



City of Ottawa

Lemieux Water Purification Plant - 2017 Drinking Water Quality

physical, microbiological, chemical, & radiological test results

Physical

Test Parameter	units	Treated water results	Drinking water standard*
Colour	TCU	2.5	5.0 (A)
Turbidity	NTU	0.053	5.0 (A)
Temperature	°C	0.2 - 24.5	<15.0 (A)
Conductivity	m-mhos/cm	160	
UV254 absorbance	abs/cm	0.05	
Total Dissolved Solids	mg/L	103	500 (A)

Microbiological

Test Parameter	units	Treated water results	Drinking water standard*
Total Coliforms	cfu/100mL	0 of 1445 tests >0	0
E.coli	cfu/100mL	0 of 1445 tests >0	0
Heterotrophic Plate Count (HPC)	cfu/mL	range: <10 - 100	500 (O)

Chemical - general

Test Parameter	units	Treated water results	Drinking water standard*
pH	log ₁₀	9.39	² 7.0 - 10.5 (O)
Alkalinity	mg/L CaCO ₃	35.3	30 - 500 (O)
Bromate	mg/L	<0.003	0.01
Bromide	mg/L	0.009	
Calcium	mg/L	9.4	
Chlorate	mg/L	0.10	1.0
Chloride	mg/L	7.0	250 (A)
Chlorine (total, as chloramine)	mg/L	1.80	3.0
Chlorite	mg/L	<0.01	1.0
Cyanide	mg/L	<0.002	0.2
Fluoride	mg/L	0.69	1.5
Iodide	mg/L	0.0006	
Magnesium	mg/L	2.4	
Potassium	mg/L	0.66	
Silicon	mg/L	2.62	
Sodium	mg/L	19.4	⁶ 20, 200 (A)
Sulphate	mg/L	28.6	500 (A)
Total Hardness**	mg/L CaCO ₃	33.3	80 - 100 (A)
Calcium Hardness**	mg/L CaCO ₃	23.6	
Magnesium Hardness**	mg/L CaCO ₃	9.7	
Ammonia	mg/L N	<0.01	
Total Kjeldahl Nitrogen	mg/L N	0.35	
Organic Nitrogen**	mg/L N	0.33	³ 0.15 (O)
Nitrate	mg/L N	0.18	10
Nitrite	mg/L N	<0.02	1
Phosphate	mg/L P	<0.002	
Dissolved Organic Carbon	mg/L	3.3	5 (A)
Langelier's Index**	log ₁₀	-1.5	
C-T Disinfection**	mg/L-min	182.3	
Log Giardia Disinfection**	log ₁₀	9.1-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	0.0828	0.1 (O)
Antimony	mg/L	0.0002	0.006
Arsenic	mg/L	0.0002	² 0.010/ ³ 0.025
Barium	mg/L	0.0143	1
Beryllium	mg/L	<	
Bismuth	mg/L	<	
Boron	mg/L	0.0059	5
Cadmium	mg/L	<	0.005
Chromium	mg/L	0.0002	0.05
Chromium VI	mg/L	0.0001	
Cobalt	mg/L	<	
Copper	mg/L	0.0013	1 (A)
Iron	mg/L	0.0029	0.3 (A)
Lead	mg/L	<	0.01
Manganese	mg/L	0.0022	0.05 (A)
Mercury	mg/L	<	0.001
Molybdenum	mg/L	<	
Nickel	mg/L	0.0004	
Selenium	mg/L	<	0.05
Silver	mg/L	0.0001	
Strontium	mg/L	0.0457	
Thallium	mg/L	<	
Tin	mg/L	<	
Titanium	mg/L	<	
Tungsten	mg/L	<	
Uranium	mg/L	<	0.02
Vanadium	mg/L	0.0002	
Zinc	mg/L	0.0016	5 (A)
Zirconium	mg/L	0.0002	

