Table 3 Pathway Specific Standards for Groundwater (ug/L)

Parameter	Groundwater Receptor Pathways										
	Potable Groundwater Drinking Water	Vapour Migration from Groundwater to Indoor Air						Groundwater Discharge to Surface Water			
								0-10 metres from Surface Water Body		> 10 metres from Surface Water Body	
	All Land Uses	Agricultural / Residential Land Use		Commercial Land Use		Industrial Land Use		Using Tier 1 EQS for Surface Water		Ground Water = 10X Tier 1 EQS SW Values or Atlantic RBCA	
	Soil Type	Soil Type						Discharge to Fresh Water	Discharge to Marine Water	Discharge to Fresh Water	Discharge to Marine Water
	Fine/Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse				
Inorganic Parameters											
Aluminum	100	-	-	-	-	-	-	5	-	50	-
Antimony	6	-	-	-	-	-	-	20	500	200	5,000
Arsenic	10	-	-	-	-	-	-	5.0	12.5	50	125
Barium	1000	-	-	-	-	-	-	1000	500	10,000	5,000
Beryllium	4	-	-	-	-	-	-	5.3	100	53	1,000
Boron	5000	-	-	-	-	-	-	1,200	1,200	12,000	12,000
Cadmium	5	-	-	-	-	-	-	0.01	0.12	0.1	1.2
Chromium (hexavalent)	25	-	-	-	-	-	-	1.0	1.5	10	15
Chromium (total)	50	-	-	-	-	-	-	-	-	-	-
Cobalt	10	-	-	-	-	-	-	10	-	100	-
Copper	1000	-	-	-	-	-	-	2	2	20	20
Cyanide	200	-	-	-	-	-	-	5	1	50	10
Iron	300	-	-	-	-	-	-	300	-	3,000	-
Lead	10	-	-	-	-	-	-	1	2	10	20
Manganese	50	-	-	-	-	-	-	820	-	8,200	-
Mercury (total)	1	-	-	-	-	-	-	0.026	0.016	0.26	0.16
Methylmercury	0.3	-	-	-	-	-	-	0.004	0.004	0.04	0.04
Molybdenum	70	-	-	-	-	-	-	73	-	730	-
Nickel	100	-	-	-	-	-	-	25	8.3	250	83
Selenium	10	-	-	-	-	-	-	1.0	2	10	20
Silver	100	-	-	-	-	-	-	0.1	1.5	1	15
Strontium	4400	-	-	-	-	-	-	21,000	-	210,000	-
Thallium	2	-	-	-	-	-	-	0.8	21.3	8	213
Tin	4400	-	-	-	-	-	-	-	-	-	-
Uranium	20	-	-	-	-	-	-	300	100	3,000	1,000
Vanadium	6.2	-	-	-	-	-	-	6	50	60	500
Zinc	5000	-	-	-	-	-	-	30	10	300	100
General Chemistry Parameters											
Chloride	250000	-	-	-	-	-	-	1,500,000	No more than a 10% change in ambient sea water salinity (as NaCl).	15,000,000	No more than a 10% change in ambient sea water salinity (as NaCl).
Sodium	200000	-	-	-	-	-	-	-	-	-	-
Petroleum Hydrocarbons (PHC) Parameters											
Benzene	5	13,000	2,600	150,000	30,000	150,000	30,000	2,100	2,100	4,600	4,600
Toluene	24	>Sol	>Sol	>Sol	>Sol	>Sol	>Sol	770	770	4,200	4,200
Ethylbenzene	2.4	>Sol	>Sol	>Sol	>Sol	>Sol	>Sol	320	320	3,200	3,200
Xylene	300	330,000	68,000	>Sol	390,000	>Sol	390,000	330	330	2,800	2,800
Modified TPH (Gas)	4400	2,100,000	34,000	> Sol	3,700,000	> Sol	3,700,000	1,500	1,500	13,000	13,000
Modified TPH (Fuel)	3200	30,000,000	200,000	> Sol	39,000,000	> Sol	39,000,000	100	100	840	840
Modified TPH (Lube)	7800	> Sol	1,100,000	> Sol	> Sol	> Sol	> Sol	100	100	100	100
MTBE	15	6,100	340	40000	4300	40000	4300	10,000	5,000	100,000	50,000
Polycyclic Aromatic Hydrocarbons (PAH) Parameters											
PAH Compounds											
Naphthalene	470	14000	600	-	7000	-	7000	1.1	1.4	11	14
1 - Methylnaphthalene	12	35000	6200	150000	38000	150000	38000	2	1	20	10
2 - Methylnaphthalene	12	35000	6200	150000	38000	150000	38000	2	2	20	20
Acenapthene	1400	-	-	-	-	-	-	5.8	6	58	60
Acenapthylene	4.5	120	36	1700	750	1700	750	4.6	6	46	60
Anthracene	-	-	-	-	-	-	-	0.012	-	0.12	-
Fluoranthene	-	-	-	-	-	-	-	0.04	11	0.4	110
Fluorene	940	-	-	-	-	-	-	3	12	30	120

