

**Appendix A to Subpart C of Part 141 - Alternative Testing Methods Approved for Analyses Under the Safe Drinking Water**

**Act.** Only the editions stated in the following table are approved.

<b>Alternative testing methods for contaminants listed at 40 CFR 141.21(f)(3)</b>			
Organism	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	Other
Total Coliforms	Total Coliform Fermentation Technique	9221 A, B	
	Total Coliform Membrane Filter Technique	9222 A, B, C	
	Presence-Absence (P-A) Coliform Test	9221 D	
	ONPG-MUG Test	9223	
	Colitag™		Modified Colitag™ <sup>13</sup>

<b>Alternative testing methods for contaminants listed at 40 CFR 141.21(f)(6)</b>					
Organism	Methodology	SM 20 <sup>th</sup> Edition <sup>6</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	Other
<i>E.coli</i>	ONPG-MUG Test	9223 B	9223 B	9223 B-97	
					Modified Colitag™ <sup>13</sup>

<b>Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)</b>						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
Alkalinity	Titrimetric		2320 B		D1067-06 B	
Antimony	Hydride – Atomic Absorption				D 3697-07	
	Atomic Absorption; Furnace		3113 B	3113 B-04		
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				

<b>Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)</b>						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
Arsenic	Atomic Absorption; Furnace		3113 B	3113 B-04	D 2972-08 C	
	Hydride Atomic Absorption		3114 B	3114 B-09	D 2972-08 B	
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Barium	Inductively Coupled Plasma		3120 B			
	Atomic Absorption; Direct		3111 D			
	Atomic Absorption; Furnace		3113 B	3113 B-04		
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Beryllium	Inductively Coupled Plasma		3120 B			
	Atomic Absorption; Furnace		3113 B	3113 B-04	D 3645-08 B	
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Cadmium	Atomic Absorption; Furnace		3113 B	3113 B-04		
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				

<b>Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)</b>						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
Calcium	EDTA titrimetric		3500-Ca B		D 511-09 A	
	Atomic Absorption; Direct Aspiration		3111 B		D 511-09 B	
	Inductively Coupled Plasma		3120 B			
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
	Ion Chromatography				D6919-09	
Chromium	Inductively Coupled Plasma		3120 B			
	Atomic Absorption; Furnace		3113 B	3113 B-04		
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Copper	Atomic Absorption; Furnace		3113 B	3113 B-04	D 1688-07 C	
	Atomic Absorption; Direct Aspiration		3111 B		D 1688-07 A	
	Inductively Coupled Plasma		3120 B			
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Conductivity	Conductance		2510 B			

<b>Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)</b>						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
Cyanide	Manual Distillation followed by				D2036-06 A	
	Spectrophotometric, Amenable		4500-CN <sup>-</sup> G		D2036-06 B	
	Spectrophotometric Manual		4500-CN <sup>-</sup> E		D2036-06 A	
	Selective Electrode		4500-CN <sup>-</sup> F			
	Gas Chromatography/Mass Spectrometry Headspace					ME355.01 <sup>7</sup>
Fluoride	Ion Chromatography		4110 B			
	Manual Distillation; Colorimetric SPADNS		4500-F <sup>-</sup> B, D			
	Manual Electrode		4500-F <sup>-</sup> C		D1179-04, 10 B	
	Automated Alizarin		4500-F <sup>-</sup> E			
	Arsenite-Free Colorimetric SPADNS					Hach SPADNS 2 Method 10225 <sup>22</sup>
Lead	Atomic Absorption; Furnace		3113 B	3113 B-04	D 3559-08 D	
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2 <sup>2</sup>				
Magnesium	Atomic Absorption		3111 B		D 511-09 B	
	Inductively Coupled Plasma		3120 B			
	Complexation Titrimetric Methods		3500-Mg B		D 511-09 A	

Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
	Ion Chromatography				D6919-09	
Mercury	Manual, Cold Vapor		3112 B	3112 B-09		
Nickel	Inductively Coupled Plasma		3120 B			
	Atomic Absorption; Direct		3111 B			
	Atomic Absorption; Furnace		3113 B	3113 B-04		
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
Nitrate	Ion Chromatography		4110 B			
	Automated Cadmium Reduction		4500-NO <sub>3</sub> <sup>-</sup> F			
	Manual Cadmium Reduction		4500-NO <sub>3</sub> <sup>-</sup> E			
	Ion Selective Electrode		4500-NO <sub>3</sub> <sup>-</sup> D			
	Reduction/Colorimetric					Systema Easy (1-Reagent) <sup>8</sup>
	Colorimetric; Direct					Hach TNTplus <sup>TM</sup> 835/836 Method 10206 <sup>23</sup>
Nitrite	Ion Chromatography		4110 B			

Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
	Automated Cadmium Reduction		4500-NO <sub>3</sub> <sup>-</sup> F			
	Manual Cadmium Reduction		4500-NO <sub>3</sub> <sup>-</sup> E			
	Spectrophotometric		4500-NO <sub>2</sub> <sup>-</sup> B			
	Reduction/Colorimetric					Systea Easy (1-Reagent) <sup>8</sup>
Orthophosphate	Ion Chromatography		4110 B			
	Colorimetric, ascorbic acid, single reagent		4500-P E	4500-P E-99		
	Colorimetric, Automated, Ascorbic Acid		4500-P F	4500-P F-99		
pH	Electrometric		4500-H <sup>+</sup> B			
Selenium	Hydride-Atomic Absorption		3114 B	3114 B-09	D 3859-08 A	
	Atomic Absorption; Furnace		3113 B	3113 B-04	D 3859-08 B	
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2 <sup>2</sup>				
Silica	Colorimetric				D859-05, 10	
	Molybdosilicate		4500-SiO <sub>2</sub> C			
	Heteropoly blue		4500-SiO <sub>2</sub> D			

<b>Alternative testing methods for contaminants listed at 40 CFR 141.23 (k)(1)</b>						
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	ASTM <sup>4</sup>	Other
	Automated for Molybdate-reactive Silica		4500-SiO <sub>2</sub> E			
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
	Inductively Coupled Plasma		3120 B			
Sodium	Atomic Absorption; Direct Aspiration		3111 B			
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>				
	Ion Chromatography				D6919-09	
Temperature	Thermometric		2550			

<b>Alternative testing methods for contaminants listed at 40 CFR 141.24 (e)(1)</b>				
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Benzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3 <sup>9</sup>		
Carbon tetrachloride	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Chlorobenzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,2-Dichlorobenzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,4-Dichlorobenzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,2-Dichloroethane	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
cis-Dichloroethylene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Trans-Dichloroethylene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		

<b>Alternative testing methods for contaminants listed at 40 CFR 141.24 (e)(1)</b>				
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Dichloromethane	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,2-Dichloropropane	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Ethylbenzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Styrene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Tetrachloroethylene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,1,1-Trichloroethane	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Trichloroethylene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Toluene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,2,4-Trichlorobenzene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,1-Dichloroethylene	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
1,1,2-Trichlorethane	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Vinyl chloride	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Xylenes (total)	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
2,4-D	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
2,4,5-TP (Silvex)	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
Alachlor	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Atrazine	Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)	536 <sup>25</sup>		
	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup> , 523 <sup>26</sup>		
Benzo(a)pyrene	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		

