

Appendix A: Existing Water Quality Standards

Parameter (ug/l)	WQC	WQC	WQC	WQC	WQC	WQC	DWMCL/	NHSWS	NHSWS	NHSWS	NHSWS	NHSWS	NHSWS	NHGWS	MAGWS	MAGWS	CEls
	(ug/l)	(ug/l)	or LOEL	or LOEL	or LOEL	or LOEL	MCLG								current/proposed		
	HHWO	HHOO	FWA	FWC	SWA	SWC		FWA	FWC	SWA	SWC	HHWO	HHOO		GW-1	GW-3	WQS+DF
Total Residual Chlorine			19	11	13	7.5	4000	19	11	13	7.5						
Total Petroleum Hydrocarbons															200/200	20/20	5000
Cyanide (note 1)	140	16000	22	5.2	1	1	200/200	22	5.2	1	1	700	220000	200	200/200	10/10	
Benzene	2.2	51	5300		5100	700	5/zero	5300		5100	700	1.2	71	5	5/5	7000/5000	5
Toluene	1300	15000	17500		6300	5000	1000/1000					6.8	200	1000	1000/1000	50k/2000	
Ethylbenzene	530	2100	32000		430		700/700	32000		430		3100	29000	700	700/700	4000/2000	
Xylenes							10k/10k							10000	10k/10k	50k/200	
Total BTEX (sum of benzene, toluene, ethylbenzene, and m,p,o-xylenes)																	100
Ethylene Dibromide							0.05/zero							0.05	0.2/0.02	50k/50k	0.5
Methyl tert Butyl Ether (notes 2, 3, & 4)							70/20-40							13	70/70	50k/50k	13(NH), 70(MA)
Tertiary Butanol (note 5)														1000			1000(NH)
Napthalene (note 6)			2300	620	2350			2300	620	2350				20	20/140	6000/1000	20
Flourene	1100	5300											1300	14000	280	300/90	3000/60
Carbon Tetrachloride	0.23	1.6	35200		50000		5/zero	35200		50000		0.25	4.4	5	5/5	50k/2000	5
1,4 Dichlorobenzene (p-DCB) (note 7)	63	190					75/75	1120	763	1970		400	2600	75	5/5	8000/3000	5 (MA)
1,2 DCB (note 7)	2700	17000					600/600	1120	763	1970		2700	17000	600	600/600	8000/4000	
1,3 DCB (note 7)	320	960						1120	763	1970		400	2600	600	600/100	8000/10k	
1,1 Dichloroethane														81	70/70	50k/50k	70
1,2 Dichloroethane	0.38	37	118000	20000	113000		5/zero	118000	20000	113000		0.38	99	5	5/5	50k/300	5
1,1 Dichloroethylene (note 8)	330	7100					7/7	11600		224000		0.057	3.2	7	7/7	50k/10k	7
cis-1,2 Dichloroethylene (note 9)							70/70	11600		224000				70	70/70	50k/50k	70
Dichloromethane (note 10)	4.6	590					5/zero	11000		12000	6400	4.7	1600	5	5/5	50k/50K	5
Tetrachloroethylene	0.69	3.3	5280	840	10200	450	5/zero	5280	840	10200	450	0.8	8.9	5	5/5	5000/10k	5
1,1,1 Trichloroethane	see MCL	see MCL			31200		200/200			31200		see MCL	see MCL	200	200/200	50k/9000	200
1,1,2 Trichloroethane	0.59	16		9400			5/3		9400			0.6	42	5	5/5	50k/50k	5
Trichloroethylene	2.5	30	45000	21000	2000		5/zero	45000	21900	2000		2.7	81	5	5/5	20k/20k	5
Vinyl Chloride	0.025	2.4					2/zero					2	525	2	2/2	40k/50k	2
Acetone														700	3000/3000	50k/50k	100
1,4 Dioxane															none/50	none/50k	100
Total Phenols	21000	1700000	10200	2560	5800			10200	2560	5800		300	300	4000	4000/400	30k/400	100
Pentachlorophenol (note 11)			19	15	13		1/zero	5.28	4.15	13	7.9			1	1/1	80/80	100
Total Phthalates (note 12)								940	3	2944	3.4						100
Bis (2-Ethylhexyl) Phthalate	1.2	2.2	400	360	400	360	6/zero					1.8	5.9	6	6/6	30/2000	100
Total Polynuclear Aromatic Hydrocarbons					300					300							
Total Group I PAHs (notes 13 & 14):																	10
Benzo(a)Anthracene	0.0038	0.018										0.0044	0.049	0.05	1/1	3000/10	
Benzo(a) Pyrene	0.0038	0.018					0.2/zero					0.0044	0.049	0.2	0.2/0.2	3000/10	
Benzo(a) Flouranthene	0.0038	0.018										0.0044	0.049	0.05	1/1	3000/1000	
Benzo(k) Flouranthene	0.0038	0.018										0.0044	0.049	0.5	1/1	3000/1	
Chrysene	0.0038	0.018										0.0044	0.049	5	2/2	3000/2	
Dibenzo(a,h) Anthracene	0.0038	0.018										0.0044	0.049	0.005	0.5/0.5	3k/0.5	
Indeno(1,2,3-cd) Pyrene	0.0038	0.018										0.0044	0.049	0.05	0.5/0.5	3k/50k	
Total Group II PAHs (note 15):																	100
Acenaphthene	670	990	1700	520	970	710		1700	520	970	710	20	20	420	20/20	5000/200	
Acenaphthylene														420	300/100	3k/50k	

