

Appendix A

2005 MONITORING MATRIX

IBWA Model Code Monitoring Requirements

MONITORING PARAMETER GROUP		MONITORING FREQUENCY	SOQs, MCLs, SMCLs, and Guidelines (Apply to finished products)		
<i>Individual Group Analytes</i>					
Inorganic Chemicals (IOCs)		ANNUALLY	IBWA SOQ	FDA SOQ	EPA MCL
		(Product and Source)			
	Antimony (1)	For items with footnote (2), see <i>FDA D/DBP Rule Monitoring Requirements</i> on page 21.	0.006	0.006	0.006
	Arsenic		0.01	0.05	0.05
	Barium		1	2	2
	Beryllium (1)		0.004	0.004	0.004
	Bromate (2)		0.010	0.010	0.010
	Cadmium		0.005	0.005	0.005
	Chlorine (2)		0.1	4.0	4.0
	Chloramine (2)		4.0	4.0	4.0
	Chlorine dioxide (2)		0.8	0.8	0.8
	Chlorite (2)		1.0	1.0	1.0
	Chromium		0.05	0.1	0.1
	Cyanide (1)		0.1	0.1	0.2
	Fluoride		(3)	(3)	4
	Lead		0.005	0.005	0.015 AL
	Mercury		0.001	0.002	0.002
	Nickel (1)		0.1	0.1	
	Nitrate-N		10	10	10
	Nitrite-N		1	1	1
	Total Nitrate + Nitrite	10	10	10	
	Selenium	0.01	0.05	0.05	
	Thallium (1)	0.002	0.002	0.002	
Secondary Inorganic Parameters		ANNUALLY	IBWA SOQ	FDA SOQ	SMCL (4)
		(Product and Source)			
	Aluminum		0.2	0.2	0.2
	Chloride (5)		250	250	250
	Copper		1	1	1
	Iron (5)		0.3	0.3	0.3
	Manganese (5)		0.05	0.05	0.05
	Silver		0.025	0.1	0.1
	Sulfate (5)		250	250	250
	Total Dissolved Solids (TDS) (5)		500	500	500
	Zinc (5)		5	5	5
Volatile Organic Chemicals (VOCs)		ANNUALLY	IBWA SOQ	FDA SOQ	EPA MCL
		(Product and Source)			
	1,1,1-Trichloroethane	For items with footnote (2), see <i>FDA D/DBP Rule Monitoring Requirements</i> on page 21.	0.03	0.2	0.2
	1,1,2-Trichloroethane		0.003	0.005	0.005
	1,1-Dichloroethylene		0.002	0.007	0.007
	1,2,4-Trichlorobenzene		0.009	0.07	0.07
	1,2-Dichloroethane		0.002	0.005	0.005
	1,2-Dichloropropane		0.005	0.005	0.005
	Benzene		0.001	0.005	0.005
	Carbon tetrachloride		0.005	0.005	0.005
	cis-1,2-Dichloroethylene		0.07	0.07	0.07
	trans-1,2-Dichloroethylene		0.1	0.1	0.1
	Ethylbenzene		0.7	0.7	0.7
	Methylene chloride (Dichloromethane)		0.003	0.005	0.005
	Monochlorobenzene		0.05	0.1	0.1
	o-Dichlorobenzene		0.6	0.6	0.6
	p-Dichlorobenzene		0.075	0.075	0.075
	Haloacetic Acids (HAA5) (2)		0.06	0.06	0.06
	Styrene		0.1	0.1	0.1

(1) Included in FDA's 9 contaminant regulations.

(2) Included in FDA's D/DBP rule. See D/DBP monitoring requirements section on page 21 in Appendix A for details.

(3) SOQ dependent upon temperature and other factors. See fluoride section on page 22 of Appendix A for details.

(4) SMCL = Secondary maximum contaminant level. SMCLs are guidelines established by the USEPA for use in evaluating aesthetic, non-health-related properties in water. SMCLs are not enforceable for public water systems.

(5) Mineral water is exempt from allowable level. The exemptions are aesthetically based allowable levels and do not relate to a health concern.

All SOQs, MCLs, SMCLs, and guidelines in mg/L (ppm) except as noted. Refer to your state bottled water regulations to determine if additional testing is required.