Chemical - organics

Test Parameter	units	Treated water results	Drinking water standard*
1,1,1-Trichloroethane	µg/L	<	
1,1,1,2-Tetrachloroethane	µg/L	<	
1,1,2,2-Tetrachloroethane	µg/L	<	
1,1,2-Trichloroethane	µg/L	<	
1,1-Dichloroethane	µg/L	<	
1,1-Dichloroethylene	µg/L	<	14.0
1,1-Dichloropropene	µg/L	<	
1,2,3-Trichlorobenzene	µg/L	<	
1,2,3-Trichloropropane	µg/L	<	
1,2,4-Trichlorobenzene	µg/L	<	
1,2,4-Trimethylbenzene	µg/L	<	
1,2-Dibromo-3-chloropropane / DBCP	µg/L	<	
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	<	
1,3,5-Trimethylbenzene	µg/L	<	
1,3-Dichlorobenzene	µg/L	<	
1,3-Dichloropropane	µg/L	<	
1,3-Dichloropropene - cis	µg/L	<	
1,3-Dichloropropene - trans	µg/L	<	
1,4-Dichlorobenzene	µg/L	<	5.0, 1.0 (A)
2,2-Dichloropropane	µg/L	<	

Chemical - organics

Test Parameter	units	Treated water results	Drinking water standard*
2,3,4,6-Tetrachlorophenol	µg/L	<	100, 1.0 (A)
2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)	µg/L	<	
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
2-Chlorotoluene	µg/L	<	
2-Hexanone	µg/L	<	
4-Chlorotoluene	µg/L	<	
Acetone	µg/L	<	
Alachlor	µg/L	<	5.0
Aldicarb	µg/L	<	
Aldrin	µg/L	<	
Aldrin + Dieldrin	µg/L	<	
Atrazine	µg/L	<	
Atrazine + N-dealkylated metabolites	µg/L	<	5.0
Atrazine-desethyl	µg/L	<	
Azinphos-methyl	µg/L	<	20
Bendiocarb	µg/L	<	
Benzene	µg/L	<	² 5.0 / ³ 1.0
Benzo(a)pyrene	µg/L	<	0.01
Bromobenzene	µg/L	<	
Bromoxynil	µg/L	<	5.0
Carbaryl	µg/L	<	90
Carbofuran	µg/L	<	90
Carbon Tetrachloride	µg/L	<	2.0
Chlorobenzene	µg/L	<	80.0, 30.0 (A)
Chloroethane	µg/L	<	
Chlorpyrifos	µg/L	<	90
Cyanazine	µg/L	<	
DDD - para, para	µg/L	<	
DDE - para, para	µg/L	<	
DDT - ortho, para	µg/L	<	
DDT + metabolites	µg/L	<	
Diazinon	µg/L	<	20
Dicamba	µg/L	<	120
Dichlorodifluoromethane / Freon 12	µg/L	<	
Dichloromethane	µg/L	<	50
Diclofop - methyl	µg/L	<	9
Dieldrin	µg/L	<	
Dimethoate	µg/L	<	20
Dinoseb	µg/L	<	
Diquat	µg/L	<	70
Diuron	µg/L	<	150
Ethylbenzene	µg/L	<	140, 1.6(A)
Ethylene dibromide / EDB	µg/L	<	
Glyphosate	µg/L	<	280
Heptachlor	µg/L	<	
Heptachlor + Heptachlor Epoxide	µg/L	<	
Heptachlor Epoxide	µg/L	<	
Hexachlorocyclohexane (Lindane)	µg/L	<	
Hexane	µg/L	<	
Isopropylbenzene	µg/L	<	
Malathion	µg/L	<	190
MCPA	µg/L	<	100
Methoxychlor	µg/L	<	
Methyl ethyl ketone	µg/L	<	

