

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

Land Use	Agricultural					
	Pathway	Potable Groundwater Drinking Water		Vapour Migration from Groundwater to Indoor Air		
		Parameter	Fine / Coarse	Reference	Fine	Coarse
<b>Inorganic Parameters</b>						
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)	-	-	
<b>General Chemistry Parameters</b>						
Chloride		250 000	HC, 2019 (AO)	-	-	
Sodium		200 000	HC, 2019 (AO)	-	-	
<b>Petroleum Hydrocarbons (PHC) Parameters</b>						
Benzene		5	ARBCA, 2021	2700	530	ARBCA, 2021
Toluene		24	ARBCA, 2021	>Sol	>Sol	ARBCA, 2021
Ethylbenzene		1.6	ARBCA, 2021	>Sol	>Sol	ARBCA, 2021
Xylene		20	ARBCA, 2021	>Sol	38 000	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)	6100	340	AEP, 2019
<b>Polycyclic Aromatic Hydrocarbons (PAH) Parameters</b>						
<i>Non-Carcinogenic PAH Compounds</i>						
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]	1200	360	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
<b>Carcinogenic PAH Compounds</b>						
BaP Total Potency Equivalents		0.04	HC, 2019	-	-	
Benz[a]anthracene		-		-	-	
Benzo[a]pyrene		0.04	HC, 2019	-	-	
Benzo[b,j,k]fluoranthene isomers		-		-	-	
Benzo[g,h,i]perylene		-		-	-	
Chrysene		-		-	-	
Dibenz[a,h]anthracene		-		-	-	
Indeno[1,2,3-c,d]pyrene		-		-	-	
<b>Volatile Organic Compound (VOC) Parameters</b>						
Bromodichloromethane		100	HC, 2019	-	-	
Bromoform		100	HC, 2019	7700	3800	MOECC, 2011 [4]
Bromomethane		51	BC CSR Schedule 3.2	56	5.6	MOECC, 2011

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Parameter	Fine / Coarse	Reference	Fine	Coarse	Reference
Carbon Tetrachloride (Tetrachloromethane)	2	HC, 2019	12	0.57	AEP, 2019
Chlorobenzene	80	HC, 2019	300	14	AEP, 2019
Chloroethane	-		-	-	
Chloroform	80	AEP, 2019	530	30	AEP, 2019
Chloromethane	38	USEPA, 2019 [5]	-	-	
Dibromochloromethane	190	AEP, 2019	26 000	1100	AEP, 2019
1,2-Dichlorobenzene	200	HC, 2019	116 000	5400	AEP, 2019
1,3-Dichlorobenzene	59	MOECC, 2011	-	-	
1,4-Dichlorobenzene	5	HC, 2019	4600	220	AEP, 2019
1,1-Dichloroethane	3700	BC CSR Schedule 3.2	3100	320	MOECC, 2011
1,2-Dichloroethane	5	HC, 2019	170	10	AEP, 2019
1,1,1-Dichloroethylene	14	ARBCA, 2021	4600	950	ARBCA, 2021
cis-1,2-Dichloroethylene	70	ARBCA, 2021	3900	770	ARBCA, 2021
trans-1,2-Dichloroethylene	100	ARBCA, 2021	4100	820	ARBCA, 2021
1,2-Dichloropropane	9.9	BC CSR Schedule 3.2	140	16	MOECC, 2011
1,3-Dichloropropene	6.7	BC CSR Schedule 3.2	45	5.2	MOECC, 2011
Ethylene Dibromide	0.34	BC CSR Schedule 3.2	8.3	2.5	MOECC, 2011 [4]
Methylene Chloride (Dichloromethane)	50	HC, 2019	61 000	3400	AEP, 2019
Styrene	100	MOECC, 2011	11 000	1300	MOECC, 2011
1,1,1,2-Tetrachloroethane	26	BC CSR Schedule 3.2	280	33	MOECC, 2011 [4]
1,1,2,2-Tetrachloroethane	3.4	BC CSR Schedule 3.2	150	32	MOECC, 2011 [4]
Tetrachloroethylene	10	ARBCA, 2021	1000	210	ARBCA, 2021
1,1,1-Trichloroethane	10 000	BC CSR Schedule 3.2	6700	640	MOECC, 2011
1,1,2-Trichloroethane	12	BC CSR Schedule 3.2	300	47	MOECC, 2011 [4]
Trichloroethylene	5	ARBCA, 2021	92	19	ARBCA, 2021
Vinyl Chloride	2	ARBCA, 2021	41	8.6	ARBCA, 2021
<b>Pesticides</b>					
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	4.3	0.24	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	-	-	

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		Parameter	Fine / Coarse	Reference	Fine	Coarse
	Tebuthiuron	660	AEP, 2019	-	-	
	Terbufos	1	HC, 2019	-	-	
	Toxaphene	0.43	AEP, 2019	6400	310	AEP, 2019
	Triallate	120	AEP, 2019	-	-	
	Trifluralin	45	HC, 2019	-	-	
<b>PFAS Substances</b>						
	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	-	-	
	Perfluorohexanoate (PFHxA)	0.2	HC, 2019	-	-	
	Perfluoroheptanoate (PFHpA)	0.2	HC, 2019	-	-	
	Perfluorononanoate (PFNA)	0.02	HC, 2019	-	-	
<b>Other Parameters</b>						
	Polychlorinated Biphenyl (Total PCB)	9.4	AEP, 2019	150	78	MOECC, 2011 [4]
	Dioxins and Furans (TEQ) [6]	0.00012	AEP, 2019	0.023	0.014	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	73 000 000	3 700 000	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. However, Health Canada AO and OG values are not considered as potential Tier I EQS values for this pathway.

[4] Value has been adjusted from its original jurisdictional value, to reflect a  $1 \times 10^{-05}$  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.