<b>Alternative testing methods for contaminants listed at 40 CFR 141.24 (e)(1)</b>				
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Carbofuran	High-performance liquid chromatography (HPLC) with post-column derivatization and fluorescence detection		6610 B	6610 B-04
Chlordane	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Dalapon	Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)	557 <sup>14</sup>		
	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
Di(2-ethylhexyl)adipate	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Di(2-ethylhexyl)phthalate	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Dibromochloropropane (DBCP)	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Dinoseb	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
Endrin	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Ethyl dibromide (EDB)	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		
Glyphosate	High-Performance Liquid Chromatography (HPLC) with Post-Column Derivatization and Fluorescence Detection		6651 B	6651 B-00
Heptachlor	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Heptachlor Epoxide	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Hexachlorobenzene	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		

<b>Alternative testing methods for contaminants listed at 40 CFR 141.24 (e)(1)</b>				
Contaminant	Methodology	EPA Method	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Hexachlorocyclopentadiene	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Lindane	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Methoxychlor	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Oxamyl	High-performance liquid chromatography (HPLC) with post-column derivatization and fluorescence detection		6610 B	6610 B-04
PCBs (as Aroclors)	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Pentachlorophenol	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Picloram	Gas Chromatography/Electron Capture Detection (GC/ECD)		6640 B	6640 B-01
Simazine	Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)	536 <sup>25</sup>		
	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup> , 523 <sup>26</sup>		
Toxaphene	Solid Phase Extraction/Gas Chromatography/Mass Spectrometry (GC/MS)	525.3 <sup>24</sup>		
Total Trihalomethanes	Purge & Trap/Gas Chromatography/Mass Spectrometry	524.3		

<b>Alternative testing methods for contaminants listed at 40 CFR 141.25(a)</b>			
Contaminant	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	ASTM <sup>4</sup>
Naturally Occurring:			

<b>Alternative testing methods for contaminants listed at 40 CFR 141.25(a)</b>			
Contaminant	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	ASTM <sup>4</sup>
Gross alpha and beta	Evaporation	7110 B	
Gross alpha	Coprecipitation	7110 C	
Radium 226	Radon emanation	7500-Ra C	D3454-05
	Radiochemical	7500-Ra B	D2460-07
Radium 228	Radiochemical	7500-Ra D	
Uranium	Radiochemical	7500-U B	
	ICP-MS	3125	D5673-05, 10
	Alpha spectrometry	7500-U C	D3972-09
	Laser Phosphorimetry		D5174-07
	Alpha Liquid Scintillation Spectrometry		D6239-09
<b>Man-Made:</b>			
Radioactive Cesium	Radiochemical	7500-Cs B	
	Gamma Ray Spectrometry	7120	D3649-06
Radioactive Iodine	Radiochemical	7500-I B 7500-I C 7500-I D	D3649-06
	Gamma Ray Spectrometry	7120	D4785-08
Radioactive Strontium 89, 90	Radiochemical	7500-Sr B	
Tritium	Liquid Scintillation	7500- <sup>3</sup> H B	D4107-08
Gamma Emitters	Gamma Ray Spectrometry	7120	D3649-06
		7500-Cs B	D4785-08
		7500-I B	

<b>Alternative testing methods for contaminants listed at 40 CFR 141.74(a)(1)</b>
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Organism	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	Other
Total Coliform	Total Coliform Fermentation Technique	9221 A, B, C	
	Total Coliform Membrane Filter Technique	9222 A, B, C	
	ONPG-MUG Test	9223	
Fecal Coliforms	Fecal Coliform Procedure	9221 E	
	Fecal Coliform Filter Procedure	9222 D	
Heterotrophic bacteria	Pour Plate Method	9215 B	
Turbidity	Nephelometric Method	2130 B	
	Laser Nephelometry (on-line)		Mitchell M5271 <sup>10</sup>
	LED Nephelometry (on-line)		Mitchell M5331 <sup>11</sup>
	LED Nephelometry (on-line)		AMI Turbiwell <sup>15</sup>
	LED Nephelometry (portable)		Orion AQ4500 <sup>12</sup>

