

APPENDIX I: COMPARATIVE PARAMETER CHART

Parameter	Ontario mg/L MAC ¹ (unless otherwise stated)	Canada mg/L MAC (unless otherwise stated)	United States mg/L MCL (unless otherwise stated)	European Union mg/L ²	England mg/L ¹	World Health Organization
Microorganisms:						
E. coli or fecal coliform in any required sample other than a raw water sample	0 (if detected, corrective action is specified until 2 consecutive samples show 0)	0 / 100mL ("the confirmed presence of <i>E. coli</i> in drinking water should trigger an immediate "boil water" advisory)	0	0/100mL	0/100mL	0/100mL
Total coliforms (but not E.coli or other fecal coliforms)	0 (if detected, corrective action is specified until 2 consecutive samples show 0)	up to 10 (with descriptive criteria) ³	maximum 5.0% samples total coliform-positive in a month (if <40 samples/month, maximum 1 sample/month total coliform-positive)		0/100mL (in 95% of samples from each service reservoir)	0/100mL (in the case of large supplies, must not be present in 95% of samples in any 12-month period)
Heterotrophic plate count	>500 colonies/mL	>500 colonies/mL	>500 colonies/mL			
Total coliform membrane filter analysis	>200 background colonies	>200 background colonies				
<i>Aeromonas</i> spp., <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> , <i>Clostridium</i> spp. or fecal streptococci (Group D)	0					
<i>Cryptosporidium</i>	see note ⁴		as of 1-Jan-2002: TT with 99% removal/		Treatment required at high-risk facilities	

¹ Maximum Acceptable Concentration

² Parameters expressed in µg/L in the European Union Directive and the UK Water Quality Regulations have been converted to mg/L in order to facilitate comparison across jurisdictions

³ "Drinking water that fulfills the following conditions is considered to be in compliance with the coliform MAC:

1. No sample should contain more than 10 total coliform organisms per 100 mL, none of which should be faecal coliforms;
2. No consecutive sample from the same site should show the presence of coliform organisms; and
3. For community drinking water distribution systems:
 - a) not more than one sample from a set of samples taken from the community on a given day should show the presence of coliform organisms; and
 - b) not more than 10% of the samples based on a minimum of 10 samples should show the presence of coliform organisms"

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			inactivation			
Giardia lamblia	as above		TT with 99.9% removal/ inactivation			
Legionella			TT with no set limit, but controlled via limits on <i>Giardia</i> and viruses			
Viruses (enteric)			TT with 99.99% removal / inactivation			
Other:						
Alachlor	0.005 (IMAC ⁵)	0.005 (IMAC)	0.002			0.02
Aldicarb	0.009	0.009	0.003			0.01
Aldrin + Dieldrin	0.0007	0.0007				0.00003
Arsenic	0.025 (IMAC)	0.025 (IMAC)	0.05	0.01	0.01	0.01 (P) ⁶
Atrazine + N-dealkylated metabolites	0.005 (IMAC)	0.005 (IMAC)	0.003			0.002
Azinphos-methyl	0.02	0.02				
Barium	1.0	1.0	2.0			0.7
Bendiocarb	0.04	0.04				
Benzene	0.005	0.005	0.005	0.001	0.001	0.01
Benzo(a)pyrene (PAHs)	0.00001	0.00001	0.0002	0.00001	0.00001	0.0007
Boron	5.0 (IMAC)	5.0 (IMAC)		1.0	1.0	0.5 (P)
Bromoxynil	0.005 (IMAC)	0.005 (IMAC)				
Cadmium	0.005	0.005	0.005	0.005	0.005	0.003
Carbaryl	0.09	0.09				
Carbofuran	0.09	0.09	0.04			0.07
Carbon tetrachloride	0.005	0.005	0.005			0.002
Chloramines	3.0	3.0	4.0 (MRDL) ⁷			

⁴ Ontario has introduced certain treatment provision regarding *Cryptosporidium* and *Giardia* in Ontario Drinking Water Standards, January 2001

⁵ Interim Maximum Acceptable Concentration

⁶ P="provisional guideline value" - used where health effects information is limited, where there is greater uncertainty over effects, where recommended health-based guideline is below the level that can be achieved through practical treatment methods, or where disinfection is likely to result in the guideline being exceeded

