Montréal
Division de l'expertise technique

MUNICIPAL DRINKING WATER PRODUCED BY ATWATER AND CHARLES-J. DES BAILLETS DRINKING WATER TREATMENT PLANTS AND DISTRIBUTED TO MONTRÉAL (X0008084),MONTREAL-WEST (X0008899) AND ROYAL-MOUNT (X0008092) WATER DISTRIBUTION NETWORKS

2019

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019)	QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40)	DRINKING WATER CONCENTRATION		
			MIN.	AVE.	MAX.
Physical Properties					
Conductivity (µS/cm) **	--	--	258	306	321
Color (T.C.U.) **	≤15 [1]	--	1,00	1,13	4,00
Agressivity Index **	--	--	11,2	12,4	12,8
Ryznar Index	--	--	7,9	9,1	9,4
Langelier's Saturation Index	--	--	-0,86	-0,63	0,18
pH (units)	7,0-10,5 [1]	6,5 - 8,5	7,50	7,81	8,10
Solids (mg/l) **	≤500	--	131	147	154
Total Solids(mg/l) **	≤500	--	154	176	189
Temperature (°C) **	--	--	0,40	5,27	23,20
Turbidity (N.T.U.) [2]	≤1,0	≤5	0,10	0,16	0,31
Turbidity (N.T.U.) [2] - West Montreal			0,16	0,19	0,31
Turbidity (N.T.U.) [2] - Royal-Mount			0,10	0,18	0,41
Biological Characteristics					
			ANNUAL AVERAGE		
Total coliforms (C.F.U./100ml)	ABS [4]	>90% ABS [4]	99.8 % ABS [9]		
E. coli (C.F.U./100ml)	ABS [4]	ABS [4]	99.97 % ABS [9 +10]		
West Montreal Network					
Total coliforms (C.F.U./100ml)	ABS [4]	>90% ABS [4]	100 % ABS [8 + 9]		
E. coli (C.F.U./100ml)	ABS [4]	ABS [4]	100 % ABS [8 + 9]		
Royal-Mount Network					
Total coliforms (C.F.U./100ml)	ABS [4]	>90% ABS [4]	100 % ABS [9]		
E. coli (C.F.U./100ml)	ABS [4]	ABS [4]	100 % ABS [9]		

MUNICIPAL DRINKING WATER PRODUCED BY ATWATER AND CHARLES-J. DES BAILLETS DRINKING WATER TREATMENT PLANTS AND DISTRIBUTED TO MONTRÉAL (X0008084),MONTREAL-WEST (X0008899) AND ROYAL-MOUNT (X0008092) WATER DISTRIBUTION NETWORKS