Anthracene	8300	40000										9600	110000	2100	2000/600	3000/1	
Benzo(ghi) Perylene														210	300/60	3000/0.5	
Flouranthene	130	140	3980		40	16		3980		40	16			280	300/90	3000/60	
Naphthalene (notes 6 & 16)								2300	620	2350				20	20/140	6000/1000	20
Phenanthrene			30	6.3	7.7	4.6								210	300/90	50/60	
Pyrene	830	4000										960	11000	210	200/80	3000/0.9	
Polychlorinated Biphenyls (note 17)	0.00006	0.00006		0.014		0.03	0.5/zero	2	0.014	10	0.03	0.00017	0.00017	0.5	0.5/0.5	0.3/0.3	0.5
Metals (note 18)																	
Antimony	5.6	640					6/6	9600	1600			14	4300	6	6/6	300/3000	
Arsenic (note 19)	0.018	0.14	340	150	69	36	10/10	340	150	69	36	0.018	0.14	50	50/10	400/400	
Cadmium (note 20)			2	0.25	40	8.8	5/5	0.95	0.8	42	9.3			5	5/5	10/4	
Chromium III (note 20)			570	74			100/100	183	24	10300				100	100/100	2000/200	
Chromium VI			16	11	1100	50		16	11	1100	50				50/100	100/100	
Copper (note 20)	1300		13	9	4.8	3.1	1300/1300	3.6	2.7	4.8	3.1			1300			
Lead (note 20)			65	2.5	210	8.1	15/zero	14	0.54	210	8.1			15	15/15	30/9	
Mercury (note 21)			1.4	0.77	1.8	0.94	2/2	1.4	0.77	1.8	0.94	0.05	0.051	2	2/2	1/8	
Parameter (ug/l)	WQC	WQC	WQC	WQC	WQC	WQC	DWMCL/ MCLG	NHSWS	NHSWS	NHSWS	NHSWS	NHSWS	NHSWS	NHGS	MAGWS	MAGWS	CELS
	(ug/l)	(ug/l)	or LOEL	or LOEL	or LOEL	or LOEL									current/proposed		
	HHWO	HHOO	FWA	FWC	SWA	SWC		FWA	FWC	SWA	SWC	HHWO	HHOO		GW-1	GW-3	WQS+DF
Nickel (note 20)	610	4600	470	52	74	8.2		144.9	16.1	74	8.2	610	4600	100	100/100	80/80	
Selenium	170	4200		5	290	71	50/50		5	290	71	170	11000	50	50/50	80/50	
Silver (note 20)			3.2		1.9		100	0.32		1.9		105	65	50	40/100	7/7	
Zinc (note 20)	7400	26000	120	120	90	81	5000	36.2	36.5	90	81	5000	5000		2000/5000	900/400	
Iron	300			1000			300		1000			300					1000
Notes:																	
1. Aquatic Criteria for Cyanide for EPA, MA, and NH surface waters expressed as ug/L of "free" cyanide.																	
2. 1996 EPA Drinking Water Program, draft health advisory for Methyl-tert-Butyl Ether.																	
3. December 1997 EPA Drinking Water Fact Sheet (EPA-822-F-97-009) taste and odor advisory for Methyl-tert-Butyl Ether.																	
4. MA secondary standard for drinking water; taste and odor recommended values.																	
5. Interim standard adopted by NHDES in 2002 for tert-Butyl Alcohol.																	
6. Naphthalene is listed as both a volatile organic compound (VOC) and extractable organic (BNA) compound and may be reported under both purgeable and extractable analysis.																	
7. NHSWS values for fresh and salt waters based on total DCBs.																	
8. New reference dose (RfD) value for human health criterion was used to recalculate Criteria values for 1,1- Dichloroethylene, published by EPA in FR Vol 67, No 249, 12/27/02.																	
9. NHSWS values for fresh and salt waters based on total DCEs.																	