Chemical - organics

Test Parameter	units	Treated water results	Drinking water standard*
Methyl isobutyl ketone (MIBK)	µg/L	<	
Methyl tert-butyl ether / MTBE	µg/L	<	15 (A)
Metolachlor	µg/L	<	50
Metribuzin	µg/L	<	80
Microcystin	µg/L	<	1.5
N - Nitrosodimethylamine (NDMA)	µg/L	0.002	³ 0.009 / ² 0.040
n-Butylbenzene	µg/L	<	
Nitrilotriacetic Acid	µg/L	<	400
n-Propylbenzene	µg/L	<	
Paraquat	µg/L	<	7
Parathion	µg/L	<	
Pentachlorophenol	µg/L	<	60, 30(A)
Phorate	µg/L	<	2
Picloram	µg/L	<	190
p-Isopropyltoluene	µg/L	<	
Polychlorinated Biphenyls (PCBs)	µg/L	<	3
Prometryne	µg/L	<	1
sec-Butylbenzene	µg/L	<	
Simazine	µg/L	<	10
Styrene	µg/L	<	
Temephos	µg/L	<	
Terbufos	µg/L	<	1
tert-Butylbenzene	µg/L	<	
Tetrachloroethylene	µg/L	<	10
Toluene	µg/L	<	60, 24 (A)
Total Chlordane	µg/L	<	
Triallate	µg/L	<	³ 230
Trichloroethylene / TCE	µg/L	<	5
Trifluralin	µg/L	<	45
Vinyl Chloride	µg/L	<	² 2.0/ ³ 1.0
Xylene-meta	µg/L	<	
Xylene-ortho	µg/L	<	
Xylenes - total	µg/L	<	90, 20(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	<	

Chemical - organics

Test Parameter	units	Treated water results	Drinking water standard*
Total Heptachlorodibenzofurans	µg/L	<	
Total Octachlorodibenzofuran	µg/L	<	
2,3,7,8-TCDD Toxicity Equivalents	µg/L	<	³ 0.000015

Chemical - disinfection by-products

Test Parameter	units	Treated water results	Drinking water standard*
Chloroform	µg/L	36.8	
Bromodichloromethane	µg/L	4.3	
Dibromochloromethane	µg/L	0.3	
Bromoform	µg/L	<	
Total Trihalomethanes (TTHMs)	µg/L	41.4	
Monochloroacetic Acid	µg/L	3.4	
Monobromoacetic Acid	µg/L	<	
Dichloroacetic Acid	µg/L	14.8	
Dibromoacetic Acid	µg/L	<	
Trichloroacetic Acid	µg/L	16.2	
Bromochloroacetic Acid	µg/L	1.6	
Bromodichloroacetic Acid	µg/L	1.9	
Chlorodibromoacetic Acid	µg/L	<	
Tribromoacetic Acid	µg/L	<	
Total Haloacetic Acids (HAA5)	µg/L	34.7	
Total Haloacetic Acids (HAA9)	µg/L	38.0	
Total Trihalomethanes (TTHMs)1 in distribution	µg/L	39.1	100
Total Haloacetic Acids (HAA5)1in distribution	µg/L	34.4	80

Chemical - pharmaceuticals & personal care products⁷

Test Parameter	units	Treated water results	Drinking water standard*
1,7-Dimethylxanthine	µg/L	<	
10-Hydroxy-Amitriptyline	µg/L	<	
17a-Dihydroequilin	µg/L	<	
17a-Estradiol	µg/L	<	
17a-Ethinylestradiol	µg/L	<	
17b-Estradiol	µg/L	<	
Acetaminophen	µg/L	<	
Albuterol	µg/L	0.0021	
Amitriptyline	µg/L	<	
Amlodipine	µg/L	<	
Amphetamine	µg/L	<	
Androstenedion	µg/L	<	
Androsterone	µg/L	<	
Atenolol	µg/L	0.0067	
Atorvastatin	µg/L	<	
Azithromycin	µg/L	<	
Benzafibrate	µg/L	<	
Benzoylecgonine	µg/L	<	
Betamethasone	µg/L	<	
Bis-phenyl A ⁴	µg/L	0.0005	
Caffeine	µg/L	0.0023	
Carbamezepine	µg/L	0.0005	
Clotrimazole	µg/L	<	
Cotinine	µg/L	0.0018	
Deet	µg/L	0.0040	
Diphenhydramine	µg/L	<	
Enrofloxacin	µg/L	<	
Erythromycin	µg/L	<	

