 20.0(A)
2,3,7,8,-Tetra-Dibenzo-p-Dioxin	µg/L	<	
1,2,3,7,8,-Penta-Dibenzo-p-Dioxin	µg/L	<	
1,2,3,4,7,8,-Hexa-Dibenzo-p-Dioxin	µg/L	<	
1,2,3,6,7,8,-Hexa-Dibenzo-p-Dioxin	µg/L	<	
1,2,3,7,8,9-Hexa-Dibenzo-p-Dioxin	µg/L	<	
1,2,3,4,6,7,8,-Hepta-Dibenzo-p-Dioxin	µg/L	<	
2,3,7,8-Tetra-Dibenzofuran	µg/L	<	
1,2,3,7,8,-Penta-Dibenzofuran	µg/L	<	
2,3,4,7,8,-Penta-Dibenzofuran	µg/L	<	
1,2,3,4,7,8,-Hexa-Dibenzofuran	µg/L	<	
1,2,3,6,7,8,-Hexa-Dibenzofuran	µg/L	<	
2,3,4,6,7,8,-Hexa-Dibenzofuran	µg/L	<	
1,2,3,7,8,9,-Hexa-Dibenzofuran	µg/L	<	
1,2,3,4,6,7,8-Hepta-Dibenzofuran	µg/L	<	
1,2,3,4,7,8,9,-Hepta-Dibenzofuran	µg/L	<	
Total Tetrachlorodibenzo-p-Dioxins	µg/L	<	
Total Pentachlorodibenzo-p-Dioxins	µg/L	<	
Total Hexachlorodibenzo-p-Dioxins	µg/L	<	
Total Heptachlorodibenzo-p-Dioxins	µg/L	<	
Total Octachlorodibenzo-p-Dioxins	µg/L	<	
Total Tetrachlorodibenzofurans	µg/L	<	
Total Pentachlorodibenzofurans	µg/L	<	
Total Hexachlorodibenzofurans	µg/L	<	
Total Heptachlorodibenzofurans	µg/L	<	
Total Octachlorodibenzofuran	µg/L	<	
2,3,7,8-TCDD Toxicity Equivalents	TEQ/L	<	0.000015

Chemical - disinfection by-products

Test Parameter	units	Treated water results	Drinking water standard*
Chloroform	µg/L	35.7	
Bromodichloromethane	µg/L	3.0	
Dibromochloromethane	µg/L	0.2	
Bromoform	µg/L	<	
Total Trihalomethanes (THMs) ¹	µg/L	45.5	100
Monochloroacetic Acid	µg/L	1.3	
Monobromoacetic Acid	µg/L	<	
Dichloroacetic Acid	µg/L	15.8	
Dibromoacetic Acid	µg/L	<	
Trichloroacetic Acid	µg/L	15.6	
Bromochloroacetic Acid	µg/L	1.3	
Bromodichloroacetic Acid	µg/L	1.5	
Chlorodibromoacetic Acid	µg/L	<	
Tribromoacetic Acid	µg/L	<	
Total Haloacetic Acids (HAA5)	µg/L	32.7	80.0 ²
Total Haloacetic Acids (HAA9)	µg/L	35.5	

Chemical - pharmaceuticals & personal care products⁶

Test Parameter	units	Treated water results	Drinking water standard*
1,7-Dimethylxanthine	µg/L	0.0032	
10-Hydroxy-Amitriptyline	µg/L	<	
17a-Dihydroequilin	µg/L	<	
17a-Estradiol	µg/L	<	
17a-Ethinylestradiol	µg/L	<	
17b-Estradiol	µg/L	<	
Acetaminophen	µg/L	0.0007	
Albuterol	µg/L	0.0020	
Amitriptyline	µg/L	<	
Amlodipine	µg/L	<	
Amphetamine	µg/L	<	
Androstenedion	µg/L	<	
Androsterone	µg/L	<	
Atenolol	µg/L	<	
Atorvastatin	µg/L	<	
Azithromycin	µg/L	<	
Benzafibrate	µg/L	<	
Benzoylcegonine	µg/L	<	
Betamethasone	µg/L	<	
Bis-phenyl A ⁴	µg/L	0.0005	
Caffeine	µg/L	0.0023	
Carbamezepine	µg/L	0.0003	
Clotrimazole	µg/L	<	
Cotinine	µg/L	0.0013	
Deet	µg/L	0.0018	
Diphenhydramine	µg/L	<	
Enrofloxacin	µg/L	<	
Erythromycin	µg/L	<	
Fluoxetine	µg/L	0.0004	
Indomethacin	µg/L	<	
Ketoprofen	µg/L	0.0017	
Metformin	µg/L	0.0139	
Miconazole	µg/L	<	
Norfloxacin	µg/L	<	
Ofloxacin	µg/L	<	
Oxolinic Acid	µg/L	<	
Pentoxifylline	µg/L	<	
Roxithromycin	µg/L	<	
Sulfachloropyridazine	µg/L	<	
Sulfadiazine	µg/L	<	
Sulfadimethoxine	µg/L	<	
Sulfamerazine	µg/L	<	
Sulfamethazine	µg/L	<	
Sulfamethizole	µg/L	<	
Sulfamethoxazole	µg/L	<	
Sulfathiazole	µg/L	<	
Trimethoprim	µg/L	<	

