

Atlantic RBCA - Human Health-Based Tier II Pathway-Specific Standards (PSS) for Groundwater - Industrial Land Use (µg/L)

Land Use	Industrial				
Pathway	Potable Groundwater Drinking Water		Vapour Migration from Groundwater to Indoor Air		
Parameter	Fine / Coarse	Reference	Fine	Coarse	Reference
Inorganic Parameters					
Aluminum	100	HC, 2019 (OG)	-	-	
Antimony	6	HC, 2019	-	-	
Arsenic	10	HC, 2019 (ALARA)	-	-	
Barium	1000	HC, 2019	-	-	
Beryllium	4	MOECC, 2011	-	-	
Boron	5000	HC, 2019	-	-	
Cadmium	5	HC, 2019	-	-	
Chromium (hexavalent)	50	HC, 2019	-	-	
Chromium (total)	50	HC, 2019	-	-	
Cobalt	3.8	MOECC, 2011	-	-	
Copper	2000	HC, 2019 (MAC)	-	-	
Cyanide	200	HC, 2019	-	-	
Iron	300	HC, 2019 (AO)	-	-	
Lead	5	HC, 2019 (ALARA)	-	-	
Manganese	120	HC, 2019	-	-	
Mercury (total)	1	HC, 2019	-	-	
Molybdenum	70	MOECC, 2011	-	-	
Nickel	100	MOECC, 2011	-	-	
Selenium	50	HC, 2019	-	-	
Silver	Not required	HC, 2019	-	-	
Strontium	2400	USEPA, 2019 [5]	-	-	
Thallium	2	MOECC, 2011	-	-	
Tin	2400	USEPA, 2019 [5]	-	-	
Uranium	20	HC, 2019	-	-	
Vanadium	6.2	MOECC, 2011	-	-	
Zinc	5000	HC, 2019 (AO)	-	-	
General Chemistry Parameters					
Chloride	250 000	HC, 2019 (AO)	-	-	
Sodium	200 000	HC, 2019 (AO)	-	-	
Petroleum Hydrocarbons (PHC) Parameters					
Benzene	5	ARBCA, 2021	32 000	6300	ARBCA, 2021
Toluene	24	ARBCA, 2021	>Sol	>Sol	ARBCA, 2021
Ethylbenzene	1.6	ARBCA, 2021	>Sol	>Sol	ARBCA, 2021
Xylene	20	ARBCA, 2021	>Sol	>Sol	ARBCA, 2021
Modified TPH (Gas)	4400	ARBCA, 2021	> Sol	>Sol	ARBCA, 2021
Modified TPH (Fuel)	3200	ARBCA, 2021	> Sol	>Sol	ARBCA, 2021
Modified TPH (Lube)	7800	ARBCA, 2021	> Sol	> Sol	ARBCA, 2021
MTBE	15	HC, 2019 (AO)	40 000	4300	AEP, 2019
Polycyclic Aromatic Hydrocarbons (PAH) Parameters					
Non-Carcinogenic PAH Compounds					
Naphthalene	470	AEP, 2019	NGR	7000	AEP, 2019
1 - Methyl-naphthalene	12	MOECC, 2011	-	-	MOECC, 2011
2 - Methyl-naphthalene	12	MOECC, 2011	-	-	MOECC, 2011
Acenaphthene	1400	AEP, 2019	NGR	NGR	AEP, 2019
Acenaphthylene	4.5	MOECC, 2011 [4]	17 000	7500	MOECC, 2011 [4]
Anthracene	NGR	AEP, 2019	NGR	NGR	AEP, 2019
Fluoranthene	NGR	AEP, 2019	NGR	NGR	AEP, 2019
Fluorene	940	AEP, 2019	NGR	NGR	AEP, 2019
Phenanthrene	-	AEP, 2019	-	-	AEP, 2019
Pyrene	710	AEP, 2019	NGR	NGR	AEP, 2019
Carcinogenic PAH Compounds					
BaP Total Potency Equivalents	0.04	HC, 2019	-	-	
Benzo[a]anthracene	-		-	-	
Benzo[a]pyrene	0.04	HC, 2019	-	-	
Benzo[b,j,k]fluoranthene isomers	-		-	-	
Benzo[g,h,i]perylene	-		-	-	
Chrysene	-		-	-	
Dibenzo[a,h]anthracene	-		-	-	
Indeno[1,2,3-c,d]pyrene	-		-	-	
Volatile Organic Compound (VOC) Parameters					
Bromodichloromethane	100	HC, 2019	-	-	
Bromoform	100	HC, 2019	130 000	84 000	MOECC, 2011 [4]
Bromomethane	51	BC CSR Schedule 3.2	230	33	MOECC, 2011
Carbon Tetrachloride (Tetrachloromethane)	2	HC, 2019	80	6.9	AEP, 2019
Chlorobenzene	80	HC, 2019	2200	180	AEP, 2019
Chloroethane	-		-	-	
Chloroform	80	AEP, 2019	3500	380	AEP, 2019
Chloromethane	38	USEPA, 2019 [5]	-	-	
Dibromochloromethane	190	AEP, 2019	250 000	10 000	AEP, 2019