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	All Land Uses	Agricultural / Residential Land Use		Commercial Land Use		Industrial Land Use		Using Tier 1 EQS for Surface Water		Ground Water = 10X Tier 1 EQS SW Values or Atlantic RBCA	
	Soil Type	Soil Type						Discharge to Fresh Water	Discharge to Marine Water	Discharge to Fresh Water	Discharge to Marine Water
	Fine/Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse				
Phenanthrene	-	-	-	-	-	-	-	0.4	4.6	4	46
Pyrene	710	-	-	-	-	-	-	0.025	0.02	0.25	0.2
Carcinogenic PAHCompounds											
BaP Total Potency Equivalents	-	-	-	-	-	-	-	-	-	-	-
Benz[a]anthracene	-	-	-	-	-	-	-	0.018	-	0.18	-
Benzo[a]pyrene	0.01	-	-	-	-	-	-	0.015	0.01	0.15	0.1
Benzo[b,j,k]fluoranthene isomers	-	-	-	-	-	-	-	0.48	-	4.8	-
Benzo[g,h,i]perylene	-	-	-	-	-	-	-	0.17	-	1.7	-
Chrysene	-	-	-	-	-	-	-	1.4	0.1	14	1
Dibenz[a.h]anthracene	-	-	-	-	-	-	-	0.26	-	2.6	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	-	-	0.21	-	2.1	-
Volatile Organic Compound (VOC) Parameters											
Bromodichloromethane	100	-	-	-	-	-	-	200	6,400	2,000	64,000
Bromoform	100	7700	3800	130000	84000	130000	84000	60	6,400	600	64,000
Bromomethane	0.89	56	5.6	230	33	230	33	0.9	6,400	9	64,000
Carbon Tetrachloride (Tetrachloromethane)	2	11	0.56	78	6.8	78	6.8	13.3	500	133	5,000
Chlorobenzene	30	300	14	2200	180	2200	180	1.3	25	13	250
Chloroethane	-	-	-	-	-	-	-	1,100	-	11,000	-
Chloroform	100	50	3	350	40	350	40	1.8	6,400	18	64,000
Chloromethane	38	-	-	-	-	-	-	700	6,400	7,000	64,000
Dibromochloromethane	100	26000	1100	250000	10000	250000	10000	40	6,400	400	64,000
1,2-Dichlorobenzene	200	116000	5400	-	64000	-	64000	0.7	42	7	420
1,3-Dichlorobenzene	59	-	-	-	-	-	-	150	19.7	1,500	197
1,4-Dichlorobenzene	5	4600	220	32000	2600	32000	2600	26	19.7	260	197
1,1-Dichloroethane	5	3100	320	45000	6600	45000	6600	200	1,130	2,000	11,300
1,2-Dichloroethane	5	120	16	1600	300	1600	300	100	1,130	1,000	11,300
1,1-Dichloroethylene	14	680	39	4500	490	4500	490	40	2,240	400	22,400
cis-1,2-Dichloroethylene	20	17	1.6	230	30	230	30	200	2,240	2,000	22,400
trans-1,2-Dichloroethylene	20	17	1.6	230	30	230	30	200	2,240	2,000	22,400
1,2-Dichloropropane	5	140	16	2000	330	2000	330	0.7	3,040	7	30,400
1,3-Dichloropropene	0.5	45	5.2	610	100	610	100	7	7.9	70	79
Ethylene Dibromide	0.2	8.3	2.5	120	51	120	51	5	-	50	-
Methylene Chloride (Dichloromethane)	50	61000	3400	410000	43000	410000	43000	98.1	6,400	981	64,000
Styrene	100	11000	1300	160000	26000	160000	26000	72	-	720	-
1,1,2,2-Tetrachloroethane	1	150	32	2100	630	2100	630	70	90.2	700	902
Tetrachloroethylene	30	2300	110	16000	1300	16000	1300	111	450	1,110	4,500
1,1,1-Trichloroethane	200	6700	640	95000	13000	95000	13000	10	312	100	3,120
1,1,2-Trichloroethane	5	300	47	4100	910	4100	910	800	312	8,000	3,120
Trichloroethylene	5	410	20	2800	250	2800	250	21	20	210	200
Vinyl Chloride	2	18	1.1	120	13	120	13	600	-	6,000	-
Pesticides											
Aldicarb	9	-	-	-	-	-	-	1	0.15	10	1.5
Aldrin	0.7	-	-	-	-	-	-	0.01	1.3	0.1	13
Atrazine	5	-	-	-	-	-	-	1.8	12.5	18	125
Azinphos-methyl	20	-	-	-	-	-	-	0.01	0.01	0.1	0.1
Bendiocarb	40	-	-	-	-	-	-	-	-	-	-
Bromoxynil	5	-	-	-	-	-	-	5	-	50	-
Carbaryl	90	-	-	-	-	-	-	0.2	0.32	2	3.2
Carbofuran	90	-	-	-	-	-	-	1.8	-	18	-
Chlorothalonil	140	-	-	-	-	-	-	0.18	0.36	1.8	3.6
Chlorpyrifos	90	-	-	-	-	-	-	0.0035	0.003	0.035	0.03
Cyanazine	10	-	-	-	-	-	-	2	-	20	-