Chemical - additional test parameters****

Test Parameter	units	Treated water results	Drinking water standard*
Dissolved Inorganic Carbon	mg/L	5.7	
Total Organic Carbon	mg/L	3.2	
Silicate	mg/L SiO ₂	2.6	
Phosphorus (total)	mg/L	0.003	
Perchlorate	µg/L	<	
Iodoacetic acid	µg/L	<	

Test Parameter	units	Treated water results	Drinking water standard*
Dichloroacetonitrile	µg/L	<	
N-Nitrosodibutylamine	µg/L	<	
N-Nitrosodiethylamine	µg/L	<	
N-Nitrosomorpholine	µg/L	<	
N-nitrosodi-n-propylamine	µg/L	<	
N-nitrosomethylethylamine	µg/L	<	
N-nitrosopiperidine	µg/L	<	
N-nitrosopyrrolidine	µg/L	<	
1-methylnaphthalene	µg/L	<	
2-methylnaphthalene	µg/L	<	
Acenaphthene	µg/L	<	
Acenaphthylene	µg/L	<	
Anthracene	µg/L	<	
Benzo(a)anthracene	µg/L	<	
Benzo(a)pyrene	µg/L	<	
Benzo(b)fluoranthene	µg/L	<	
Benzo(e)pyrene	µg/L	<	
Benzo(k)fluoranthene	µg/L	<	
Chrysene	µg/L	<	
Dibenzo(a,h)anthracene	µg/L	<	
7,12-dimethylbenz(a)anthracene	µg/L	<	
Fluoranthene	µg/L	<	
Fluorene	µg/L	<	
Benzo(g,h,i)perylene	µg/L	<	
Indeno(1,2,3-c,d)pyrene	µg/L	<	
Naphthalene	µg/L	<	
Perylene	µg/L	<	
Phenanthrene	µg/L	<	
Pyrene	µg/L	<	

Radiological

Test Parameter	units	Treated water results	Drinking water standard*
Gross-Alpha Radioactivity	Bq/L	0.01	0.5 ⁵
Gross-Beta Radioactivity	Bq/L	0.03	1.0 ⁵
Tritium	Bq/L	4.6	7000

Glossary and notes:

reported values represent average concentrations measured in treated water

< indicates less than detection limit

mg/L = milligram per Litre = part per million (ppm)

µg/L = microgram per Litre = part per billion (ppb)

cfu = colony forming units

*Ontario Drinking Water Standards O.Reg.169/03 and/or Health Canada Guidelines for Canadian Drinking Water Quality

*Drinking water standards are health-based MAC (Maximum Acceptable Concentration) values, unless otherwise noted

(A) indicates aesthetic objective, not health related but may affect taste, odour, or appearance

(O) indicates an operational guideline, to ensure efficient treatment and distribution system operation

¹ reported value is an average of the maximum result observed in the distribution system in each quarter

² Health Canada Drinking Water Guideline only

³ Ontario Drinking Water Quality Standard only

⁴Bisphenyl A (BPA) result from 2013 testing by Health Canada study

⁵Radioactivity screening values = 0.5 Bq/L for gross alpha and 1.0 Bq/L for gross beta

⁶Pharmaceutical reported values taken from Britannia treated water test results during 2015

**calculated parameter based on individual analytes

*** The lead values reported do not include the Ontario Ministry of Environment Community Lead Testing Program results

****tests performed by Ontario Drinking Water Surveillance Program (DWSP)