<b>Alternative testing methods for disinfectant residuals listed at 40 CFR 141.74(a)(2)</b>				
Residual	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	ASTM <sup>4</sup>	Other
Free Chlorine	Amperometric Titration	4500-CI D	D 1253-08	
	DPD Ferrous Titrimetric	4500-CI F		
	DPD Colorimetric	4500-CI G		
	Syringaldazine (FACTS)	4500-CI H		
	On-line Chlorine Analyzer			EPA 334.0 <sup>16</sup>
	Amperometric Sensor			ChloroSense <sup>17</sup>
Total Chlorine	Amperometric Titration	4500-CI D	D 1253-08	
	Amperometric Titration (Low level measurement)	4500-CI E		
	DPD Ferrous Titrimetric	4500-CI F		

<b>Alternative testing methods for disinfectant residuals listed at 40 CFR 141.74(a)(2)</b>				
Residual	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	ASTM <sup>4</sup>	Other
	DPD Colorimetric	4500-Cl G		
	Iodometric Electrode	4500-Cl I		
	On-line Chlorine Analyzer			EPA 334.0 <sup>16</sup>
	Amperometric Sensor			ChloroSense <sup>17</sup>
Chlorine Dioxide	Amperometric Titration	4500-ClO <sub>2</sub> C		
	Amperometric Titration	4500-ClO <sub>2</sub> E		
Ozone	Indigo Method	4500-O <sub>3</sub> B		

<b>Alternative testing methods for contaminants listed at 40 CFR 141.131(b)(1)</b>				
Contaminant	Methodology	EPA Method	ASTM <sup>4</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>
TTHM	P&T/GC/MS	524.3 <sup>9</sup>		
HAA5	LLE (diazomethane)/GC/ECD			6251 B
	Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)	557 <sup>14</sup>		
Bromate	Two-Dimensional Ion Chromatography (IC)	302.0 <sup>18</sup>		
	Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)	557 <sup>14</sup>		
	Chemically Suppressed Ion Chromatography		D 6581-08 A	
	Electrolytically Suppressed Ion Chromatography		D 6581-08 B	
Chlorite	Chemically Suppressed Ion Chromatography		D 6581-08 A	
	Electrolytically Suppressed Ion Chromatography		D 6581-08 B	
Chlorite – daily monitoring as prescribed in 40 CFR 141.132(b)(2)(i)(A)	Amperometric Titration			4500-ClO <sub>2</sub> E

<b>Alternative testing methods for disinfectant residuals listed at 40 CFR 141.131(c)(1)</b>				
Residual	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	ASTM <sup>4</sup>	Other
Free Chlorine	Amperometric Titration	4500-Cl D	D 1253-08	
	DPD Ferrous Titrimetric	4500-Cl F		
	DPD Colorimetric	4500-Cl G		
	Syringaldazine (FACTS)	4500-Cl H		
	Amperometric Sensor			ChloroSense <sup>17</sup>
	On-line Chlorine Analyzer			EPA 334.0 <sup>16</sup>
Combined Chlorine	Amperometric Titration	4500-Cl D	D 1253-08	
	DPD Ferrous Titrimetric	4500-Cl F		
	DPD Colorimetric	4500-Cl G		
Total Chlorine	Amperometric Titration	4500-Cl D	D 1253-08	
	Low level Amperometric Titration	4500-Cl E		
	DPD Ferrous Titrimetric	4500-Cl F		
	DPD Colorimetric	4500-Cl G		
	Iodometric Electrode	4500-Cl I		
	Amperometric Sensor			ChloroSense <sup>17</sup>
	On-line Chlorine Analyzer			EPA 334.0 <sup>16</sup>
Chlorine Dioxide	Amperometric Method II	4500-ClO <sub>2</sub> E		

<b>Alternative testing methods for disinfectant residuals listed at 40 CFR 141.131(c)(2), if approved by the State</b>		
Residual	Methodology	Method
Free Chlorine	Test Strips	Method D99-003 <sup>5</sup>