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	Soil Type	Soil Type						Discharge to Fresh Water	Discharge to Marine Water	Discharge to Fresh Water	Discharge to Marine Water
	Fine/Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse				
2,4-D	100	-	-	-	-	-	-	4	-	40	-
DDT	93	-	-	-	-	-	-	0.02	0.02	0.2	0.2
Diazinon	20	-	-	-	-	-	-	0.08	-	0.8	-
Dicamba	120	-	-	-	-	-	-	10	-	100	-
Dichlorfop-methyl	9	-	-	-	-	-	-	6.1	-	61	-
Dieldrin	0.7	-	-	-	-	-	-	0.02	0.02	0.2	0.2
Dimethoate	20	-	-	-	-	-	-	6.2	-	62	-
Dinoseb	10	-	-	-	-	-	-	0.05	-	0.5	-
Diquat	70	-	-	-	-	-	-	0.5	-	5	-
Diuron	150	-	-	-	-	-	-	1.6	-	16	-
Endosulfan	57	-	-	-	-	-	-	0.02	0.0087	0.2	0.087
Endrin	2.8	-	-	-	-	-	-	0.02	0.02	0.2	0.2
Glyphosate	280	-	-	-	-	-	-	65	-	650	-
Heptachlor	50	4.3	0.24	51	2	51	2	0.002	0.0036	0.02	0.036
Lindane	2.8	-	-	-	-	-	-	0.01	-	0.1	-
Linuron	19	-	-	-	-	-	-	7	-	70	-
Malathion	190	-	-	-	-	-	-	0.1	-	1	-
MCPA	100	-	-	-	-	-	-	2.6	4.2	26	42
Methoxychlor	900	-	-	-	-	-	-	0.05	0.05	0.5	0.5
Metolachlor	50	-	-	-	-	-	-	7.8	-	78	-
Metribuzin	80	-	-	-	-	-	-	1	-	10	-
Paraquat	10	-	-	-	-	-	-	16	-	160	-
Parathion	50	-	-	-	-	-	-	0.008	-	0.08	-
Phorate	2	-	-	-	-	-	-	-	-	-	-
Picloram	190	-	-	-	-	-	-	29	-	290	-
Simazine	10	-	-	-	-	-	-	10	-	100	-
Tebuthiuron	660	-	-	-	-	-	-	1.6	-	16	-
Terbufos	1	-	-	-	-	-	-	-	-	-	-
Toxaphene	0.43	6400	310	75000	2900	75000	2900	0.05	0.05	0.5	0.05
Triallate	120	-	-	-	-	-	-	0.24	-	2.4	-
Trifluralin	45	-	-	-	-	-	-	0.2	-	2	-
Other Parameters											
Polychlorinated Biphenyl (Total PCB)	9.4	15	7.8	250	180	250	180	-	-	-	-
Dioxins and Furans (TEQ)	0.00012	0.023	0.014	0.45	0.37	0.45	0.37	-	-	-	-
Pentachlorophenol (PCP)	30	-	-	-	-	-	-	0.5	7.9	5	79
Organotins - Tributyltin	2200	-	-	-	-	-	-	0.008	0.001	0.08	0.01
Ethylene Glycol	31	-	-	-	-	-	-	192,000	-	1,920,000	-
Propylene Glycol	-	-	-	-	-	-	-	500,000	-	5,000,000	-
Phenol	0.8	73000	3700	-	45000	-	45000	4,000	-	40,000	-

