

TABLE 3 : RESULTS OF SOIL CHEMICAL ANALYSES - OTTAWA RIVER PARKWAY AREA

Parameter	CCME criteria ⁽¹⁾	MOE criteria ⁽²⁾	MDL	Sampling site, sample number and depth									
	Residential/Parkland	Residential/Parkland		BH-01-01		BH-01-02	BH-01-03		BH-01-04		BH-01-05		
	mg/kg	mg/kg		SS-2	SS-3-B	SS-A	SS-A	SS-2-B	SS-3	SS-2-2	SS-4	SS-1-1	SS-A
				1.22-1.83	1.93-2.19	0.3-1.22	0.15-0.84	0.84-1.09	1.37-1.57	1.01-1.32	2.13-1.74	0.3-0.56	0.91-2.13
PH	C6-C10 Petroleum Hydrocarbons	260	--	20	-	-	-	-	-	-	-	-	< 20
	C11-C16 Petroleum Hydrocarbons	900	--	10	-	-	-	-	-	-	-	-	< 10
	C17-C34 Petroleum Hydrocarbons	800	--	10	-	-	-	-	-	-	-	-	< 10
	>C34 Petroleum Hydrocarbons	5600	--	10	-	-	-	-	-	-	-	-	10
	Petroleum Hydrocarbons (gasoline)	--	1000	10	-	-	-	-	-	-	-	-	< 10
	Petroleum Hydrocarbons (diesel)	--	1000	10	-	-	-	-	-	-	-	-	10
Petroleum Hydrocarbons (heavy oils)	--	1000	50	-	-	-	-	-	-	-	-	500	
Metals	Antimony	--	13	1	11	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Arsenic	12	20	1	4	35	< 1.0	< 1.0	< 1.0	2	4	42	< 1.0
	Barium	500	750	10	80	110	30	30	50	120	130	210	30
	Beryllium	--	1.2	0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.5	< 0.50	1	< 0.50
	Cadmium	10	12	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Calcium	--	--	200	28000	47000	42000	23000	200000	150000	170000	49000	15000
	Chromium	64	750	5	20	15	10	15	10	25	20	15	5
	Cobalt	--	40	5	5	5	< 5.0	< 5.0	< 5.0	10	< 5.0	5	< 5.0
	Copper	63	225	5	35	35	10	10	< 5.0	10	15	130	10
	Iron	--	--	200	40000	33000	7800	7400	5000	17000	8800	16000	6600
	Lead	140	200	5	95	130	< 5.0	< 5.0	< 5.0	20	50	4800	< 5.0
	Magnesium	--	--	200	2000	4200	8800	5600	5000	4400	7400	800	1800
	Molybdenum	--	40	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Nickel	50	150	5	15	25	10	5	25	25	20	20	5
	Selenium	--	10	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2	< 1.0	< 1.0
	Silver	--	20	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	Sodium	--	--	200	1000	1000	< 200	400	600	800	600	1200	400
	Thallium	1	4.1	1	< 1.0	2	< 1.0	< 1.0	< 1.0	4	< 1.0	< 1.0	< 1.0
	Tin	--	--	5	5	10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	Vanadium	130	200	10	30	30	10	10	< 10	30	10	20	10
Zinc	200	600	20	60	60	< 20	< 20	< 20	40	40	20	20	
Mercury	6.6	10	0.1	0.1	0.4	0.1	< 0.10	< 0.10	< 0.10	< 0.10	0.6	< 0.10	
Boron (available)	--	1.5	1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	
Hexavalent Chromium	0.4	8	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
BTEX	Benzene	0.5	5.3	0.025	-	-	-	-	-	-	-	-	< 0.025
	Ethylbenzene	1.2	290	0.025	-	-	-	-	-	-	-	-	0.025
	Toluene	0.8	34	0.025	-	-	-	-	-	-	-	-	0.13
	m/p-Xylene	1	34	0.05	-	-	-	-	-	-	-	-	0.3
	o-Xylene	1	34	0.025	-	-	-	-	-	-	-	-	0.075
PAHs	Acenaphthene	--	1000	0.017	-	0.066	-	-	-	0.033	< 0.017	-	-
	Acenaphthylene	--	100	0.017	-	0.033	-	-	-	0.033	0.033	-	-
	Anthracene	--	28	0.017	-	0.23	-	-	-	0.13	0.083	-	-
	Benzo[a]anthracene	--	40	0.017	-	0.31	-	-	-	0.26	0.31	-	-
	Benzo[a]pyrene	0.7	1.2	0.017	-	0.21	-	-	-	0.2	0.3	-	-
	Benzo[b]fluoranthene	--	12	0.017	-	0.26	-	-	-	0.2	0.25	-	-
	Benzo[ghi]perylene	--	40	0.017	-	0.17	-	-	-	0.12	0.18	-	-
	Benzo[k]fluoranthene	--	12	0.017	-	0.26	-	-	-	0.2	0.23	-	-
	Biphenyl	--	4.3	0.017	-	0.05	-	-	-	0.099	< 0.017	-	-
	Chrysene	--	12	0.017	-	0.38	-	-	-	0.31	0.35	-	-
Dibenzo[a,h]anthracene	--	1.2	0.017	-	0.066	-	-	-	0.05	0.05	-	-	