<b>Alternative testing methods for parameters listed at 40 CFR 141.131(d)</b>			
Parameter	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	EPA

<b>Alternative testing methods for parameters listed at 40 CFR 141.131(d)</b>			
Parameter	Methodology	SM 21 <sup>st</sup> Edition <sup>1</sup>	EPA
Total Organic Carbon (TOC)	High Temperature Combustion	5310 B	415.3, Rev 1.2 <sup>19</sup>
	Persulfate-Ultraviolet or Heated Persulfate Oxidation	5310 C	415.3, Rev 1.2
	Wet Oxidation	5310 D	415.3, Rev 1.2
Specific Ultraviolet Absorbance (SUVA)	Calculation using DOC and UV <sub>254</sub> data		415.3, Rev 1.2
Dissolved Organic Carbon (DOC)	High Temperature Combustion	5310 B	415.3, Rev 1.2
	Persulfate-Ultraviolet or Heated Persulfate Oxidation	5310 C	415.3, Rev 1.2
	Wet Oxidation	5310 D	415.3, Rev 1.2
Ultraviolet absorption at 254 nm (UV <sub>254</sub> )	Spectrophotometry	5910 B	415.3, Rev 1.2

<b>Alternative testing methods with MRL ≤ 0.0010 mg/L for monitoring listed at 40 CFR 141.132(b)(3)(ii)(B)</b>		
Contaminant	Methodology	EPA Method
Bromate	Two-Dimensional Ion Chromatography (IC)	302.0 <sup>18</sup>
	Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)	557 <sup>14</sup>

<b>Alternative testing methods for contaminants listed at 40 CFR 141.402(c)(2)</b>					
Organism	Methodology	SM 20 <sup>th</sup> Edition <sup>6</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	Other
<i>E. coli</i>	Colilert		9223 B	9223 B-97	
	Colisure		9223 B	9223 B-97	
	Colilert-18	9223 B	9223 B	9223 B-97	
	Readycult®				Readycult® <sup>20</sup>

<b>Alternative testing methods for contaminants listed at 40 CFR 141.402(c)(2)</b>					
Organism	Methodology	SM 20 <sup>th</sup> Edition <sup>6</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>	Other
	Colitag				Modified Colitag™ <sup>13</sup>
	Chromocult®				Chromocult® <sup>21</sup>
Enterococci	Multiple-Tube Technique			9230 B-04	

<b>Alternative testing methods for contaminants listed at 40 CFR 141.704(a)</b>		
Organism	Methodology	EPA Method
<i>Cryptosporidium</i>	Filtration/Immunomagnetic Separation/Immunofluorescence Assay Microscopy	1623.1 <sup>27</sup>

<b>Alternative testing methods for contaminants listed at 40 CFR 141.704(b)</b>		
Organism	Methodology	SM 20 <sup>th</sup> Edition <sup>6</sup>
<i>E. coli</i>	Membrane Filtration, Two Step	9222 D/9222 G

<b>Alternative testing methods for contaminants listed at 40 CFR 143.4(b)</b>					
Contaminant	Methodology	EPA Method	ASTM <sup>4</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Aluminum	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>			
	Atomic Absorption; Direct			3111 D	
	Atomic Absorption; Furnace			3113 B	3113 B-04
	Inductively Coupled Plasma			3120 B	
Chloride	Silver Nitrate Titration		D 512-04 B	4500-Cl <sup>-</sup> B	
	Ion Chromatography			4110 B	
	Potentiometric Titration			4500-Cl <sup>-</sup> D	

