

I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix

| Inorganic Chemicals (IOCs) Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
|--|-----------------------------|--------------------------------------|---------|-------------|
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| Antimony (1) | EPA 200.8 | 0.006 | 0.006 | 0.006 |
| Arsenic | EPA 200.8 | 0.01 | 0.05 | 0.05 |
| Barium | 200.7/200.8 | 1 | 2 | 2 |
| Beryllium (1) | EPA 200.8 | 0.004 | 0.004 | 0.004 |
| Bromate (2) | EPA 300.1 | 0.010 | 0.010 | 0.010 |
| Cadmium | EPA 200.8 | 0.005 | 0.005 | 0.005 |
| Chlorine (2) | SM 4500 Cl D | 0.1 | 4.0 | 4.0 |
| Chloramine (2) | SM 4500 Cl G | 4.0 | 4.0 | 4.0 |
| Chlorine dioxide (2) | SM 4500 Cl O ₂ D | 0.8 | 0.8 | 0.8 |
| Chlorite (2) | EPA 300.0 | 1.0 | 1.0 | 1.0 |
| Chromium | EPA 200.7/200.8 | 0.05 | 0.1 | 0.1 |
| Cyanide (1) | EPA 335.3 | 0.1 | 0.1 | 0.2 |
| Fluoride | SM 4500 F C | (3) | (3) | 4 |
| Lead | EPA 200.8 | 0.005 | 0.005 | 0.015 AL |
| Mercury | EPA 200.8 | 0.001 | 0.002 | 0.002 |
| Nickel (1) | EPA 200.7/200.8 | 0.1 | 0.1 | 0.1 |
| Nitrate-N | EPA 353.2 | 10 | 10 | 10 |
| Nitrite-N | SM 4500 NO ₂ B | 1 | 1 | 1 |
| Total Nitrate+Nitrite | EPA 353.2 | 10 | 10 | 10 |
| Selenium | EPA 200.8 | 0.01 | 0.05 | 0.05 |
| Thallium (1) | EPA 200.8 | 0.002 | 0.002 | 0.002 |
| Secondary Inorganic Parameters Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
| | | IBWA SOQ | FDA SOQ | EPA MCL (4) |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| Aluminum | EPA 200.7/200.8 | 0.2 | 0.2 | 0.2 |
| Chloride (5) | SM 4500 Cl-B | 250 | 250 | 250 |
| Copper | EPA 200.7/200.8 | 1 | 1 | 1 |
| Iron (5) | EPA 200.7 | 0.3 | 0.3 | 0.3 |
| Manganese (5) | 200.7/200.8 | 0.05 | 0.05 | 0.05 |
| Silver | 200.7/200.8 | 0.025 | 0.1 | 0.1 |
| Sulfate (5) | SM 4500 SO ₄ E | 250 | 250 | 250 |
| Total Dissolved Solids (5) | SM 2540 C | 500 | 500 | 500 |
| Zinc (5) | EPA 200.7/200.8 | 5 | 5 | 5 |