Notes:

[1] All values in µg/L

[2] "-" = No guideline available or no guideline required, ">SOL" = means no criteria are shown as theoretical aqueous solubilities may be exceeded

[3] Health Canada MAC (Maximum Acceptable Concentration), IMAC (* Interim MAC), AO (Aesthetic Objectives) and OG (Operational Guidance) criteria are shown in the Potable Groundwater Drinking Water pathway here, in addition to other jurisdictional data for several parameters. In the Tier 1 EQS table, the Health Canada AO and OG values are excluded.

[4] Groundwater discharging to a watercourse should be assessed and compared to the Groundwater Discharging to Surface Water pathways. These values are protective of ecological aquatic life only. The values are based on applying a 10X factor to the Tier 1 EQS for Surface Water - Fresh Water and Marine Water.

[5] Groundwater quality from 0-10 m of a Surface Water body (watercourse) are to be assessed against Tier 1 EQS Surface Water criteria directly (as shown). Groundwater quality at distances greater than (>) 10 metres from a watercourse can also be assessed in that table as indicated

[6] For petroleum hydrocarbons, the Atlantic RBCA User Guidance additionally has a table of gradational groundwater values that may be used for determining criteria protective of surface water at distances between 10 m and 200 m.

[7] The vapour migration from groundwater to indoor air pathway assumes having a residence on site for both agricultural and residential settings. For commercial/industrial settings exposure is based on typical worker occupancy

[8] In the Tier 1 EQS Groundwater tables, the Upper Concentration Limit (UCL) of 20,000 ug/L in water is applied to any petroleum hydrocarbon value that is >SOL (solubility) or exceeds 20,000 ug/L, following Atlantic RBCA 2012.

[9] Dioxins and Furans TEQ, Toxic Equivalents, are to be calculated following 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"