2019

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019)	QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40)	DRINKING WATER CONCENTRATION		
			MIN.	AVE.	MAX.
Inorganic and Organic Chemical Characteristics (mg/l)					
Antimony (Sb)	≤0.006	≤0.006	0,00013	0,00013	0,00013
Alkalinity (eq. $CaCO_3$) **	--	--	74	88	93
Aluminum (Al) **	<0.1	--	0,00604	0,01969	0,11100
Silver (Ag) **	--	--	<0,00331	<0,00331	0,00012
Arsenic (As)	≤0.010	≤0.010	0,00075	0,00077	0,00078
Barium (Ba)	≤1.0	≤1.0	0,02120	0,02120	0,02120
Bore (B)	≤5	≤5.0	0,02	0,02	0,03
Bromated (BrO_3) *	≤0.01	≤0.010	<0,0001	0,00023	0,00060
Cadmium (Cd)	≤0.005	≤0.005	<0,00004	<0,00004	<0,00004
Calcium (Ca) **	--	--	27,30	31,87	33,40
Total Organic Carbon (TOC) **	--	--	1,34	1,93	2,80
Chlorides (Cl) **	≤250 [1]	--	22,67	25,68	27,22
Chromium (Cr)	≤0.05	≤0.050	0,00004	0,00005	0,00005
Cobalt (Co) **	--	--	0,00002	0,00010	0,00086
Copper (Cu) [7]	≤2,0 / ≤1.0 [1]	≤1.0	0,04860	0,07730	0,10600
Cyanides (CN^-)	≤0.2	≤0.20	<0,004	<0,004	<0,004
Total Hardness (eq. $CaCO_3$) **	--	--	94	118	126
Iron (Fe) **	≤0.3 [1]	--	0,00	0,01	0,01
Fluorides (F^-)	≤1.5	≤1.50	0,13	0,13	0,13
Magnesium (Mg) **	--	--	6,37	7,88	8,61
Manganese (Mn) **	≤0.12 / ≤0.02 [1]	--	<0,00017	<0,00017	0,00058
Mercury (Hg)	≤0.001	≤0.001	<0,00003	<0,00003	<0,00003
Nickel (Ni) **	--	--	0,00041	0,00654	0,06460
Nitrites (NO_2-N) + nitrates (NO_3-N)	≤1 + ≤10	≤10.0	0,20	0,28	0,32
Lead (Pb) [7]	≤0.005	≤0.010	0,00088	0,00093	0,00098
Potassium (K) **	--	--	1,31	1,48	1,60
Selenium (Se)	≤0.05	≤0.010	<0,00021	<0,00021	<0,00021
Silica (SiO_2) **	--	--	0,64	1,12	2,00
Sodium (Na) **	≤200 [1]	--	13,20	14,85	15,60
Sulfates (SO_4) **	≤500 [1]	--	17,71	22,16	23,73
Uranium (U)	≤0.02	≤0.020	0,00030	0,00030	0,00031
Zinc (Zn) **	≤5.0 [1]	--	0,00017	0,00096	0,00824

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019) Maximum concentration µg/L	QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40) Maximum concentration µg/L	RDL (µg/L)	DRINKING WATER MAXIMUM DETECTED (µg/L)
Carbamates				
Bendiocarb *	-	27	0,2	N.D.
Carbaryl *	90	70	0,2	0,00
Carbofuran *	90	70	0,2	0,00
Volatile Organic Compounds (VOC)				
1,1,1,2-Tétrachloroethane	-	-	0,06	N.D.
1,1,1-Trichloroethane	-	-	0,06	N.D.
1,1,2,2-Tétrachloroethane	-	-	0,06	N.D.
1,1,2-Trichloroethane	-	-	0,06	N.D.
1,1-Dichloroethane	-	-	0,06	N.D.
1,1-Dichloroethylene	14	10	0,06	N.D.
1,1-Dichloropropene	-	-	0,06	N.D.
1,2,3-Trichlorobenzene	-	-	0,06	N.D.
1,2,3-Trichloropropane	-	-	0,06	N.D.
1,2,4-Trichlorobenzene	-	-	0,06	N.D.
1,2,4-Triméthylbenzene	-	-	0,06	N.D.
1,2-Dibromo-3-chloropropane	-	-	0,06	N.D.
1,2-Dibromoethane	-	-	0,06	N.D.
1,2-Dichlorobenzene	200	150	0,06	N.D.
1,2-Dichloroethane	5	5	0,06	N.D.
1,2-Dichloropropane	-	-	0,06	N.D.
1,3,5-Triméthylbenzene	-	-	0,06	N.D.
1,3-Dichlorobenzene	-	-	0,06	N.D.
1,3-Dichloropropane	-	-	0,06	N.D.
1,4-Dichlorobenzene	5	5	0,06	N.D.
2,2-Dichloropropane	-	-	0,06	N.D.
2-Chlorotoluene	-	-	0,06	N.D.
4-Chlorotoluene	-	-	0,06	N.D.
4-Isopropyltoluene	-	-	0,06	N.D.
Benzene	5	0,5	0,06	N.D.
Bromobenzene	-	-	0,06	N.D.
Bromochloromethane	-	-	0,06	N.D.
Bromoform	-	Voir note 3	See Note 3	0,60
Bromoform - West Montreal				0,60
Bromoform - Royal-Mount				0,60
Bromodichloromethane	-	Voir note 3	See Note 3	12,80
Bromodichloromethane - West Montreal				13,30
Bromodichloromethane - Royal-Mount				12,40
Bromomethane	-	-	0,06	N.D.