TABLE 3 : RESULTS OF SOIL CHEMICAL ANALYSES - OTTAWA RIVER PARKWAY AREA

	Fluoranthene	--	40	0.017	-	0.64	-	-	-	-	0.45	0.5	-	-
	Fluorene	--	350	0.017	-	0.13	-	-	-	-	0.066	< 0.017	-	-
	Indeno[1,2,3-cd]pyrene	--	12	0.017	-	0.12	-	-	-	-	0.083	0.13	-	-
	1-Methylnaphthalene	--	280	0.017	-	0.28	-	-	-	-	1.9	0.05	-	-
	2-Methylnaphthalene	--	280	0.017	-	0.21	-	-	-	-	1.9	0.05	-	-
	Naphthalene	0.6	40	0.017	-	0.26	-	-	-	-	1.4	0.05	-	-
	Phenanthrene	--	40	0.017	-	1	-	-	-	-	0.99	0.23	-	-
	Pyrene	--	250	0.017	-	0.51	-	-	-	-	0.45	0.5	-	-
VOCs	Benzene	0.5	5.3	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Bromodichloromethane	--	14	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Bromoform	--	2.3	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Bromomethane	--	0.061	0.003	-	-	-	-	-	-	< 0.0030	-	-	-
	Carbon Tetrachloride	--	0.1	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Chlorobenzene	--	8	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Chloroethane	--	--	0.005	-	-	-	-	-	-	< 0.0050	-	-	-
	Chloroform	--	0.79	0.003	-	-	-	-	-	-	< 0.0030	-	-	-
	Chloromethane	--	--	0.015	-	-	-	-	-	-	< 0.015	-	-	-
	Dibromochloromethane	--	10	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,2-Dibromoethane	--	--	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	m-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	o-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	p-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,1-Dichloroethane	--	22	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,2-Dichloroethane	--	0.022	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,1-Dichloroethylene	--	0.0024	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	c-1,2-Dichloroethylene	--	2.3	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	t-1,2-Dichloroethylene	--	4.1	0.003	-	-	-	-	-	-	< 0.0030	-	-	-
	1,2-Dichloropropane	--	0.019	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	c-1,3-Dichloropropene	--	0.0066	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	t-1,3-Dichloropropene	--	0.0066	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Ethylbenzene	1.2	290	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Methylene Chloride	--	120	0.02	-	-	-	-	-	-	< 0.020	-	-	-
	Styrene	--	1.2	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,1,2,2-Tetrachloroethane	0.2	0.037	0.003	-	-	-	-	-	-	< 0.0030	-	-	-
	Tetrachloroethylene	0.2	0.45	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	Toluene	0.8	34	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,1,1-Trichloroethane	--	26	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
	1,1,2-Trichloroethane	3	2.3	0.002	-	-	-	-	-	-	< 0.0020	-	-	-
Trichloroethylene	3	1.1	0.003	-	-	-	-	-	-	< 0.0030	-	-	-	
Trichlorofluoromethane	--	--	0.005	-	-	-	-	-	-	< 0.0050	-	-	-	
1,3,5-Trimethylbenzene	--	--	0.003	-	-	-	-	-	-	< 0.0030	-	-	-	
Vinyl Chloride	--	0.003	0.002	-	-	-	-	-	-	< 0.0020	-	-	-	
m/p-Xylene	1	34	0.002	-	-	-	-	-	-	< 0.0020	-	-	-	
o-Xylene	1	34	0.002	-	-	-	-	-	-	< 0.0020	-	-	-	

