Richmond West Well System - 2024 Drinking Water Quality

Physical, Microbiological, Chemical, & Radiological test results

Physical

Test Parameter	units	Treated water results	Drinking water standard*
Colour	TCU	0.6	5 (A)
Turbidity	NTU	0.25	5 (A)
Temperature	°C	10.3	<15 (A)
Conductivity	µS/cm	714	
UV254 absorbance	abs/cm	0.011	

Microbiological

Test Parameter	units	Treated water results	Drinking water standard*
Total Coliforms	cfu/100mL	0 of 92 tests >0	0
E.coli	cfu/100mL	0 of 92 tests >0	0
Heterotrophic Plate Count (HPC)	cfu/mL	<10	500 (O)

Chemical – general

Test Parameter	units	Treated water results	Drinking water standard*
pH	$\log_{10}$	7.67	[2]7.0 - 10.5 (O)
Alkalinity	mg/L $CaCO_3$	247	30 - 500 (O)
Bromate	mg/L	<	0.01
Bromide	mg/L	0.065	
Calcium	mg/L	77.8	
Chlorate	mg/L	0.05	1.0
Chloride	mg/L	58.4	250 (A)
Chlorine (free)	mg/L	1.18	>0.05[3]
Chlorite	mg/L	<	1.0
Cyanide	mg/L	<	0.2
Fluoride	mg/L	0.25	1.5
Lithium	mg/L	0.0139	
Magnesium	mg/L	26.5	
Potassium	mg/L	3.0	
Silicon	mg/L	3.6	

Test Parameter	units	Treated water results	Drinking water standard*
Sodium	mg/L	32.9	[5]20, 200 (A)
Sulphate	mg/L	47.1	500 (A)
Total Hardness**	mg/L $CaCO_3$	303.5	80 - 100 (A)
Calcium Hardness**	mg/L $CaCO_3$	194.9	
Magnesium Hardness**	mg/L $CaCO_3$	109.3	
Ammonia	mg/L N	<	
Total Kjeldahl Nitrogen	mg/L N	0.05	
Nitrate	mg/L N	<	10
Nitrite	mg/L N	<	1
Dissolved Organic Carbon	mg/L	0.85	5 (A)

Chemical - inorganic metals

Test Parameter	units	Treated water results	Drinking water standard*
Aluminum	mg/L	0.0008	[2]2.9/0.1 (O)
Antimony	mg/L	<	0.006
Arsenic	mg/L	<	0.010
Barium	mg/L	0.1402	[2]2,0 / [3]1,0
Beryllium	mg/L	<	
Bismuth	mg/L	<	
Boron	mg/L	0.1348	5.0
Cadmium	mg/L	<	[2]0,007 / [3]0,005
Chromium	mg/L	<	0.05
Cobalt	mg/L	0.0002	
Copper	mg/L	<	[2]2, [3]1 (A)
Iron	mg/L	0.1979	[2]0.1 (A)/[3]0.3 (A)
Lead	mg/L	<	[2]0.005 / [3]0.01
Manganese	mg/L	0.0063	[2]0.12 / [3]0.05(A)
Mercury	mg/L	<	0.001
Molybdenum	mg/L	0.0017	
Nickel	mg/L	0.0008	
Selenium	mg/L	<	0.05
Silver	mg/L	<	
Strontium	mg/L	1.56	7
Thallium	mg/L	<	
Tin	mg/L	<	
Titanium	mg/L	<	
Tungsten	mg/L	<	
Uranium	mg/L	0.0010	0.02

Test Parameter	units	Treated water results	Drinking water standard*
Vanadium	mg/L	<	
Zinc	mg/L	<	5 (A)
Zirconium	mg/L	<	