MUNICIPAL DRINKING WATER PRODUCED BY ATWATER AND CHARLES-J. DES BAILLETS DRINKING WATER TREATMENT PLANTS AND DISTRIBUTED TO MONTRÉAL (X0008084),MONTREAL-WEST (X0008899) AND ROYAL-MOUNT (X0008092) WATER DISTRIBUTION NETWORKS

2019

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019) Maximum concentration µg/L		QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40) Maximum concentration µg/L	RDL (µg/L)	DRINKING WATER MAXIMUM DETECTED (µg/L)
Volatile Organic Compounds (VOC)					
Chlorobenzene	80	30[1]	60	0,06	N.D.
Chlorodibromomethane	-		Voir note 3	0,06	5,90
Chlorodibromomethane - West Montreal					6,80
Chlorodibromomethane - Royal-Mount					5,50
Chloroethane	-		-	0,06	N.D.
Chloroform	-		Voir note 3	0,06	53,30
Chloroform - West Montreal					33,20
Chloroform - Royal-Mount					57,60
Chloromethane	-		-	0,06	N.D.
Vinyl chloride	2		2	0,06	N.D.
cis-1,2-Dichloroethylene	-		-	0,06	N.D.
cis-1,3-Dichloropropene	-		-	0,06	N.D.
Dibromomethane	-		-	0,06	N.D.
Dichlorodifluoromethane	-		-	0,06	N.D.
Dichloromethane	50		50	0,06	N.D.
Diethylether	-		-	0,06	N.D.
Carbon disulfide	-		-	0,06	N.D.
Ethylbenzene	140	1,6[1]	-	0,06	N.D.
Hexachlorobutadiene	-		-	0,06	N.D.
Isopropylbenzene	-		-	0,06	N.D.
MTBE(methyl tert-butyl ether)	-	15[1]	-	0,06	N.D.
m-Xylene + p-Xylene + o-Xylene	90	20[1]	-	0,06	N.D.
Naphthalene	-		-	0,06	N.D.
n-Butylbenzene	-		-	0,06	N.D.
n-Propylbenzene	-		-	0,06	N.D.
sec-Butylbenzene	-		-	0,06	N.D.
Styrene	-		-	0,06	N.D.
tert-Butylbenzene	-		-	0,06	N.D.
Tetrachloroethylene	10		25	0,06	N.D.
Carbon tetrachloride	2		5	0,06	N.D.
Toluene	60	24[1]	-	0,06	N.D.
trans-1,2-Dichloroethylene	-		-	0,06	N.D.
trans-1,3-Dichloropropene	-		-	0,06	N.D.
Trichloroethylene	5		5	0,06	N.D.
Trichlorofluoromethane	-		-	0,06	N.D.
Trihalomethanes (THM) (total) [6]	-		Voir note 3	0,24	60,30
Trihalomethanes (THM) (total) [6] - West Montreal					50,50
Trihalomethanes (THM) (total) [6] - Royal-Mount					68,80

Montréal
Division de l'expertise technique

MUNICIPAL DRINKING WATER PRODUCED BY ATWATER AND CHARLES-J. DES BAILLETS DRINKING WATER TREATMENT PLANTS AND DISTRIBUTED TO MONTRÉAL (X0008084),MONTREAL-WEST (X0008899) AND ROYAL-MOUNT (X0008092) WATER DISTRIBUTION NETWORKS