Notes:

- 45 Exceeding CCME Criteria
- 56 Exceeding MOE criteria
- Not analysed
- No criteria for this parameter

⁽¹⁾ CCME Soil criteria for residential/parkland land use

⁽²⁾ MOE Table B Surface soil and groundwater criteria for residential/parkland land use for a non potable groundwater condition (coarse textured soil with pH between 5.0 and 11.0)
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Parameter	CCME criteria ⁽¹⁾	MOEE criteria ⁽²⁾	MDL	Sampling site, sample number and depth										
	Residential/Parkland	Residential/Parkland		BH-01-06			BH-01-07		MW-01-03			MW-01-04		
	mg/kg	mg/kg		SS-A	SS-B	SS-C	CF-A	SS-12	SS-1-A	SS-1-B	SS-2-B	SS-1	SS-5	
				0.91-3.35	3.96-5.18	5.79-6.48	0.61-5.18	6.40-7.01	0.08-0.23	0.23-0.43	1.07-1.17	0-0.61	2.74-3.35	
PH	C6-C10 Petroleum Hydrocarbons	260	--	20	-	-	-	-	< 20	-	-	-	-	-
	C11-C16 Petroleum Hydrocarbons	900	--	10	-	-	-	-	30	-	-	-	-	-
	C17-C34 Petroleum Hydrocarbons	800	--	10	-	-	-	-	110	-	-	-	-	-
	>C34 Petroleum Hydrocarbons	5600	--	10	-	-	-	-	40	-	-	-	-	-
	Petroleum Hydrocarbons (gasoline)	--	1000	10	-	-	-	-	< 10	-	-	-	-	-
	Petroleum Hydrocarbons (diesel)	--	1000	10	-	-	-	-	< 10	-	-	-	-	-
Petroleum Hydrocarbons (heavy oils)	--	1000	50	-	-	-	-	100	-	-	-	-	-	
Metals	Antimony	--	13	1	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	18	14	< 1.0	< 1.0
	Arsenic	12	20	1	< 1.0	< 1.0	-	< 1.0	2	< 1.0	7	2	< 1.0	< 1.0
	Barium	500	750	10	80	70	-	30	60	190	110	30	250	60
	Beryllium	--	1.2	0.5	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
	Cadmium	10	12	1	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Calcium	--	--	200	210000	59000	-	19000	110000	9000	49000	22000	9200	58000
	Chromium	64	750	5	10	15	-	10	10	50	20	15	75	15
	Cobalt	--	40	5	< 5.0	< 5.0	-	< 5.0	< 5.0	10	< 5.0	< 5.0	15	< 5.0
	Copper	63	225	5	5	10	-	15	< 5.0	30	55	10	35	15