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 -Trichloroethane	µg/L	<	
1,1,2,2-Tetrachloroethane	µg/L	<	
1,1-Dichloroethane	µg/L	<	
1,1-Dichloroethylene	µg/L	<	14
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(A)
1,2-Dichloroethane	µg/L	<	5
1,2-Dichloroethylene - cis	µg/L	<	
1,2-Dichloroethylene -trans	µg/L	<	
1,2-Dichloropropane	µg/L	<	
1,3-Dichlorobenzene	µg/L	<	
1,3-Dichloropropene - cis	µg/L	<	
1,3-Dichloropropene - trans	µg/L	<	
1,3-Dichloropropane	µg/L	<	
1,3,5-Trimethylbenzene	µg/L	<	
1,4-Dichlorobenzene	µg/L	<	5, 1(A)
1,4-Dioxane	µg/L	<	5
2,2-Dichloropropane	µg/L	<	
2,3,4,6-Tetrachlorophenol	µg/L	<	100, 1(A)
2,4,5-Trichlorophenoxyacetic acid / 2,4,5-T	µg/L	<	
2,4,6-Trichlorophenol	µg/L	<	5, 2(A)
2,4-Dichlorophenol	µg/L	<	900, 0.3(A)
2,4-DDT	µg/L	<	
2,4-Dichlorophenoxyacetic Acid (2,4-D)	µg/L	<	100

Test Parameter	units	Treated water results	Drinking water standard*
2-Chlorotoluene	µg/L	<	
2-Hexanone (MPK)	µg/L	<	
4,4-DDD (pp-DDD)	µg/L	<	
4,4-DDE (pp-DDE)	µg/L	<	
4,4-DDT (pp-DDT)	µg/L	<	
4-Chlorotoluene	µg/L	<	
Acetone	µg/L	<	
Alachlor	µg/L	<	5
Aldicarb	µg/L	<	
Aldrin	µg/L	<	
Aldrin + dieldrin	µg/L	<	
Atrazine	µg/L	<	
Atrazine + N-dealkylated metabolites	µg/L	<	5
Atrazine-desethyl (DEA)	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	<	[2]30.0/ [3]5.0
Carbaryl	µg/L	<	90
Carbofuran	µg/L	<	90
Carbon Tetrachloride	µg/L	<	2
Chlorobenzene	µg/L	<	80, 30(A)
Chloroethane	µg/L	<	
Chlorpyrifos	µg/L	<	90
Cyanazine	µg/L	<	
DDT + metabolites	µg/L	<	
Diazinon	µg/L	<	20
Dicamba	µg/L	<	[2]110.0/[3]120.0
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	<	[2]50.0/ [3]70.0
Diuron	µg/L	<	150
Ethylbenzene	µg/L	<	140, 1.6 (A)

Test Parameter	units	Treated water results	Drinking water standard*
Ethylene dibromide	µg/L	<	
Glyphosate	µg/L	<	280
Heptachlor	µg/L	<	
Heptachlor & heptachlor epoxide	µg/L	<	
Heptachlor epoxide	µg/L	<	
Hexane	µg/L	<	
Isopropylbenzene	µg/L	<	
Lindane	µg/L	<	
Malathion	µg/L	<	190
MCPA	µg/L	<	[2]350.0/[3]100.0
Methoxychlor	µg/L	<	
Methyl ethyl ketone (MEK) (2-Butanone)	µg/L	<	
Methyl isobutyl ketone (MIBK)	µg/L	<	
Methyl tert-butyl ether / MTBE	µg/L	<	15 (A)
Metolachlor	µg/L	<	50
Metribuzin	µg/L	<	80
Microcystin-LR[6]	µg/L	<	1.5
Nitrilotriacetic Acid	µg/L	<	400
N - Nitrosodimethylamine (NDMA)	µg/L	0.0008	[3]0.009 / [2]0.040
n-Butylbenzene	µg/L	<	
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

Test Parameter	units	Treated water results	Drinking water standard*
Trichloroethylene / TCE	µg/L	<	5
Trifluralin	µg/L	<	45
Vinyl Chloride	µg/L	<	[2]2.0 / [3]1.0
Xylene - meta & para	µg/L	<	
Xylene - ortho	µg/L	<	
Xylenes - total	µg/L	<	90, 20(A)

Chemical – Dioxins & Furans[6]

Test parameter	Units	Treated water results	Drinking water standard*
2,3,7,8,-Tetra-Dizenzo-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	0.0000016	
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	0.0000056	
Total Pentachlorodibenzofurans	µg/L	<	
Total Hexachlorodibenzofurans	µg/L	<	
Total Heptachlorodibenzofurans	µg/L	<	
Total Octachlorodibenzofuran	µg/L	0.0000015	