I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix

| Volatile Organic Chemicals (VOCs) Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
|---|----------------------|--------------------------------------|---------|---------|
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| 1,1,1-Trichloroethane | EPA 524.2 | 0.03 | 0.2 | 0.2 |
| 1,1,2-Trichloroethane | EPA 524.2 | 0.003 | 0.005 | 0.005 |
| 1,1-Dichloroethylene | EPA 524.2 | 0.002 | 0.007 | 0.007 |
| 1,2,4-Trichlorobenzene | EPA 524.2 | 0.009 | 0.07 | 0.07 |
| 1,2-Dichloroethane | EPA 524.2 | 0.002 | 0.005 | 0.005 |
| 1,2-Dichloropropane | EPA 524.2 | 0.005 | 0.005 | 0.005 |
| Benzene | EPA 524.2 | 0.001 | 0.005 | 0.005 |
| Carbon Tetrachloride | EPA 524.2 | 0.005 | 0.005 | 0.005 |
| cis-1,2-Dichloroethylene | EPA 524.2 | 0.07 | 0.07 | 0.07 |
| trans-1,2-Dichloro-ethylene | EPA 524.2 | 0.1 | 0.1 | 0.1 |
| Ethylbenzene | EPA 524.2 | 0.7 | 0.7 | 0.7 |
| Methylene Chloride (Dichloromethane) | EPA 524.2 | 0.003 | 0.005 | 0.005 |
| Monochlorobenzene | EPA 524.2 | 0.05 | 0.1 | 0.1 |
| o-Dichlorobenzene | EPA 524.2 | 0.6 | 0.6 | 0.6 |
| p-Dichlorobenzene | EPA 524.2 | 0.075 | 0.075 | 0.075 |
| Haloacetic Acids (HAA5) (2) | EPA 552.2 | 0.06 | 0.06 | 0.06 |
| Styrene | EPA 524.2 | 0.1 | 0.1 | 0.1 |
| Tetrachloroethylene | EPA 524.2 | 0.001 | 0.005 | 0.005 |
| Toluene | EPA 524.2 | 1 | 1 | 1 |
| Trichloroethylene | EPA 524.2 | 0.001 | 0.005 | 0.005 |
| Vinyl Chloride | EPA 524.2 | 0.002 | 0.002 | 0.002 |
| Xylenes (total) | EPA 524.2 | 1 | 10 | 10 |
| Bromodichloromethane | EPA 524.2 | (6) | (6) | (6) |
| Chlorodibromomethane | EPA 524.2 | (6) | (6) | (6) |
| Chloroform | EPA 524.2 | (6) | (6) | (6) |
| Bromoform | EPA 524.2 | (6) | (6) | (6) |
| Total Trihalomethanes (2) | EPA 524.2 | 0.01 | 0.08 | 0.08 |

**I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix**

| Semivolatile Organic Chemicals (SVOCs) Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
|---|-----------------------------|---|--------------------|--------------------|
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/SM Methods | Units in mg/L unless otherwise noted | | |
| Benzo(a)pyrene | EPA 525.2 | 0.0002 | 0.0002 | 0.0002 |
| Bis (2-ethylhexyl) adipate | EPA 525.2 | 0.4 | 0.4 | 0.4 |
| Bis (2-ethylhexyl) phthalate | EPA 525.2 | 0.006 | NA | 0.006 |
| Hexachlorobenzene | EPA 505 | 0.001 | 0.001 | 0.001 |
| Hexachlorocyclopentadiene | EPA 505 | 0.05 | 0.05 | 0.05 |
| Total Recoverable Phenolics | EPA 420.2 | 0.001 | 0.001 | NA |
| Synthetic Organic Chemicals (SOCs) Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| 2,4,5-TP (Silvex) | EPA 515.1 | 0.01 | 0.05 | 0.05 |
| 2,4-D (Dichlorophenoxy Acetic Acid) | EPA 515.1 | 0.07 | 0.07 | 0.07 |
| Alachlor | EPA 505 | 0.002 | 0.002 | 0.002 |
| Aldicarb | EPA 531.1 | 0.003 | NA | 0.003 |
| Aldicarb sulfone | EPA 531.1 | 0.003 | NA | 0.003 |
| Aldicarb sulfoxide | EPA 531.1 | 0.004 | NA | 0.004 |
| Atrazine | EPA 525.2 | 0.003 | 0.003 | 0.003 |
| Carbofuran | EPA 531.1 | 0.04 | 0.04 | 0.04 |
| Chlordane | EPA 505 | 0.002 | 0.002 | 0.002 |
| Dalapon | EPA 515.1 | 0.2 | 0.2 | 0.2 |
| 1,2-Dibromo-3-Chloropropane (DBCP) | EPA 504 | 0.0002 | 0.0002 | 0.0002 |
| Dinoseb | EPA 515.1 | 0.007 | 0.007 | 0.007 |
| 2,3,7,8- Tetrachlorodibenzo-p- dioxin (1)(7)(Dioxin) | SM 1613B | 3x10 ⁻⁸ | 3x10 ⁻⁸ | 3x10 ⁻⁸ |
| Diquat (1)(7) | EPA 549.1 | 0.02 | 0.02 | 0.02 |
| Endothall (1)(7) | EPA 548.1 | 0.1 | 0.1 | 0.1 |
| Endrin | EPA 505 | 0.002 | 0.002 | 0.002 |
| Ethylene Dibromide (EDB) | EPA 504 | 0.00005 | 0.00005 | 0.00005 |
| Glyphosate (1)(7) | EPA 547 | 0.7 | 0.7 | 0.7 |
| Heptachlor | EPA 505 | 0.0004 | 0.0004 | 0.0004 |
| Heptachlor Epoxide | EPA 505 | 0.0002 | 0.0002 | 0.0002 |
| Lindane | EPA 505 | 0.0002 | 0.0002 | 0.0002 |
| Methoxychlor | EPA 505 | 0.04 | 0.04 | 0.04 |
| Oxymyl (vydate) | EPA 531.1 | 0.2 | 0.2 | 0.2 |