	Iron	--	--	200	5800	9000	-	7800	7000	20000	20000	4400	30000	10000
	Lead	140	200	5	5	15	-	< 5.0	25	25	130	25	5	25
	Magnesium	--	--	200	6200	6200	-	3600	3400	10000	7200	1400	11000	5800
	Molybdenum	--	40	1	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	5	2	< 1.0	< 1.0
	Nickel	50	150	5	20	10	-	10	15	25	20	5	40	15
	Selenium	--	10	1	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Silver	--	20	5	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	Sodium	--	--	200	400	600	-	400	600	1400	1200	800	3400	600
	Thallium	1	4.1	1	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Tin	--	--	5	< 5.0	< 5.0	-	< 5.0	10	< 5.0	5	< 5.0	< 5.0	< 5.0
	Vanadium	130	200	10	< 10	20	-	20	< 10	60	30	< 10	80	20
Zinc	200	600	20	40	40	-	< 20	< 20	80	80	40	80	40	
Mercury	6.6	10	0.1	< 0.10	0.1	-	0.1	0.4	-	-	-	< 0.10	0.2	
Boron (available)	--	1.5	1.5	< 1.5	< 1.5	-	< 1.5	< 1.5	-	-	-	< 1.5	< 1.5	
Hexavalent Chromium	0.4	8	0.1	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	
BTEX	Benzene	0.5	5.3	0.025	-	-	-	-	< 0.025	-	-	-	-	-
	Ethylbenzene	1.2	290	0.025	-	-	-	-	< 0.025	-	-	-	-	-
	Toluene	0.8	34	0.025	-	-	-	-	0.075	-	-	-	-	-
	m/p-Xylene	1	34	0.05	-	-	-	-	0.1	-	-	-	-	-
	o-Xylene	1	34	0.025	-	-	-	-	0.05	-	-	-	-	-
PAHs	Acenaphthene	--	1000	0.017	-	-	210	-	-	-	-	-	-	-
	Acenaphthylene	--	100	0.017	-	-	11	-	-	-	-	-	-	-
	Anthracene	--	28	0.017	-	-	160	-	-	-	-	-	-	-
	Benzo[a]anthracene	--	40	0.017	-	-	59	-	-	-	-	-	-	-
	Benzo[a]pyrene	0.7	1.2	0.017	-	-	39	-	-	-	-	-	-	-
	Benzo[b]fluoranthene	--	12	0.017	-	-	46	-	-	-	-	-	-	-
	Benzo[ghi]perylene	--	40	0.017	-	-	12	-	-	-	-	-	-	-
	Benzo[k]fluoranthene	--	12	0.017	-	-	46	-	-	-	-	-	-	-
	Biphenyl	--	4.3	0.017	-	-	35	-	-	-	-	-	-	-
	Chrysene	--	12	0.017	-	-	63	-	-	-	-	-	-	-
Dibenzof[a,h]anthracene	--	1.2	0.017	-	-	4.1	-	-	-	-	-	-	-	