⁷ MRDL = Maximum Residual Disinfectant Level

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Chlordane (total)	0.007	-	0.002			0.0002
Chlorpyrifos	0.09	0.09				
Chromium	0.05	0.05	0.1	0.05	0.05	0.05
Cyanazine	0.01 (IMAC)	0.01 (IMAC)				0.0006
Cyanide	0.2	0.2	0.2	0.05	0.05	0.07
Diazinon	0.02	0.02				
Dicamba	0.12	0.12				
1,2-Dichlorobenzene / o-Dichlorobenzene	0.2	0.2	0.6			1
1,4-Dichlorobenzene / p-Dichlorobenzene	0.005	0.005	0.075			0.3
DDT + metabolites	0.03	-				0.002
1,2-Dichloroethane	0.005 (IMAC)	0.005 (IMAC)	0.005	0.003	0.003	0.03
1,1-Dichloroethylene (vinylidene chloride)	0.014	0.014	0.007			
Dichloromethane	0.05	0.05	0.005			0.02
2,4-Dichlorophenol	0.9	0.9				
2,4-Dichlorophenoxy-acetic acid (2,4-D)	0.1 (IMAC)	0.1 (IMAC)	0.07			0.03
Diclofop-methyl	0.009	0.009				
Dimethoate	0.02 (IMAC)	0.02 (IMAC)				
Dinoseb	0.01	0.01	0.007			
Dioxin and furan	0.000000015		Dioxin (2,3,7,8-TCDD): 0.00000003			
Diquat	0.07	0.07	0.02			0.01 (P)
Diuron	0.15	0.15				
Fluoride	1.5	1.5	4.0	1.5	1.5	1.5
Glyphosate	0.28 (IMAC)	0.28 (IMAC)	0.7			U ⁸
Heptachlor + Heptachlor Epoxide	0.003	-	heptachlor: 0.0004 heptachlor epoxide: 0.0002			0.00003

⁸ "It is unnecessary to recommend a health-based guideline value for these compounds because they are not hazardous to human health at concentrations normally found in drinking-water" (www.who.int/water_sanitation_health/GDWQ/Summary_tables/Tab3.htm)

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Lead	0.01	0.01	TT ⁹ 0.015 (action level)	0.01	.025 (2003-2013) .01 (2013-)	0.01
Lindane (total)	0.004		0.0002			0.002
Malathion	0.19	0.19				
Mercury	0.001	0.001	0.002	0.001	0.001	0.001
Methoxychlor	0.9	0.9	0.04			0.02
Metolachlor	0.05	0.05				0.01
Metribuzin	0.08	0.08				
Monochlorobenzene	0.08	0.08	0.1			0.3
Nitrate	10.0 (as nitrogen)	45.0 (equivalent to 10.0 mg/L as nitrate- nitrogen)	10.0 (as nitrogen)	50.0 (as nitrogen)	50.0(as nitrogen)	50.0 (as nitrogen)
Nitrite	1.0 (as nitrogen)	-	1.0 (as nitrogen)			3 (acute) 0.2 (P) chronic (as nitrogen)
Nitrate + nitrite (as nitrogen)	10.0	-	10.0 (as nitrogen)			
Nitritotriacetic acid (NTA)	0.4	0.4				0.2
Nitrosodimethylamine (NDMA)	0.000009 (IMAC)	-				
Paraquat	0.01 (IMAC)	0.01 (IMAC)				
Parathion	0.05	0.05				
Pentachlorophenol	0.06	0.06	0.001			0.009 (P)
Phorate	0.002 (IMAC)	0.002 (IMAC)				
Picloram	0.19 (IMAC)	0.19 (IMAC)	0.5			
PCBs	0.003 (IMAC)	-	0.0005			
Prometryne	0.001 (IMAC)	-				
Selenium	0.01	0.01	0.05	0.01	0.01	0.01
Simazine	0.01 (IMAC)	0.01 (IMAC)	0.004			0.002
Temephos	0.28 (IMAC)					
Terbufos	0.001 (IMAC)	0.001 (IMAC)				
Tetrachloroethylene (perchloroethylene)	0.030	0.030	0.005			

⁹ TT = regulation by treatment technology

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2,4,6-Trichlorophenol	0.005	0.005				0.2
2,4,5-T (Silvex)	0.28	-	0.05			0.009
Trifluralin	0.045 (IMAC)	0.045 (IMAC)				0.02
Trihalomethanes	0.10	0.10	0.10 0.08 (as of 1 January 2002)	0.10	0.10	the sum of the ration of the concentration of each to its respective guideline value should not exceed 1
Turbidity	1.0 NTU ¹⁰		1.0 NTU in 95% of cases; 5.0 NTU in all cases 0.3 NTU in 95% of cases; 1.0 NTU in all cases (as of 1 January 2002)		4 NTU	5 NTU
Uranium	0.10	0.02 (IMAC)	0.03			0.002 (P)
Vinyl Chloride	0.002	0.002	0.002	0.0005	0.0005	0.005
II. Parameters not listed in the Ontario regulation, but in Canadian guidelines (and others):						
Aluminum		0.1 ¹¹			0.2	0.2
Antimony		0.006 (IMAC)	0.006	0.005	0.005	0.005
Bromate		0.01 (IMAC)	0.010	0.010	0.010	0.025 (P)
Chloride		≤ 250 (AO) ¹²			250 (guideline only)	250
Colour		≤ 15 TCU ¹³ (AO)			20 mg/L pt/co	15 TCU
Copper		≤ 1.0 (AO)	TT action level = 1.3		2.0	2.0
Ethylbenzene		≤ 0.0024 (AO)	0.7			0.3
Iron		≤ 0.3 (AO)			200	0.3

