

Appendix B:

Summary of Sample Bottle Requirements

Appendix B1 – General Bottle Requirements

MICROBIOLOGICAL									
Coliforms, Total, Fecal, Escherichia	300, 250	SP	100 (per test)	None, Na ₂ S ₂ O ₃ (chlorinated)	1	48h	-/30h	48h/24h(MISA)	
Background	300, 250	SP	100	None, Na ₂ S ₂ O ₃ (chlorinated)	1	48h	-/30h	48h	
Heterotrophic Plate Count	300, 250	SP	50	None, Na ₂ S ₂ O ₃ (chlorinated)	1	48h	-/24h	48h	
Fecal Streptococcus	300, 250	SP	100	None, Na ₂ S ₂ O ₃ (chlorinated)	1	48h	-/24h	48h	
Pseudomonas	300, 250	SP	100	None, Na ₂ S ₂ O ₃ (chlorinated)	1	48h	-/24h	48h	
Iron Reducing Bacteria	300, 250	SP	100	None	1	48h	-	48h	
Chlorophyll-a	1000	AG	1000	None, Wrap in Aluminum Foil	1, in dark	30d	-	-	
ORGANICS									
Diquat/Paraquat	1000	P	250	None, Na ₂ S ₂ O ₃ (chlorinated)	1	14dpre/20dpost	7dpre/21dpost	20d	
Glyphosate	1000	P	50	None, Na ₂ S ₂ O ₃ (chlorinated)	1	14d	14d	20d	
Glycols	40	GV	40	None	1	7d	-	-	
OC Pesticides	1000	AG	1000	None, Na ₂ S ₂ O ₃ (chlorinated)	1	10dpre/40dpost	14dpre/30dpost	42d	
PAH's	1000	AG	1000 (x2)	None	1	14dpre/40dpost	14dpre/30dpost	35d	
PCB's	1000	AG	1000	None, Na ₂ S ₂ O ₃ (chlorinated)	1	10dpre/40dpost	14dpre/30dpost	42d	
PHC (F1)	40	AGV	40 (x2)	NaHSO ₄ , HCl, None	1	14d	-	7d	
PHC (F2-F4)	1000	AG	1000	NaHSO ₄ , None	1	14d	-	14dpre/7dpost	
Phenols by GC/MS	1000	AG	1000	None	1	7dpre/ 30dpost	14dpre/30dpost	20d/30d(MISA)	
SVOC (Acid, Base/Neutral Ext.)	1000	AG	1000 (x2)	None	1	14dpre/40dpost	14dpre/30dpost	30d	
VOC's	40	AGV	40 (x2)	NaHSO ₄ , Na ₂ S ₂ O ₃ (chlorinated), HCl, None	1	7 to 14d	14d/14d	14d, 7to14(MISA)	
SUBCONTRACTED PARAMETERS									
Dioxins/Furans	1000	AG	1000	None	1	30d	30d		
Formaldehyde	1000	AG	1000	None	1	7d			
NDMA	1000	AG	1000 (x2)	None	1	10d		10 d	
NTA	1000	AG	100	None	1	30d		30 d	
Radionuclides (Gross Alpha, Beta and Tritium)	1000	P	1000	None / HNO ₃	1	10d / 6m			
Radionuclide (ODWS Table 3)	1000	P	1000 (x3)	None / HNO ₃	1	10d / 6m			

Sample Container Codes:

P = Plastic, either HDPE or PETE

G = Glass, GV = Glass Vial

AG = Amber Glass, AGV = Amber Glass Vial,

SP = Sterile Plastic

* Teflon-lined phenate free cap

Storage Conditions Codes:

1 = 4 ± 3°C

2 = Room Temperature (if preserved)

d = days

m = months

Imm = Immediate

Appendix B: Soil Sample Analysis/General (see Appendix D for O.Reg. 153/04 requirements)

Parameter	Sample Containers		Minimum Volume (mL)	Preservative	Storage Conditions	Holding Times		
	Size (mL)	Type				Caduceon	EPA	MOE
PHC (F2-F4)	180	AGJ	180	None	1	7 d	-	14 d
BTEX/PHC (F1)	100	AGJ	50	None	1	7 d	-	7 d
VOC's	100	AGJ	50	None	1	7 d	14 d	7 to 14 d
Metals (including mercury)	180	AGJ	180	None	2	28 d	28 d	Indefinite
Inorganic General	180	AGJ	180	None	2	see individual	see individual	see individual
Oil & Grease	180	AGJ	180	None	1	28 d	-	-
Nutrients (TOC, TP, TKN)	180	AGJ	180	None	2	28 d	-	-
Anions	180	AGJ	180	None	2	28 d	-	-
Semivolatiles	180	AGJ	180	None	1	see individual	see individual	see individual
Pesticides	180	AGJ	180	None	1	see individual	see individual	see individual