<b>Alternative testing methods for contaminants listed at 40 CFR 143.4(b)</b>					
Contaminant	Methodology	EPA Method	ASTM <sup>4</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Color	Visual Comparison			2120 B	
Foaming Agents	Methylene Blue Active Substances (MBAS)			5540 C	
Iron	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>			
	Atomic Absorption; Direct			3111 B	
	Atomic Absorption; Furnace			3113 B	3113 B-04
	Inductively Coupled Plasma			3120 B	
Manganese	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>			
	Atomic Absorption; Direct			3111 B	
	Atomic Absorption; Furnace			3113 B	3113 B-04
	Inductively Coupled Plasma			3120 B	
Odor	Threshold Odor Test			2150 B	
Silver	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2 <sup>2</sup>			
	Atomic Absorption; Direct			3111 B	
	Atomic Absorption; Furnace			3113 B	3113 B-04
	Inductively Coupled Plasma			3120 B	
Sulfate	Ion Chromatography			4110 B	
	Gravimetric with ignition of residue			4500-SO <sub>4</sub> <sup>-2</sup> C	4500-SO <sub>4</sub> <sup>-2</sup> C-97
	Gravimetric with drying of residue			4500-SO <sub>4</sub> <sup>-2</sup> D	4500-SO <sub>4</sub> <sup>-2</sup> D-97
	Turbidimetric method		D 516-07	4500-SO <sub>4</sub> <sup>-2</sup> E	4500-SO <sub>4</sub> <sup>-2</sup> E-97
	Automated methylthymol blue method			4500-SO <sub>4</sub> <sup>-2</sup> F	4500-SO <sub>4</sub> <sup>-2</sup> F-97

<b>Alternative testing methods for contaminants listed at 40 CFR 143.4(b)</b>					
Contaminant	Methodology	EPA Method	ASTM <sup>4</sup>	SM 21 <sup>st</sup> Edition <sup>1</sup>	SM Online <sup>3</sup>
Total Dissolved Solids	Total Dissolved Solids Dried at 180 deg C			2540 C	
Zinc	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP–AES)	200.5, Revision 4.2			
	Atomic Absorption; Direct Aspiration			3111 B	
	Inductively Coupled Plasma			3120 B	

<sup>1</sup> Standard Methods for the Examination of Water and Wastewater, 21<sup>st</sup> edition (2005). Available from American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

<sup>2</sup> EPA Method 200.5, Revision 4.2. “Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry.” 2003. EPA/600/R-06/115. (Available at <http://www.epa.gov/nerlcwww/ordmeth.htm>.)

<sup>3</sup> Standard Methods Online are available at <http://www.standardmethods.org>. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

<sup>4</sup> Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or <http://astm.org>. The methods listed are the only alternative versions that may be used.

<sup>5</sup> Method D99-003, Revision 3.0. “Free Chlorine Species (HOCl<sup>•</sup> and OCl<sup>-</sup>) by Test Strip,” November 21, 2003. Available from Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730.

<sup>6</sup> Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> edition (1998). Available from American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

<sup>7</sup> Method ME355.01, Revision 1.0. “Determination of Cyanide in Drinking Water by GC/MS Headspace,” May 26, 2009. Available at <https://www.nemi.gov> or from James Eaton, H & E Testing Laboratory, 221 State Street, Augusta, ME 04333. (207) 287-2727.

<sup>8</sup> Systea Easy (1-Reagent). “Systea Easy (1-Reagent) Nitrate Method,” February 4, 2009. Available at <https://www.nemi.gov> or from Systea Scientific, LLC., 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

<sup>9</sup> EPA Method 524.3, Version 1.0. “Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry,” June 2009. EPA 815-B-09-009. Available at <http://water.epa.gov/drink/>.

<sup>10</sup> Mitchell Method M5271, Revision 1.1. “Determination of Turbidity by Laser Nephelometry,” March 5, 2009. Available at <https://www.nemi.gov> or from Leck Mitchell, Ph.D., PE, 656 Independence Valley Dr., Grand Junction, CO 81507.

<sup>11</sup> Mitchell Method M5331, Revision 1.1. “Determination of Turbidity by LED Nephelometry,” March 5, 2009. Available at <https://www.nemi.gov> or from Leck Mitchell, Ph.D., PE, 656 Independence Valley Dr., Grand Junction, CO 81507.