Chemical – Perfluorinated Organics

Test Parameter	units	Treated water results	Drinking water standard*
Perfluorobutyrate	µg/L	<	
Perfluoro-n-pentanoic acid	µg/L	<	
Perfluorohexanoic acid	µg/L	<	
Perfluoroheptanoic acid	µg/L	<	
Perfluorooctanoic acid	µg/L	<	0.2
Perfluorononanoic acid	µg/L	<	
Perfluorodecanoic acid	µg/L	<	
Perfluoroundecanoic acid	µg/L	<	
Perfluorododecanoic acid	µg/L	<	
Perfluorotridecanoic acid	µg/L	<	
Perfluorotridecanoate.	µg/L	<	
Perfluorobutane sulfonate	µg/L	<	
Perfluoropolyethers	µg/L	<	
Perfluorohexane sulfonic acid	µg/L	<	
Perfluoroheptane sulfonate	µg/L	<	
Perfluorooctanesulfonic acid	µg/L	<	0.6
Perfluorononanesulfonate	µg/L	<	
Perfluorodecanesulfonate	µg/L	<	
Perfluorododecanesulfonic acid	µg/L	<	
4:2 fluorotelomer sulfonate	µg/L	<	
6:2 fluorotelomer sulfonate	µg/L	<	
8:2 fluorotelomer sulfonate	µg/L	<	
Perfluorooctanesulfonamide	µg/L	<	
N-methylperfluorooctanesulfonamide			
N-methyl perfluorooctanesulfonamidoacetic acid	µg/L	<	
N-ethyl perfluorooctanesulfonamide	µg/L	<	
N-methylperfluoro-1-octanesulfonamidoacetic acid	µg/L	<	
N-ethylperfluoro-1-octanesulfonamidoacetic acid	µg/L	<	
N-methylperfluorooctanesulfonamidoethanol	µg/L	<	
N-ethyl perfluorooctane sulfonamido ethanol	µg/L	<	
Hexafluoropropylene oxide dimer acid	µg/L	<	
3H-perfluoro-3-[(3-methoxy-propoxy)propanoic acid]	µg/L	<	

Test Parameter	units	Treated water results	Drinking water standard*
9C1-PF3ONS 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid	µg/L	<	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	µg/L	<	
3:3 Fluorotelomer carboxylic acid	µg/L	<	
5:3 Fluorotelomer carboxylic acid	µg/L	<	
7:3 Fluorotelomer carboxylic acid	µg/L	<	
Potassium perfluoro(2-ethoxyethane)sulfonate	µg/L	<	
Perfluoro-4-oxapentanoic acid	µg/L	<	
Perfluoro-5-oxahexanoic acid	µg/L	<	
Perfluoro-3,6-dioxaheptanoic acid	µg/L	<	
Total PFAS	µg/L	<	

Chemical - disinfection by-products

Test Parameter	units	Treated water results	Drinking water standard*
Chloroform	µg/L	1.0	
Bromodichloromethane	µg/L	2.8	
Dibromochloromethane	µg/L	5.1	
Bromoform	µg/L	3.1	
Total Trihalomethanes (TTHMs)	µg/L	12.0	
Monochloroacetic Acid	µg/L	<	
Monobromoacetic Acid	µg/L	0.7	
Dichloroacetic Acid	µg/L	<	
Dibromoacetic Acid	µg/L	2.3	
Trichloroacetic Acid	µg/L	<	
Bromochloroacetic Acid	µg/L	1.4	
Bromodichloroacetic Acid	µg/L	1.4	
Chlorodibromoacetic Acid	µg/L	<	
Tribromoacetic Acid	µg/L	<	
Total Haloacetic Acids (HAA5)	µg/L	2.5	
Total Haloacetic Acids (HAA9)	µg/L	5.3	
Total Trihalomethanes (TTHMs)[1] in distribution	µg/L	13.3	100
Total Haloacetic Acids (HAA5)[1] in distribution	µg/L	2.9	80

Radiological

Test Parameter	units	Treated water results	Drinking water standard*
Gross-Alpha Radioactivity	Bq/L	<0.10	[4]0.5
Gross-Beta Radioactivity	Bq/L	0.09	[4]1.0
Tritium	Bq/L	<0.77	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]The 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
[4]Radioactivity screening values = 0.5 Bq/L for gross alpha and 1.0 Bq/L for gross beta
[5]Sodium health advisory level of 20 mg/L for people on sodium-restricted diets only
**calculated parameter based on individual analytes
[6]Result from 2021