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Volatile Organic Chemicals (VOCs) (Continued)		ANNUALLY	IBWA SOQ	FDA SOQ	EPA MCL
	Tetrachloroethylene	(Product and Source)	0.001	0.005	0.005
	Toluene		1	1	1
	Trichloroethylene	For items with footnote (2), see <i>FDA D/DBP Rule Monitoring Requirements</i> on page 21.	0.001	0.005	0.005
	Vinyl chloride		0.002	0.002	0.002
	Xylenes (total)		1	10	10
	Bromodichloromethane		(6)	(6)	(6)
	Chlorodibromomethane		(6)	(6)	(6)
	Chloroform		(6)	(6)	(6)
	Bromoform		(6)	(6)	(6)
	Total Trihalomethanes (2)		0.01	0.08	0.08
Semivolatile Organic Chemicals (SVOCs)			ANNUALLY	IBWA SOQ	FDA SOQ
	Benzo(a)pyrene	(Product and Source)	0.0002	0.0002	0.0002
	Di(2-ethylhexyl)adipate		0.4	0.4	0.4
	Di(2-ethylhexyl)phthalate		0.006	NA	0.006
	Hexachlorobenzene		0.001	0.001	0.001
	Hexachlorocyclopentadiene		0.05	0.05	0.05
	Total Recoverable Phenolics		0.001	0.001	NA
Synthetic Organic Chemicals (SOCs)		ANNUALLY	IBWA SOQ	FDA SOQ	EPA MCL
	2,4,5-TP (Silvex)	(Product and Source)	0.01	0.05	0.05
	2,4-D (Dichlorophenoxy acetic acid)	(unless otherwise noted)	0.07	0.07	0.07
	Alachlor		0.002	0.002	0.002
	Aldicarb		0.003	NA	0.003
	Aldicarb sulfone		0.003	NA	0.003
	Aldicarb sulfoxide		0.004	NA	0.004
	Atrazine		0.003	0.003	0.003
	Carbofuran		0.04	0.04	0.04
	Chlordane		0.002	0.002	0.002
	Dalapon		0.2	0.2	0.2
	Dibromochloropropane (DBCP)		0.0002	0.0002	0.0002
	Dinoseb		0.007	0.007	0.007
	Dioxin (2,3,7,8-Tetrachlorodibenzo-p-dioxin) (1)(7)	Product: Every 3 years Source: Annually	3x10 ⁻⁸	3x10 ⁻⁸	3x10 ⁻⁸
	Diquat (1)(7)		0.02	0.02	0.02
	Endothall (1)(7)		0.1	0.1	0.1
	Endrin	ANNUALLY	0.002	0.002	0.002
	Ethylene dibromide	(Product and Source)	0.00005	0.00005	0.00005
	Glyphosate (1)(7)	Product: Every 3 years Source: Annually	0.7	0.7	0.7
	Heptachlor	ANNUALLY	0.0004	0.0004	0.0004
	Heptachlor epoxide	(Product and Source)	0.0002	0.0002	0.0002
	Lindane		0.0002	0.0002	0.0002
	Methoxychlor		0.04	0.04	0.04
	Oxamyl (vydate)		0.2	0.2	0.2
	Pentachlorophenol		0.001	0.001	0.001
	Picloram		0.5	0.5	0.5
	Polychlorinated biphenyls (PCBs)		0.0005	0.0005	0.0005
	Simazine		0.004	0.004	0.004
	Toxaphene		0.003	0.003	0.003

- (1) Included in FDA's 9 contaminant regulations.
- (2) Included in FDA's D/DBP Rule. See D/DBP monitoring requirements section in Appendix A for details.
- (6) No SOQs or MCLs established for individual trihalomethane contaminants. The sum of the 4 THMs is regulated as total trihalomethanes (TTHMs).
- (7) FDA requires that the four synthetic organic chemicals (SOC) listed must be tested quarterly for four consecutive quarters for each type of finished bottled water (e.g., spring, purified, etc.). If none of the SOCs are detected, then once every three years for each type of finished product. If SOCs are detected, maintain monitoring for four consecutive quarters in each three-year period. New products and new companies must do an initial round of quarterly monitoring in the first year of operation.

All SOQs, MCLs, SMCLs, and guidelines in mg/L (ppm) except as noted. Refer to your state bottled water regulations to determine if additional testing is required.

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Additional Regulated Contaminants		ANNUALLY	IBWA SOQ	FDA SOQ	EPA MCL
	Methyl tertiary butyl ether (MTBE)	(Product and Source)	0.07	NA	NA
	Naphthalene		0.3	NA	NA
	1,1,2,2-Tetrachloroethane		0.001	NA	NA
Microbiological Contaminants			IBWA SOQ	FDA SOQ	EPA MCL
	Total coliform / <i>E. coli</i>	SOURCE: at least once each week (21 CFR §129.35(a)(3)) PRODUCT: at least once each week (21 CFR §129.35(g)(1))	No <i>Escherichia coli</i> detectable in a 100 ml portion/sample. No validated total coliform detectable in a 100 ml portion/sample as substantiated by resampling. NOTE: Confirmation AND validation of all positive total coliform results in finished product required. See Appendix C of the Model Code.	MPN: <2.2 organisms per 100 ml. MF: <4 CFU per 100 ml.	No more than 5% of monthly samples valid for total coliform.
Radiological Contaminants		SEE BELOW	IBWA SOQ	FDA SOQ	EPA MCL
	Gross Alpha Particle Radioactivity	SOURCE: Every 4 years	15 pCi/L	15 pCi/L	15 pCi/L
	Gross Beta Particle and Photon Radioactivity (8)	PRODUCT: Annually	50 pCi/L	50 pCi/L	50 pCi/L
	Radium 226/228 (combined)	SOURCE: Every 4 years PRODUCT: Annually	5 pCi/L	5 pCi/L	5 pCi/L
	Uranium	SOURCE: Every 4 years PRODUCT: Annually	0.030	0.030	0.030
Water Properties		ANNUALLY	IBWA SOQ	FDA SOQ	GUIDELINE
	Color	(Product and Source)	5 Units	15 Units	5 Units
	Turbidity		0.5 NTU	5.0 NTU	0.5 NTU
	pH (9)		5-7/6.5-8.5	NA	6.5-8.5
	Odor		3 T.O.N.	3 T.O.N.	3 T.O.N.

(8) If the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present. Compliance (with § 141.16) may be assumed without further analysis if the average annual concentration of gross beta particle activity is less than 50 pCi/l and if the average annual concentrations of tritium and strontium-90 are less than those listed in table A, *Provided*, That if both radionuclides are present the sum of their annual dose equivalents to bone marrow shall not exceed 4 millirem/year. Consult with your testing laboratory for more information.

(9) The Model Code guideline for pH in purified water is 5.0-7.0 (see Appendix B for definition and requirements for purified water). The guideline for source water and other product waters is 6.5-8.5. NOTE: This guideline is not enforceable.

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