Chemical - pharmaceuticals & personal care products⁷

Test Parameter	units	Treated water results	Drinking water standard*
Fluoxetine	µg/L	<	
Indomethacin	µg/L	<	
Ketoprofen	µg/L	<	
Metformin	µg/L	0.0180	
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	7.1	
Total Organic Carbon	mg/L	3.3	
Phosphorus (total)	mg/L	<	
1,2-dibromoethane	µg/L	<	
2,2-dichloropropanoic acid	µg/L	0.38	
2,3,4,5-tetrachlorophenol	µg/L	<	
2,3,4-trichlorophenol	µg/L	<	
2,4,5-trichlorophenol	µg/L	<	
2,4-DB	µg/L	<	
Ametryne	µg/L	<	
Aminomethylphosphonic acid	µg/L	<	
Atraton	µg/L	<	
Barban	µg/L	<	
Bromochloroacetaldehyde	µg/L	<	
Bromochloroacetonitrile	µg/L	<	
Butachlor	µg/L	<	
Butylate	µg/L	<	
Chloral Hydrate	µg/L	0.73	
Chloroacetonitrile	µg/L	<	
Chlorobromuron	µg/L	<	
Chlorotoluron	µg/L	<	
Chlorpropham	µg/L	<	
De-ethylated simazine	µg/L	<	
Diallate	µg/L	<	
Dibromoacetaldehyde	µg/L	<	
Dibromoacetonitrile	µg/L	<	
Dichloroacetonitrile	µg/L	<	
Dichlorvos	µg/L	<	
Difenoxuron	µg/L	<	
Diisopropylether	µg/L	<	
Eptam	µg/L	<	
Ethion	µg/L	<	
Fluometuron	µg/L	<	
Glufosinate	µg/L	<	

Chemical - additional test parameters****

Test Parameter	units	Treated water results	Drinking water standard*
Hexachlorocyclopentadiene	µg/L	<	
Iodoacetic acid	µg/L	<	
Linuron	µg/L	<	
Methylparathion	µg/L	<	
Metobromuron	µg/L	<	
Metoxuron	µg/L	<	
Mevinphos	µg/L	<	
Monolinuron	µg/L	<	
Monuron	µg/L	<	
Neburon	µg/L	<	
Perchlorate	µg/L	<	
Prometone	µg/L	<	
Propazine	µg/L	<	
Propham	µg/L	<	
Propoxur	µg/L	<	
Reldan	µg/L	<	
Ronnel	µg/L	<	
Siduron	µg/L	<	
Silvex	µg/L	<	
Terbutryne	µg/L	<	
Trichloroacetonitrile	µg/L	<	
Trichloroethene	µg/L	<	

Radiological

Test Parameter	units	Treated water results	Drinking water standard*
Gross-Alpha Radioactivity	Bq/L	<0.04	⁵ 0.5
Gross-Beta Radioactivity	Bq/L	<0.1	⁵ 1.0
Tritium	Bq/L	<6.9	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

¹The reported THM and HAA result is an annual average concentration measured in the distribution system.

² Health Canada Drinking Water Guideline only

³ Ontario Drinking Water Quality Standard only

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

⁵Radioactivity screening values = 0.5 Bq/L for gross alpha and 1.0 Bq/L for gross beta as per Health Canada

⁶Sodium health advisory level of 20 mg/L for people on sodium-restricted diets only

⁷Pharmaceutical reported values taken from Britannia treated water test results

**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)