

TABLE 6: GENERAL CHEMISTRY in Potable Water
Client: Town of Yarmouth
Site Location: Lake George Road, Lake George, NS
Englobe Project No.: P-0010903

PARAMETER	UNITS	Health Canada Drinking Water Guidelines ¹	NSE Tier 1 EQS ²	Sample ID								
				PW3					PW8			
				Hose	Inlet (Pre-treat)	DUP Inlet (Pre-treat)	Inlet (Pre-treat)	Kitchen Tap	Inlet (Pre-treat)			
				2-Feb-16	16-Mar-16	16-Mar-16	15-Jul-16	15-Jul-16	2-Feb-16	16-Mar-16	15-Jul-16	
Field pH	pH	6.5-8.5	NG	6.64	5.43	5.43	5.51	5.76	6.95	6.25	6.11	
Field Conductivity	uS/cm	NG	NG	185	183	183	448	477	234	99	183	
Field Temperature	°C	NG	NG	7.37	7.42	7.42	13.37	14.76	10.24	7.28	10.45	
<i>Escherichia Coli</i>	CFU/100ml	0 per 100 ml	NG	-	0	-	-	-	-	0	-	
Total Coliforms	CFU/100ml	0 per 100 ml	NG	-	14	-	-	-	-	0	-	
Anion Sum	me/L	NG	NG	2.64	2.86	2.88	5.54	-	3.29	2.77	2.63	
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	NG	NG	12	9.5	10	9	-	58	61	63	
Calculated TDS	mg/L	≤ 500 (AO)	NG	150	170	170	320	-	190	170	160	
Carb. Alkalinity (calc. as CaCO3)	mg/L	NG	NG	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	
Cation Sum	me/L	NG	NG	2.30	2.55	2.63	5.20	-	2.80	2.62	2.5	
Colour	TCU	≤ 15 (AO)	NG	<5.0	13	5.7	<5.0	-	<5.0	<5.0	5.4	
Conductivity	uS/cm	NG	NG	260	290	290	560	-	290	250	240	
Chloride (Cl)	mg/L	≤ 250 (AO)	250	78	87	87	180	-	68	47	41	
Sulphate (SO4)	mg/L	≤ 500 (AO)	NG	8.7	9.5	10	17	-	10	10	9.9	
Hardness (CaCO3)	mg/L	NG	NG	23	22	23	34	-	83	83	85	
Ion Balance (% Difference)	%	NG	NG	6.88	5.73	4.54	3.17	-	8.05	2.78	2.53	
Langelier Index (@ 20C)	N/A	NG	NG	-3.27	-3.33	-3.32	-3.30	-	-0.950	-0.737	-0.469	
Langelier Index (@ 4C)	N/A	NG	NG	-3.52	-3.58	-3.57	-3.55	-	-1.20	-0.987	-0.719	
Nitrate (N)	mg/L	10 (MAC)	NG	0.15	0.093	0.10	0.11	-	<0.050	<0.050	<0.050	
Nitrate + Nitrite	mg/L	NG	NG	0.15	0.093	0.10	0.11	-	<0.050	<0.050	<0.050	
Nitrite (N)	mg/L	3.2 (MAC)	NG	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010	
Nitrogen (Ammonia Nitrogen)	mg/L	NG	NG	0.051	<0.050	<0.050	<0.050	-	0.068	0.068	<0.050	
Orthophosphate (P)	mg/L	NG	NG	<0.010	<0.010	0.012	<0.010	-	0.017	0.020	0.016	
Phenol	mg/L	NG	0.57	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	-	
pH	pH	6.5-8.5	NG	6.19	6.28	6.23	6.20	-	7.29	7.47	7.71	
Phosphorous	mg/L	NG	NG	<0.020	-	-	-	-	0.047	-	-	
Reactive Silica (SiO2)	mg/L	NG	NG	5.9	5.4	5.7	7.4	-	21	21	22	
Saturation pH (@ 20C)	N/A	NG	NG	9.47	9.61	9.54	9.50	-	8.24	8.20	8.18	
Saturation pH (@ 4C)	N/A	NG	NG	9.72	9.86	9.79	9.75	-	8.49	8.45	8.43	
Total Alkalinity (Total as CaCO3)	mg/L	NG	NG	12	9.5	10	9	-	58	61	63	
Dissolved Organic Carbon	mg/L	NG	NG	0.80	-	-	-	-	<0.5	-	-	
Total Chemical Oxygen Demand	mg/L	NG	NG	<5.0	-	-	-	-	<5.0	-	-	
Total Kjeldahl Nitrogen	mg/L	NG	NG	<0.20 (1)	-	-	-	-	<0.20 (1)	-	-	
Total Organic Carbon (C)	mg/L	NG	NG	0.56	0.74	0.61	0.95	-	<0.50	<0.50	0.5	
Total Suspended Solids	mg/L	NG	NG	<1.0	-	-	-	-	<1.0	-	-	
Turbidity	NTU	1 (MAC) ³	NG	0.66	0.37	0.40	1.20	-	12	7.4	14	