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		Parameter	Fine / Coarse	Reference	Fine	Coarse
1,2-Dichlorobenzene		200	HC, 2019	NGR	64 000	AEP, 2019
1,3-Dichlorobenzene		59	MOECC, 2011	-	-	
1,4-Dichlorobenzene		5	HC, 2019	32 000	2600	AEP, 2019
1,1-Dichloroethane		3700	BC CSR Schedule 3.2	44 000	6600	MOECC, 2011
1,2-Dichloroethane		5	HC, 2019	1200	130	AEP, 2019
1,1-Dichloroethylene		14	ARBCA, 2021	27 000	5600	ARBCA, 2021
cis-1,2-Dichloroethylene		70	ARBCA, 2021	23 000	4600	ARBCA, 2021
trans-1,2-Dichloroethylene		100	ARBCA, 2021	25 000	4900	ARBCA, 2021
1,2-Dichloropropane		9.9	BC CSR Schedule 3.2	2000	330	MOECC, 2011
1,3-Dichloropropane		6.7	BC CSR Schedule 3.2	610	100	MOECC, 2011
Ethylene Dibromide		0.34	BC CSR Schedule 3.2	120	51	MOECC, 2011 [4]
Methylene Chloride (Dichloromethane)		50	HC, 2019	410 000	43 000	AEP, 2019
Styrene		100	MOECC, 2011	160 000	26 000	MOECC, 2011
1,1,1,2- Tetrachloroethane		26	BC CSR Schedule 3.2	3800	660	MOECC, 2011 [4]
1,1,1,2-Tetrachloroethane		3.4	BC CSR Schedule 3.2	2100	630	MOECC, 2011 [4]
Tetrachloroethylene		10	ARBCA, 2021	5900	1200	ARBCA, 2021
1,1,1-Trichloroethane		10 000	BC CSR Schedule 3.2	95 000	13 000	MOECC, 2011
1,1,2-Trichloroethane		12	BC CSR Schedule 3.2	4100	910	MOECC, 2011 [4]
Trichloroethylene		5	ARBCA, 2021	540	110	ARBCA, 2021
Vinyl Chloride		2	ARBCA, 2021	940	200	ARBCA, 2021
Pesticides						
Aldicarb		-		-	-	
Aldrin		-		-	-	
Atrazine		5	HC, 2019	-	-	
Azinphos-methyl		20	HC, 2019	-	-	
Bendiocarb		40	AEP, 2019	-	-	
Bromoxynil		5	HC, 2019	-	-	
Carbaryl		90	HC, 2019	-	-	
Carbofuran		90	HC, 2019	-	-	
Chlorothalonil		140	AEP, 2019	-	-	
Chlorpyrifos		90	HC, 2019	-	-	
Cyanazine		10	AEP, 2019	-	-	
2,4-D		100	HC, 2019	-	-	
DDT		93	AEP, 2019	-	-	
Diazinon		20	HC, 2019	-	-	
Dicamba		120	HC, 2019	-	-	
Dichlorop-methyl		-		-	-	
Dieldrin		-		-	-	
Dimethoate		20	HC, 2019	-	-	
Dinoseb		-		-	-	
Diquat		70	HC, 2019	-	-	
Diuron		150	HC, 2019	-	-	
Endosulfan		57	AEP, 2019	-	-	
Endrin		2.8	AEP, 2019	-	-	
Glyphosate		280	HC, 2019	-	-	
Heptachlor		0.052	AEP, 2019	51	2	AEP, 2019
Lindane		2.8	AEP, 2019	-	-	
Linuron		19	AEP, 2019	-	-	
Malathion		190	HC, 2019	-	-	
MCPA		100	HC, 2019	-	-	
Methoxychlor		-		-	-	
Metolachlor		50	HC, 2019	-	-	
Metribuzin		80	HC, 2019	-	-	
Paraquat		10	HC, 2019	-	-	
Parathion		-		-	-	
Phorate		2	HC, 2019	-	-	
Picloram		190	HC, 2019	-	-	
Simazine		10	HC, 2019	-	-	
Tebuthiuron		660	AEP, 2019	-	-	
Terbufos		1	HC, 2019	-	-	
Toxaphene		0.43	AEP, 2019	75 000	2900	AEP, 2019
Triallate		120	AEP, 2019	-	-	
Trifluralin		45	HC, 2019	-	-	
PFAS Substances						
Perfluorooctanoic acid (PFOA)		0.2 [7]	HC, 2019	-	-	
Perfluorooctane sulfonate (PFOS)		0.6 [7]	HC, 2019	-	-	
Perfluorobutanoate (PFBA)		30	HC, 2019	-	-	
Perfluorobutane sulfonate (PFBS)		15	HC, 2019	-	-	
Perfluorohexanesulfonate (PFHxS)		0.6	HC, 2019	-	-	
Perfluoropentanoate (PFPeA)		0.2	HC, 2019	-	-	