2019

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019) Maximum concentration µg/L		QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40) Maximum concentration µg/L	RDL (µg/L)	DRINKING WATER MAXIMUM DETECTED (µg/L)
Volatile Organic Compounds (VOC)					
Trihalomethanes total – Annual mean concentration	100		80[3]	0,24	46,68
Trihalomethanes total-West Montreal– Annual mean concentration					42,60
Trihalomethanes total - Royal-Mount – Annual mean concentration					44,15
Phenolic Compounds					
2,3,4,6-Tetrachlorophenol *	100	1[1]	70	0,4	N.D.
2,4 -Dichlorophenol *	900	0,3[1]	700	0,3	N.D.
2,4,6-Trichlorophenol *	5	2[1]	5	0,4	N.D.
Pentachlorophenol *	60	30[1]	42	0,4	N.D.
Glyphosate					
Glyphosate *	280		210	10	N.D.
Polycyclic Aromatic Hydrocarbons (PAH)					
Benzo(a)pyrene *	0,04		0,01	0,003	N.D.
Triazine Herbicides					
Atrazine and metabolites *	5		3,5	0,3	N.D.
Cyanazine *	-		9	0,2	N.D.
Metribuzine *	80		60	0,2	N.D.
Simazine *	10		9	0,2	N.D.
Chlorophenoxy Acid and Trichloroacetate Pesticides					
2,4-D *	100		70	0,03	N.D.
Dicamba *	120		85	0,6	N.D.
Dinoseb *	-		7	0,4	N.D.
Picloram *	190		140	0,06	N.D.
Organochlorine Pesticides					
Metolachlor *	50		35	0,07	N.D.
Methoxychlor *	-		700	0,1	N.D.
Trifluralin *	45		35	0,2	N.D.
Organophosphorus Pesticides					
Azinphos-methyl *	20		17	0,3	N.D.
Chlorpyrifos *	90		70	0,2	N.D.
Diazinon *	20		14	0,2	N.D.
Dimethoate *	20		14	0,2	N.D.
Diuron *	150		110	0,3	N.D.
Malathion *	190		140	0,2	N.D.
Parathion *	-		35	0,2	N.D.
Phorate *	2		1,4	0,2	N.D.
Terbufos *	1		0,5	0,2	N.D.
Others					
Bromoxynil *	5		3,5	0,4	N.D.
Methyl-Diclofop *	9		7	0,2	N.D.
Diquat *	70		50	10	N.D.
Paraquat *	10		7	0,6	N.D.
Haloacetic acids *	80		60	3	73,10
Nitrilotriacetic acid	400		280	25	28,00

*: Analyzed by an outside accredited laboratory.

**: At the exit of water treatment plant.

RDL: Reported Detection Limit.

N.D.: Not detected, lower than the detection limit method.

D.: Detected, but cannot determine quantity.

Notes:

1: Esthetical or organoleptic reasons.

2 : Turbidity must be equal or under 5 NTU (nephelometric turbidity units).

3 : The annual mean concentration of total THM (chloroform, bromodichloromethane, chlorodibromomethane and bromoform) calculated over four consecutive quarters must not exceed 80 µg/L (samples taken at the end of drinking water distribution network).

4 : ABS = Absence. PRE= presence

5 : Health reasons objectives.

6 : Maximum obtained for a sampling site.

7 : Lead and copper level at the center of water distribution network. When water samples are taken from old pipes (before 1970) results are shown below.

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2019)		QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40)	DRINKING WATER CONCENTRATION		
				MIN.	AVE.	MAX.
Copper and Lead (mg/l)						
Montreal Network						
Copper (Cu)	≤2,0	≤1.0 [1]	≤1.0	0,00322	0,04404	0,19000
Lead (Pb)	≤0.005		≤0.010	0,00012	0,00733	0,23813
West Montreal Network						
Copper (Cu)	≤2,0	≤1.0 [1]	≤1.0	0,02770	0,04408	0,07350
Lead (Pb)	≤0.005		≤0.010	0,00021	0,00612	0,01217
Royal-Mount Network						
Cuivre (Cu)	≤2,0	≤1.0 [1]	≤1.0	0,04260	0,08002	0,11000
Plomb (Pb)	≤0.005		≤0.010	0,00007	0,00033	0,00073

8 : When less than 21 water samples are taken over a period of 30 consecutive days, only one of these samples may have presence of total coliforms. It have been respected in 2019.

9 : There is no requirement for annual average. It is used only as a reference. For all year long, monthly average have been respected

10 : The presence of E. coli occured at a sampling point only once. After analyzing the situation it was determined that the sampling point was the cause. Everything have been corrected after the event