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	Fluoranthene	--	40	0.017	-	-	250	-	-	-	-	-	-	-
	Fluorene	--	350	0.017	-	-	160	-	-	-	-	-	-	-
	Indeno[1,2,3-cd]pyrene	--	12	0.017	-	-	9.9	-	-	-	-	-	-	-
	1-Methylnaphthalene	--	280	0.017	-	-	130	-	-	-	-	-	-	-
	2-Methylnaphthalene	--	280	0.017	-	-	200	-	-	-	-	-	-	-
	Naphthalene	0.6	40	0.017	-	-	200	-	-	-	-	-	-	-
	Phenanthrene	--	40	0.017	-	-	420	-	-	-	-	-	-	-
	Pyrene	--	250	0.017	-	-	180	-	-	-	-	-	-	-
VOCs	Benzene	0.5	5.3	0.002	-	-	-	-	-	-	-	-	-	-
	Bromodichloromethane	--	14	0.002	-	-	-	-	-	-	-	-	-	-
	Bromoform	--	2.3	0.002	-	-	-	-	-	-	-	-	-	-
	Bromomethane	--	0.061	0.003	-	-	-	-	-	-	-	-	-	-
	Carbon Tetrachloride	--	0.1	0.002	-	-	-	-	-	-	-	-	-	-
	Chlorobenzene	--	8	0.002	-	-	-	-	-	-	-	-	-	-
	Chloroethane	--	--	0.005	-	-	-	-	-	-	-	-	-	-
	Chloroform	--	0.79	0.003	-	-	-	-	-	-	-	-	-	-
	Chloromethane	--	--	0.015	-	-	-	-	-	-	-	-	-	-
	Dibromochloromethane	--	10	0.002	-	-	-	-	-	-	-	-	-	-
	1,2-Dibromoethane	--	--	0.002	-	-	-	-	-	-	-	-	-	-
	m-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	-	-	-	-
	o-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	-	-	-	-
	p-Dichlorobenzene	--	30	0.002	-	-	-	-	-	-	-	-	-	-
	1,1-Dichloroethane	--	22	0.002	-	-	-	-	-	-	-	-	-	-
	1,2-Dichloroethane	--	0.022	0.002	-	-	-	-	-	-	-	-	-	-
	1,1-Dichloroethylene	--	0.0024	0.002	-	-	-	-	-	-	-	-	-	-
	c-1,2-Dichloroethylene	--	2.3	0.002	-	-	-	-	-	-	-	-	-	-
	t-1,2-Dichloroethylene	--	4.1	0.003	-	-	-	-	-	-	-	-	-	-
	1,2-Dichloropropane	--	0.019	0.002	-	-	-	-	-	-	-	-	-	-
	c-1,3-Dichloropropene	--	0.0066	0.002	-	-	-	-	-	-	-	-	-	-
	t-1,3-Dichloropropene	--	0.0066	0.002	-	-	-	-	-	-	-	-	-	-
	Ethylbenzene	1.2	290	0.002	-	-	-	-	-	-	-	-	-	-
	Methylene Chloride	--	120	0.02	-	-	-	-	-	-	-	-	-	-
	Styrene	--	1.2	0.002	-	-	-	-	-	-	-	-	-	-
	1,1,2,2-Tetrachloroethane	0.2	0.037	0.003	-	-	-	-	-	-	-	-	-	-
	Tetrachloroethylene	0.2	0.45	0.002	-	-	-	-	-	-	-	-	-	-
	Toluene	0.8	34	0.002	-	-	-	-	-	-	-	-	-	-
	1,1,1-Trichloroethane	--	26	0.002	-	-	-	-	-	-	-	-	-	-
	1,1,2-Trichloroethane	3	2.3	0.002	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	3	1.1	0.003	-	-	-	-	-	-	-	-	-	-	
Trichlorofluoromethane	--	--	0.005	-	-	-	-	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	--	--	0.003	-	-	-	-	-	-	-	-	-	-	
Vinyl Chloride	--	0.003	0.002	-	-	-	-	-	-	-	-	-	-	
m/p-Xylene	1	34	0.002	-	-	-	-	-	-	-	-	-	-	
o-Xylene	1	34	0.002	-	-	-	-	-	-	-	-	-	-	

Notes:

- 45 Exceeding CCME Criteria
- 56 Exceeding MOEE criteria
- Not analysed
- No criteria for this parameter

⁽¹⁾ CCME Soil criteria for residential/parkland land use

⁽²⁾ MOEE Table B Surface soil and groundwater criteria for residential/parkland land use for a non potable groundwater condition (coarse textured soil with pH between 5.0 and 11.0)
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TABLE 3 : RESULTS OF SOIL CHEMICAL ANALYSES - OTTAWA RIVER PARKWAY AREA

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-
< 0.0020
< 0.0020
< 0.0020
< 0.0030
< 0.0020
< 0.0020
< 0.0050
< 0.0030
< 0.015
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0030
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.020
< 0.0020
< 0.0030
< 0.0020
< 0.0020
< 0.0020
< 0.0020
< 0.0030
< 0.0050
< 0.0030
< 0.0020
< 0.0020
< 0.0020