Sample Container Codes:

AGJ = Amber Glass Jar

Storage Conditions Codes:

1 = 4 ± 3°C

2 = Room Temperature

Indefinite = indefinite when dried

individual = individual parameter test method

d = days

m = months

Appendix C: Bottles required for Regulatory Ontario Drinking Water Submissions

Parameter	Bottle	Sampling	Storage
THM's	Two - 40 mL VOC amber glass vials, Na ₂ S ₂ O ₃ added	Fill slowly and completely - no air bubbles present	4 ± 3°C
Fluoride, Nitrate and Nitrite	125 mL HDPE, 250 mL HDPE or 500mL PETE, no preservative (4°C)	Grab	4 ± 3°C

Schedule 23, Sodium, Lead (Distribution): Inorganic Parameters

Parameter	Bottle	Sampling	Storage
Metals	125 mL HDPE, HNO ₃ added	No rinsing. Be careful of acid preservative	Room temperature
Mercury	125 mL HDPE, K ₂ Cr ₂ O ₇ + HNO ₃ or pH<2 HCl	No rinsing. Be careful of acid preservative	4 ± 3°C

Schedule 15.1 (O.Reg. 170) & O.Reg. 243 (Schools, Private Schools & Day Nurseries)

Parameter	Bottle	Sampling	Storage
Lead	1000 mL HDPE, HNO ₃ added	No rinsing. Be careful of acid preservative	Room temperature

Schedule 24: Organic Parameters

Parameter	Bottle	Sampling	Storage
VOC's	Two - 40 mL VOC amber glass vials, Na ₂ S ₂ O ₃ added	Fill slowly and completely - no air bubbles present	4 ± 3°C
Pesticides	2 - 1 L Amber Glass, no preservative - Pest MS, 1 - 1 L HDPE, Na ₂ S ₂ O ₃ added - Diquat, Paraquat & Glyphosate 2 - 1 L Amber Glass, no preservative - OC Pesticides	Grab	4 ± 3°C

Appendix D: Parameters for Water Analysis required for O.Reg 153/04 (amended July 01, 2011)

Parameter	Sample Containers		Minimum Volume (mL)	Preservative	Storage Conditions	Holding Times		Comments
	Size (mL)	Type				Caduceon	MOE	
GENERAL CHEMISTRY, PHYSICAL PROPERTIES								
Chloride	500	P	50	None	1	28 d	28d	
Conductivity	500	P	100	None	1	4d	28d	
Cyanide (wad)	125	P	50	Field filter + pH >12 NaOH	1	14d	14d	must be field preserved
Hexavalent Chromium (CrVI)	125	P	50	Field filter + buffer/NaOH to pH 9 - 10	1	28d	28d	must be preserved to pH 9.3 – 9.7 within 24hrs of sampling
Mercury	125	G,AG	100	Field filter + pH<2 HCl	2	28d	28d	must be field preserved
Methyl Mercury	125	G,AG	100	pH<2 HCl, K ₂ Cr ₂ O ₇ + HNO ₃	1	28d	28d	Do not Filter must be field preserved
Metals- except Mercury	125	P	100	Field filter + pH<2 HNO ₃	2	60d	60d	must be field preserved
pH	500	P	100	None	1	4d	28d	
ORGANICS								
OC Pesticides	1000	AG	1000	None	1	14d	14d	
PAH's	1000	AG	1000	None	1	14d	14d	
PCB's	1000	AG	1000	None	1	14d	14d	
PHC (F1)	40	AGV	40 (x2)	pH<2 NaHSO ₄ , HCl / None	1	14d / 7d	14d / 7d	
PHC (F2-F4)	1000	AG	1000	pH<2 NaHSO ₄ , HCl / None	1	40d / 7d	40d / 7d	
Chlorophenols by GC/MS	1000	AG	1000	None	1	14d	14d	
SVOC (Acid, Base/Neutral Ext.)	1000	AG	1000	None	1	14d	14d	
VOCs/THMs/BTEX	40	GV,AGV	40 (x2)	pH<2 NaHSO ₄ , HCl / None	1	14d / 7d	14d / 7d	
Dioxins/Furans	1000	AG	1000	None	1	indefinite	indefinite	

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SP = Sterile Plastic

* Teflon-lined phenate free cap

Storage Conditions Codes:

1 = 4 ± 3°C

2 = Room Temperature (if preserved)

d = days

m = months

Imm = Immediate

Appendix E: Parameters for Soil Analysis required for O.Reg 153/04 (amended July 01, 2011)

Parameter	Sample Containers		Minimum Volume (mL)	Preservative	Storage Conditions	Holding Times		
	Size (mL)	Type				Caduceon	MOE	Comments
GENERAL CHEMISTRY, PHYSICAL PROPERTIES								
Chloride	180	AGJ	180	None	1	30d	30d	indefinite when dried
Conductivity	180	AGJ	180	None	1	30d	30d	indefinite when dried
Cyanide (wad)	180	AGJ *	180	Protect from Light	1	14d	14d	
Fraction Organic Carbon (FOC)	180	AGJ *	180	None	1	28d	28d	indefinite when dried
Hexavalent Chromium	180	AGJ	180	None	1	30d	30d	
Mercury	180	AGJ	180	None	1	28d	28 d	
Methyl Mercury	180	AGJ	180	None	1	28d	28 d	
Metals- except Mercury	180	AGJ	180	None	1	180d	180 d	indefinite when dried
pH	180	AGJ	180	None	1	30d	30d	indefinite when dried
ORGANICS								
OC Pesticides	180	AGJ *	180	None	1	60d	60d	
PAH's	180	AGJ *	180	None	1	60d	60d	
PCB's	180	AGJ *	180	None	1	indefinite	indefinite	
PHC (F1) **	40	GV	40 (x2)	Methanol (preweighed) ^a	1	14d	14d	
PHC (F2-F4)	180	AGJ *	180	None	1	14d	14d	
Chlorophenols by GC/MS	180	AGJ *	180	None	1	60d	60d	
SVOC (Acid, Base/Neutral Ext.)	180	AGJ *	180	None	1	60d	60d	
VOCs/THMs/BTEX **	40	GV	40 (x2)	Methanol (preweighed) ^a	1	14d	14d	
Dioxins/Furans	180	AGJ *	180	None	1	indefinite	indefinite	

Sample Container Codes:

AGJ = Amber Glass Jar

G = Glass, GV = Glass Vial

AG = Amber Glass, AGV = Amber Glass Vial,

SP = Sterile Plastic

* Teflon-lined phenate free cap

** Include one (1) Terracore sampler for each sample

Storage Conditions Codes:

1 = 4 ± 3°C

2 = Room Temperature

^a NaHSO₄ for bromomethane

d = days

m = months

Imm = Immediate

Appendix B2 – Water

Raw & Treated Water Samples Bottles Include:

1. 1 L clear, no preservative
2. 500 mL clear plastic, no preservative
3. Green cap for CN, 12 N NAON preservative
4. Purple cap for Cr-VI, NAON preservative
5. Red cap for Metals bottle, HNO_3 Nitric Acid preservative
6. 125 mL amber for Phenolics, H_2SO_4 Sulphuric Acid preservative
7. Round 250 mL plastic for Bacteria, $\text{Na}_2\text{S}_2\text{O}_3$ Sodium thiosulfate preservative to offset effects of chlorination
8. 40 mL Vial for DOC, should be field filtered, H_2SO_4 preservative

Appendix B3 – Wastewater

Wastewater Samples Bottles Include:

1. 1 L amber HCL preservative
2. Red cap for Metals bottle, HNO_3 Nitric Acid preservative
3. 125 mL amber for Phenolics, H_2SO_4 Sulphuric Acid preservative
4. Round 250 mL plastic for Bacteria, $\text{Na}_2\text{S}_2\text{O}_3$ Sodium thiosulfate preservative to offset effects of chlorination
5. 2 x 500 mL clear plastic no preservative
6. 1 Yellow cap for TKN/TP, H_2SO_4 Sulphuric Acid preservative

Appendix B4 - Leachate

Leachate Samples Bottles Include:

1. 3 x 1 L amber:
1 for O&G, HCL preservative,
1 for PHC F₂-F₄, no preservative, and
1 for SVOC-4, no preservative
2. Red cap for Metals bottle, HNO_3 Nitric Acid preservative
3. 125 mL amber for Phenolics, H_2SO_4 Sulphuric Acid preservative
4. Round 250 mL plastic for Bacteria, $\text{Na}_2\text{S}_2\text{O}_3$ Sodium thiosulfate preservative to offset effects of chlorination
5. 2 x 500 mL clear plastic, no preservative
6. 1 Yellow cap for TKN/TP, H_2SO_4 Sulphuric Acid preservative
7. 3 x 40 ml Vial for PHC F₁ and BTEX