I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix

| Synthetic Organic Chemicals (SOCs), <i>continued</i> Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
|--|----------------------|---|---|---|
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| Pentachlorophenol | EPA 515.1 | 0.001 | 0.001 | 0.001 |
| Picloram | EPA 515.1 | 0.5 | 0.5 | 0.5 |
| Polychlorinated biphenyls (PCBs) | | 0.0005 | 0.0005 | 0.0005 |
| PCB 1016 | EPA 505 | (9) | (9) | (9) |
| PCB 1221 | EPA 505 | (9) | (9) | (9) |
| PCB 1232 | EPA 505 | (9) | (9) | (9) |
| PCB 1242 | EPA 505 | (9) | (9) | (9) |
| PCB 1248 | EPA 505 | (9) | (9) | (9) |
| PCB 1254 | EPA 505 | (9) | (9) | (9) |
| PCB 1260 | EPA 505 | (9) | (9) | (9) |
| Simazine | EPA 505 | 0.004 | 0.004 | 0.004 |
| Toxaphene | EPA 505 | 0.003 | 0.003 | 0.003 |
| Additional Regulated Contaminants Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in mg/L unless otherwise noted | | |
| Methyl-tertiary butyl ether (MTBE) | EPA 524.2 | 0.07 | NA | NA |
| Naphthalene | EPA 524.2 | 0.3 | NA | NA |
| 1,1,2,2-Tetrachlorethane | EPA 524.2 | 0.001 | NA | NA |
| Microbiological Contaminants Confirmation AND validation of all positive total coliform results required. SEE APPENDIX C OF THE MODEL CODE | | SOQs, MCLs, SMCLs and Guidelines | | |
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units as noted | | |
| Total coliform/ <i>E. coli</i> | SM 9223 B | No <i>Eschericia coli</i> detectable in 100 mL portion/sample. No validated total coliform detectable in a 100 mL portion/sample as substantiated by sampling. | MPN: <9.2 organisms per 100 mL MF: <4 CFU per 100 mL | No more than 5% of monthly samples positive for total coliform. |