<sup>12</sup> Orion Method AQ4500, Revision 1.0. “Determination of Turbidity by LED Nephelometry,” May 8, 2009. Available at <https://www.nemi.gov> or from Thermo Scientific, 166 Cummings Center, Beverly, MA 01915, <http://www.thermo.com>.

<sup>13</sup> Modified Colitag™ Method. “Modified Colitag™ Test Method for the Simultaneous Detection of *E. coli* and other Total Coliforms in Water (ATP D05-0035),” August 28, 2009. Available at <https://www.nemi.gov> or from CPI International, 5580 Skylane Boulevard, Santa Rosa, CA 95403.

<sup>14</sup> EPA Method 557. “Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS),” September 2009. EPA 815-B-09-012. Available at <http://water.epa.gov/drink/>.

<sup>15</sup> AMI Turbiwell, “Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter,” August 2009. Available at <https://www.nemi.gov> or from Markus Bernasconi, SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340 Hinwil, Switzerland.

<sup>16</sup> EPA Method 334.0. “Determination of Residual Chlorine in Drinking Water Using an On-line Chlorine Analyzer,” September 2009. EPA 815-B-09-013. Available at <http://water.epa.gov/drink/>.

<sup>17</sup> ChloroSense. “Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense,” August 2009. Available at <https://www.nemi.gov> or from Palintest Ltd, 21 Kenton Lands Road, PO Box 18395, Erlanger, KY 41018.

<sup>18</sup> EPA Method 302.0. “Determination of Bromate in Drinking Water using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection,” September 2009. EPA 815-B-09-014. Available at <http://water.epa.gov/drink/>.

<sup>19</sup> EPA 415.3, Revision 1.2. “Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water,” August 2009. EPA/600/R-09/122. Available at <http://www.epa.gov/nerlcwww/ordmeth.htm>.

<sup>20</sup> Readycult® Method, “Readycult® Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters,” January, 2007. Version 1.1. Available from EMD Chemicals (affiliate of Merck KGaA, Darmstadt, Germany), 480 S. Democrat Road, Gibbstown, NJ 08027-1297.

<sup>21</sup> Chromocult® Method, “Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters,” November, 2000. Version 1.0. EMD Chemicals (affiliate of Merck KGaA, Darmstadt, Germany), 480 S. Democrat Road, Gibbstown, NJ 08027-1297.

<sup>22</sup> Hach Company. “Hach Company SPADNS 2 (Arsenite-Free) Fluoride Method 10225 – Spectrophotometric Measurement of Fluoride in Water and Wastewater,” January 2011. 5600 Lindbergh Drive, P.O. Box 389, Loveland, Colorado 80539. (Available at <http://www.hach.com>.)

<sup>23</sup> Hach Company. “Hach Company TNTplus™ 835/836 Nitrate Method 10206 – Measurement of Nitrate in Water and Wastewater,” January 2011. 5600 Lindbergh Drive, P.O. Box 389, Loveland, Colorado. (Available at <http://www.hach.com>.)

<sup>24</sup> EPA Method 525.3. “Determination of Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/Mass Spectrometry (GC/MS),” February 2012. EPA/600/R-12/010. Available at <http://www.epa.gov/nercwww/ordmeth.htm>.

<sup>25</sup> EPA Method 536. “Determination of Triazine Pesticides and their Degradates in Drinking Water by Liquid Chromatography Electro spray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS),” October 2007. EPA 815-B-07-002. Available at <http://water.epa.gov/drink>.

<sup>26</sup> EPA Method 523. “Determination of Triazine Pesticides and their Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS),” February 2011. EPA 815-R-11-002. Available at <http://water.epa.gov/drink>.

<sup>27</sup> EPA Method 1623.1. “*Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA”, January 2012. EPA-816-R-12-001. Available at <http://water.epa.gov/drink>.