¹⁰ NTU = nephelometric turbidity unit

¹¹ No health-based guideline for aluminum in drinking water has been established, but water treatment plants using aluminum in treatment processes should reduce residual aluminum to the lowest extent possible

¹² AO = aesthetic objective

¹³ TCU = true colour unit

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Manganese		≤0.05 (AO)			50	0.5 (P)
Odour		Inoffensive (AO)			3 at 25° (dilution number)	should be acceptable
pH		6.5 to 8.5 (AO)			6.5-10.0	preferably <8 for effective disinfection with chlorine
Sodium		≤200 (AO)			200	200
Sulphate		≤500 (AO)			250 (guideline only)	250
Sulphide (as H ₂ S)		≤0.05 (AO)				
Taste		Inoffensive (AO)			3 at 25° (dilution number)	should be acceptable
Temperature		≤15°C (AO)				
Toluene		≤0.024 (AO)	1.0			0.7
Total Dissolved Solids (TDS)		≤500 (AO)				1000
Xylenes (total)		≤0.3 (AO)	10.0			0.5
Zinc		≤5 (AO)				3
III. Parameters not listed for Ontario / Canada:						
Chlorine			4.0 (MRDL)			5
Chlorine dioxide			0.8 (MRDL)			
Chlorite			1.0			0.2 (P)
Haloacetic acids (HAA5)			0.060			
Acrylamide			TT	0.0001	0.0001	0.0005
Asbestos (fiber > 10 micrometers)			7 million fibres/L			U
Beryllium			0.004			No adequate data
Thallium			0.002			
Chlorobenzene			0.1			
Dalapon			0.2			
1,2-Dibromo-3- chloropropane (DBCP)			0.0002			0.001
cis-1,2-Dichloroethylene			0.07			

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trans-1,2-Dichloroethylene			0.1			
Dichloropropane			0.005			
Di(2-ethylhexyl) adipate			0.4			0.08
Di(2-ethylhexyl) phthalate			0.006			0.008
Endothall			0.1			
Endrin			0.002			
Epichlorohydrin			TT	0.0001	0.0001	0.0004 (P)
Ethylene dibromide			0.00005			
Hexachlorobenzene			0.001			0.001
Hexachlorocyclopent- adiene			0.05			
Oxamyl (Vydate)			0.2			
Styrene			0.1			0.02
Toxaphene			0.003			
1,2,4-Trichlorobenzene			0.07			trichlorobenzenes (total): 0.02
1,1,1-Trichloroethane			0.2			2.0 (P)
1,1,2-Trichloroethane			0.005			
Trichloroethylene			0.005			
IV. Parameters in EU / UK Guidelines not listed (or listed in an alternative manner) in Canada/Ontario/US:						
Nickel				0.02	0.02	0.02 (P)
Pesticides ¹⁴				0.0001	0.0001	
Pesticides including aldrin, dieldrin, heptachlor and heptachlor epoxide					0.00003	
Pesticides - total				0.0005	0.0005	
PAHs ¹⁵				0.0001	0.0001	
Tetrachloroethene and trichloroethene				0.01	0.01	trichloroethene: 0.07 (P)

¹⁴ Ontario, Canada, and the United States regulate individual pesticides instead; while the UK has a combined approach with specific limits on a few pesticides as well as the overall limit required by the European Directive

¹⁵ Benzo(a)pyrene, one of the PAHs, is regulated individually in ON/Can/US. The UK regulations cover 4 PAHs: benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, and indeno(1,2,3-cd)pyrene

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						tetrachloroethene: 0.04
Tetrachloromethane					3	

References:

Ontario Regulation 459/00. *Regulation made under the Ontario Water Resources Act: drinking water protection*

Health Canada. Guidelines for Canadian drinking water quality, 6th ed. Ottawa: 1996

Health Canada. Summary of Guidelines for Canadian drinking water quality (contains new or revised guidelines since the 1996 edition). March 2001.
http://www.hc-sc.gc.ca/ehp/ehd/catalogue/bch_pubs/summary.pdf, accessed May 7, 2001

United States. *National Primary Drinking Water Regulations*, 40 CFR vol 1 (7-1-00 edition), part 141

United States. Environment Protection Agency. Current drinking water standards. www.epa.gov/safewater/mcl.html, accessed April 4, 2001

Council of the European Union. Council Directive 98/83/EC, November 3, 1998 on the quality of water intended for human consumption

England. *The Water Supply (Water Quality) (England) Regulations*, S.I. 2000/3184

World Health Organization. Guidelines for Drinking Water Quality (extracted from: Guidelines for drinking water quality, 2nd ed., vol. 2 Health criteria and other supporting information, 1996 (p. 940-949) and Addendum to Vol. 2 1998 (p. 281-283), www.who.int/water_sanitation_health/GDWQ/Summary_tables, accessed January 31, 2001