Notes:

AO - Aesthetic Objective
 MAC - Maximum Acceptable Concentration
 NG - no guideline

value - exceeds HC guidelines
value -exceeds NSE EQS
value -exceeds both HC and NSE EQS

(1) Elevated reporting limit due to sample matrix.
 (2) Reporting limit was increased due to turbidity.
 (3) The sample was decanted due to sediment.
 (4) Elevated reporting limit due to blank performance.

¹Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)

²Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil

³For treatment systems only

TABLE 7: TOTAL METALS in Potable Water
 Client: Town of Yarmouth
 Site Location: Lake George Road, Lake George, NS
 Englobe Project No.: P-0010903

PARAMETER	UNITS	Health Canada Drinking Water Guidelines ¹	NSE Tier 1 EQS ²	Sample ID								
				PW3						PW8		
				Hose	Inlet (Pre-treat)	DUP Inlet (Pre-treat)	Inlet (Pre-treat)	Lab Dup Inlet (Pre-treat)	Kitchen Tap	Inlet (Pre-treat)		
				2-Feb-16	16-Mar-16	16-Mar-16	15-Jul-16	15-Jul-16	15-Jul-16	2-Feb-16	16-Mar-16	15-Jul-16
Aluminum	µg/L	100 ³	NG	110	110	110	170	170	160	5.7	<5.0	7.5
Antimony	µg/L	6 (MAC)	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	10 (MAC)	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	1.1	2.3
Barium	µg/L	1000 (MAC)	1000	18	19	20	41	41	40	18	18	18
Beryllium	µg/L	NG	4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	NG	NG	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	5000 (MAC)	5000	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	µg/L	5 (MAC)	5	0.072	0.063	0.055	0.11	0.10	0.10	<0.010	<0.010	<0.010
Calcium	µg/L	NG	NG	6500	6200	6500	9400	9300	9300	24000	24000	25000
Chromium	µg/L	50 (MAC)	50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	NG	10	<0.40	<0.40	<0.40	0.62	0.59	0.61	<0.40	<0.40	<0.40
Copper	µg/L	≤1000 (AO)	NG	260	7.5	6.3	8.3	8.3	69	21	<2.0	<2.0
Iron	µg/L	≤300 (AO)	NG	120	210	180	380	380	180	1000	800	1600
Lead	µg/L	10 (MAC)	10	15	1.1	1.1	1.9	1.8	0.69	7.5	<0.50	<0.50
Magnesium	µg/L	NG	NG	1600	1700	1700	2700	2700	2600	5500	5400	5600
Manganese	µg/L	≤50 (AO)	NG	30	42	44	110	110	100	420	350	260
Mercury	µg/L	1 (MAC)	1	<0.013	0.013	<0.013	-	-	-	<0.013	<0.013	-
Molybdenum	µg/L	NG	70	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	NG	100	7.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Phosphorus	µg/L	NG	NG	<100	<100	<100	<100	<100	<100	<100	<100	<100
Potassium	µg/L	NG	NG	690	680	730	1000	1000	1000	1600	1600	1600
Selenium	µg/L	10 (MAC)	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	µg/L	NG	100	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	µg/L	≤ 200,000 (AO)	200,000	42000	48000	49000	100000	100000	98000	25000	20000	16000
Strontium	µg/L	NG	4400	33	37	38	65	65	64	140	150	150
Thallium	µg/L	NG	2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	NG	4400	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	NG	NG	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	20 (MAC)	20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vanadium	µg/L	NG	6.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	µg/L	≤5000 (AO)	5000	210	39	24	30	31	11	<5.0	<5.0	<5.0

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