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SPECIAL NOTE: All standards and/or other criteria represented in the following tables are subject to change as agencies publish new or revised information. The information presented is for comparative and overview purposes only. All values are in micrograms per liter (ug/l) unless otherwise noted.												
KEY TO TERMS:												
WQC - EPA National Recommended WQ Criteria, EPA-822-R-02-047, November 2002												
LOELs - Lowest Observed Effects Levels, EPA WQ Criteria Documents (circa 1980s)												
DWMCL -EPA Drinking Water MCLs/Other Standard, EPA 822-R-02-038, Summer 2002												
NHSWS - NH Surface Water Quality Standards, Env.-Ws 1703.21, 12/03/99												
NHGWS - NH Ambient Groundwater Quality Standards, Env.-Wm 1403.05, 2/23/99												
MASWS - MA Surface Water Quality Standards, 314 CMR 4.00, 5/12/00												
Note: MASWS for Toxics = EPA WQC , see 314 CMR 4.00, Sect. 4.05(5)(e) For all parameters, the MASWS are the same as EPA WQC or LOEL Values.												
MAGWS - MA Method 1 Groundwater GW-1 and GW-3 Standards, 310 CMR 40.0974(2), 10/99 and Draft Proposed Revisions 12/01												
CELs - Current Limits Used in EPA-NE NPDES Exclusion Authorizations for MA & NH												
FWA - Freshwater Acute Values (CMC or Criteria Maximum Concentration)												
FWC - Freshwater Chronic Values (CCC or Criterion Continuous Concentration)												
SWA - Saltwater Acute Values (CMC)												
SWC - Saltwater Chronic Values (CCC)												
LOEL - Lowest Observed Effects Level												
HHOO - Human Health Organism Only Values												
HHWO - Human Health Water + Organism Values												
MCL - Maximum Contaminant Level in Drinking Water												
MCLG - Maximum Contaminant Level Goal												
OLEC - Organoleptic Effect (Taste and Odor) Criteria												
MRDL - Maximum Residual Disinfectant Level in Drinking Water												
VPH/EPH - MA Methods for Volatile and Extractible Petroleum Hydrocarbons (June 2001) where TPH = sum of C9 - C36 EPH. (See: "http://www.state.ma.us/dep/bwsc/vph_eph.htm" for more information)												

Appendix A: Existing Water Quality Standards

MA GW-1 Standards - Groundwater Currently or Potentially used as a Drinking Water
MA GW-2 Standards - Groundwater in Proximity to Structure Basements which could impact indoor air quality
MA GW-3 Standards - Groundwater which has the Potential to Migrate to Surface Water (Lowest published surface water criteria x 10; ceiling = 50,000 ug/l)
Default Value - Used in EPA-NE NPDES Exclusion Authorizations for unanticipated chemicals of concern. Value = 100 ppb or MCL whichever is lowest.
DF (dilution factor); applicable for Chlorine residual and metals primarily. DF = [discharge flow- Qd] plus [receiving water low flow (7Q10)-Qs] divided by [discharge flow - Qd]
7Q10 flow - "seven-day, ten-year low flow" means the lowest seven consecutive day mean stream flow with a recurrence interval of ten years.
mg/l or ppm - Milligrams per Liter or Parts per Million
ug/l or ppb - Micrograms per Liter or Parts per Billion
ng/l or ppt - Nanograms per Liter or Parts per Trillion