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Perfluorohexanoate (PFHxA)	0.2	HC, 2019	-	-	
Perfluoroheptanoate (PFHpA)	0.2	HC, 2019	-	-	
Perfluorononanoate (PFNA)	0.02	HC, 2019	-	-	
Other Parameters					
Polychlorinated Biphenyl (Total PCB)	9.4	AEP, 2019	250	180	MOECC, 2011 [4]
Dioxins and Furans (TEQ) [6]	0.00012	AEP, 2019	0.45	0.37	MOECC, 2011
Pentachlorophenol (PCP)	60	HC, 2019	-	-	
Organotins - Tributyltin	0.74	USEPA, 2019 [5]	-	-	
Ethylene Glycol	31 000	AEP, 2019	NGR	NGR	AEP, 2019
Propylene Glycol	-		-	-	
Phenol	570	AEP, 2019	NGR	45 000 000	AEP, 2019

Notes:

[1] All values in µg/L unless otherwise noted.

[2] "-" indicates no guideline available; ">SOL" means no criteria are shown as theoretical aqueous solubilities may be exceeded; "NGR" indicates no guideline required.

[3] Health Canada MAC (Maximum Acceptable Concentration), IMAC (Interim MAC), AO (Aesthetic Objectives), OG (Operational Guidance) and ALARA (As Low As Reasonably Achievable) criteria are shown for the Potable Groundwater Drinking Water pathway, where applicable.

[4] Value has been adjusted from its original jurisdictional value, to reflect a 1×10^{-05} Target Cancer Risk Level.

[5] Original USEPA value has been divided by 5 to adjust from a target hazard quotient of 1.0 to a target hazard quotient of 0.2.

[6] Dioxins and Furans Toxic Equivalents (TEQ), are to be calculated following the methodology shown in "Canadian Council of Ministers of the Environment. 2002. Canadian soil quality guidelines for the protection of environmental and human health: Dioxins and Furans".

[7] When PFOS and PFOA co-occur in soil or groundwater, it is recommended that both chemicals be considered together when comparing to screening values. Refer to Health Canada's "Summary Table: Health Canada Draft Guidelines, Screening Values and Toxicological Reference Values (TRVs) for Perfluoroalkyl Substances (PFAS). May, 2019." for specific guidance on calculating PFOS/PFOA ratios and hazard indices.