**I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix**

| Radiochemical Contaminants Monitoring Frequency: SEE BELOW | | SOQs, MCLs, SMCLs and Guidelines | | |
|---|-----------------------------|---|----------------|-----------------------|
| | | IBWA SOQ | FDA SOQ | EPA MCL |
| Individual Group Analytes | EPA/Standard Methods | Units in pCi/L | | |
| Gross Alpha Monitoring Frequency: SOURCE: Every 4 years PRODUCT: Annually | EPA 900.0 | 15 | 15 | 15 |
| Gross Beta Monitoring Frequency: SOURCE: Every 4 years PRODUCT: Annually | EPA 900.0 | 50 | 50 | 50 |
| Radium 226 Radium 228 combined Monitoring Frequency: When Gross Alpha exceeds 5 pCi/L | EPA 903.0/904.0 | 5 combined | 5 combined | 5 combined |
| Strontium 90 Monitoring Frequency: When Gross Beta exceeds 8 pCi/L | EPA 905.0 | 8 | 8 | 8 |
| Tritium and other man- made nuclides Monitoring Frequency: When Gross Beta exceeds 8 pCi/L | EPA 906.0 | NA | NA | NA |
| Water Properties Monitoring Frequency: Annually For Product and Source | | SOQs, MCLs, SMCLs and Guidelines | | |
| | | IBWA SOQ | FDA SOQ | EPA MCL(4) |
| Individual Group Analytes | EPA/Standard Methods | Units as noted | | |
| Color | SM 2120B | 5 Units | 15 Units | 5 Units |
| Turbidity | SM 2130 B | 0.5 NTU | 5.0 NTU | 0.5 NTU |
| pH (8) | SM 4500 | 5-7/6.5-8.5 std. units | NA | 6.5-8.5 std. units |
| Odor | SM 2150B | 3 T.O.N. | 3 T.O.N. | 3 T.O.N. |

**IBWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix**

| Summary of Analytical Costs | |
|--|------------------------|
| Description | Cost Per Sample |
| Inorganic Chemicals (IOCs) - Annually for Product & Source | 425.00 |
| Secondary Inorganic Parameters - Annually for Product & Source | 90.00 |
| Volatile Organic Chemicals (VOCs) - Annually for Product & Source | 330.00 |
| Semivolatile Organic Chemicals (SVOCs) - Annually for Product & Source | 630.00 |
| Synthetic Organic Chemicals (SOCs) - Annually for Product & Source | 1455.00 |
| Additional Regulated Contaminants - Annually for Product & Source | Included in VOC cost |
| Radiochemical Contaminants -Gross Alpha and Gross Beta - Annually Product and Every 4 years Source | 50.00 |
| Individual Group Analytes - Annually for Product & Source | 50.00 |
| List Cost Per Sample - Without Shipping Costs - See Notes Below | \$ 3,030.00 |
| Discounted Cost Per Sample For IBWA Members | \$ 2,750.00 |
| <p>The above represents List Cost Per Sample. Please contact an ELI Project Manager on sample quantity, project specific or seasonal discount availability. Cost Per Sample includes sample and shipping containers, preservatives and sampling information and paperwork (Chain of Custody forms, custody seals, labels, etc.). Due to short holding times for some of the parameters Next Day Shipping is required. ELI has a unique return -sample shipping contract with UPS. Authorized Return Service (ARS) information follows IBWA Monitoring Requirements. Call an ELI Project Manager for approximate shipping costs.</p> | |
| Additional Requirements | Cost Per Sample |
| Microbiological Contaminants - Daily for Product & Weekly for Source | 15.00 |
| Radiochemical Contaminants if Gross Alpha MCL is exceeded. (Radium 226 and Radium 228 combined) | 150.00 |
| Radiochemical Contaminants if Gross Beta MCL is exceeded. (Strontium 90 and Tritium) | 175.00 |

| Summary of Sample Bottle Requirements | | |
|---|---|--|
| Analytical Group | Methods | Bottle Description |
| Inorganic Chemicals and Individual Group Analytes | | |
| Trace Metals as Totals | EPA 200.7, EPA 200.8 | 500 mL Plastic Nitric Acid Preservation |
| Bromate | EPA 300.1 | 500 mL Plastic Non-preserved |
| Chlorine | SM 4500 Cl D | 2 - 40 mL Glass VOA Vials Non-preserved, Zero Headspace |
| Chloramine, Chlorine dioxide | SM 4500 Cl G, SM 4500 Cl O ₂ D | 1 Liter Plastic Non Preserved |
| Chlorite | EPA 300.0 | 120 mL Plastic Pre-preserved by laboratory with 5% EDA |
| Cyanide | EPA 335.3 | 500 mL Plastic Sodium Hydroxide Preservation |
| Fluoride, Nitrite -N, Chloride, Sulfate, Total Dissolved Solids, Color, Turbidity, pH, Odor | SM 4500 F C, SM 4500 NO ₂ B, SM 4500 Cl B, SM 4500 SO ₄ E, SM 2540 C, SM 2120 B, SM 2130 B, SM 4500, SM 2150 B | 2 - 1 Liter Plastic Non-preserved |
| Nitrate -N, Total Nitrate+Nitrite | EPA 353.2 | 500 mL Plastic Sulfuric Acid Preservation |

I BWA Model Code Monitoring Requirements - Appendix A
2002 Monitoring Matrix

| Summary of Sample Bottle Requirements, <i>continued</i> | | |
|--|----------------|---|
| Analytical Group | Methods | Bottle Description |
| Volatile Organic Chemicals | | |
| Various | EPA 524.2 | 3 - 40 mL Glass VOA Hydrochloric Acid Preservation |
| Haloacetic Acid (HAA5) | EPA 552.2 | 3 - 60 mL Amber Glass VOA Ammonium Chloride Preservation |
| Semivolatile Organic Chemicals (SVOCs) and Synthetic Organic Chemicals (SOCs) | | |
| Total Recoverable Phenols | EPA 420.2 | 1 - 500mL Glass Sulfuric Acid Preservation |
| Various | EPA 504 | 2 - 40 mL Glass VOA Pre-preserved by laboratory with Sodium Thiosulfate |
| Various | EPA 505 | 2 - 40 mL Glass VOA Pre-preserved by laboratory with Sodium Thiosulfate |
| Various | EPA 515.1 | 2 - 1 Liter Amber Glass Pre-preserved by laboratory with Ascorbic Acid |
| Various | EPA 525.2 | 2 - 1 Liter Amber Glass Pre-preserved by laboratory with Sodium Sulfite |
| Various | EPA 531.1 | 2 - 40 mL Glass VOA Pre-preserved by laboratory with 1.2 mL MCA and Ascorbic Acid |
| Glyphosate | EPA 547 | 2 - 40 mL Glass VOA Pre-preserved by laboratory with Sodium Thiosulfate |
| Endothall | EPA 548.1 | 2 - 1 Liter Amber Glass Pre-preserved by laboratory with Sodium Thiosulfate |
| Diquat | EPA 549.1 | 1 Liter Plastic Pre-preserved by laboratory with Sodium Thiosulfate |
| Dioxin | SM 1613 B | 1 Liter Amber Glass Non-preserved |
| Microbiological | | |
| Total Coliform Bacteria | SM 9223 B | 1-100 mL Plastic Sterile |
| Radiochemical | | |
| Gross Alpha and Gross Beta (and additional radiochemical parameters, if required) | EPA 900.0 | 2 Liter Plastic Nitric Acid Preservation |

| Footnotes (1-9) Indicated Above | |
|--|--|
| 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 detail. |
| 3 | SOQ dependent upon temperature and other factors. See fluoride section on page 20 of Appendix A for details. |
| 4 | SMCL=Secondary maximum contaminant level. SMCLs are guidelines established by the USEPA for use in evaluating aesthetics, non-health related properties in water. SMCLs are not enforceable. |
| 5 | Mineral water is exempt from allowable level. The exemptions are aesthetically based allowable levels and do not relate to health concern. |
| 6 | No SOQs or MCLs established for individual trihalomethane contaminants. The sum of the four THMs is regulated as total trihalomethanes (TTHMs). |
| 7 | FDA requires that four synthetic organics (SOC) listed must be done quarterly for four consecutive quarters, then annually for new products and new companies. |
| 8 | 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. This guideline is not enforceable. |
| 9 | No SOQ or MCL established for individual PCB aromatic compounds. The sum of all compounds is regulated as total Polychlorinated biphenyls. |